

Early intervention for families experiencing homelessness: A randomized trial comparing two parenting programs

Abstract

Objective: As part of a larger community-based, service driven research project, the purpose of this study was to examine the effectiveness of time-limited adaptations of Parent Child Interaction Therapy (PCIT) and Child Parent Psychotherapy (CPP) within a sample of children experiencing homelessness.

Method: One hundred and forty-four young children (18mon.-5years old; mean age = 3.48, $SD = 1.09$; 43.1% female; 78.5% Black/African American; 27.1% Hispanic) and their mothers were recruited from a women's homeless shelter and randomly assigned to a 12-week course of either PCIT or CPP delivered by shelter clinicians on site. Families completed pre- and post-intervention assessments, including maternal-report of child externalizing behavior problems and trauma symptoms, and maternal self-report of parenting stress. Observational data on maternal verbalizations during a child-led play session were also collected.

Results: High rates of clinically elevated externalizing behavior problems (36%), trauma symptoms (47%), and developmental delays (35%) were found. Both time-limited CPP and PCIT resulted in decreases in children's post-traumatic stress symptoms; however, only time-limited PCIT resulted in significant improvements in externalizing behavior problems in children. Both time limited CPP and PCIT resulted in increases in maternal positive verbalizations, however time-limited PCIT resulted in greater increases in maternal positive verbalizations and greater reductions in maternal negative verbalizations and parenting stress relative to time-limited CPP.

Conclusions: Both time-limited PCIT and CPP offered effective trauma interventions, resulted in increased positive maternal verbalizations and reduced parenting stress. However, PCIT offered a more effective intervention for targeting externalizing behavior problems and parenting for this sheltered age group.

Keywords: PCIT; CPP; homelessness; shelter; young children; intervention; trauma; externalizing behavior problems; development

Public Health Impact Statement

This study shows how a service driven, community-university partnership can play a large role in addressing the mental health needs of sheltered children and families by identifying their clinical needs and showing the effectiveness of providing evidence based early intervention programs within a shelter setting. Time-limited versions of well-established early intervention programs like Parent-Child Interaction Therapy (PCIT) and Child Parent Psychotherapy (CPP) offered effective trauma interventions. Time limited PCIT; however, offered a more effective intervention targeting externalizing behavior problems and parenting.

Early intervention for families experiencing homelessness: A randomized trial comparing two parenting programs

Homelessness is a global problem impacting over 100 million people worldwide (UN-Habitat, 2005). Most troubling, the most recent census data (from 2013) indicates that one in every 30 children in the U.S., or 2.5 million, experience homelessness each year (Bassuk et al., 2014). Despite the magnitude of childhood homelessness, there is a dearth of recent empirically-based research assessing the special needs of homeless children and effective supportive interventions to address those needs in shelter environments. Studies most often cited, now more than two decades old, find disproportionately higher rates of unmet health needs (e.g., acute health problems, trauma-related injuries) in children experiencing homelessness than in the general population (Wood et al., 1990). Up to 78% of children experiencing homelessness suffer from at least one mental health issue (e.g., depression, behavior problems) along with academic and/or developmental delays (Committee on Community Health Services, 1996; Weinreb et al., 1998). Providing extended mental health services presents unique challenges for children and families experiencing homelessness. Specifically, although shelter stays have lengthened for many families, the most recent scientific study indicates that approximately three quarters of all families experiencing homelessness are “temporary” shelter users (i.e., shelter stays tend to be no more than three months in length; Culhane et al., 2007). Meaning that families only have physical access to any given shelter’s services for short periods of time. Moreover, given that over half of all homeless children in the U.S. are under the age of 6 (Samuels et al., 2010), it is particularly important to investigate the feasibility and effectiveness of delivering evidence-based parenting programs within a shelter setting.

Mental Health Needs of Young Children Experiencing Homelessness

Externalizing behavior problems, including aggression, defiance, inattention, hyperactivity, and impulsivity are the most common reasons for early childhood mental health referral (Cormier, 2008). In addition to having a highly stable and persistent course starting as early as age 2 (Lee et al., 2008), early-onset externalizing behavior problems are associated with a developmental trajectory of psychosocial impairment,

including increased risk for later antisocial behavior (Moffitt et al., 2002), substance use disorders (Lee et al., 2011), peer rejection (Hoza, 2007), and negative academic outcomes (Loe & Feldman, 2007). Therefore, young children with externalizing behavior problems represent an optimal at-risk population for early intervention.

Children experiencing homelessness are at a higher risk for developing early-onset externalizing behavior problems (Koblinsky et al., 2000) and more severe externalizing behavior problems (Bassuk et al., 1997) than their non-homeless peers. The National Child Traumatic Stress Network reports that “more than one-fifth of homeless preschoolers have emotional problems serious enough to require professional care, but less than one-third receive any treatment” (Bassuk & Friedman, 2005, p. 2). Notably, such estimates likely represent an underestimation of comparative risk of mental health difficulties, due to reliance on comparing children experiencing homelessness to low income youths as opposed to all age-matched peers (Bassuk et al., 2015).

Homelessness is associated with a higher incidence of exposure to traumatic events (Anooshian, 2005; Cowan, 2007; Guarino & Bassuk, 2010; Hicks-Coolick et al., 2003; Perlman & Fantuzzo, 2010), complex trauma (i.e., polyvictimization or prolonged exposure to trauma), and adverse childhood experiences, including poverty, family and housing instability, separation from caregivers, community violence, and decreased access to health care and educational services (Masten et al., 1997; Panter-Brick, 2004; Shelton et al., 2015; Zlotnick, 2009). Indeed, 20% of youths experience some form of trauma and approximately half of trauma survivors experience polyvictimization (e.g., Saunders & Adams, 2014)¹. The varied presentation of post-traumatic responses is highlighted by the extensive number of possible combinations of symptoms of post-traumatic stress disorder delineated in the DSM 5 (American Psychiatric Association, 2013) which include externalizing behavior problems as well as internalizing symptoms. Although experiences vary, homelessness represents a complex stressor to which the majority of children respond at a minimum with worries about the safety of

¹ Rates of childhood trauma vary substantially based upon the specific traumatic events examined. Please see Saunders and Adams (2014) for a more detailed examination of the epidemiology of trauma in children and adolescents.

themselves and their families (National Center on Family Homelessness, 1999). Given the multitude of serious difficulties associated with childhood homelessness, it is imperative to test interventions that might successfully target trauma symptoms. As such, parent-based early intervention programs with their proven efficacy in the general population (Eyberg et al., 2001), offer a treatment option worth investigating.

Parenting Challenges

As with children, parents vary in their response to homelessness. Whereas some parents demonstrate resiliency and positive parenting practices other parents struggle, or their pre-existing parenting difficulties are exacerbated in the face of the increased challenges imposed by homelessness. Overall, studies suggest that homelessness is associated with increased parental frustration and decreased confidence in parenting (Lee et al., 2010), decreased parental warmth, decreased positive parent-child interactions (Koblinsky et al., 1997), increased incidence of negative parenting behaviors including violence or aggression (Lindsey, 1998; Torquati, 2002), and a consequent increased involvement with child protective services and foster care placement (Fantuzzo & Perlman, 2007; McChesney, 1995).

Parent-child relationships can be influenced by parents' own chronic medical, mental health, and substance abuse difficulties that are exacerbated when experiencing homelessness (Arangua et al., 2005; Caton et al., 2005; Lee et al., 2010; Shinn & Weitzman, 1996; Weinreb et al., 2006). Homeless families are also more likely than their homed counterparts to be headed by single mothers who often have received minimal education and job training (Bassuk et al., 1997; Burt et al., 1997), and who have often experienced negative parenting role-models, substantial childhood trauma, and/or recent domestic violence (e.g., Anooshian, 2005; Swick & Williams, 2010). Finally, the environmental constraints of the shelter itself may exacerbate parenting difficulties. Parents experiencing homelessness often report feeling judged by other residents and shelter staff for their parenting practices (Lindsey, 1998). For parents who have relied on corporal punishment as a disciplinary strategy, feelings of frustration and lack of control when living in a shelter can be exacerbated by the fact that shelters typically impose both child-level behavioral expectations and restrictions on the use of

corporal punishment (Lindsey, 1998; Swick & Williams, 2010). The numerous risk factors faced by children and parents experiencing homelessness coupled with the influence that parent-child relationships have on children's well-being highlights the importance of promoting positive parenting strategies in shelter environments.

Evidence-based Parenting Programs

Behavioral parent training (BPT) programs are among the most well-established evidence-based interventions for externalizing behavior problems in young children (Eyberg et al., 2008). BPT programs reduce externalizing behavior problems by promoting positive parent-child interactions and parental consistency in the use of non-corporal disciplinary strategies such as time outs (Haack et al., 2017). Large effect sizes on both behavioral outcomes (Kaminski et al., 2008) and trauma symptoms (e.g., Pearl et al., 2012) have been documented across various BPT programs. One such evidence-based BPT program, and the focus of the current study, is Parent-Child Interaction Therapy (PCIT; Eyberg et al., 2001).

PCIT is divided into two phases: child directed interaction and parent directed interaction (see McNeil & Hembree-Kigin, 2010 for a comprehensive description of the skills taught in PCIT). Although originally designed to treat externalizing behavior problems, PCIT has been demonstrated to be effective in the treatment of children exposed to a variety of early childhood stressors, including domestic violence (Borrego et al., 2008; Pearl, 2008), caregiver psychopathology (e.g., Babinski et al., 2014; Chengappa et al., 2017; Pemberton et al., 2013), and early childhood maltreatment (e.g., Pearl et al., 2012; Self-Brown et al., 2012). Hence, on the one hand, PCIT may be an ideal intervention for children and their families who are experiencing homelessness. On the other hand, traditional PCIT might be difficult to implement in its totality with sheltered families. Specifically, shelter stays may not be long enough to satisfy a strict "mastery" criteria (Lieneman et al., 2019) for a treatment that averages 20.5 sessions. In fact, one of the only studies, to our knowledge, to examine PCIT within a domestic violence shelter ($n = 21$) found a completion rate of only 43%. The authors pointed out that the transition out of the shelter was a primary factor involved in families dropping out (Herschell et al., 2017).

Child Parent Psychotherapy (CPP; Lieberman et al., 2005) is an evidence-based intervention designed for the treatment of early childhood trauma. The intervention is divided into three phases: assessment and engagement, core intervention, and recapitulation and termination. CPP is effective in improving parent-child interactions, children's cognitive functioning (Lieberman et al., 2015), and trauma symptoms (Lieberman et al., 2005). As with PCIT, CPP has been effectively utilized in the presence of several early life stressors, including impoverishment, caregiver psychopathology (Cicchetti et al., 2000), comorbid anxiety and depression symptoms, and placement in the foster care system (Lieberman et al., 2015). However, to date, CPP has not been examined within the context of homelessness. Full implementation of CPP can require 50 to 52 weeks and homeless families may be unable to stay in a given shelter for more than a few months (Culhane et al., 2011).

The viability of shortening the delivery of evidence-based parenting programs to maximize rapid improvement and cost-effectiveness has received increased attention in the recent literature (Hare & Graziano, 2021; Mersky et al., 2015). A time-limited approach to PCIT and CPP might be particularly well suited to families experiencing homelessness. Time-limited PCIT entails a standard number of sessions that do not require that caregivers meet "mastery" criteria prior to graduation. In effect, time-limited PCIT of 10 to 12 sessions has demonstrated promising results both in improving parent-child interactions and child compliance, thereby diminishing externalizing behavior problems (Graziano et al., 2020; Nixon et al., 2003; Thomas & Zimmer-Gembeck, 2012). A time-limited adaptation of CPP would maintain the requirement that families pass through all three phases of intervention in a standard, abbreviated, number of sessions. To our knowledge no study to date has examined the effectiveness of time-limited CPP nor time-limited PCIT with sheltered families. Given the effectiveness of both PCIT and CPP with at-risk populations, and the clear applicability of time-limited versions of such programs, an empirical investigation of their feasibility and effectiveness with homeless families is warranted. It is also important to point out that while examining parenting skills via the use of observational coding schemes (e.g., DPICS) is part of most PCIT studies (Thomas & Zimmer-Gembeck, 2007),

only one study to our knowledge has examined whether CPP can impact observable parenting skills (e.g., Chinitz et al., 2017).

Goals of the Current Study

Taken together, it is clear that children and families experiencing homelessness possess a wide range of needs, compounded by stressors leading up to and including homelessness, that negatively affect the wellbeing of children, parenting and the parent-child relationship. Given that children under 6 years of age represent the largest segment of children experiencing homelessness, it is particularly important to evaluate evidence-based parenting interventions that might be appropriate for this vulnerable population. Thus, as part of a larger community-based service driven research project (Arcia, 2020), the current study sought to examine the promise of two established parenting programs to support sheltered children and mothers experiencing homelessness. Following a clinical assessment, families were randomized to receive 12 sessions of either 1) PCIT or 2) CPP delivered within the homeless shelter. First, we hypothesized that both time-limited programs would be feasible to implement, be well attended, and receive high consumer/intervention satisfaction scores. Given CPP's focus on trauma, we expected children randomized to time-limited CPP to have greater reductions in parent reported trauma symptoms relative to time-limited PCIT. Given PCIT's live coaching framework both as it relates to improving the child-parent relationship and discipline, we expected parents in time-limited PCIT to experience greater gains in positive parenting skills, reductions in negative parenting, and decreased child externalizing behavior problems relative to time-limited CPP. Lastly, given the supportive nature of PCIT and CPP, we expected parents from both interventions to experience similar reductions in parenting stress.

Method

Participants and Recruitment

The current study, which was part of a larger service driven, community based, research project, took place at one of the largest women's shelters in the U.S. To qualify for the current study, families were required to (a) have a child between the ages of 18-months and 5-years-of-age and (b) have a mother who spoke English

or Spanish. Though mothers could elect to receive clinical services without participating in the service driven research, 946 out of the 959 (99%) mothers entering the shelter provided written consent for the results of their initial screening assessment and response to intervention be used in research. Exclusionary criteria, for the current randomized study, included children a) not being in the target age range, b) already receiving therapy services elsewhere, or c) requiring referral for other services (e.g., applied behavior analysis due to suspected Autism Spectrum Disorder). Of note, mothers with multiple children within the study's inclusion criteria, could only have one child identified for study inclusion (66 siblings were therefore excluded). Based on the clinician's assessment, the child with the greatest impairment was identified for study inclusion. See Figure 1 for a consort diagram outlining study enrollment and reasons for exclusion. It is important to note that all children who were excluded from this randomized trial were offered age-appropriate clinical services, based on their initial assessment. For example, time-limited CPP was offered for children from birth to 17 months, time-limited PCIT was offered for children ages 6 to 7, [time-limited] Trauma Focused Cognitive Behavioral Therapy was offered for children over the age 7, and referrals were made as appropriate to third party providers. See Arcia (2020) for details regarding the additional therapeutic services, clinical needs, and outcome data for non-randomized sample.

The participating sample consisted of 144 young children whose mothers provided consent to participate in the study. Children had a mean age of 3.48 years (range: 18 months to 5.75 years of age, $SD = 1.09$ years) with 43.1% being females. Children were predominately Black/African American (78.5%) and Hispanic (27.1%). Only one child was currently or had ever taken psychotropic medication. See Table 1 for other descriptive sample data. The 144 children in this study were from 144 families and maternal participation was a requirement of inclusion. Thus, maternal sample size was also 144.

Study Design and Procedure

This study was approved by the University's Institutional Review Board. Families (mom and child) were randomized to time-limited PCIT ($n = 70$) or time-limited CPP ($n = 74$) without stratification using a

randomly generated number table following their pre-intervention assessment. Clinicians at (masked for review) who delivered the interventions, in the mother's preferred language, were master's level licensed clinical staff or therapists in training who were certified or in the process of receiving their certification in PCIT or CPP. For PCIT, counselors received weekly supervision by a licensed clinical psychologist, who was a certified trainer by PCIT International. For CPP, a licensed mental health counselor who had completed CPP training provided biweekly supervision and biweekly consultation calls with a national leading CPP trainer. Additionally, it is important to note that consistent with what is common in community trials, a portion of cases (35%) were seen by a therapist cross-trained in both CPP and PCIT. Due to the setting, it was not possible to record sessions to systematically measure intervention fidelity and/or intervention contamination. However, clinicians for each intervention modality completed content checklists for each session.

At intake clinicians and trained staff administered an assessment protocol that lasted approximately two hours and included: a) a biopsychosocial interview of mothers that gathered relevant background information on the family, b) questionnaires on children's externalizing behavior problems, trauma experiences and symptoms, c) questionnaires on maternal parenting stress, and d) videotaped observations of three 5-minute standard parent-child interaction situations that varied in the degree of parental control expected (child-led play, parent-led play, and clean-up). During the same visit, a clinician administered the Battelle Developmental Inventory, 2nd Edition (BDI-2; Newborg, 2005), a comprehensive assessment tool used to assess developmental skills in children aged birth to 7-years 11-months. With the exception of the BDI-2, which was not repeated, families completed a similar post-intervention assessment upon completion of intervention (i.e., 12 sessions) or four months after the start of the intervention. The mean time between the pre and post-intervention assessment was 4.77 months, $SD = 1.92$ months. The mean time between the first intervention session and post-intervention assessment was 3.98 months, $SD = 1.45$; 25th percentile = 3.12 months, 50th percentile = 3.77 months, 75th percentile = 4.57 months). Eighty four percent of the families who completed the intervention finished their post-assessment within 4 months from starting the intervention. Families were given small

incentives, such as a small toy for the child or small gift for the parent, upon completion of the assessments, and all interventions were provided at no cost.

Intervention Description and Adaptation

Parent-Child Interaction Therapy (PCIT; Eyberg & Robinson, 1982). PCIT is a manualized evidence-based BPT program that integrates social learning and attachment theories. In PCIT, parents proceed through two distinct phases: Child-Directed Interaction (CDI), which resembles traditional play therapy, and Parent-Directed Interaction (PDI), which resembles clinical behavior therapy. During CDI, parents follow their child's lead in play by using the non-directive PRIDE (i.e., *do skills*): Praising the child, Reflecting the child's statements, Imitating the child's play, Describing the child's behavior, and using Enjoyment. Parents learn to apply PRIDE skills to the child's appropriate play and ignore undesirable behaviors and are taught to avoid verbalizations that take the lead away from the child during the play (i.e., *don't skills*), including questions, commands, and negative statements (e.g., criticism). During PDI, parents set limits to reduce child noncompliance and negative behavior. They learn to use effective commands and consistently follow through with timeout for noncompliance.

The CDI and PDI phases each begin with a didactic teaching session. During all other sessions, the therapist coaches each parent *in vivo* in their use of the CDI and PDI skills with their child. Of note, in the current study therapists coached parents in the same room given that the homeless shelter was not equipped with one-way mirror rooms that traditionally have been used in PCIT. A combination of the standard time-out procedure along with the swoop-and-go method (used when another room was not available for the time out room or if the mother did not feel comfortable using a time out room) was implemented. In traditional PCIT, parents must also meet "mastery" criteria after each phase to progress and complete treatment. Mastery of CDI is met when parents are able to demonstrate a high level of positive parenting skills during a five-minute observation period. Mastery of PDI consists of limiting negative parenting and successfully implementing appropriate consequences during another five-minute interaction with their child. Consequently, treatment

course can vary greatly in length with the largest PCIT study ($n = 1,318$), to our knowledge, averaging 20.5 weekly sessions (Lieneman et al., 2019). For a full detailed description of traditional PCIT see Zisser and Eyberg (2010). The only adaptations the current study made, similar to prior work (Thomas & Zimmer-Gembeck, 2012), was to limit the number of sessions to 12 and to not require that mothers meet “mastery” criteria to progress and complete treatment. Thus, all families randomized to time-limited PCIT were offered 12 total weekly sessions (6 sessions of CDI and 6 sessions of PDI).

Child-Parent Psychotherapy (CPP; Lieberman et al., 2005). CPP is a relationship-based treatment that was originally developed to improve the psychological and relational functioning of young children exposed to trauma. CPP integrates attachment, cognitive-behavioral, social-learning, and psychodynamic theories and focuses on the child-parent relationship as a way to improve the child's adaptive functioning. Various intervention strategies are flexibly employed in CPP including a) joint construction of a trauma narrative, use of play and language to identify and address traumatic triggers, and building of an emotional vocabulary; b) unstructured, supportive developmental guidance to provide psychoeducation regarding children's safety and developmental needs, c) modeling protective behavior, d) insight-oriented interpretations to increase self-understanding in parent and child e) emotional support and affect regulation, and f) assistance with daily living issues, including crisis intervention, case management, and service referrals.

CPP is conducted with the parent-child dyad in unstructured weekly hour-long sessions which allows therapists to flexibly tailor each session to the needs of the individual family. CPP was originally designed as a yearlong intervention in which therapists move through three phases: assessment and engagement, core intervention, and recapitulation and termination (see Lakatos et al., 2019 for a full description of each of the phases of CPP). Although the intention of CPP is for the parent-child dyad to complete 50 sessions, the average number of sessions completed actually tends to be much lower at about 21 sessions (Hagan et al., 2017), which is similar to PCIT. The only adaptations to CPP made in the current study were to a) limit the number of sessions to 12 (to equate the intervention dose to that of PCIT) and b) make sure that therapists progressed families

across all phases of CPP prior to termination. The flexibility of CPP was maintained in terms of no imposed number of sessions per phase.

Measures of Feasibility and Acceptability

Intervention Fidelity. For both modalities, therapists completed content checklists for each session. Intervention supervisors randomly checked 20% of those sessions by comparing the electronic health records (EHR) intervention session notes to the checklists. Any discrepancies (e.g., EHR note indicated a certain therapy session that did not match up to the fidelity checklist; or a content was described in the EHR but not noted on the fidelity checklist), were resolved between the supervisor and clinician and, if need be, the fidelity checklist was amended. Finally, weekly or biweekly (if consultation calls were occurring) group supervision lasting between 1-2 hours was provided by an expert in each respective modality.

Intervention Completion and Attendance. Attendance for each session was measured from therapists' contact notes within the EHR system. Intervention completion rates were calculated based on the percentage of families that completed 12 sessions within a 16-week period. The current study also calculated the percentage of families that eventually completed almost all intervention beyond the 16-week assessment period defined as completing at least 10 out of the 12 sessions.

Consumer/Intervention Satisfaction. Parents provided ratings of satisfaction at post-intervention by completing selected items from the Therapy Attitude Inventory (Brestan et al., 1999). Parents indicated their degree of satisfaction across a five-point Likert scale regarding a) improvements in the parent-child relationship b) progress the child has made in his/her general behavior, c) progress the child has made in his/her trauma symptoms or traumatic/stressful experiences, d) general feeling about the program parent participated in, and e) how likely the parent was to recommend the program to others. The mean level of satisfaction was calculated across these five items ($\alpha = .72$) with higher scores reflecting higher levels of satisfaction with the intervention.

Measures of Parent-Level Outcomes

Parenting Stress. Mothers completed the Parenting Stress Index-Short Form (PSI-SF; Abidin, 1983). The PSI-SF is a widely used 36-item self-report instrument for parents of children ages 1 month to 12 years measuring parental stress (Abidin, 1983). All scales derived from the PSI-SF have demonstrated strong test-retest reliability in previous studies (e.g., Barroso et al., 2016). The PSI-SF total raw score was used to measure overall parenting stress (α 's for the current study = .85-.90).

Parenting Skills. The *Dyadic Parent-Child Interaction Coding System-4th Edition* (DPICS-IV; Eyberg et al., 2013), an established behavioral coding system was used to measure the quality of parent-child interactions during a 5-minute child-led play session which was recorded and transcribed. Consistent with prior research (Bagner et al. 2016; Graziano et al., 2020), staff coded from the videorecording and created a composite of positive parenting verbalizations (behavior descriptions, reflections, praises) and negative parenting verbalizations (questions, commands, and negative talk) used during child-led play. To account for mothers' total verbalizations, including neutral verbalizations, the current study used a proportion score ranging from 0 to 1 for both positive and negative verbalizations (e.g., the total number of positive verbalizations was divided by the total number of positive, negative, and neutral verbalizations; Bagner et al., 2016). Staff coders, who were masked to intervention status, were trained to 80% agreement with a criterion tape and 20% of the observations were coded a second time. Reliability for the *positive* and *negative verbalizations* were excellent (r 's range from .96 to .97).

Measures of Child-Level Outcomes

Externalizing Behavior Problems. Mothers completed the *Eyberg Child Behavior Inventory* (ECBI; Eyberg & Ross, 1978), a 36-item questionnaire that is designed to assess the presence of externalizing problems in children ages 2 through 16 years. The ECBI has been demonstrated as having high internal consistency and strong test-retest reliability (Funderburk et al., 2003; Robinson et al., 1980). In the present study, the total intensity scale raw score was used as the main measure of externalizing behavior problems (α 's = .84-.93).

Post-Traumatic Stress Symptoms (PTSS). Mothers of children ages 3 and older completed the *Child and Adolescent Trauma Screen-Caregiver (CATS-C*; Sachser et al., 2017), which consists of an event checklist of 15 potentially traumatic events, as well as the frequency of each of the 20 PTSS, based on DSM 5 criteria (American Psychiatric Association, 2013). Responses are provided based on a 4-point Likert- scale ranging from 0 ('never') to 3 ('almost always') with higher scores indicative of greater PTSS. The CATS has demonstrated good internal consistency and test-retest reliability (e.g., Nilsson et al., 2020; Sachser et al., 2017; Suliman et al., 2005) The total severity score of PTSS was used in the current study (α 's = .72-.75).

Data Analytic Plan

All analyses were conducted using Statistical Package for the Social Sciences, version 20 (SPSS 26). There was only 5% missing data for pre-intervention variables. Approximately 36% of post-intervention data were missing due to families who dropped out of intervention and did not complete any post-intervention assessments. Families with completed versus partial data did not differ on any demographic variables, and dropout was principally due to departure from the shelter. As recommended in clinical trials, intent to treat analyses with multiple imputation was used (Collins et al., 2001; Jakobsen et al., 2017; Little & Yau, 1996; Rubin, 1988; Von Hippel, 2020).

Preliminary analyses focused on examining any associations between demographic variables and all outcomes of interest. Next, we examined differences in intervention fidelity, completion, attendance, and intervention satisfaction between the intervention groups via chi-square analyses or ANOVAs. For the primary analyses, multiple repeated measures ANOVAs were conducted to compare families who were randomized to time-limited PCIT versus time-limited CPP in terms of parenting and child outcomes. Holm's step-down procedure was implemented to reduce type 1 error (Holm, 1979). Cohen's *d* effect size (ES) estimates for within-subjects were calculated for each intervention by comparing pre- and post-intervention scores while a between group effect size (*d*) was also calculated by comparing the pre-post change scores in the two intervention groups (positive scores = a higher effect for time-limited PCIT relative to CPP).

Results

Preliminary Analyses

Correlations between child age, child sex, maternal employment status, and maternal education with all outcomes of interest were examined. Child age was positively related to proportional use of negative parenting verbalizations ($r = .17, p = .038$) and total parenting stress PSI ($r = .25, p = .003$) at post-intervention. Maternal employment status was significantly related to parental use of positive parenting verbalizations ($r = .30, p < .001$), use of negative parenting verbalizations ($r = .36, p < .001$), and behavior problems on ECBI ($r = -.17, p = .047$) at post-intervention. No other demographic variables (child sex, ethnicity/race, maternal education) were significantly related to any outcome of interest. As seen in Table 1, rates of clinically elevated scores were similar across groups at pre-intervention. Of note, 44.2% of children were clinically elevated in at least one domain (ECBI, CATS, BDI-2), with 16.7% of children elevated across all three domains measured.

Intervention Fidelity, Completion, Attendance, and Satisfaction

Overall intervention fidelity of the content covered across time-limited PCIT sessions was high ($M = 96\%$; range 82-100%). Procedural and content fidelity of time-limited CPP were also high (procedural fidelity $M = 92\%$; range 75-100% and content fidelity $M = 93\%$; range 79-100%). In terms of intervention completion, it is important to note that 13.7% of families in time-limited CPP and 8.5% of families in time-limited PCIT dropped out after randomization and never initiated any intervention (see Figure 1). Of families that initiated intervention, 48.4% of families in time-limited PCIT ($n = 31$) completed the intervention (i.e., 12 sessions) within 16 weeks compared to 39.7% of families in time-limited CPP ($n = 25$). Completion rates did not differ significantly between the time-limited PCIT and time-limited CPP group ($\chi^2 = 1.01, p > .05$). Of note, 71.4% of families in time-limited CPP and 76.6% of families in time-limited PCIT eventually completed the intervention (i.e., after 16 weeks and at least 10 out of the 12 sessions completed; mean number of weeks to complete at least 10 sessions = 16.24, $SD = 5.63$). The average number of attended intervention sessions did not differ significantly between the two groups (time-limited PCIT = 9.62 sessions, $SE = .48$, and time-limited CPP = 9.23

sessions, $SE = .48$). Of note, families moving out of the shelter was almost exclusively the reason for lack of treatment completion. Lastly, parents reported high levels of satisfaction across both time-limited PCIT ($M = 4.24$, $SD = .11$) and time-limited CPP ($M = 4.25$, $SD = .12$).

Parenting Outcomes²

As indicated in Table 2, whereby time indicates pre- and post-intervention assessments, a significant time by group interaction was noted for proportion of negative and positive parenting verbalizations. Specifically, mothers in time-limited PCIT had significantly greater reductions in total proportion of negative verbalizations as well as increases in proportion of positive verbalizations compared to mothers in time-limited CPP at post-intervention assessment from pre-intervention levels. As seen by the effect sizes in Table 2, it is important to note that mothers in time-limited CPP experienced significant improvements in proportion of positive parenting verbalizations (Cohen's $d = .70$) but at a lower level relative to the large gains seen in mothers in time-limited PCIT ($d = 2.02$). A significant time by group interaction was also found for parenting stress. In other words, mothers in time-limited PCIT reported significantly greater reductions in overall parenting stress relative to mothers in time-limited CPP. An examination of the effect sizes showed that mothers in time-limited CPP experienced significant reductions in parenting stress ($d = -.60$) but at a lower magnitude relative to mothers in time-limited PCIT ($d = -.92$).

Child Behavior Outcomes

As indicated in Table 2, a significant time by group interaction was noted for overall externalizing behavior problems, such that mothers in time-limited PCIT reported significantly greater reductions in their children's externalizing behavior problems ($d = -.40$) compared to mothers in time-limited CPP ($d = -.01$). It is important to note that the 95% confidence interval for the effect size of externalizing behavior problems for

² For all analyses (examining both parent and child outcomes), analyses were repeated as ANCOVAs with maternal education, age, and duration of treatment (i.e., time from first treatment session to last treatment session) entered as covariates. The pattern of results were unchanged with the inclusion of these covariates.

mothers in time-limited CPP included zero indicating that the reduction in children's externalizing behavior problems was not statistically significant. Of note, a three-way interaction (intervention type by time by clinically elevated status) was non-significant, $p = .40$.

Child Trauma Symptom Outcomes

As it relates to children's post-traumatic stress symptoms (only for children ages 3 and older), no time by group effect was found. Rather, an overall time effect was found indicating a decrease in post-traumatic stress symptoms reported by mothers equivalent in magnitude across both time-limited PCIT ($d = -.57$) and time-limited CPP ($d = -.56$). Finally, it is important to point out that we examined whether children who were initially clinically elevated in these domains (externalizing behavior problems and post-traumatic stress symptoms) benefited more from PCIT or CPP. Of note, a three-way interaction (intervention type by time by clinically elevated status) was non-significant, $p = .77$.

Discussion

The current study represents the first randomized trial, to our knowledge, comparing two abbreviated time-limited versions of well-established early intervention programs, namely Parent-Child Interaction Therapy (PCIT) and Child Parent Psychotherapy (CPP), in a homeless shelter. It is important to point out the high rates of clinically elevated externalizing behavior problems (36%), trauma symptoms (47%), and developmental delays (35%) found in our sample with 16.7% of the sheltered children being clinically elevated across all three domains. As it relates to our intervention, both time-limited PCIT and time-limited CPP were successfully implemented within the homeless shelter as evidenced by high fidelity rates as well as high satisfaction ratings by mothers. Completion rates and average attendance were similar across both time-limited PCIT and time-limited CPP. As it relates to parenting outcomes, both time-limited CPP and time-limited PCIT resulted in significant decreases in children's post-traumatic stress symptoms; however, only time-limited PCIT resulted in significant improvements in externalizing behavior problems in children. Both time-limited CPP and PCIT resulted in increases in maternal positive verbalizations, however time-limited PCIT resulted in greater

increases in maternal positive verbalizations and greater reductions in maternal negative verbalizations and parenting stress relative to time-limited CPP. These findings are discussed further below.

A significant issue in the field of early intervention has been not only a lack of access to evidence-based programs for those with the greatest needs but also the transportability of an efficacious intervention to a usual-care or community setting (e.g., a homeless shelter; Hershell et al., 2004; Silverman et al., 2004). The current study takes a crucial step in documenting the high levels of clinical need in young sheltered children such as elevated rates of externalizing behavior problems, trauma, and developmental delays. Most importantly, this study shows the feasibility of providing in-house therapist training/supervision to aid in the delivery of two well-established evidence-based interventions within a homeless shelter. Completion rates of time-limited PCIT (76.6%) and time-limited CPP (71.4%) delivered within the homeless shelter were comparable to if not slightly better than those of previous university- or community-based trials of the same or similar parenting programs which typically document dropout rates ranging from 35% to 50% (Chaffin et al., 2009; Danko et al., 2016; Eyberg et al., 2001; McCabe & Yeh, 2009).

Thus, a homeless shelter which can provide these parenting services in-house has tremendous advantages in terms of circumventing common barriers to providing interventions to this at-risk population, most notably engagement in the face of multiple, complex needs and stressors faced by parents, time limitations, lack of resources of both shelters and those they serve, and transportation. Providing free, in-house assessments and supportive parenting programs reduced barriers to access services and allowed flexibility in terms of scheduling and rescheduling weekly sessions, which helped address the well documented attendance difficulties of families participating in other parenting programs (Axford et al., 2012; Baker et al., 2011). Finally, the use of time-limited interventions also likely contributed to the reduced dropout rates, as the time-limited format addressed difficulties associated with sustaining proximity to therapeutic services for families in transition (Culhane et al., 2007). It is important to note that the primary reason for treatment drop out once a family initiated the intervention in this study was exiting the shelter. Future work should examine the optimal

ways in which we can continue to reach families when they leave the shelter including offering, for example, telehealth services which has been successfully done with PCIT (Comer et al., 2017).

While emergency, transitional, or supportive housing programs for homeless families often provide parenting support services, the implementation of empirically supported parenting programs is quite rare (Gewirtz & Taylor, 2009). Our study shows that both time-limited CPP and time-limited PCIT significantly increased the proportion of positive parenting verbalizations as well as improved/reduced overall parenting stress. The fact that a 12-session time-limited version of CPP was moderately effective in changing some of these parenting outcomes is meaningful given that CPP was originally designed to be a year-long intervention (Lieberman et al., 2005). However, in terms of their relative effectiveness, the largest impact on mothers' parenting (verbalizations and stress) came from those participating in time-limited PCIT which significantly outperformed time-limited CPP.

PCIT has been demonstrated to be effective in the treatment of children exposed to a variety of early childhood stressors including domestic violence (Borrego et al., 2008; Pearl, 2008). Herschell and colleagues (2017) also successfully demonstrated with a small sample ($n = 21$) how PCIT can be effective within a domestic violence shelter, although poor completion rates (43%) due to families transitioning out of the shelter were noted as a limitation. The current study adds to this scarce shelter literature by demonstrating that time-limited CPP and time-limited PCIT conducted by shelter staff onsite can lead to good intervention completion rates (71.4% and 76.6%, respectively) and be effective in improving parenting and child outcomes in families currently experiencing homelessness. It also expands the literature on effective administration of CPP and PCIT with parents from a minority background, as 78.5% of our mothers were Black/African American and 27.1% were Hispanic/Latina.

The study also demonstrates the high transportability of both time-limited CPP and time-limited PCIT. In the case of PCIT, it demonstrated that expensive resources (e.g., one-way mirrors, camera) are not necessary to intervention success, as the shelter's therapists provided live coaching in the same room as the family (e.g.,

play rooms at the shelter). These findings suggest that both time-limited CPP and PCIT can be effectively and affordably administered within the context of homeless and other shelters and offers a promising avenue for addressing the pressing parenting needs of the most at-risk, in need, and underserved populations in our communities.

Consistent with our original hypothesis, time-limited PCIT outperformed time-limited CPP and was the only program to see statistically meaningful reductions in children's externalizing behavior problems. Counter to our hypothesis, time-limited CPP did not outperform time-limited PCIT as it related to trauma symptom reductions (even when we examined children with the highest baseline levels of trauma). Both parenting programs were equally effective in reducing children's post-traumatic stress symptoms. The effects of these interventions were comparable to the effects of other well-known interventions of post-traumatic stress symptoms (Silverman et al., 2008); which is particularly noteworthy as PCIT was not originally designed as an intervention for childhood trauma. Although PCIT has been demonstrated to be effective in reducing child trauma symptoms (Pearl et al., 2012), to our knowledge, this is the first study to test this assertion within a randomized trial and the first study to compare the effectiveness of time-limited PCIT with an intervention designed to address childhood trauma. The finding that time-limited PCIT was equally as effective as time-limited CPP in reducing child trauma symptoms provides further evidence that PCIT is not merely an intervention for externalizing behavior problems, but one that has a broader impact on early childhood psychopathology.

The exact mechanism by which PCIT addresses childhood trauma is as of yet unknown. However, targeting the parent-child relationship remains one of the core goals of trauma treatment in young children given their difficulty in verbally expressing past trauma (e.g., Lieberman et al., 2005). When considering the higher rates of externalizing behavior problems among children experiencing trauma (Cecil et al., 2017; Levendosky et al., 2002), PCIT's dual focus on parent-child interactions and behavioral contingency management is particularly helpful. The more structured and live coaching aspect of how PCIT targets the parent-child

relationship and parental discipline practices may have contributed to its success relative to CPP's more unstructured nature. Certainly, the time-limited aspect of both interventions may also have influenced these results, in particular because the reduction in the number of sessions was greater for CPP than it was for PCIT (i.e., CPP was designed to be a yearlong intervention whereas PCIT is on average 20.5 sessions). Thus, it is unclear whether with a longer intervention period CPP may have had an impact on children's externalizing behavior problems and/or performed better than PCIT in regards to addressing trauma symptoms.

It is important to acknowledge that numerous studies have documented the effectiveness of traditional CPP in reducing preschool children's trauma symptoms and behavior problems across diverse samples, including history of child maltreatment, exposure to domestic violence, foster care, immigrant families, and low-income families (Ippen et al. 2011; Lieberman et al. 2005; Toth & Gravener 2012; Weiner et al., 2009). The current study represents the first documentation, to our knowledge, that a time-limited CPP approach can still yield significant moderate results in reducing trauma symptoms in sheltered children. Given the transient nature of sheltered families, the limited resources available, and the high demands within homeless shelters, time for intervention is at a premium making effective time-limited intervention protocols particularly valuable. It would appear that PCIT lends itself better to a time-limited adaptation relative to CPP as an effective intervention addressing complex presentations with both externalizing behavior problems and trauma related concerns in this young age group.

In terms of our limitations, first, we cannot speak to the long-term maintenance of time-limited PCIT and time-limited CPP without follow-up data. The lack of follow-up was due to families exiting the shelter and limitations on the shelter's resources. Second, it is important to acknowledge that we did not have a control group for ethical reasons given the service driven nature of this study. Thus, it is possible that some of the improvements seen in our parent and child outcomes were partially due to the infrastructure and supportive nature of the shelter. When interpreting the within subject effect sizes for time-limited CPP and PCIT, it is important to acknowledge that the magnitude of such improvements may also be influenced by statistical

artifacts (e.g., regression to the mean, expectation effect). Third, the coding system (DPICS) used to measure mothers' positive and negative verbalizations was originally developed for PCIT (Eyberg et al., 2013). Thus, perhaps it is not too surprising that mothers in time-limited PCIT outperformed those in time-limited CPP on those outcomes, although mothers in time-limited CPP also did improve significantly their positive verbalizations.

Implementation of observational codes targeting more attachment related behaviors (e.g., general levels of warmth) that are less skills based is recommended for future work, although one recent study showed that these DPICS codes are moderately to highly correlated with some of the attachment related behavior codes (Blizzard et al., 2018). It would also be valuable for future work to include other sources, beyond maternal report, for measuring children's externalizing behavior problems (e.g., preschool teacher ratings, clinical observations). Fourth, as with most community trials, it is important to note that 35% percent of our cases were led by a clinician cross-trained in both PCIT and CPP. While we implemented fidelity checklists as well as consistent supervision, it is always possible that some intervention contamination may have occurred. Finally, while we recognize the importance of father's involvement for children's development and early intervention (Lundahl et al., 2008; Wilson & Prior, 2011), our study's setting (i.e., women's shelter serving only women) only allowed the examination of the mother-child relationship/interaction.

In terms of clinical implications, the current study shows the importance of offering early evidence-based assessments of the needs of sheltered children to detect and address their developmental and mental health needs, as well as the feasibility and effectiveness of embedding evidence-based parenting programs for early intervention within a homeless or domestic violence shelter. Overall, it shows that children and families within a shelter can benefit from time-limited CPP and time-limited PCIT in terms of not only reducing parenting stress but learning new parenting strategies that within a short period of time have significant benefits for children's behavioral and emotional functioning. However, PCIT offers a more effective intervention for targeting externalizing behavior problems and parenting for this sheltered age group. There is a growing

consensus on the importance of addressing mental health needs within homeless shelters, particularly of vulnerable children (Bussuk & Friedman, 2005). This study shows how a service driven, community-university partnership can play a large role in addressing the mental health needs of sheltered children and families with the potential to transform the trauma of homelessness into a window of opportunity.

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Table 1. Participant Baseline Demographic Variables by Initial Intervention Assignment

	Total Sample (<i>N</i> = 144)	PCIT (<i>n</i> = 70)	CPP (<i>n</i> = 74)
Demographic Variables			
Child sex (% male)	56.9	64.3	50.0
Mean Child age (<i>SD</i>)	3.48 (1.09)	3.34 (1.10)	3.61 (1.08)
Child Race (%)			
Black	78.5	77.1	79.7
White	20.1	22.9	17.6
Biracial	1.4	0.0	2.7
Child Ethnicity (%)			
Latinx	27.1	30.0	24.3
Non-Latinx	72.9	70.0	75.7
Maternal Education (%)			
Some High School	45.1	48.6	41.9
High School Diploma/GED	38.2	35.7	40.5
Technical Degree	4.9	1.4	8.1
Some College	9.0	14.3	4.1
Associate's Degree	0.7	0.0	1.4
Bachelor's Degree	2.1	0.0	4.1
Maternal Employment Status (%)			
Unemployed	71.5	61.6	82.2
Employed	28.5	38.4	17.8
Mother's victimization history (%)			
Adult violence (i.e., domestic violence, sexual trauma)	52.1	52.9	51.4
Childhood psychological/emotional abuse	38.2	37.1	39.2
Childhood physical abuse	36.8	38.6	35.1
Childhood sexual abuse	34.7	38.6	31.1
Childhood neglect	28.5	27.1	29.7
Home language (%)			
Monolingual (English only)	81.3	79.3	83.1
Monolingual (Spanish only)	3.3	3.4	3.1
Bilingual (Spanish/English)	13.8	17.2	10.8
Bilingual (English/Other Language)	1.6	0.0	3.0
Department of Child and Families Involvement (%)			
Present	16.0	18.6	13.5
Past	50.0	48.8	51.2
Child's ECBI in clinical range (≥ 131)	36.3	34.4	38.0
Child's CATS in clinical range (≥ 12)	47.3	50.0	45.0
Child's BDI-2 in referral range	35.7	34.8	36.5

Note. Values enclosed in parentheses represent standard deviations. PCIT = Parent-Child Interaction Therapy, CPP = Child Parent Psychotherapy, ECBI = Eyberg Child Behavior Inventory, CATS = Child and Adolescent Trauma Screen-Caregiver, BDI-2 = Battelle Developmental Inventory, 2nd Edition.

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Table 2. Results of ANOVA Analyses Examining Parent and Child Outcomes of Time-limited PCIT and CPP

	Pre-Intervention <i>M (SD)</i>	Post-Intervention <i>M (SD)</i>	Pre to Post Change <i>M (SD)</i>	Time Effect <i>F</i>	Time x Group <i>F</i>	Pre-Post <i>d [95% CI]</i>
Parenting Outcomes						
Parenting Stress: PSI total stress raw score (P)				86.15***	3.92*	.33 [.01, .65]
PCIT	91.529 (21.78)	73.964 (16.20)	17.565 (18.99)	---	---	-.92 [-1.26, -.56]
CPP	87.068 (20.95)	75.680 (16.93)	11.388 (18.94)	---	---	-.60 [-.93, -.27]
Proportion of Negative Parenting Verbalizations (O)				105.41***	55.71***	1.60 [1.22, 1.97]
PCIT	.552 (.15)	.266 (.14)	.286 (.15)	---	---	-1.98 [-2.37, -1.57]
CPP	.565 (.15)	.519 (.14)	.046 (.15)	---	---	-.31 [-.01, .63]
Proportion of Positive Parenting Verbalizations (O)				176.38***	66.04***	1.84 [1.44, 2.22]
PCIT	.099 (.08)	.393 (.19)	.294 (.14)	---	---	2.02 [1.60, 2.41]
CPP	.100 (.08)	.171 (.12)	.071 (.10)	---	---	.70 [.36, 1.02]
Child Outcomes						
Externalizing behavior problems: ECBI total raw score (P)				8.60**	7.88**	.39 [.05, .71]
PCIT	116.118 (41.94)	100.889 (34.47)	15.229 (38.21)	---	---	-.40 [-.73, -.06]
CPP	116.118 (41.94)	116.351 (36.89)	.233 (39.42)	---	---	-.01 [-.31, .33]
Post-traumatic stress symptoms: total severity score (P)				24.43***	.03, <i>p</i> = .86	-.04 [-.37, .29]
PCIT (n=41)	11.003 (7.06)	7.605 (4.62)	3.398 (5.84)	---	---	-.57 [-.90, -.29]
CPP (n=47)	11.302 (7.75)	7.648 (4.96)	3.654 (6.36)	---	---	-.56 [-.89, -.23]

Note. P = Parent report, O = Observation, PCIT = Parent-Child Interaction Therapy, CPP = Child Parent Psychotherapy. Cohen's standardized *d* is reported for each intervention group (within group effect) as well as for group x time effect (between group effect). **p*<.05, ***p*<.01, ****p*<.001. All significant effects remained significant even after implementing Holm's Step-Down Procedure.

Figure 1. Consort Flow Diagram

