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Promoting First Relationships®: Randomized Trial of a 10-week Home Visiting Program with Families Referred to Child Protective Services

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Abstract

We conducted a community-based randomized control trial with intent-to-treat analysis on *Promoting First Relationships*® (PFR), a 10-week home visiting program. The study included 247 families with 10–24-month-old children who had a recent, open Child Protective Services investigation of child maltreatment. Families were randomly assigned to receive either the 10-week, home visiting PFR service or a telephone-based, 3-call resource and referral (R&R) service. Across post-intervention time points, parents in the PFR condition scored higher than families in the R&R condition in parent understanding of toddlers' social emotional needs ($d = .35$) and observed parental sensitivity ($d = .20$). Children in the PFR condition scored lower than children in the comparison condition on an observational measure of atypical affective communication ($d = .19$) and were less likely than children in the comparison group to be placed into foster care through one year post-intervention (6% vs. 13%, $p = .042$). No significant differences were found on measures of parenting stress or child social-emotional competence, behavior problems, or secure base behavior. Overall, the results show support for the promise of PFR as an intervention for enhancing parent sensitivity and preventing child removals for families in the child welfare system.

Keywords

Child protective services; home visiting; randomized clinical trial (RCT); parental sensitivity; child welfare; Promoting First Relationships

Children aged birth to three make up one-third of cases that come to the attention of child welfare services (CWS) in the United States, a rate higher than any other age group (U.S. Department of Health and Human Services, 2015). Infants and toddlers are vulnerable to stressful experiences, especially maltreatment. Early-life adversities affect later-life morbidity and early mortality (Shonkoff et al., 2012). Maltreated children who become clients in CWS experience pervasive adversity and chronic stress that produce not only

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short-term mental and physical health problems, but also long-term health disparities and inequalities (Danese & McEwen, 2012; Jaffee & Christian, 2014; Shonkoff, Boyce, & McEwen, 2009).

The primary mechanism for intervention with child maltreatment cases is through state-supported CWS. Families reported for allegations of maltreatment to Child Protective Services (CPS) face a range of outcomes, including closed cases with no services, court-mandated family services, or removal of children from the home and placement in foster care. Removal, however, may compound the adverse consequences of prior maltreatment (Newton, Litrownik, & Landsverk, 2000; Rubin, O'Reilly, Luan, & Localio, 2007). Providing parental services to CWS families to prevent removal is, as Barth et al. (2005) note, "clearly a linchpin of governmental responsibility ... to provide, preserve, maintain, or reunify families. ... Effective CWS must rely on effective parent training and support—as this is the primary intervention that child welfare agencies provide in trying to preserve or reunify families." (p. 353).

Promoting First Relationships®

Promoting First Relationships® (PFR; Kelly, Sandoval, Zuckerman, & Buehlman, 2003; 2008) is a 10-week, relationship- and strengths-based home visiting service that aims to help families facing adversity, including those involved in CWS. PFR seeks to increase caregivers' awareness of their children's social and emotional needs, including their need for a sense of safety and security, as well as increasing caregivers' understanding of their own needs as parents. Better recognition and response to the child's needs supports the development of a more secure attachment (Bowlby, 1969; 1982). Infants rely on the parent as a source of comfort when fearful or distressed and as a base from which to explore their world. From this they develop a sense of "felt security" that attachment figures are trustworthy and responsive.

PFR service providers are trained to focus on the relationship between the parent and child and become keen observers of this dyadic dance, or the lack thereof. Providers employ these observational skills using video-based feedback with parents. The parent and child are recorded playing together five times during the 10-week PFR program. The PFR provider will then review a recorded play session with the parent, typically the week following the date on which the session was recorded. The provider and parent reflect on the recorded interactions, noting what the child is doing in relation to the caregiver's behavior and what the caregiver is doing in response to the child.

PFR service providers are also trained to interact with families in a way that does not contribute to a caregiver's shame, guilt, and/or defensiveness. This model is based on the belief that in order to effectively facilitate change in parenting and to enhance the parent-child relationship, it is essential to first establish a relationship with the parent that enhances the parent's own feelings of safety and security (Crittenden, 2016; Graybeal, 2007; Larrieu & Zeanah, 2004). Crittenden (2016) has argued that a "bridge" should be created between the maltreating parent and the service provider's goals of protecting the child and improving parenting. Under conditions of perceived threat, a parent relies on defensive and self-

protective strategies, and this can jeopardize a parent's ability to integrate insights with behaviors and capacities. Threats from social service providers range from the capacity to remove a child from the home to more subtle behaviors such as use of judgmental language, derogatory labels, and actions that humiliate a parent or increase his/her guilt or shame (Crittenden, 2016). Thus, addressing the interactive behavior of service providers, including their use of verbal and nonverbal communication, should be the cornerstone of any intervention serving CWS families.

Promising results in quasi-experimental studies led to the first randomized control trial (RCT) of PFR. This trial was conducted within the CWS system and enrolled foster parents, kin providers, and birth parents caring for toddlers recently placed with or returned to them. Parents in the PFR condition showed post-intervention improvements compared to the control group in parent understanding of toddlers' social emotional needs, parent report of child competence, and observed parental sensitivity (Spieker, Oxford, Kelly, Nelson, & Fleming, 2012). Permanency outcomes (adoption or guardianship) achieved without any care disruptions were significantly higher in the PFR condition (Spieker, Oxford, & Fleming, 2014). Secondary analysis identified stronger positive effect sizes at 6-month follow-up on the subsample of dyads headed by birth parents, relative to the full sample results (Oxford, Marcenko, Fleming, Lohr, & Spieker, 2016).

The Current Study

In this study we report on the second RCT of PFR, which involved families with 10–24-month-old infants and toddlers who had recently been reported to CPS with allegations of child maltreatment. Like its predecessor, this RCT was a “real-world” evaluation that relied on community-based service providers to deliver PFR. Families were recruited through a partnership with Washington State Children's Administration CPS and then randomized to the experimental or comparison conditions. We hypothesized that PFR, as delivered by community providers, would result in improved parenting and child social and emotional outcomes relative to the comparison condition in which families received phone-based resource and referral services. Further, we hypothesized that those receiving PFR would experience better outcomes within the child welfare system, including a lower likelihood of the child being removed from parental care and placed into foster care.

Method

Participants

The current study looks at the Supporting Parents Program (SPP). With approval from the Washington State Institutional Review Board, the SPP enrolled 247 birth parents with infants and toddlers between January 2011 and January 2014. The flow of participant recruitment, assignment, and completion of assessments is shown in Figure 1.

Eligibility and recruitment—Participants were eligible if they were conversant in English, had housing, and lived in Snohomish, southern Skagit, or northern King County in Washington State. Participants also had to have a child between the ages of 10–24 months and an open case with an allegation of maltreatment of any type recorded in the database of

the regional CPS office at least two weeks prior. In 31 instances the identified child in our target age range (10–24 months) was not the identified victim according to CPS reports. A Department of Child and Family Services (DCFS) volunteer, trained for the purpose of the study, scanned the Washington State Dept. of Social and Health Services (DSHS) database on a monthly basis and created a list of potentially eligible families ($N = 1,070$). She then went down the list, contacting potential participants and describing the study in detail. If the potential participant was eligible and interested in the study, permission was obtained to forward contact information to the research team. The DCFS volunteer continued contacting potentially eligible families on the list until 7–8 families were enrolled in the study per month. Once the study had reached the monthly enrollment quota, no more families were contacted until the following month. Overall, 514 of the 1,070 potential families (48%) did not have an initial contact, primarily because they did not answer their phones or had disconnected phones, and only occasionally because the monthly quota had been reached. Among the 556 families contacted by phone, we found 172 (31%) were not eligible, reflecting the fact that database information was inaccurate or incomplete. Of the 384 eligible families, 251 agreed to an initial in-home research visit. The study research visitor met with families to obtain written consent and conduct the research visit. An additional four families were determined to be ineligible during these visits. For those eligible, the study consent form was read to and discussed with parents to ensure they were aware that participation was voluntary, that the study did not fulfill any family service requirements by DSHS, and that subject incentives were for the *research visits* only. Study family compensation increased from \$50 to \$100 across the research visits for a total of \$300 for all four assessments.

One parent and one child from each family were the primary participants in the interventions and were assessed at four time points (see Measures and Procedures for details). Following the first research visit, families were randomized to receive PFR ($n = 124$) or the Resource and Referral (R&R) program ($n = 123$), using a computer randomization program that blocked families based on race and ethnicity. According to DSHS records, the 247 study families were similar to the 823 potential families identified in the DSHS database and *not* enrolled in terms of race, $\chi^2(5, N = 1070) = 8.10, p = .15$, and Hispanic ethnicity, $\chi^2(2, N = 1070) = 1.81, p = .40$. For the 216 families in which the enrolled child was the alleged victim of maltreatment according to CWS records, the mean number of weeks between initial allegation and enrollment in the research project was 8.17 ($SD = 32.46$) and did not differ by condition, R&R: $M(SD) = 7.38(33.76)$; PFR: $M(SD) = 8.92(31.28)$; $t(211) = 0.35, p = .729$. Information on demographic and other baseline characteristics is shown by condition in Table 1. Among all the variables listed in Table 1, there were no statistically significant ($p < .05$) differences by condition.

Promoting First Relationships® (PFR) Intervention Components

The manualized *Promoting First Relationships*® intervention was delivered by two providers from a community agency. Both providers were female, Caucasian, and had Master's degrees in social work or counseling. The providers completed PFR training over a five-month period and, after becoming certified, began meeting with study families. Throughout the study, fidelity was monitored by a PFR master trainer (Oxford, Spieker, Lohr, Fleming,

Dillon, & Rees, 2016). The providers submitted videotapes of themselves working with the families (one videotaped session for each family on their caseload), which the master trainer used to rate the quality of delivery on a 1–5 scale. If a provider did not maintain fidelity (i.e., received a rating < 4 for a videotaped session), she received additional one-on-one mentoring until her fidelity to PFR was re-established. The PFR training model also included weekly reflective practice group sessions, facilitated by a PFR consultant, to support providers in their work with vulnerable families which was often stressful.

After completing the PFR program, the families were given a 10-item questionnaire to evaluate their experience with the intervention (satisfaction, effectiveness, overall experience, usefulness, relevance), the provider (attentive, warm, affirming, sensitive), and their recommendation of PFR. The response rate was 78.5%, and the internal consistency of the scale was good ($\alpha = .77$). PFR participants rated PFR very highly ($M = 3.9$, $SD = .2$; range = 1–4, higher scores = greater satisfaction), and all would recommend the program (Oxford, Spieker, et al., 2016).

Resource and Referral (R&R) Intervention Components

The R&R program was delivered over the phone in three sessions. A social service provider conducted a 30-minute needs assessment, mailed a packet of personalized information, and followed up with two 10-minute check-in calls. The main needs identified by study families were financial support, education, household items, housing, and parenting support. A standard resource list, developed by the study, was sent to each R&R family containing information on over 150 local services. In addition, the social service provider included an average of six specific resources for each individual family (range = 0–15).

Dosage

Completion rates for the two interventions were high. In the PFR condition, 86% received a full course of ten sessions. In the R&R condition, 89% had all three telephone sessions. Most of the families were able to begin the interventions: only 7% of the PFR families and 3% of the R&R families had no intervention sessions. Of those who started the PFR intervention, 7% missed between 1–9 sessions, and in R&R 10% missed 1 or 2 sessions. The mean number of weeks required for completion of PFR was monitored and the R&R intervention was timed such that the average time from first to last intervention visit was equivalent, R&R: $M(SD) = 14.1 (3.2)$, range = 7–35; PFR: $M(SD) = 14.3 (5.4)$, range = 5–36; $t(213) = 0.23$, $p = .82$.

Measures and Procedures

Infants and their caregivers were assessed in 2-hour, in-home research visits at baseline, immediately after completion of the intervention (i.e., post-intervention), and at the 3- and 6-month post-intervention follow-ups. Assessments were conducted by study research visitors who had MSW degrees, were kept blind to intervention assignment, and whose offices were not near the PFR or R&R intervention staff. Visits included the following elements: interview questions, self-report questionnaires, videotaped caregiver-child interactions of free play, a teaching task, and a brief separation procedure. Although the mean number of weeks spent completing the intervention did not differ between the conditions, the actual

number of weeks between baseline assessment and the post-intervention assessment was greater for dyads in the PFR condition, R&R: $M(SD) = 16.64 (3.51)$; PFR: $M(SD) = 18.47 (6.82)$; $t(177) = 2.54$, $p < .05$, because it took longer to schedule and complete the first PFR in-home intervention session compared to the first R&R phone session. Time between baseline and post-intervention follow-up was thus included as a covariate in analyses. A child that experienced a caregiver change following the intervention completed later assessments with the new caregiver. Over the course of the study, 14 new, non-birth parent caregivers were enrolled and completed study procedures with the study child in their custody. For the analyses of intervention effects, data for post-intervention and follow-up time points come from visits with child-parent dyads that remained intact since baseline (see Figure 1). Analyses examining removals include the full sample of children.

There were few differences between dyads that remained intact and completed follow-up interviews compared to families that were not intact and/or did not complete follow-up interviews. At none of the four follow-up time points were there statistically significant differences by completion status on any of the sociodemographic variables listed in Table 1.

Caregiver outcomes—*Understanding of toddlers* was measured by the *Raising a Baby* scale (RAB; Kelly, Korfmacher, & Buehlman, 2008) at the post-intervention and 6-month follow-ups. The RAB is a measure of caregiver knowledge of infant and toddler social emotional needs and developmentally appropriate expectations. Caregivers rated RAB items on a 4-point scale (*strongly agree* to *strongly disagree*) (16 items; alphas ranged from .73–.77). Higher scores indicate greater parental knowledge.

Parent sensitivity was measured at all four time points by a modified total score of the *Nursing Child Assessment Teaching Scale* (NCATS; Barnard, 1994), a videotaped interaction to assess caregiver sensitivity, stimulation of the child, and emotional responsiveness and contingent interactions between the parent and child. The scale was modified from the original measure to exclude some items that demonstrated low variability. A total score was based on 45 items that covered mutuality (e.g. contingency, gaze, and positive affect), caregiver verbal and nonverbal support of child, and sensitive instruction during the teaching task. Items were scored *yes* (1) or *no* (0), and yes scores were summed. Cronbach's alpha ranged from .68–.72, reflecting that the total sensitivity score covers a multidimensional construct. A single, blinded coder was trained to reliability by a certified NCATS instructor and passed regular reliability checks.

Parenting stress was measured by scales selected from the *Parenting Stress Index* and the *Parenting Stress Index-Short Form* (PSI-3, PSI-SF; Abidin, 1995). The Parent-Child Dysfunctional Interaction Scale from the PSI-SF (11 items) and the Parenting Competence Scale from the PSI-3 (11 items) were used. Items were rated on 4-point scales (*strongly agree* to *strongly disagree*). Two items measuring parental educational attainment from the original parenting competence scale were omitted due to excessive missing data. Higher scores indicate greater parental stress associated with feelings of incompetence or dysfunctional parent-child interactions (i.e., interactions are not reinforcing or satisfying). Alphas ranged from .71–.94 across the two measures and across time points.

Child outcomes—Child social-emotional *competence* (11 items; alphas = .69–.70) and *behavior problems* (31 items; alphas = .77–.79) were measured by the *Brief Infant Toddler Social and Emotional Assessment* (BITSEA; Briggs-Gowan & Carter, 2002). Descriptions of positive and problematic social-emotional behaviors in the last month were rated on a 3-point scale (*not true/rarely; somewhat true/sometimes; very true/often*).

At baseline and again at the 3-month follow-up, blinded research visitors rated the child's behavior during administration of a standardized developmental test using the *Bayley Behavior Rating Scales* (BRS; Bayley 1993). Seven items in the BRS comprise the *emotion regulation* scale and capture how well the child adapts to challenging stimuli and frustration (alphas = .79–.83). *Engagement/exploration* consists of six items rated for exploratory behavior in the testing situation (alphas = .75–.76).

Secure base behavior and *atypical, affective communication* were measured with the *Toddler Attachment Sort-45* (TAS-45; Kirkland, Bimler, Drawneek, McKim, & Schölmerich, 2004). The TAS-45 is based on 39 items from the *Attachment Q-Sort* (AQS; Waters, 1987), an attachment measure that has been extensively validated (van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004), plus six additional items tapping atypical, affective communication. Because we were dissatisfied with the TAS-45 trilemma scoring system used in our previous study (Spieker et al., 2012), in this study we applied the five-pile sorting procedure that produced good psychometrics for an overall TAS-45 *security* score in the Early Childhood Longitudinal Study –Birth Cohort (ECLS-B) (Andreassen, Fletcher, & Park, 2006). Immediately after research home visits, the research visitors sorted cards for 45 descriptive statements of child attachment behavior into five piles representing “most like” to “least like” the child. A maximum of 18 cards could be placed in one pile. Item rankings were then used to calculate an overall security score and the orthogonal ‘D hotspot’ scale representing atypical affective communication. Four research study visitors were trained over the course of the study to score the TAS-45 by taking into consideration the child’s behavior during home visits. These visits included a brief separation procedure in which the caregiver was instructed to play with the child for a minute, say good-bye, leave the home for three minutes, and then return. The research study visitor did not interact with the child during the separation. To assess reliability across the project, 88 videotaped sessions were coded by pairs of raters. Inter-rater reliability was $r = .75$ for security and $r = .79$ for the D hotspot scale. Reliability was monitored and maintained during monthly meetings of the research study visitors and coinvestigator, when videotapes of parent-child interactions were coded and discussed.

Information on *allegations* of child maltreatment after enrollment in the project and *removals* from the birth parent home was based on official CWS records obtained in September, 2015. For each child in the study, we obtained records of new maltreatment allegations and CWS-initiated removals that occurred between baseline and 12 months after the child’s parent completed the PFR or R&R interventions. For cases where the parent did not start or did not fully complete the intervention, we obtained information on allegations and removals that occurred within 12 months of when the parent *would have* completed the intervention if the parent had done so on schedule.

Analysis

To assess PFR effects on all parent-report and observational measures, we used models that examined differences based on measures from post-intervention time points, adjusting for baseline score on the given measure, age of child at baseline, and months between baseline and post-intervention assessment. For measures assessed at only one post-intervention time point (i.e., the two Bayley BRS scales), we used regression models with the post-intervention measurement as the measured, manifest dependent variable. For measures assessed at multiple post-intervention time points, mixed models were estimated in which post-intervention scores were nested within dyads. The intercept (representing the average score across post-intervention time points) was modeled as having a random effect at the dyad level. The intercept in the mixed model was regressed on intervention condition (R&R = 0, PFR = 1) and covariates. We also ran models that included an effect of time (with loadings of -1, 0, and 1 for the post-intervention, 3-month, and 6-month follow-up time points, respectively) and the interaction between time and intervention condition. In none of the models were intervention effects on post-intervention slope (i.e., change across the three post-intervention time points) statistically significant, nor did modeling the slope and slope-by-intervention condition change the estimated effects of intervention on intercepts in terms of direction or significance level. In no models was the variance of the random effect of time statistically significant, suggesting that there was little variability across dyads in linear change across the three time points. Thus, we present below the estimates for simpler models without the time effect. We present both unstandardized intervention effects from these models and standardized effect sizes (d) based on re-running the models using standardized scores for the outcomes (Lipsey & Wilson, 2001).

Models were estimated using Mplus 7.31 (Muthén & Muthén, 1998–2015). Full Information Maximum Likelihood (FIML) estimation allowed for inclusion of all cases, even those with partially missing data, although estimates are primarily informed by data on dyads that stayed intact through follow-up and completed follow-up assessments. A small number of cases (< 5) had missing data on some baseline measures and, of intact dyads that completed follow-up assessments, missing data on particular measures were minimal (< 2%). FIML estimation makes the assumption that data were missing at random after taking modeled variables into account (Graham, 2009).

To assess intervention effects on allegations and child removals, we used continuous time survival models. These models assess the effect of PFR on the likelihood of an allegation or the child being removed from the home from baseline through one year post-intervention. For children who were not removed from the home, survival model data were right censored at one year post-intervention completion, which is approximately 15 months post-baseline (i.e., the date beyond which we did not have CWS records). The survival models included child age at baseline as a covariate.

Results

Means by condition on all continuous measures at all time points are shown in Table 2. Difference of means tests indicate one statistically significant difference at *baseline*, with R&R dyads receiving higher scores on NCATS parenting sensitivity, $t(244) = 2.01, p < .05$.

Estimates of PFR effects on measures post-intervention are shown in Table 3. PFR had a positive and statistically significant effect on parent understanding of toddlers (RAB). The effect was equivalent to .35 standard deviations on the measure, with parents in the PFR condition scoring higher than parents in the R&R condition. Although parents in the PFR condition scored significantly *lower* than R&R parents in observed sensitivity at baseline, parents in the PFR condition scored *higher* at all three post-intervention time points. The estimated effect of PFR in the mixed model was equivalent to a fifth of a standard deviation in the outcome. Differences on parent-child interactions and parent feeling of competence as reported on the PSI were not different across condition. Child behavioral outcomes as measured both by the parent-reports and study research visitor observational ratings of emotion-regulation and engagement/exploration on the Bayley Behavior Rating Scale, and secure base behavior on the TAS-45, also showed no evidence of PFR effects. Differences on the observation of atypical affective communication were statistically significant, with children in the PFR condition scoring a fifth of a standard deviation lower than children in the R&R condition.

Between enrollment and one year post-intervention, there were new allegations for 36 (29.0%) children in the PFR condition and 42 (31.6%) in the R&R condition. Survival models indicated that chances of a new allegation did not differ significantly by condition, Hazard ratio = 1.14; $p = .577$; 95% Confidence Interval (CI) = 0.72–1.79. Children in the PFR condition were, however, less likely to be removed from a birth parent's home. Within one year post-intervention, 7 (5.6%) children in the PFR condition had been removed from the home compared to 16 (13.0%) children in the R&R condition. Survival models indicated that chances of removal from the birth parent home were 2.5 times greater for children in the R&R condition than children in the PFR condition at any given time, Hazard ratio = 2.50; $p = .043$; 95% CI = 1.03–6.10. The cumulative difference in removals is shown in Figure 2.

Discussion

This study is part of an ongoing program of research on the effectiveness of the *Promoting First Relationships*® (PFR) intervention in improving parent sensitivity, parent knowledge of child development, child secure base behavior, child social and emotional outcomes, and child welfare outcomes. As in our prior RCT of PFR with families in new child welfare placements, we found evidence that PFR increases a caregiver's knowledge of toddler social emotional needs and, based on an observational instrument, improves caregiver sensitivity to child cues and ability to engage in responsive interactions with children, relative to parents in the comparison condition. These findings increase our confidence that PFR has beneficial effects on proximal outcomes of parent knowledge and parent sensitivity.

We also found an important difference in child welfare experiences. All families in the current study had drawn attention from the child welfare system due to allegations of maltreatment, primarily of the child in our study or of a sibling while the infant/toddler in our study was an additional subject of the investigation. By 15 months post-baseline, official child welfare data revealed that 13.0% of the R&R children had been removed from the home compared to 5.6% of the PFR children. This result is promising, indicating that, for some families, a PFR referral following a report of child maltreatment may prevent a future

need to remove the child and place him/her into foster care. We are not aware of other studies of home visiting programs that reduced the likelihood of subsequent foster care placement (Olds, 2006; Dozier et al., 2006; Duggan et al., 2004; Gershater-Molko, Lutzker, & Wesch, 2002), and few have shown effectiveness to reduce maltreatment. A recent meta-analysis of 27 studies estimated the effect size to be $d = .13$ or adjusted effect size $d = .02$ for home visiting programs to reduce maltreatment (Euser, Alink, Stoltenborgh, Bakermans-Kranenburg, & van IJzendoorn, 2015). Our current findings are consistent with our earlier RCT in which the PFR group had a higher rate of achieving permanency without separation for toddlers in foster or kinship care (Spieker et al., 2014). These two studies add to the evidence base that some forms of home visiting have the potential to alter an infant or toddler's trajectory within the child welfare system. That PFR might prevent or minimize parent-child separations is an important outcome for young children in child welfare and likely has substantial cost benefits. In addition to the benefits for the child welfare system, we would anticipate that the prevention of a parent-child relationship disruption coupled with the improvements in parental sensitivity and child development knowledge would have an ongoing, generative effect beyond the 15 months follow-up time period. Further research that documents longer-term outcomes would be an important next step.

In this study we assessed secure base behavior with the five-card sort that had been used in the ECLS-B study (Andreassen et al., 2006), as opposed to the trilemma sort version we used in our prior study (Pasalich, Fleming, Oxford, Zheng, & Spieker, 2016; Spieker et al., 2012). Across both sorting methods, results using the TAS-45 in our two studies have been mixed. In both studies we did not find main effects of PFR on child secure base behavior, at least up to 6 months post-intervention when children were just under two years of age. In follow-up analyses of our prior RCT we found an interaction between PFR and secure base behavior, such that for toddlers with a history of multiple placements, PFR improved secure base behavior (Pasalich et al., 2016). In the current study, thus far, we have only found a PFR main effect for fewer displays of child atypical affective communication on the TAS-45.

We did not find intervention effects on child social-emotional competence or behavior problems for either parent or research visitor ratings of the child. In our prior RCT we found positive main effects on competence but not problem behavior (Spieker et al., 2012). We also found, however, a moderated-mediation, such that for toddlers with a history of more than four placements, PFR predicted greater secure base behavior, which in turn buffered them against the development or exacerbation of externalizing problems (Pasalich, Fleming, Oxford, Zheng, & Spieker, 2016). Similarly, for a subsample of 43 reunified children and their birth parents in the same RCT, we found stronger effects ($d = .55$ to $.57$) on problem behavior (Oxford, Marcenko et al., 2016). It maybe that finding improvements in problem behavior is more likely when the base rate of problem behavior is high or the children represent a higher risk group, as it would be in a sample of those who have experienced multiple placement disruptions or reunified children with birth parents (Villodas, Litrownik, Newton, & Davis, 2015).

As in our prior RCT, we successfully implemented the PFR intervention with fidelity in a real-world, child welfare context, employing community social service providers. We are

particularly encouraged by the high rate of completion of all ten sessions. Eighty-six percent of PFR participants completed the program, replicating what we found in our prior work (Spieker et al., 2012). Seven percent of those assigned to PFR never received an intervention visit; thus, of those who experienced at least one intervention visit, the completion rate was 93%. We believe that the specific PFR consultation strategies that seek to recognize the positive actions of parents and help them reflect on their interactions with their child with the aid of video feedback contribute to the high retention rates among those we served. All staff (PFR providers, R&R providers, and research visitors) were trained to be non-punitive for missed appointments, flexible in scheduling (including rescheduling and evening and weekend work), and to show respect towards families. In addition, PFR is relatively short-term and is narrowly focused on the parent-child relationship compared to other long-term home visiting programs that tend to have higher drop out rates (Duggan et al., 2004; Wagner, Spiker, & Linn, 2002). In comparison to Attachment Biobehavioral Catchup (ABC), another short-term, relationship-focused 10-week home visiting program, ABC retained 86% of their entire sample in at least one follow-up research visit (Lind, Bernard, Ross, & Dozier, 2014) which is similar to the 91% retained for research visits in this study. However, our retention rates could also be related to the extensive contact information we collected for each family, so if a family moved or a phone was disconnected we were able to track them down through other contacts. It is also possible that the high completion rate was related to the monetary compensation parents received for participating in the research visits, although once randomized, engaging in the intervention was not required for participating in follow-up research visits and participants were not paid for the intervention visits.

Limitations

While the results of this study are promising, we did observe a smaller effect size on parental sensitivity relative to our first RCT (Spieker et al., 2012), although the effect was retained over the course of the follow-up. Contrary to our first study, we did not find effects on parental report of child behavior. Secure base behavior moved in the correct direction in both studies but was not significant. It should be noted that this study worked with families from one geographic area in Washington State and we were not able to contact all *potentially* eligible families. Almost half of the families identified in the electronic database could not or were not reached to determine if they were eligible or not; of those we reached, 31% were not eligible. Thus, although they did not differ from the enrolled sample on race and Hispanic ethnicity, it is possible that those not contacted differed from those that we did contact in important ways, which may affect the generalizability of our findings. Our findings may not be generalizable for families without access to a telephone, or who do not answer their phone for unknown numbers. For those who enrolled, all of the parents were English speaking, 77% were white, 79% received food stamps, and most lived in suburban to semi-rural settings. It would be important to replicate these findings with different populations and in trials conducted by researchers external to our group. Finally, future studies should include longer-term follow-up, including examination of CWS records, to assess whether intervention benefits are maintained and there are even longer-term impacts on CWS involvement.

Conclusions

With an expanding national policy focus on early childhood and birth-to-three services that enhance both parent and child well-being, it is increasingly important for those designing and evaluating programs to conduct studies within the populations served. To date, two clinical trials of PFR have been embedded in child welfare populations and have relied on training community providers for service delivery. High rates of participant satisfaction and retention combined with improved parental knowledge, observed sensitivity, and more stability (via child welfare outcomes) were found in both studies. PFR's strengths- and relationship-based approach is both respectful of and appreciated by families and this, in turn, appears to keep them engaged for the entire length of the program. The program intentionally focuses on increasing reflective capacity through the use of video feedback, which enables parents to engage in the content on a more personal level and to integrate it into their experience as parents. The implications of this work suggest that PFR is feasible, acceptable, and can improve CWS outcomes and parental sensitivity. It should be noted, however, that PFR only addresses one of the many needs of the CWS population. To address this population's more intractable problems, PFR could be paired with other programs that provide solutions related to financial support, education, household items, and housing.

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References

- Abidin RA. Parenting Stress Index: Short form (PSI-SF). Lutz, FL: Psychological Assessment Resources, Inc; 1995.
- Andreassen C, Fletcher P, Park J. Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) Psychometric report for the 2-year data collection. Washington D.C: U.S. Department of Education, National Center for Education Statistics; 2006. Toddlers security of attachment status. NCES 2006-045 Retrieved from http://eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED497762&ERICExtSearch_SearchType_0=no&accno=ED497762
- Barnard KE. What the Teaching Scale measures. In: Sumner GS, Spietz A, editors NCAST: Caregiver/parent-child interaction teaching manual. Seattle, WA: University of Washington NCAST Publications; 1994. 98–121.
- Barth RP, Landsverk J, Chamberlain P, Reid JB, Rolls JA, Hurlburt MS, ... Kohl PL. Parent-training programs in child welfare services: Planning for a more evidence-based approach to serving biological parents. *Research on Social Work Practice*. 2005; 15(5):353–371.
- Bayley N. Bayley scales of infant development. 2. San Antonio, TX: The Psychological Corporation; 1993.
- Bowlby J. Attachment and loss. Vol 1: Attachment. New York, NY: Basic Books; 1969.
- Bowlby J. Attachment and loss. Vol 1: Attachment. 2. New York, NY: Basic Books; 1982.
- Briggs-Gowan MJ, Carter AS. Brief Infant-Toddler Social and Emotional Assessment (BITSEA) manual, version 2.0. New Haven, CT: Yale University; 2002.
- Crittenden PM. Raising parents: Attachment, representation, and treatment. 2. London, UK: Routledge; 2016.
- Danese A, McEwen BS. Adverse childhood experiences, allostasis, allostatic load, and age-related disease. *Physiology & Behavior*. 2012; 106(1):29–39. [PubMed: 21888923]

- Dozier M, Peloso E, Lindhiem O, Gordon MK, Manni M, Sepulveda S, ... Levine S. Developing evidence-based interventions for foster children: An example of a randomized clinical trial with infants and toddlers. *Journal of Social Issues*. 2006; 62(4):765–783.
- Duggan A, McFarlane E, Fuddy L, Burrell L, Higman SM, Windham A, Sia C. Randomized trial of a statewide home visiting program: Impact in preventing child abuse and neglect. *Child Abuse & Neglect*. 2004; 28(6):597–622. [PubMed: 15193851]
- Euser S, Alink LRA, Stoltenborgh MN, Bakermans-Kranenburg MJ, van IJzendoorn MH. A gloomy picture: A meta-analysis of randomized control trials reveals disappointing effectiveness of programs aiming at preventing child maltreatment. *BMC Public Health*. 2015; 15:1068–1081. [PubMed: 26476980]
- Gershater-Molko RM, Lutzker JR, Wesch D. Using recidivism data to evaluate project Safecare: Teaching bonding, safety, and health care skills to parents. *Child Maltreatment*. 2002; 7(3):277–285. [PubMed: 12139194]
- Graham JW. Missing data analysis: making it work in the real world. *Annu Rev Psychol*. 2009; 60:549–576. [PubMed: 18652544]
- Graybeal C. Evidence for the art of social work. *Families in Society: Journal of Contemporary Social Services*. 2007; 88(4):513–523.
- Jaffee SR, Christian CW. The biological embedding of child abuse and neglect. *Social Policy Report*. 2014; 28(1)
- Kelly JF, Korfmacher J, Buehlman K. Ways of being with children. University of Washington; 2008. Unpublished manuscript
- Kelly J, Sandoval D, Zuckerman TG, Buehlman K. Promoting First Relationships: A program for service providers to help parents and other caregivers nurture young children's social and emotional development. Seattle, WA: NCAST Programs; 2003.
- Kelly J, Sandoval D, Zuckerman TG, Buehlman K. Promoting First Relationships: A program for service providers to help parents and other caregivers nurture young children's social and emotional development. 2. Seattle, WA: NCAST Programs; 2008.
- Kirkland J, Bimler D, Drawneek A, McKim M, Schölmerich A. An alternative approach for the analyses and interpretation of attachment sort items. *Early Child Development and Care*. 2004; 174(7–8):701–719.
- Larieu J, Zeanah C. Treating parent-infant relationships in the context of maltreatment. In: Sameroff A, McDonough S, Rosenblum K, editors Treating parent-infant relationship problems. New York, NY: The Guilford Press; 2004. 243–264.
- Lind T, Bernard K, Ross E, Dozier M. Intervention effects on negative affect of CPS-referred children: Results of a randomized clinical trial. *Child Abuse & Neglect*. 2014; 38(9):1459–1467. [PubMed: 24814751]
- Lipsey MW, Wilson DB. Practical meta-analysis. Thousand Oaks, CA: Sage Publications; 2001.
- Muthén LK, Muthén BO. Mplus User's Guide. 7. Los Angeles, CA: Muthén & Muthén; 1998–2015.
- Newton RR, Litrownik AJ, Landsverk JA. Children and youth in foster care: Disentangling the relationship between problem behaviors and number of placements. *Child Abuse & Neglect*. 2000; 24(10):1363–1374. [PubMed: 11075702]
- Olds DL. The nurse-family partnership: An evidence-based preventive intervention. *Infant Mental Health Journal*. 2006; 27(1):5–25. [PubMed: 28640426]
- Oxford ML, Findlay DM, editors NCAST Caregiver/Parent-Child Interaction Teaching Manual. 2. Seattle: NCAST Programs, University of Washington, School of Nursing; 2013.
- Oxford ML, Marcenko M, Fleming CB, Lohr MJ, Spieker SJ. Promoting birth parents' relationships with their toddlers upon reunification: Results from Promoting First Relationships® home visiting program. *Children and Youth Services Review*. 2016; 16:109–116.
- Oxford M, Spieker S, Lohr MJ, Fleming C, Dillon C, Rees J. Ensuring Implementation Fidelity of a 10-week Home Visiting Program in Two Randomized Clinical Trials. 2016 Manuscript submitted for publication.
- Pasalich DS, Fleming CB, Oxford ML, Zheng Y, Spieker SJ. Can parenting intervention prevent cascading effects from placement instability to insecure attachment to externalizing problems in maltreated toddlers? *Child Maltreatment*. 2016; 21(1):175–185. [PubMed: 27381935]

- Rubin DM, O'Reilly AL, Luan X, Localio AR. The impact of placement stability on behavioral well-being for children in foster care. *Pediatrics*. 2007; 119(2):336–344. 119/2/336 [pii]. DOI: 10.1542/peds.2006-1995 [PubMed: 17272624]
- Shonkoff J, Boyce T, McEwen B. Neuroscience, molecular biology, and the childhood roots of health disparities: Building a new framework for health promotion and disease prevention. *JAMA*. 2009; 301(21):2252–2259. [PubMed: 19491187]
- Shonkoff JP, Garner AS, Siegel BS, Dobbins MI, Earls MF, ... Wood DL. The Committee on Psychosocial Aspects of Child and Family Health Committee on Early Childhood Adoption Dependent Care and Section on Developmental and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 2012; 129(1):e232–e246. [PubMed: 22201156]
- Spieker SJ, Oxford ML, Fleming CB. Permanency outcomes for toddlers in child welfare two years after a randomized trial of a parenting intervention. *Children and Youth Services Review*. 2014; 44:201–206. [PubMed: 25125769]
- Spieker SJ, Oxford ML, Kelly JF, Nelson EM, Fleming CB. Promoting First Relationships: Randomized trial of a relationship-based intervention for toddlers in child welfare. *Child Maltreatment*. 2012; 17(4):271–286. [PubMed: 22949743]
- U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. *Child maltreatment 2013*. 2015
- van IJendoorn M, Vereijken C, Bakermans-Kranenburg M, Riksen-Walraven J. Assessing attachment security with the Attachment Q Sort: Meta-analytic evidence for the validity of the observer AQS. *Child Development*. 2004; 75(4):1188–1213. [PubMed: 15260872]
- Villodas MT, Litrownik AJ, Newton RR, Davis IP. Long-term placement trajectories of children who were maltreated and entered the child welfare system at an early age: Consequences for physical and behavioral well-being. *Journal of Pediatric Psychology*. 2015; 41(1):46–54. [PubMed: 25834181]
- Wagner M, Spiker D, Linn MI. The effectiveness of the Parents as Teachers program with low-income parents and children. *Topics in Early Childhood Special Education*. 2002; 22(2):67–81.
- Waters E. Attachment behavior Q-Set (revision 3.0). Stony Brook: State University of New York at Stony Brook, Department of Psychology; 1987.

Figure 1.
Supporting Parents Program study flowchart

Figure 2.
Cumulative proportion removed from birth parent home after baseline by condition

Table 1

Baseline characteristics by intervention condition

	R&R (<i>n</i> = 123)	PFR (<i>n</i> = 124)
	<i>n</i> (%)	<i>n</i> (%)
Parent female/mother	113 (91.1)	112 (90.3)
Parent race		
American Indian or Alaska Native	3 (2.4)	4 (3.2)
Asian	4 (3.3)	6 (4.8)
African American	7 (5.7)	6 (4.8)
White	95 (77.2)	96 (77.4)
Mixed/Other	14 (11.4)	12 (9.7)
Parent Hispanic	23 (18.7)	25 (20.2)
Child male	71 (57.7)	62 (50.0)
Child race		
American Indian or Alaska Native	2 (1.6)	0
Asian	1 (0.8)	4 (3.2)
African American	5 (4.1)	5 (4.0)
White	72 (58.5)	81 (65.3)
Mixed/Other	43 (35.0)	34 (27.4)
Child Hispanic	36 (29.3)	42 (33.9)
Parent education		
High school graduate	58 (47.2)	54 (43.5)
GED	35 (28.5)	40 (32.5)
Neither high school graduate nor GED	30 (24.4)	30 (24.4)
Parent employment status		
Employed full-time	21 (17.1)	19 (15.3)
Employed part-time	14 (11.4)	22 (17.7)
Unemployed/looking	33 (26.8)	37 (29.8)
Homemaker	32 (26.0)	24 (19.4)
Student	14 (11.4)	17 (13.7)
Other (disability/retired)	9 (7.3)	5 (4.0)
Parent marital status		
Never married	67 (54.5)	72 (58.1)
Married	34 (27.6)	26 (21.0)
Separated	12 (9.8)	14 (11.3)
Divorced	10 (8.1)	12 (9.7)
Parent lives with spouse/partner	62 (50.4)	54 (43.9)
Receives food stamps	99 (80.5)	96 (78.0)
Other children in the household	87 (70.7)	79 (63.7)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Child age in months at baseline	16.77 (4.55)	15.97 (4.37)

	R&R (<i>n</i> = 123)	PFR (<i>n</i> = 124)
	<i>n</i> (%)	<i>n</i> (%)
Parent age at baseline	27.04 (6.25)	26.41 (5.19)
Past year household income (\$)	24,174 (25,468)	19,591 (18,944)

Notes. R&R = Resource and Referral, PFR = Promoting First Relationships, GED = General Education Diploma.

Table 2

Means and standard deviations by experimental condition at four assessment time points by intervention condition.

	Baseline		Post-intervention		3-month follow-up		6-month follow-up	
	R&R (n=123) M (SD)	PFR (n=124) M (SD)	R&R (n=109) M (SD)	PFR (n=116) M (SD)	R&R (n=105) M (SD)	PFR (n=110) M (SD)	R&R (n=102) M (SD)	PFR (n=109) M (SD)
Parent understanding of toddlers			50.04 (4.40)	52.09 (5.17)			50.81 (4.91)	52.40 (5.30)
Parent sensitivity	27.97 (4.71)	26.94 (4.22)	26.70 (4.63)	27.34 (4.97)	27.39 (4.59)	27.77 (4.54)	27.18 (5.20)	28.07 (4.31)
Parenting stress: dysfunctional interaction	18.60 (5.67)	18.44 (5.28)			18.80 (5.04)	18.48 (5.73)	21.70 (5.26)	21.26 (4.78)
Parenting stress: competence ^a	16.59 (5.21)	16.03 (4.75)			19.95 (6.07)	19.73 (6.52)	19.33 (6.03)	19.80 (6.54)
Child social-emotional competence	16.30 (3.56)	15.80 (3.30)	17.37 (2.93)	17.40 (3.10)	17.41 (2.93)	17.55 (2.90)	17.78 (2.95)	17.72 (2.81)
Child behavior problems	10.96 (6.47)	10.84 (5.79)	12.19 (7.08)	11.01 (6.12)	11.80 (7.75)	11.82 (6.60)	11.87 (8.43)	11.23 (7.51)
Child emotion regulation	3.80 (0.60)	3.73 (0.66)			3.96 (0.65)	3.82 (0.64)		
Child engagement/exploration	4.21 (0.55)	4.19 (0.63)			4.25 (0.58)	4.15 (0.57)		
Child secure base behavior	0.46 (0.34)	0.45 (0.36)	0.51 (0.35)	0.52 (0.33)	0.56 (0.34)	0.56 (0.32)	.57 (0.31)	0.62 (0.33)
Child atypical, affective communication	-0.94 (0.44)	-0.91 (0.47)	-0.92 (0.42)	-0.96 (0.42)	-1.00 (0.38)	-1.02 (0.36)	-0.99 (0.34)	-1.05 (0.33)

Notes. R&R = Resource and Referral, PFR = Promoting First Relationships.

^aHigher scores indicate feeling a lack of competence.

Table 3

Estimates of effects of PFR on post-intervention scores

	Unstandardized PFR effect	Effect size
	<i>B</i> (<i>SE</i>)	<i>d</i>
Parent understanding of toddlers	1.74 (0.60)	.35 **
Parent sensitivity	0.94 (0.42)	.20 *
Parenting stress: dysfunctional interaction	−0.20 (0.50)	.04
Parenting stress: competence ^a	0.41 (0.53)	−.07
Child social-emotional competence	0.24 (0.25)	.10
Child behavior problems	−0.80 (0.66)	.12
Child emotion regulation	−0.07 (0.08)	−.11
Child exploration/engagement	−0.06 (0.08)	−.11
Child secure base behavior	0.05 (0.03)	.15
Child atypical affective communication	−0.07 (0.04)	.19 *

Notes. *B* = effect of PFR on post-intervention scores; *SE* = standard error; *d* = effect size (effect of PFR in outcome standard deviation units). A positive *d* indicates a beneficial effect of PFR. For outcomes measured at two or three post-intervention time points, the PFR effect is based on estimates from mixed models with post-intervention time points nested within individuals. For outcomes measured at one post-intervention time point, PFR is based on estimates from a linear regression model. Effect size (*d*) based on effect estimate from models using standardized outcome scores.

*
p < .05,

**
p < .01

^a Higher scores indicate feeling a lack of competence.