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Improving behaviors and placement stability for young foster children: An open trial of Parent-Child Care (PC-CARE) in the child welfare system

Brandi N. Hawk*, Susan G. Timmer, Lindsay A.F. Armendariz, Deanna K. Boys, Anthony J. Urquiza

University of California, Davis Children's Hospital, United States

ABSTRACT

Young children in the foster system, who have experienced various traumas, are at risk for mental health problems, particularly externalizing and trauma-related behaviors. Such problems are related to placement instability and future difficulties. Many interventions for foster children take months to implement and tend to target only children with moderate to severe behavior problems. This study presents preliminary findings from a county-wide implementation of Parent-Child Care (PC-CARE), a 7-session dyadic intervention, as a secondary prevention service for all children aged 1–5 years in new foster placements, with the goal of improving children's behavioral adjustment and placement stability.
Method: Participants included 153 children aged 1–5 years (50% male) who participated in at least one PC-CARE session with their foster caregivers in the first 90 days of placement.
Results: Children who completed PC-CARE showed significant decreases in trauma and behavior symptoms and increases in positive behaviors (i.e., initiative, self-regulation), and caregiver-child relationships from pre- to post-intervention. Children who completed PC-CARE showed more placement stability and fewer placements disruptions to another foster home at one- and six-months post-intervention than children who did not complete PC-CARE.
Conclusion: PC-CARE appears to be a promising secondary prevention service within child welfare associated with improvements in children's adjustment to new foster placements and increased placement stability.

1. Introduction

Each year, more than 270,000 children enter foster care in the United States, approximately half of whom are 0–5 years old (Child Welfare Information Gateway, 2017). All these children have various traumatic experiences, including at minimum the unexpected separation from their caregivers. Experience of maltreatment, particularly during toddler and preschool years, places children at risk for maladaptive social, psychological, and psychobiological functioning (Cicchetti, Toth, & Maughan, 2000). Related to these experiences, nearly 50% of all children entering foster care nationwide evidence mental health problems, particularly externalizing and trauma-related behavior problems (e.g., aggression, defiance), and need mental health services (Keil & Price, 2006; Scozzaro & Janikowski, 2015). This number was noted to be as high as 30–40% in preschool samples (Burns et al., 2004; Vasileva & Petermann, 2018). Research has also demonstrated that externalizing behaviors, particularly aggression, increase risk for disruptions in placement (Chamberlain, Price, Reid, Landsverk,

Fisher, & Stoolmiller, 2006; Newton, Litrownik, & Landsverk, 2000; Sattler, Font, & Gershoff, 2018). These placement disruptions further increase the likelihood of future placement instability and psychopathology (James, Landsverk, & Slymen, 2004; Rubin, O'Reilly, Luan, & Localio, 2007), especially when they happen early in the transition to foster care (Webster, Barth, & Needell, 2000). Thus, intervening early in the transition to foster care to reduce difficult behaviors and support adjustment to new homes could improve mental health outcomes for children and reduce the likelihood of placement disruptions.

Many interventions have been designed or modified for use with foster children, such as the Incredible Years (Linares, Montalto, Li, & Oza, 2006), Keeping Foster Parents Trained and Supported (Chamberlain, Price, Leve, Laurent, Landsverk, & Reid, 2008), Multidimensional Treatment Foster Care for Preschoolers (Fisher, Kim, & Pears, 2009), and Parent-Child Interaction Therapy (Timmer, Urquiza, & Zebell, 2006). These interventions work to improve foster parents' responsiveness and reduce child behavior problems. The interventions report positive outcomes for children and better relationships between

foster parents and children. However, they often take months to implement and tend to target children with moderate to severe behavior problems. Furthermore, attrition rates can be as high as 40–60%, especially when treatments actively include caregivers (Kazdin, 2008). Thus, many vulnerable children who could benefit from services are not able to receive them.

1.1. Fostering secure placements program

The current study presents preliminary findings from the Fostering Secure Placements program, a collaboration with the Department of Child, Family, and Adult Services (DCFAS) to offer a brief dyadic (foster parent-child) intervention to all children aged 1–5 years in new placements throughout a single county in California. This program is considered secondary prevention because identified participants had already been placed in foster care and considered to be at risk for developing mental health or behavioral concerns. However, services were offered to all families regardless of the child's current behavioral difficulties with the goal of preventing future placement disruptions, as well as new or worsening behavior problems.

Parent-Child Care (PC-CARE; Timmer, Hawk, Forte, Boys, & Urquiza, 2019) is a 7-session dyadic (caregiver and child) intervention for children aged 1–10 years who have or are at risk of developing externalizing problems or problems in the caregiver-child relationship. It can be used with children from a variety of backgrounds, presenting with a variety of reasons for disruptive behaviors, and living with a variety of caregivers (e.g., foster, adoptive, biological). After showing treatment effectiveness in an outpatient mental health setting (Timmer et al., 2019), we worked with DCFAS to implement PC-CARE as a secondary preventive intervention for children aged 1–5 years and their foster caregivers throughout the county. This collaboration necessitated developing a referral process whereby the PC-CARE team received placement information for all 1–5-year-old children in dependency when they moved to a new foster home. PC-CARE, a voluntary service, was offered to the foster caregivers of each child in the first 90 days of placement. To increase the accessibility of services, providers conducted PC-CARE in the foster home and brought additional team members to provide care for children who were not participating in the services.

The PC-CARE model is a manualized intervention that includes 7 sessions (1 assessment and 6 intervention sessions) and a one-month follow-up. At the assessment session, providers conduct assessments of the foster caregiver and child, help caregivers understand possible causes of child behavior problems, and orient the family to PC-CARE. At each intervention session, providers assess the child's behaviors, teach new skills, and coach the caregiver to use the skills with the child. Throughout the intervention, providers teach positive communication, self-regulation, and behavior management skills. Positive communication skills include praising positive behaviors, reflecting children's words, imitating positive behaviors, describing actions, and expressing enjoyment, as well as reducing the number of questions, commands, and criticisms the caregiver uses. Self-regulation skills involve calming (e.g., breathing, muscle relaxation), co-regulation (e.g., breathing together, sensory activities), and focused relational recovery after difficult interactions. Behavior management skills include setting up a compliance-friendly environment and using transitions, selective attention, redirection, modeling, rules, choices, conditional statements, commands, consequences, and redoing.

Despite PC-CARE being highly structured, providers present and emphasize information in a dyad-specific manner. Thus, the same foster parent can complete PC-CARE with multiple children, and the same child can complete PC-CARE with multiple caregivers (e.g., after placement change). Providers emphasize the impact of the child's trauma history on behaviors, coach caregivers to recognize how the child reacts to their use of various skills, and explain how caregivers' behaviors can reduce children's trauma symptoms and help prevent future mental

health symptoms.

As a secondary preventive service, the Fostering Secure Placements program has two primary goals: facilitate a positive adjustment to a new foster home and increase placement stability. Positive adjustment should involve both decreasing children's difficult behaviors or maintaining positive behaviors, and increasing their adaptive behaviors. Our second goal was for children to remain in the same foster home until permanency occurs, either through reunification, adoption, or legal guardianship.

For this study, we present preliminary findings from an open trial of the first three years of the Fostering Secure Placements program as it relates to our primary goals. First, we assessed changes in children's trauma symptoms and disruptive behaviors during PC-CARE, with the hypothesis that these behaviors would decrease with intervention. Second, we assessed changes in children's protective and adaptive behaviors during PC-CARE, with the hypothesis that these behaviors would increase with intervention. Finally, we assessed placement stability both at one month and six months post-intervention for children who completed PC-CARE and those who did not, with the hypothesis that children who completed PC-CARE would have fewer non-permanency-related placement changes than children who did not complete PC-CARE. Because PC-CARE was first developed as a mental health treatment but was used as secondary prevention in this program, we also assessed whether PC-CARE showed similar results for children with and without clinically significant behavior problems.

2. Methods

2.1. Participants

Within a single large county in California, PC-CARE services were offered to foster caregivers of every 1–5-year-old child who had been in the current home for 90 days or less. In the jurisdiction in which this study took place, foster caregivers could agree to participate in services, but children's attorneys had to consent to research. While services were provided to every family who agreed to participate, current outcomes are presented only for children with signed research consent. Out of 494 eligible referrals (i.e., children were 1–5 years old and had been in the current home for 90 days or less), caregivers of 359 children agreed to participate in services. Attorneys for 245 of these child referrals signed research consent. Of these 245, 25 referrals were for the same children in different placements (18 in two placements, 2 in three placements, 1 in four placements). For this study, the most recent referral was used. Of these 220 unique children, 153 completed the initial assessment session with a PC-CARE provider, 36 moved placements prior to the assessment session, and 31 had caregivers that chose not to engage in services after initially accepting (10 due to scheduling, 10 due to disinterest, 3 due to receiving other treatment, 3 because the caregiver did not return provider calls, and 5 for unknown reasons). Thus, participants in this study included 153 independent children (50% male) who participated in at least one PC-CARE appointment and had research consent signed by their attorneys. Twenty caregivers participated in PC-CARE with more than one child (total independent caregivers = 127). In all but 6 cases, this was related to completing PC-CARE concurrently with siblings.

Demographic information for the children and their caregivers is shown in Table 1. Children ranged in age from 1 year 1 month to 6 years 1 month at the pre-intervention assessment, with an average age of 3.04 years (*SD* = 1.43) and a fairly even spread of children across years (30% 1 year, 25% 2 years, 19% 3 years, 12% 4 years, 14% 5 years). A single 6-year-1-month-old child was included because the referral arrived when the child was still 5 years old. Children and caregivers were ethnically diverse and matched the ethnic diversity of the population of children in foster care in this county. Foster caregivers (86% female) included both kin and non-kin, with most participants (71%) being female non-relative caregivers. Services were provided in

Table 1
Demographics of children and foster caregivers.

Variable	Full sample		PC-CARE completers	
	Child (N = 153)	Caregiver (N = 127)	Child (N = 113)	Caregiver (N = 97)
Age (years)	3.04 (1.43)	45.61 (11.68)	2.90 (1.33)	44.38 (11.41)
Gender (% male)	49.7%	13.3%	42.5%	15.5%
Behavior Problems (% WACB > 35)	34.6%		31.9%	
Ethnicity				
African American	32.7%	24.4%	24.8%	20.6%
Caucasian	26.1%	39.4%	29.2%	45.4%
Latinx	24.8%	14.2%	28.3%	14.4%
Other	5.9%	8.7%	14.2%	8.2%
Missing/Unknown	10.5%	13.4%	3.5%	11.3%
Caregiver relationship				
Male Relative		5.5%		5.2%
Female Relative		15.7%		18.6%
Male Non-Relative		7.9%		10.3%
Female Non-Relative		70.9%		66.0%
Years of Education		13.82 (3.20)		14.06 (3.14)

English for 99% of the sample, and in Spanish for one child. Most families (97%) received services in their homes, but families of two children asked to receive PC-CARE in a clinic setting and families of another two children received services via video telehealth.

In the current sample, 113 (74%) children completed all PC-CARE sessions and post-intervention assessments, 2 (1%) were still actively engaged in the intervention, and 38 (25%) ended services early. Of those ending early, 15 (39%) ended services due to placement changes (11% reunified, 28% new foster or relative home), 14 (37%) due to scheduling conflicts, and 9 (24%) because the caregiver was no longer interested in services. Excluding those who were reunified or still in services, the retention rate for PC-CARE was 77%.

2.2. Providers

Eighteen providers at a community mental health center treated the families in this study. Providers were not affiliated with DCFAS and had no additional role with the families beyond providing PC-CARE. All were trained to competence in PC-CARE by demonstrating 25 competencies and completing two cases under the supervision of a PC-CARE trainer. Providers included licensed psychologists and Master's level clinicians (N = 4); unlicensed Master's level therapists, psychology postdoctoral fellows, and master's and doctoral student trainees (N = 8); and providers that were not license-eligible but had experience working with children (N = 6). All providers worked under the supervision of one of the PC-CARE co-developers, a licensed psychologist, and participated in weekly PC-CARE group supervision.

2.3. Design and procedure

2.3.1. Study design

This study provides preliminary results of an open-trial of PC-CARE as a secondary preventive intervention for children aged 1–5 years in new foster placements. A pre- to post-intervention comparison design with repeated measures was used to assess child behavior outcomes, and a between-subjects design was used to assess differences in child placement stability outcomes between children who completed PC-CARE and those who did not. The study design and consent forms were approved by the university's Institutional Review Board and the Department of Health and Human Services Research Review Committee. Providers obtained informed consent from children's legal advocates and foster caregivers.

2.3.2. Referral process

A DCFAS administrator sent us a list of the names of children aged 1–5 years in new foster placements bi-weekly, with the foster caregiver's name, phone number, and address. PC-CARE staff then called each foster caregiver to determine eligibility and to offer the program. Children were eligible for the study if at the time of referral they were 1–5.99 years old, had been in their placement less than 90 days, and were in a court-involved out-of-home placement (i.e., not with biological parents, not in voluntary placement). Once a caregiver accepted services, the child's attorney was contacted to sign research consent.

2.3.3. Intervention procedures

PC-CARE is a manualized intervention composed of one assessment and six intervention sessions. At the assessment session, providers administered standardized caregiver-report measures, conducted a 12-minute observational assessment of the caregiver and child, described common child reactions to trauma, and oriented the family to PC-CARE. During Sessions 1–5, providers administered the Weekly Assessment of Child Behavior (WACB); taught skills; conducted a 4-minute observational assessment of the child and caregiver; coached the caregiver to use the skills with the child; assessed how well caregivers thought the skills would work; and assigned homework ("Daily CARE") for the caregiver and child to spend 5 min playing together daily and to practice the skills. At Session 6, providers administered standardized measures, reviewed all the skills, discussed the most effective strategies for enhancing the relationship and managing difficult behaviors, conducted a 12-minute observational assessment of the caregiver and child, and coached the caregiver to use the skills. Caregivers received foster caregiver continuing education credits for up to seven hours for participating in PC-CARE. Providers contacted the caregivers via phone one month after ending services to assess placement and administer the WACB, as well as to provide additional consultation to the family.

Fidelity was assessed for all providers to ensure that PC-CARE was conducted according to protocol. The fidelity measures emphasized whether providers taught and coached the correct skills for that session, the amount of time spent in didactic (goal = 10 min), and the amount of time spent coaching (goal = 15–20 min). Research assistants assessed fidelity by attending randomly selected live PC-CARE sessions for every provider. To ensure reliability, fidelity evaluators received training in how to measure the fidelity factors using video-recorded sessions, and their codes were measured against a fidelity expert for 10 of these videos. Intraclass correlation coefficients of time measurements and coding frequencies were all at least r = 0.95 or higher, and binomial measures showed 90–100% agreement on codes of the presence vs. absence of didactic topics, suggesting high coding reliability. For the current study, results of analyses of fidelity (N = 30 sessions) showed each session's topics were highly likely (100%) to have been covered in that session, and the amount of time spent in didactic (M = 8.52 min; SD = 2.74, range = 3–15) and coaching (M = 16.17 min, SD = 5.67, range = 4–24) was acceptable.

In 42 cases, providers made the decision to combine either Sessions 2 and 3, 4 and 5, or 5 and 6 based on the child being scheduled to reunify, other scheduling needs, or the provider needing to complete services with a family before leaving the clinic. For these participants, data from the combined session were entered at both individual sessions, using a "last observation carried forward" method, a conservative way of estimating missing data scores (Gupta, 2011). If participants had combined sessions but completed all PC-CARE content and post-intervention assessments, they were considered to have completed PC-CARE. When these participants were excluded, all results remained consistent. If multiple caregivers participated in PC-CARE, only data from the primary caregiver were used in analyses. Data from siblings that participated in PC-CARE were included in analyses. When only one sibling was included in analyses, all results remained consistent.

2.4. Measures

2.4.1. Family demographic characteristics

At the pre-intervention assessment, caregivers completed the Brief Family Life Questionnaire (BFLQ; Timmer, Hawk, Forte, Boys, & Urquiza, 2016). The BFLQ asks caregivers to provide information about family ethnicity, caregiver relationship to the child, household income and composition, and placement length.

2.4.2. Devereaux Early Childhood Assessment (DECA)

At pre- and post-intervention caregivers completed the DECA, a caregiver-reported measure of positive behaviors that are typically seen in resilient children. The infant form for children 1–18 months (DECA-I; Powell, Mackrain, & LeBuffe, 2007) provided a Total Protective Factors scale, comprised of Initiative (i.e., use independent thought and actions to meet needs) and Attachment/Relationships (i.e., mutual and strong relationships between the child and significant adults) subscales. The toddler form for children 18–36 months (DECA-T; Powell et al., 2007) included these scales plus a Self-Regulation subscale (i.e., manage emotions and sustain attention). Finally, the preschool form for children 36–72 months (DECA; LeBuffe & Naglieri, 1999) included the DECA-T scales and a Behavior Concerns subscale. The DECA forms were standardized using nationally representative data and provided T-scores with mean of 50 and *SD* of 10. For the protective factors scales, scores below T = 40 indicated areas of concern, and for the behavior problems scale, scores above T = 60 indicated areas of concern. In our sample, reliability estimates of internal reliability for the DECA scales ranged from Chronbach's alpha of 0.79 to 0.96. In other samples, test-retest reliability ranged from correlations of 0.86 to 0.99 (LeBuffe & Naglieri, 1999; Powell et al., 2007).

2.4.3. Early Childhood Traumatic Stress Screener (ECTSS)

At pre- and post-intervention, caregivers completed an adapted version of the ECTSS (Barnett & Rosenberg, 2015), a brief measure of children's exposure to traumatic events and current trauma symptoms. Caregivers indicated whether children had experienced various traumatic events, including separation from primary caregivers. Foster caregivers often knew few details of the child's history; thus, the number of traumatic events was likely underestimated. Caregivers also identified whether children currently displayed various trauma symptoms using a dichotomous response (0 = no, 1 = yes) with a total possible score of 17. The items reflect the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association) criteria for posttraumatic stress disorder for children 0–6 years and reflect current functioning so that any current caregiver could complete the measure. Reliability and validity have not been tested with this adapted measure; however, it was chosen based on its applicability to the population and the absence of other brief early childhood PTSD measures.

2.4.4. Weekly Assessment of Child Behaviors (WACB)

Caregivers completed the WACB (Timmer, Forte, Hawk, Boys, & Urquiza, 2017) at all seven sessions and one-month post-intervention. The WACB is a 9-item measure that assesses the frequency of common child behavior problems on a 7-point Likert scale (Severity scale) and whether the caregiver would like the behavior to change (Need to Change scale). For 12–32 month-old children, caregivers completed the WACB for 0–2-year-olds (WACB 0–2), which included behaviors typical to infants and toddlers (e.g., trouble falling asleep, trouble feeding, hard to calm or console). For older children, caregivers completed the WACB for Negative Behaviors (WACB-N), which included common behavior problems for children aged 2–12 (e.g., noncompliance, difficult meal-time behaviors, screaming and yelling when upset). Severity scores range from 9 to 63, with scores greater than 35 indicating clinically significant behavior concerns. Reliability measures indicated an internal consistency of $\alpha = 0.87$ for the Severity scale and a Kuder-Rich coefficient (for scales with binomial factors) of KR = 0.79 (Timmer et al., 2017).

2.4.5. Placement stability

Placement stability was assessed at one- and six-months post-intervention. One month after completing services, PC-CARE providers called caregivers to learn whether the child was in the same placement or not. For children whose caregivers could not be reached and for children who did not complete PC-CARE, a list of the children's names was sent to our DCFAS liaison, who indicated whether each child was in the same placement, had reunified, moved to a permanent pre-adoptive home, moved to a kinship home, or moved to a new foster caregiver. If a child had changed placements prior to completing PC-CARE, one-month placement data was in reference to the second home. Thus, if a child was still in the home to which they moved when they ended PC-CARE, they would be considered in the same placement. Six months after services ended, research staff again sent a list of all children with consent to participate in PC-CARE to determine their current placements. Six-month placement data was in reference to the placement at one-month assessment. Thus, if a child had changed placements between ending the intervention and one-month assessment but was still in the second home at six months, they would be considered in the same placement. Unfortunately, this process was not well-established at the beginning of the project, leaving some children with missing placement data.

In the child welfare system, a primary goal for children is permanency, defined as reunification with biological parents, adoption, or legal guardianship. Placement changes for the purpose of permanency (i.e., reunification, move to permanent pre-adoptive home) represent a move toward permanency, are initiated by DCFAS, and are not related to the child's adjustment to their current foster placement or participation in interventions. Another primary goal is to keep children with biological family members; therefore, DCFAS considers moves from a non-kinship foster homes to kinship homes similarly positive moves toward permanency. These DCFAS-initiated moves are also not related to the child's adjustment to the non-kinship home. Thus, the children in the current sample with permanency-related placement changes represented a different group from those children experiencing foster placement instability (i.e., move from one non-permanent foster home to another), which was often initiated by the foster caregiver and was often related to the child's adjustment to the home. To match the goals of DCFAS, children were classified as being in the same placement, a new foster placement, or reunification/permanency.

2.5. Multivariate analysis strategy

All children who completed PC-CARE were eligible to be included in behavior outcome analyses; however, sample sizes varied due to missing data and age-related DECA subscales. A preliminary binomial regression assessed whether any child or caregiver demographic variables were related to PC-CARE completion, and variables with significant effects were included as covariates in primary analyses. For DECA and ECTSS analyses, a within-subjects, pre- to post-intervention design was implemented using a 2x2 Repeated-Measures Analysis of Covariance (RM-ANCOVA). Assessment point (pre- vs. post-intervention) was the within-subjects factor, and levels of difficult behaviors (below vs. above the cutoff on the pre-treatment WACB) as the between-subjects variable, covarying demographic variables related to PC-CARE completion. A 7x2 RM-ANCOVA was also used to assess changes in WACB scores across the seven-sessions of PC-CARE, with assessment point ($N = 7$) as the within-subjects factor and difficult behaviors below vs. above the cutoff on the WACB as the between-subjects factor, covarying demographic variables related to PC-CARE completion. Chi-square and binomial regressions were used to test whether PC-CARE completion and other demographic variables were related to placement stability at one-month and six-months post-

intervention.

3. Results

3.1. Preliminary analyses

A binomial regression analysis assessed whether demographic variables (child age, gender, ethnicity, difficult behaviors; caregiver age, gender, ethnicity, relationship to child, years of education) were related to intervention completion status. Due to missing data related to caregiver age and years of education, the model was computed both with ($N = 118$) and without ($N = 153$) these variables included; significant results in the final models did not differ. The final model using the full sample and excluding caregiver age and years of education was significant, X^2 (11, $N = 153$) $= 25.91$, $p = .007$. African American caregivers were more likely not to complete services than Caucasian caregivers (B $= 1.82$, SE $= 0.77$, $p = .02$). Thus, whether caregivers identified as African American was included as a covariate in all primary analyses. No other variables, including caregiver's ethnicity identified as Latinx or Other, were significantly related to PC-CARE completion (all $p > .05$).

3.2. Trauma history and symptoms

According to caregiver report on the ECTSS, children ($N = 136$ with pre-intervention ECTSS) had an average of 2.31 traumatic experiences ($SD = 1.10$; range $= 1$–5) and an average trauma symptom severity score of 4.21 ($SD = 3.30$). Results of a RM-ANCOVA with children's total trauma symptoms as the repeated measure and difficult behaviors as between-subjects effects, covarying caregiver African American ethnicity, showed that for children who completed PC-CARE ($N = 102$), trauma symptoms significantly decreased from pre- ($M = 3.95$, $SD = 3.12$) to post-intervention ($M = 2.89$, $SD = 3.02$), F $(1,99) = 12.36$, $p = .001$, $\eta^2 = 0.11$, power $= 0.94$. Pre-to post-intervention change in trauma symptoms did not vary by the child's having high levels of difficult behaviors ($p = .87$).

3.3. Behavior problems

3.3.1. Pre- to Post-intervention changes

Results of a 2-way RM-ANCOVA of preschool children's ($N = 39$) Behavior Concerns on the DECA with difficult behaviors above the WACB cutoff as the between-subjects variable, covarying caregiver African American ethnicity, showed a significant decrease from pre- ($M = 59.67$, $SD = 11.34$) to post-intervention ($M = 53.72$, $SD = 10.52$), $F(1,36) = 19.21$, $p < .001$, $\eta^2 = 0.35$, power $= 0.99$ (see Fig. 1). This pre- to post-intervention decrease did not vary by whether the child had clinically significant behavior difficulties as measured by the WACB ($p = .91$). An examination of marginal
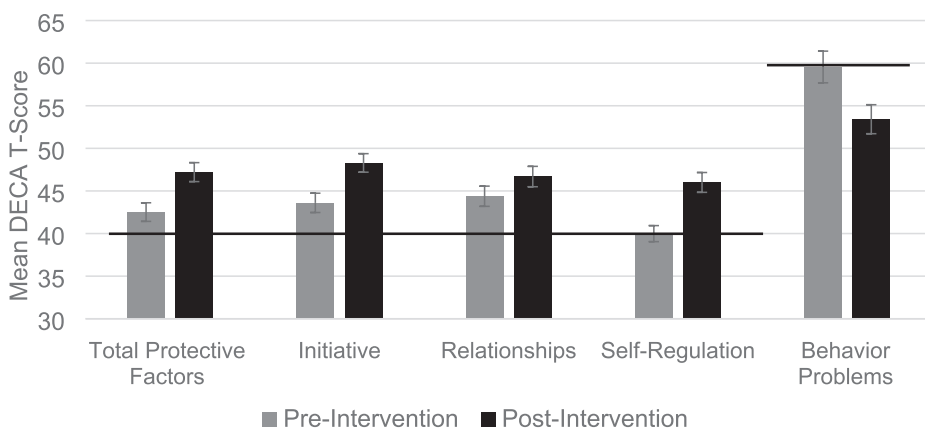

Fig. 2. *Mean WACB Scores at Each Session for Children Who Completed PC-CARE (N = 112). Note.* On the WACB, lower scores mean less frequent difficult behaviors. Children's mean WACB scores decreased linearly with PC-CARE.

percentages of children in the clinical range for Behavior Concerns showed that 67% of children were in the clinically significant range at pre-intervention, whereas only 33% were in the clinically significant range at post-intervention.

3.3.2. Week-to-week changes

Results of a 2-way RM-ANCOVA of the WACB showed a significant linear decrease in the frequency of behavior problems over the course of the intervention, $F(4.31, 469.88) = 42.41$ (using the Greenhouse Geisser correction for sphericity), $p < .001$, $\eta^2 = 0.28$, power $= 1.0$. Scores decreased from an average of 28.70 ($SD = 11.82$) at pre-intervention to an average of 20.53 ($SD = 9.44$) at session 6 (see Fig. 2). Children whose caregivers reported high levels of difficult behaviors, as defined by having WACB scores > 35, showed larger improvements on the WACB over time (pre-intervention: $M = 42.94$, $SD = 6.63$; post-intervention: $M = 28.40$, $SD = 9.82$) than children whose initial WACB scores were below the cutoff (pre-intervention: $M = 22.22$, $SD = 6.95$; post-intervention: $M = 16.95$, $SD = 6.75$), $F(4.31, 469.88) = 9.25$ (using the Greenhouse Geisser correction for sphericity), $p < .001$, $\eta^2 = 0.08$, power $= 1.0$.

Of the 97 children that completed PC-CARE and were still in the same home one-month after services, providers were able to contact 58 caregivers (60%) to administer a WACB over the phone. The remaining 40% did not respond to multiple engagement attempts. Neither the change in WACB scores from pre- to post-intervention nor the WACB scores at post-intervention differed for children whose caregivers did or did not respond. One month after PC-CARE, results of RM-ANCOVAs showed that the frequency of behavior problems ($M = 21.09$; $SD = 11.79$) were consistent with post-intervention scores, F $(1,55) < 0.001$, $p = .98$, and significantly lower than pre-intervention scores, $F(1,55) = 50.49$, $p < .001$, $\eta^2 = 0.48$, power $= 1.0$. Children whose initial WACB scores signaled high levels of difficult behaviors

Fig. 1. *Mean DECA T-Scores for Children Who Completed PC-CARE. Note.* For Total Protective Factors ($N = 89$), Initiative ($N = 89$), Relationships ($N = 89$), and Self-Regulations ($N = 70$), T-scores below 40 are considered clinically significant. For Behavior Problems ($N = 39$), T-scores above 60 are considered clinically significant. Children showed significant improvements on all scales from pre- to post-intervention.
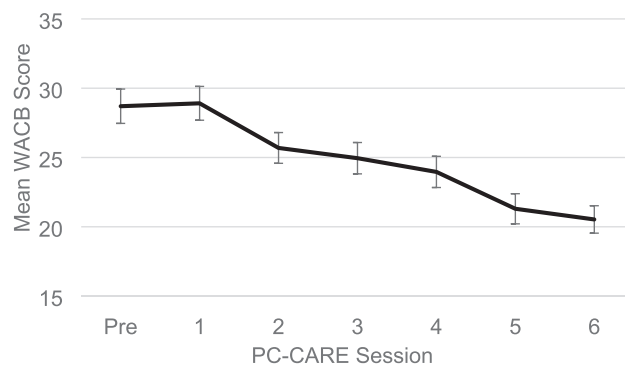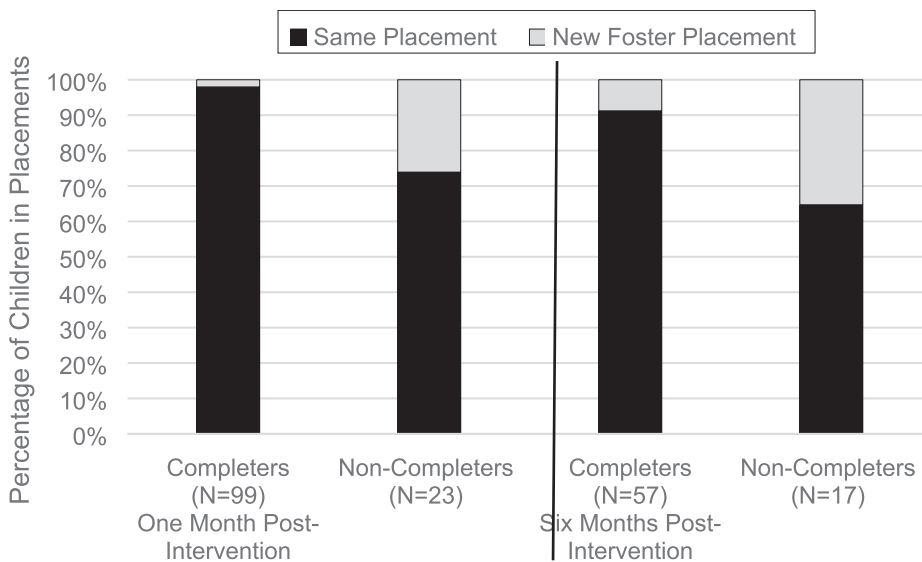
showed greater decreases from pre- ($M = 44.41$; $SD = 6.99$) to one-month post-intervention ($M = 30.45$; $SD = 13.64$) than those whose caregivers initially reported few difficult behaviors (pre-intervention: $M = 21.14$, $SD = 6.77$; one-month post-intervention: $M = 15.36$, $SD = 15.11$), $F(1,55) = 12.20$, $p = .001$, $\eta^2 = 0.18$, power = 0.92). Changes from post-intervention to one-month post-intervention were not related to pre-treatment WACB scores, $F(1,55) = 1.24$, $p = .27$.

3.4. Positive behaviors

Findings from RM-ANCOVAs showed significant caregiver-reported improvements in children's Total Protective Factors, Initiative, Attachment/Relationships, and Self-Regulation on the DECA from pre- to post-intervention (see Fig. 1). Children's Total Protective Factors increased significantly from pre- ($M = 42.52$; $SD = 10.30$) to post-intervention ($M = 47.21$; $SD = 10.50$), $F(1,86) = 23.54$, $p < .001$, $\eta^2 = 0.22$, power = 1.00. These pre- to post-intervention changes did not differ by child pre-intervention WACB > 35 ($p > .30$). An examination of marginal distributions showed that the percentage of caregivers indicating protective factors were an area of concern decreased from 43% at pre-intervention to 24% at post-intervention. Additionally, the percentage of caregivers identifying Total Protective Factors as an area of strength increased from 6% at pre-intervention to 11% at post-intervention.

Children displayed significantly more initiative to meet their needs from pre-intervention ($M = 43.60$; $SD = 10.69$; 39% area of concern; 8% area of strength) to post-intervention ($M = 48.29$; $SD = 10.26$; 19% area of concern; 12% area of strength); $F(1,86) = 18.31$, $p < .001$, $\eta^2 = 0.18$, power = 1.00. Their Attachment/Relationships also improved from pre-intervention ($M = 44.38$, $SD = 11.19$; 39% area of concern; 14% area of strength) to post-intervention ($M = 46.69$, $SD = 11.28$; 30% area of concern; 15% area of strength), $F(1,87) = 9.35$, $p = .003$, $\eta^2 = 0.10$, power = 0.86. Finally, toddlers and preschoolers were reported to be better able to regulate their bodies and emotions from pre-intervention ($M = 39.99$; $SD = 7.88$; 51% area of concern; 1% area of strength) to post-intervention ($M = 46.00$; $SD = 9.74$; 21% area of concern; 12% area of strength), $F(1,68) = 13.22$, $p = .001$, $\eta^2 = 0.16$, power = 0.95. None of these pre- to post-intervention changes significantly varied by children's pre-intervention WACB > 35 (all $p > .10$).

3.5. Placement stability

One month after ending services, placement data was collected on

139 of 151 eligible children (92%), 108 of whom completed PC-CARE and 31 of whom did not. Importantly, placement at one month post-intervention was assessed in relation to child's location when services ended (e.g., if a child ended PC-CARE because he moved to a new foster home but was still in that new foster home one month later, he would be considered in the same placement). Of children who completed PC-CARE (i.e., completed all sessions and post-intervention assessment), 90% were in the same foster home (2 had been adopted), 2% had moved to a new foster home, 0% had moved to a new kinship home, 6% were reunified with biological parents, and 2% had moved to a permanent pre-adoptive placement. Of the children who did not complete PC-CARE ($N = 31$), 55% were in the same foster home, 19% had moved to a new foster home, 6% had moved to a new kinship home, 19% were reunified with biological parents, and 0% had moved to a permanent placement. Because reunification and transfer to kin or permanent pre-adoptive placements are viewed as permanency-related changes that are outside of the control of foster caregivers and not related to child behaviors, children in these placements ($N = 17$) were removed from analyses, leaving a comparison of children in the same placement and in a new foster home. Results of a *Chi-square test* indicated significant differences in placements one month after the intervention for PC-CARE completers (98% in same placement) vs. non-completers (60% in same placement), $X^2 (1, N = 125) = 32.92$, $p < .001$ (see Fig. 3). A binomial regression predicting placement change to a foster home one month after intervention (reference = same placement) based on PC-CARE completion, child demographic factors (age, gender, ethnicity), and caregiver ethnicity was significant, $X^2 (6, N = 124) = 20.31$, $p = .002$ (see Table 2). Specifically, children who did not complete treatment had an increased likelihood of moving to a new foster home (B = 3.07, $p = .003$). Children whose caregivers initially reported difficult behaviors were marginally more likely to have moved to a new foster home (B = 2.12, $p = .06$). No other variables (child age, gender, ethnicity; caregiver's ethnicity) were related to placement change (all $p > .10$).

Six months after ending services, placement data was collected on 104 of 150 eligible children, 79 of whom completed PC-CARE and 25 of whom did not. All but one of these children also had one-month placement stability data. Placement status is in reference to the placement at one-month follow-up (e.g., a child who had changed foster placements between ending PC-CARE and the one-month follow-up but was still in the second placement at six months would be identified as in the same foster home). Of children who completed PC-CARE ($N = 79$), 65% were in the same foster home (4 had been adopted), 6% had moved to a new foster home, 3% had moved to a new kinship home,

Table 2
Binomial regressions predicting placement change at one and six months.

Variable	B	SE	df	*p*-value
New Foster Placement One Month Post-Intervention, X^2 (6, N = 124) = 20.31, p = .002				
Did Not Complete PC-CARE	3.07	1.03	1	0.003
WACB > 35	2.12	1.15	1	0.06
Child Age	0.12	0.33	1	0.73
Child Male	0.50	1.10	1	0.65
Child African American	−0.94	1.07	1	0.40
Caregiver African American	0.63	1.05	1	0.55
New Foster Placement Six Months Post-Intervention, X^2 (6, N = 74) = 9.91, p = .13				
Did Not Complete PC-CARE	1.54	0.79	1	0.05
WACB > 35	−1.32	1.17	1	0.26
Child Age	0.05	0.26	1	0.85
Child Male	0.27	0.77	1	0.73
Child African American	0.57	0.76	1	0.46
Caregiver African American	0.45	0.81	1	0.58

23% were reunified with biological parents, and 3% moved to a permanent adoptive placement. Of those children who did not complete PC-CARE ($N = 26$), 42% were in the same foster home, 23% had moved to a different foster home, 0% were in new kinship homes, 35% were reunified with biological parents, and 0% moved to a permanent placement. As before, children who were reunified or moved to a permanent kin or pre-adoptive home ($N = 30$) were removed from analyses to determine whether PC-CARE participation predicted placement stability six-months post-intervention. Results of a *Chi-square test* showed that PC-CARE completers were more likely to be in the same placement (91%) than non-completers (65%) at the six-month follow up, X^2 (1, $N = 74$) = 7.28, $p = .007$ (see Fig. 3). A binomial regression predicting placement change to a new foster home six months post-intervention (reference = same placement) with PC-CARE completion, child demographic factors, and caregiver ethnicity was not significant, X^2 (6, $N = 74$) = 9.91, $p = .13$ (see Table 2). However, the first step of the model suggested that children who did not complete treatment had a higher likelihood of being in a new foster home, X^2 (1, $N = 74$) = 6.25, $p = .01$, and this slope remained marginally significant in the full model (B = 1.54, $p = .05$). No other variables (child age, gender, ethnicity, difficult behaviors; caregiver's ethnicity) were significantly related to placement change at six months at the step in which they were entered or in the full model.

4. Discussion

Results of the current study suggest that PC-CARE, a brief dyadic intervention, is associated with positive child outcomes as a secondary preventive service for 1–5-year-old children in new foster placements. Consistent with the program goals, young children who completed the 7-week program with their foster caregivers displayed positive adjustment to their new homes, as evidenced by caregiver-reported decreases in trauma symptoms and behavior problems, as well as improvements in adaptive skills and caregiver-child relationships. One and six months after ending services, children who completed PC-CARE showed greater placement stability than those who did not complete services.

4.1. PC-CARE as a secondary prevention service

The current study is an open trial of a secondary prevention program within one county's DCFAS system. Although children had already been exposed to traumatic events and placement disruption, PC-CARE was offered to all foster families of 1–5-year-old children within the first 90 days of placement regardless of behavioral concerns with the goal of preventing further placement disruptions and new or worsening behavioral concerns. This focus on supporting a targeted subgroup that is at higher risk for experiencing mental health and behavioral problems (foster children) qualifies this program as a secondary

prevention program.

In the current sample, 35% of children were reported to have externalizing behavior problems above the clinical cutoff on the WACB. Although this number is lower than the average 42% of children in foster care demonstrating mental health concerns (Keil & Price, 2006), it is consistent with studies of preschoolers in foster care (Burns et al., 2004). Although the majority of the current sample did not have clinically significant behavior problems, they did show significant reductions in trauma symptoms and externalizing behaviors, increases in adaptive skills, and caregiver-reported improvements in the caregiver-child relationship. The only measure for which the presence of difficult behaviors at pre-intervention was related to the pre-to post-intervention change was the WACB. This finding is not surprising since the WACB was used to determine the cutoff. Children with difficult behaviors, by definition, had higher WACB scores at pre-intervention than those without difficult behaviors, and their scores had more room for improvement. Even children below the cutoff at baseline showed reductions in externalizing behavior from pre- to post-intervention, but they may have experienced a floor effect without the possibility to show the changes seen in the group who started the intervention with higher scores. Importantly, whether children had difficult behaviors at pre-intervention was not related to their acquisition of adaptive skills, improvements in the caregiver-child relationship, reductions in trauma symptoms, or reductions in behavior problems on another standardized measure. These results suggest that PC-CARE may be a beneficial secondary preventive intervention for children in foster care to prevent new or worsening behavior problems, to enhance caregiver-child relationships, and to promote adaptive skills.

Additionally, the low intervention attrition rate suggests that PC-CARE is acceptable to caregivers. In clinical samples of children attending parenting interventions, attrition rates can be as high as 40–60% (Kazdin, 2008), but in this non-clinical sample of foster families, the PC-CARE attrition rate was 23%. There are many factors that may have contributed to the current lower attrition rate, including services being offered in the home to reduce transportation barriers, presented as prevention rather than treatment to normalize the effects of trauma and reduce stigma, and easier to complete with only seven sessions to reduce time commitments. It is also possible that learning new skills every week and seeing weekly progress was related to caregivers' motivation to complete PC-CARE. It is also possible that foster caregivers, who have chosen to care for these high-risk children and who received continuing education credits for participation, were more motivated to complete treatment than families in non-foster care samples. Of note, the attrition rate in this sample is higher than that of an open trial of PC-CARE in an outpatient mental health setting (8%; Timmer et al., 2019). This discrepancy may suggest that foster families are less likely to complete PC-CARE than non-foster families, potentially for reasons outside of the caregiver's control (e.g., children were moved to a new home) or because foster parents did not see the added value of completing PC-CARE when their children did not have behavior concerns and/or their schedules were already busy. Overall, the attrition rate of the current study suggests that PC-CARE is generally acceptable to foster families but that it may be more difficult to engage foster families through an entire course of PC-CARE as secondary prevention than it is for non-foster families seeking mental health treatment.

Importantly, caregivers who identified as African American were more likely to discontinue services than caregivers of other ethnic groups. There are many potential reasons for this finding, including intervention-level problems with the cultural acceptability of the content or process, service-level problems (e.g., provider fit, access/engagement barriers), and systemic barriers (e.g., work hours, childcare, competing requirements). Regardless, this finding is concerning and should be further examined in future research so that the intervention can be adjusted to promote accessibility and acceptability for all families.

4.2. Placement stability

Of great importance was that the Fostering Secure Placements program met its goal of supporting placement stability. Few children who completed PC-CARE experienced placement disruptions other than those related to reunification or permanent placements up to six months after ending services. Results point to the value of providing brief, targeted services to foster caregivers and children early in the placement. There are many reasons for placement disruptions, many of which are positive and not changeable (e.g., placing siblings together); however, children who completed PC-CARE were more likely to maintain their current placement than children who did not complete PC-CARE. Completing PC-CARE cannot be causally related to placement stability, as this was not a randomized controlled trial. However, the results of the one- and six-month follow-up data suggest that PC-CARE completion was associated with placement stability, whereas child and caregiver factors were not. At one month, children whose caregivers initially reported difficult behaviors were also marginally more likely to have changed placements to a new foster home. This finding is consistent with other studies that find disruptive behaviors are a primary cause of placement instability for children (Chamberlain et al., 2006; Newton et al., 2000). Interestingly, pre-intervention disruptive behaviors were no longer associated with placement disruption six months after the intervention. Future research should assess the temporal association between difficult behaviors and placement disruption. If the most recent behaviors are most associated with placement disruption, then interventions such as PC-CARE that seek to reduce current or prevent future difficult behaviors may be especially useful in preventing placement disruptions.

It is unknown why children who completed PC-CARE were more likely to show placement stability than those who did not complete services. Importantly all placement stability data were in reference to the child's last known placement, so that ending treatment due to a placement change would not impact placement stability outcomes. This is an important distinction because it ensures the placement outcomes cannot also be the cause of intervention non-completion. While reducing trauma and externalizing symptoms is likely related to better placement stability, other aspects of the intervention and/or caregiver characteristics may be important contributing factors. For example, feeling supported with services may increase caregivers' willingness to maintain difficult placements, as foster caregivers' willingness to become foster parents is related to the quality of support they believe they will receive when difficulties arise (Cox, Orme, & Rhodes, 2003). Additional research should investigate the mechanisms of placement stability for children who completed PC-CARE. Results of the current study do, however, provide initial support that offering PC-CARE as a secondary preventive service may help to improve placement stability for young foster children.

4.3. Implications

Once children enter the foster care system, they are eligible for a variety of programs to ensure their health and well-being. Depending on the jurisdiction, this can include public health nurse screenings, medical and dental visits, and access to mental health services, among others. In the current study, PC-CARE was offered as a secondary preventive service to all foster caregivers of 1–5-year-old children as one of these many programs within the first 90 days of placement. Results suggest that incorporating PC-CARE as a regular component of foster care programming was associated with improvements in children's mental health, including reductions in trauma and externalizing behavior symptoms, improvements in positive adaptive functioning, enhanced caregiver-child relationships, and high placement stability.

Offering PC-CARE as a secondary preventive service could be a viable option for increasing access to mental health services for foster children. Research suggests that as few as 25–50% of children in foster

care attend a first mental health appointment (Burns et al., 2004; Dashiell-Earp & Zlotnik, 2011), and attrition rates once in services can be as high as 40–60% (Kazdin, 2008). PC-CARE is a manualized 7-session program that can be provided in-home by non-mental health professionals, including Bachelor's level providers. In the current sample, 77% of families completed PC-CARE (excluding those with permanency-related moves), and services were offered by a range of providers, from Bachelor's to Doctoral level. Training non-mental health professionals to provide these services could allow families to receive help before more serious problems develop, while they are waiting for mental health services, and/or when stigma related to mental health creates a barrier to engaging in services.

4.4. Limitations

The current study has limitations that impact the generalizability of findings. This study represents an open trial of a county-wide program implementation project; therefore, it is not a randomized controlled trial, and causation cannot be inferred. Comparing PC-CARE completers to non-completers when assessing placement stability also has limitations, including that it does not allow for comparisons with children whose caregiver refused services entirely. Randomized controlled trials are needed to ensure that the improvements in children's functioning and placement stability are attributable to PC-CARE rather than another factor. Of note, the behavioral findings of this study are consistent with the behavioral improvements noted in another open trial of PC-CARE in a mental health outpatient clinic (Timmer et al., 2019), and research suggests that children's behavior problems generally persist without mental health intervention (Funderburk, Eyberg, Rick, & Behar, 2003).

Another limitation associated with an open trial is that caregivers had various motivations for participating in PC-CARE. Services were voluntary, so the caregivers that chose to participate had some reason to do so, whether wanting help with difficult behaviors, continuing education credits, or other motives. Additionally, all services began within the first 90 days of placement, making it difficult to determine whether services offered later would have similar outcomes. Future research should include a randomized controlled trial and could assess how various caregiver motives to participate in services, timing of services, and participant demographics relate to outcome differences.

4.5. Summary

The purpose of this study was to assess the preliminary outcomes of a joint program between DCFAS and mental health to offer PC-CARE, a brief 7-session dyadic intervention, as a secondary preventive service for all newly placed foster children aged 1–5 years and their foster caregivers throughout a single county. The primary goals of the program were to improve children's adjustment to their new homes and to increase placement stability. Data collection included pre- and post-intervention performance outcomes, weekly behavior information, and placement stability information at one- and six-months post-intervention. Excluding children who left services due to permanency-related placement changes, PC-CARE had a retention rate of 77%. Results indicated that children who completed PC-CARE displayed decreases in externalizing behaviors and trauma symptoms, increases in adaptive functioning, and improved caregiver-child relationships from pre- to post-intervention. Additionally, children who completed PC-CARE were more likely to be in the same placement and less likely to have had a placement disruption to another foster home than children who did not complete PC-CARE. These findings suggest that PC-CARE may be a beneficial secondary preventive service to support the adjustment of young foster children into new homes and to support placement stability for these children, as well as encourage continued research into the efficacy of PC-CARE.

Author note

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CRediT authorship contribution statement

Brandi N. Hawk: Conceptualization, Methodology, Formal analysis, Writing - original draft, Visualization. **Susan G. Timmer:** Conceptualization, Methodology, Software, Validation, Data curation, Writing - review & editing, Supervision, Project administration, Funding acquisition. **Lindsay A.F. Armendariz:** Methodology, Project administration. **Deanna K. Boys:** Methodology, Software, Investigation. **Anthony J. Urquiza:** Conceptualization, Supervision.

Declaration of Competing Interest

The authors have no conflicts of interests to disclose.

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