Parental childhood adversity, depressive symptoms, and parenting quality: Effects on toddler self-regulation in Child Welfare Services-involved families

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Abstract

Parents who are child welfare services-involved (CWSI) often have a history of childhood adversity and depressive symptoms. Both affect parenting quality, which in turn influences child adaptive functioning. We tested a model of the relations between parental depression and child regulatory outcomes first proposed by Lyons-Ruth and colleagues (2002). We hypothesized that both parental depression and parenting quality mediate the effects of parental early adversity on offspring regulatory outcomes. Participants were 123 CWSI parents and their toddlers who were assessed three times over a period of six months. At T1, parents reported on their childhood adversity and current depressive symptoms. At T2, parents' sensitivity to their child's distress and non-distress cues were rated from a videotaped teaching task. At T3, observers rated children's emotional regulation, orientation/engagement, and secure base behavior. The results of a path model partly supported hypotheses. Parent childhood adversity was associated with current depressive symptoms, which in turn was related to parent sensitivity to child distress but not non-distress. Sensitivity to distress also predicted secure base behavior. Depression directly predicted orientation/engagement, also predicted by sensitivity to non-distress. Sensitivity to distress predicted emotion regulation and orientation/engagement. Results are discussed in terms of intervention approaches for CWSI families.

The negative impacts of maternal depression on child development are widely documented and especially problematic for very young children's attachment security (Campbell, Brownell, Hungerford, Spieker, Mohan, & Blessing, 2004; Martins & Gaffan, 2000), and early regulatory abilities (Feldman, Granat, Pariente, Kanety, Kuint, & Gilboa-Schechtman, 2009; Maughan, Cicchetti, Toth, & Rogosch, 2007; O'Hara, 2009; Petterson & Albers, 2001). Infants of depressed mothers exhibit higher levels of negative emotional expressiveness, fewer positive facial expressions, difficulty self-soothing, and sustained social withdrawal (Cohn, Matias, Tronick, Connell, & Lyons-Ruth, 1986; Field, Diego, & Hernandez-Reif, 2009; Mantymaa, Puura, Luoma, Kaukonen, Salmelin, & Tamminen, 2008) compared to offspring of non-depressed mothers.

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Goodman and Gotlib (1999) present an integrated model of the transmission of risk to children of depressed mothers. One component of the model with broad empirical support proposes that a mother's depression interferes directly with her ability to have sensitive and appropriate interactions with her infant, particularly face-to-face interactions. Compared to non-depressed mothers, depressed mothers are less sensitively attuned to and synchronous with their infants (Murray, Fiori-Cowley, Hooper, & Cooper, 1996; Weinberg & Tronick, 1998), are less playful and more irritable, and show less positive and more negative or neutral affect during mother-baby interactions (Tronick & Reck, 2009). A depressed mother's response to infant distress seems to be more disrupted than response to non-distress (Shaw, Schonberg, Sherrill, Huffman, Lukon, Obrosky, & Kovacs, 2006). This is important in light of research evidence that maternal sensitivity to child distress, (but not sensitivity to non-distress) during free play at age six months is positively associated with 15-month attachment security (McElwain & Booth-LaForce, 2006), fewer child behavior problems and greater social competence (Leerkes, Blankson, & O'Brien, 2009).

In a refinement of the Goodman and Gotlib (1999) model, Lyons-Ruth, Wolfe, Lyubchik, and Steingard (2002) consider the role of maladaptive interaction patterns within the mother's family of origin. They point to the role of a mother's own early childhood adversity in transmitting risk and at least partially accounting for the associations between maternal depression and parenting behavior. Lyons-Ruth and colleagues propose a "weak model" of the relation between parental depression and child maladaptation. In this model it's assumed that parental depression is not the primary causal variable mediated by parenting that affects child outcomes. They cite research findings that negative parenting and infant-parent relationship issues remained after the remission of major depression. Subsequent systematic reviews also conclude that treating maternal depressive symptoms is not sufficient to improve parenting quality (Kersten-Alvarez, Hosman, Riksen-Walraven, Van Doesum, & Hoefnagels 2011), and in turn, toddler attachment security (Gunlicks & Weissman, 2008; Poobalan, Aucott, Ross, Smith, Helms, & Williams, 2007). Lyons-Ruth et al. also note that less optimal parenting is associated with a variety of diagnoses and life stressors besides parental depression and thus, adverse child outcomes associated with depression must have additional roots. Finally, several studies find that proximal predictors of parenting, such as current depressive symptoms, are less powerful than a parent's report of the way in which he/she was parented as a child (Belsky, Hertzog, & Rovine, 1986; Caspi & Elder, 1988; Cox, Owen, Lewis, Riedel, Scalf-McIver, & Suster, 1985; Kluczniok et al., 2016), or that the association of childhood maltreatment history on parenting is mediated by preexisting mental health status (Seng, Sperlich, Low, Ronis, Muzik, & Liberzon, 2013). Relatedly, several studies found that a history of childhood maltreatment in the absence of postpartum psychopathology did not confer parenting risk (Oh, Muzik, McGinnis, Hamilton, Menke, & Rosenblum, 2016; Muzik, et al., 2013; Muzik, Morelen, Hruschak, Rosenblum, Bocknek, & Beeghly, 2017).

The link between childhood adversity, particularly adversity associated with lack of protection and comfort from attachment figures, and adult depression has been solidly documented (Bifulco, Brown, Moran, Ball, & Campbell, 1998; Bradley, et al., 2008; Kessler & Magee, 1993). The Adverse Childhood Experiences (ACES) study found dose-response associations between 10 adverse childhood experiences (physical, sexual, or emotional

abuse, physical neglect, feeling unloved, alcoholic parent, mentally ill parent, incarcerated parent, mother victim of intimate partner violence, parents separated or divorced) and depressive disorder in adulthood (Chapman, Whitfield, Felitti, Dube, Edwards & Anda, 2004). The association between childhood adversity and deficits in parenting is also supported. In their discussion of a "caregiving system" that is reciprocal to but independent of the attachment system, George and Solomon (2008) review evidence that the quality of caregiving has "important roots in childhood as well as more contemporary adult influences" (p 837). Bifulco, et al. (2002) found the effect of a mother's childhood adversity on an offspring's disorder to be fully mediated by the quality of her parenting behavior, as evidenced in the abuse and neglect of her own child. Similarly, the ACES Study found a dose-response association between adverse childhood experiences and positive attitudes toward corporal punishment and use of infant spanking (Chung, Mathew, Rothkopf, Elo, Coyne, & Culhane, 2009).

In infancy and toddlerhood, caregiving plays a crucial role in helping the child develop self-regulation. A mother's prompt, sensitive response to cues of distress enable an infant to gradually develop the capacity to self-regulate (Glöggler & Pauli-Pott, 2008; Jahromi, Putnam, & Stifter, 2004; Kogan & Carter, 1996; Martinez-Torteya, et al., 2014). In contrast, a mother with early emotional trauma may have a strong need to maintain physical or psychological distance from her infant in order to protect herself from further dysregulation, particularly when the infant is distressed. She may fail to accurately notice, interpret, or respond to infant distress as signaling a need for a sensitive response tailored to the context and situation. This pattern can continue even after she receives successful depression treatment unless the underlying attributions fueling the insensitive behavior are directly addressed (Schecter, et al., 2006). Sensitive responsiveness requires interpreting child distress in context. For example, some toddler distress signals may reflect frustration during exploration while others are an activated attachment system in need for comfort (Feeney & Woodhouse, 2016).

Parents who come to the attention of child welfare services (CWS) for possible neglect or abuse of their children are more likely to have had a history of childhood adversity than parents who never had CWS involvement (Newcomb & Locke, 2001). They also have high rates of depression and other risk factors that impair parenting (Kohl, Kagotho, Dixon, 2011; Marcenko, Lyons & Courtney, 2011). Using a sample of CWS-involved (CWSI) families we examined the combined and mediated effects of childhood adversity and depressive symptoms on parenting quality, as measured by observations of parental response to toddler distress and non-distress and the direct and mediated effects on observed toddler regulatory outcomes. Constructs were measured across three time points (T1, T2 and T3) over a 6-month period. Our approach enabled us to determine whether the model proposed by Lyons-Ruth et al. (2002), with the addition of recalled childhood adversity being related to child maladaptation, added explanatory value to the model proposed by Goodman and Gotlib, which only included depression. Based on Lyons-Ruth et al. (2002), we expected there would be direct and mediated effects of both parental childhood adversity and depressive symptoms on observed parenting sensitivity to distress and non-distress child self-regulation.

Method

Participants

The Supporting Parents Program (SPP) enrolled 247 families with toddlers between January 2011 and January 2014, with permission from the Washington State IRB and through an agreement with Washington State Children's Administration and Child Protective Services (CPS). Participants were eligible if they had a child between the ages of 10–24 months and were monitored by one of six collaborating CPS offices within the prior two weeks. Participants also needed to be conversant in English and have housing. A Department of Child and Family Services (DCFS) volunteer, trained for the purpose of the study, contacted potential participants and described the study in detail. If the potential participant indicated an interest in the study, permission was obtained to forward their contact information to the research team. A study research visitor then met with the family to obtain written consent and conduct the T1 research visit. Families were randomized following T1. This paper includes only those families randomized to the comparison condition (n=123) to not confound the analysis with possible study intervention effects. Information on demographic and other T1 characteristics are shown in Table 1. The flow of participant recruitment, assignment, and completion of the three in-home assessments included in this paper are shown in Figure 1. There were two variables in the state database that allowed us to compare the 123 children randomized to the comparison group to the full pool of potential participants, excluding those randomized to the intervention group (N = 946). We found no significant differences on child race (American Indian or Alaska Native; Asian; Native Hawaiian/Other Pacific Islander; Black/African American; and White) and Hispanic ethnicity (Yes/No), $X^2 (4) = 5.1$, $p = .27$; $(X^2 (1) = .8$, $p = .39$.

Over 90% of the parents were mothers. Over 75% of parents were white and about 10% reported being of mixed race while over a 25% of the children were identified as being biracial. Twenty percent of parent participants and about 30% of the children were Hispanic. About 50% of the parent-child dyads were from single-parent households. Most families were low-income, with almost 80% receiving food stamps.

Study families were compensated between $50 and $100 after each research visit (total of $250 for all three assessments). Research visitors and coders were blind to intervention condition.

Procedure and Measures

Toddlers and their caregivers were assessed in 2-hour research home visits at T1. The first follow-up (T2) occurred on average 3.83 months (SD = 0.80) later, and the second follow-up (T3) occurred, on average, 3.20 months (SD = 0.52) after T2. Visits included interviewer-administered questions, self-report measures, and videotaped parent-child interactions (included a teaching task), free play, and a brief separation. If the child experienced a caregiver change following enrollment, later assessments were completed with the new caregiver. In the current study, only data from visits with infant-parent dyads that remained intact since T1 are used, resulting in a sample size of 109 at the 3-month follow-up (T2) and 105 at the 6-month follow-up (T3).

Parent's cumulative risk, reported at T1—We computed a cumulative risk index by summing the following dichotomous variables: parent education less than high school diploma; more than three children in the family; yearly income per person less than $5,8000 (based on the poverty threshold for a family of four in 2012); and single parent status. See Table 1 for proportions of the sample meeting criteria for each component of the index.

Parent's childhood adversity, reported at T1—The measure of a parent's childhood adversity was based on information gathered in the Childhood Trauma Questionnaire (Bernstein et al., 2003) and two additional questions developed by the study that addressed foster care placements and homelessness. The measure was based on whether a parent self-reported (1) experiencing any form of abuse or maltreatment, including neglect or physical, sexual, or emotional abuse; (2) being in foster care; or (3) being homeless before the age of 18. An index of adversity was based on the sum of these three components and ranged from 0–3.

Parent's depressive symptoms, reported at T1—The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) is a self-report instrument widely used to measure *depressive symptomatology* in the general population. The 20 items assess the frequency of experiencing symptoms associated with depression on a 4-point (0–3) scale. Responses are summed and can range from 0–60 with higher scores indicating greater depressive symptoms. This continuous score was used in analyses. The CES-D also provides cutoff scores (e.g., 16 or greater) that aid in identifying individuals at risk for clinical depression. Women with subclinical depression, defined as CES-D greater to or equal to 16, show significant psychosocial difficulties when compared to controls (Weinberg, Tronick, Beeghly, Olson, Kernan, & Riley, 2001).

Parenting quality, observed at T2—Two scores from the Nursing Child Assessment Teaching Scale (NCATS; Barnard, 1994), *sensitivity to non-distress* and *sensitivity to distress,* were coded from a videotaped teaching interaction. An extensive literature supports NCATS predictive validity of cognitive and social emotional outcomes (Oxford & Spieker, 2006) and sensitivity to intervention effects (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003). Seventeen items on the original measure (1–4, 7, 11, 23, 34–35, 43, 47, 50–55) were not rated due to low variability in previous studies. *Sensitivity to non-distress* was based on 45 items of the original, 73-item measure, scored *yes* or *no*, and yes scores were summed. Items covered mutuality (e.g. contingency, gaze, and positive affect), caregiver verbal and nonverbal support of child, and sensitive instruction during the teaching task. Sample items include: "Caregiver laughs or smiles at the child during the teaching interaction" and "Caregiver avoids making critical or negative comments about the child's task performance." *Sensitivity to distress* was based on 11 items, scored *yes* or *no*, and yes scores were summed. Sample items include: "Caregiver makes soothing non-verbal response, e.g., pat, touch, rock, caress or kiss," and "Caregiver avoids using abrupt movements or rough handling." In the event the child showed no distress cues, all sensitivity to distress items were scored *yes* (i.e., the best possible score) since the parent was able to prevent the child's distress. Cronbach's alpha for sensitivity to non-distress was .68. Cronbach's alpha for sensitivity to distress was .81. A single coder was trained to reliability

(90% perfect agreement) by a certified NCATS instructor and passed yearly reliability checks on five standard tapes (not videos of our study participants) at a minimum of 90%. This is the research standard recommended by the measure's developers.

Child outcomes, observed at T3—Data collectors used the Bayley Behavior Rating Scale (BRS; Bayley, 1993) to rate the child's behavior during a language testing activity (*Preschool Language Scale, Fourth Edition,* PLS-4; Zimmerman, Steiner, & Pond, 2002) at T1 and T3. We used 13 BRS items that had been selected by Early Head Start Research and Evaluation Study investigators (Raikes, Robinson, Bradley, Raikes, & Ayoub, 2007) for a study of developmental trends in self-regulation in toddlers between 14–36 months. Confirmatory factor analysis indicated that variables on the BRS were adequately described by two factors at all three ages. Seven items loading on the test creator's *emotional regulation* scale captured how well the child adapts to challenging stimuli and frustration, including: adaptation to change in materials (e.g., the children's reaction when an examiner takes one item from the child and exchanges it for another); attention to tasks; persistence in attempting to complete tasks; cooperation with the examiner; activity level; hypersensitivity to stimuli; and negative affect, alpha = .79.

Child *orientation/engagement* is addressed by six items on the BRS that include: degree of positive affect; animation/energy level; interest in test material; exploration of objects and/or surroundings; fearfulness; and attempts to interact socially with the examiner and/or the parent, alpha = .75.

Child *secure base behavior* was measured with the Toddler Attachment Sort-45 (TAS45; Kirkland, Bimler, Drawneek, McKim, & Schölmerich, 2004), which was scored by the research visitor immediately after the T3 home visit. The TAS45 is a 45-item modified version of the *Attachment Q-Sort* (AQS; Waters, 1987), a gold standard attachment measure that has been extensively validated (van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004). We used a 2-step, 5-pile sorting technique recommended by the developers. On the first step observers divided the cards into three piles: "characteristic", "not characteristic", and "no opportunity to observe/middle," and each pile could have no more than 18 cards. On the second step, the "characteristic" pile was further subdivided into "most" and "more characteristic", and the "non-characteristic" pile was further subdivided into "least" and "less characteristic." Example of items include: "Child wants to be at the center of mother's attention," "Child is very independent," and "Child will go towards mother to give her toys, but does not touch nor look at her." Four research visitors were trained to administer the TAS45 by the first author; 88 videotapes were coded by pairs of raters. The average intra-class correlations across all pairs of observers was $r = .75$ (range = .54 – 1.00).

Child age and sex—Because some child behavioral outcomes measures are developmentally sensitive and since child participants ranged in age from 10–24 months at T1, age at enrollment in the study was included as a covariate when testing the hypothesized model. Child sex, which is also often associated with behavioral outcome measures, was also included as covariate (0=female, 1=male).

Analysis

After examining descriptive data and overall correlations among study variables, we estimated a path model in order to test the hypothesized relationships among parent childhood adversity and depression, parenting, and child behavioral outcomes. All variables in the model were treated as manifest variables and a saturated model was estimated with specification of all paths from prior to subsequent variables in the hypothesized causal sequence. Child's age and sex and parent's cumulative risk were also included as a predictor of all endogenous variables. Analyses were run with Mplus 7.1 (Muthén & Muthén 1998–2015) and Full Information Maximum Likelihood was used, which allowed for the inclusion of cases with partially missing data (i.e., the cases missing data at T2 and T3). Skewness was below 1.4 and Kurtosis below 2.4 for all endogenous variables in the path model, and they were treated as continuous and normally distributed. Since close to a saturated model was used, with measured endogenous variables regressed on prior variables in the hypothesized model, fit of the data was good, with misfit only due to correlations among exogenous variables and residual correlations between sensitivity to distress and sensitivity to non-distress not being specified (chi square (5) = 10.160, p=0.0708; CFI=0.97; RMSEA=0.09).

Results

Table 2 reports descriptive data, as well as zero order correlations among the study variables. Sixty percent of the parents reported experiencing at least one type of childhood adversity. Participants were elevated in depressive symptoms, with 37.4% scoring 16 or above on the CES-D. The zero-order correlations indicate significant negative overall associations between parent childhood adversity and the child-related outcomes of emotion regulation and secure base behavior. Parent depression had overall negative associations with child orientation/engagement and child secure base behavior.

As shown in Figure 2, some of the hypothesized paths linking a parent's childhood adversity to depression and those linking a parent's childhood adversity and parenting to child behavioral outcomes were supported; some were not. As hypothesized, parent report of childhood adversity was positively associated with self-reported depression. Parent depression was negatively associated with sensitivity to child distress but not significantly associated with sensitivity to non-distress. Parent childhood adversity did not have significant independent associations with any child outcome. Parent depression independently predicted child orientation/engagement but did not have a significant independent association with child secure base behavior after adjusting for sensitivity to distress. However, parent sensitivity to distress was positively associated with secure base behavior in children. Although parent sensitivity to non-distress was not, as hypothesized, predicted by either parent childhood adversity or parent depression, it was a salient predictor of both child emotional regulation and orientation/engagement. With regard to paths from exogenous covariates (not shown in Figure 2), child age had positive and significant (p<.05) estimated effects on parent sensitivity to non-distress (β=.22), child self regulation (β= .18), and secure base behavior (β=.25); child being male had a negative and significant effect on parent sensitivity to non-distress (β=−.19); and cumulative socioeconomic risk had positive and significant effects on parent depression (β=.18) and child attachment security (β=.18)

Discussion

We tested the "weak" model of maternal depression's influence on child functioning, as proposed by Lyons Ruth et al. (2002), by using longitudinal parent-report and observational data from a sample of CWSI parents and their toddlers to determine whether this model had more explanatory power than the more widely known Goodman and Gotlib (1999) model. The hypothesis that a parent's childhood adversity would predict both self-reported depressive symptoms and parenting quality was not supported; a parent's childhood adversity was related only to depressive symptoms according to both simple correlations and the full path model. A parent's childhood adversity also had significant simple correlations with child emotional regulation and secure base behavior but these paths were no longer significant in the full model. Parents' depressive symptoms had a significant simple correlation with child secure base behavior, and this path also was not significant in the full model. This pattern of results suggests that the effect of parental childhood adversity on child emotional regulation and secure base behavior was accounted for by the mediating role of parental depression on sensitivity to child distress. In summary, depression at T1 was associated with observed parental sensitivity to distress at T2, which in turn was associated with observed child secure base behavior at T3, as would be predicted by attachment theory and by replicating prior research (Leerkes, et al., 2009; McElwain & Booth-LaForce, 2006). The results provide strong support for the Goodman and Gotlib (1999) model while the model by Lyons-Ruth et al. (2002), although not contradicted, has only limited support.

Neither parent childhood adversity nor depression was associated with sensitivity to child non-distress. Sensitivity to non-distress, however, was associated with observed child emotional regulation and orientation/engagement. These findings are congruent with much of the literature on maternal sensitivity. This literature is largely based on free-play observations using rating scales that include support for autonomy (e.g., NICHD ECCRN, 1999) and stimulation (e.g., Mills-Koonce et al., 2015), two constructs that were tapped by multiple items in our sensitivity to non-distress scale. The distinct associations in the model relative to sensitivity to distress and sensitivity to non-distress deserve comment. Attachment theory supports the prompt, sensitive provision of comfort to signals of distress as foundational to secure child attachment. However, as the child develops, the meanings of distress signals change and become differentiated. An infant's early need for help in physiological regulation gives way to more sophisticated displays of fear and desire for comfort as a toddler learns about the world. If these signals are consistently rejected or inconsistently responded to, the consequences are insecure attachment to the parent and poor child emotional regulation. But what about ignoring mild fusses of toddlers who are frustrated during exploration or who are protesting a necessary, parental-imposed limit for safety? What about fusses in response to a lack of stimulation or to interference in opportunities for exploration? This is the type of child distress cue that is captured by our sensitivity to distress scale items, cues that we rated during a mildly stressful teaching task. Failing to respond or not sensitively responding to these types of distress cues were associated with child secure base behavior three months later, but not orientation/ engagement, as might be expected. Despite all the research on sensitivity, it appears that there is still more to understand about what sensitive distress responses support and then

build on, especially when trying to understand CWSI families. The current sample was the control group in an intervention study. In future analyses we will examine differential effects of the intervention on sensitivity to distress and non-distress, and implications for a child's physiological regulation.

The results of this study suggest parental sensitivity to child non-distress and distress are potentially distinct pathways to different child outcomes. Parental sensitivity to non-distress has been more fully explored but sensitivity to distress deserves more attention. A sequence of events must occur in order for a parent to respond to distress cues. First, the parent must recognize a child's nonverbal communication as relevant enough to attend to; a child who whines is communicating displeasure while a child who arches his back is communicating distress and a desire to escape stimulation. In practice we often see parents ignoring these cues so as not to spoil their child or in order to "teach" the lesson that only good behavior will receive parental attention. Second, the parent must notice the distress cue when it occurs. These cues often begin as subtle behaviors (such as turning the head) and, if not read correctly and responded to appropriately, escalate to more potent cues (such as a back arch), to which the caregiver responds with an aversive interaction. Once the cue is detected, the parent may select a sensitive and soothing response, which would bring the child into more regulated state, or an insensitive response, which could escalate negativity in the interaction. Understanding how a parent can foster a sensitive response to child distress across this sequence is an important goal for interventions.

A more careful understanding of antecedents to child adaptive functioning in CWSI families can help tailor interventions and identify those dyads most likely to benefit. Although retrospective parent-reports of childhood adversity did not relate to parenting quality in this study, more finely tuned investigations, such as those using the Adult Attachment Interview, do find modest associations in the form of narrative coherence (Leerkes, et al., 2015) or lack of resolution of loss or trauma (Madigan, Bakermans-Kranenburg, Van Ijzendoorn, Moran, Pederson, & Benoit, 2006). Clearly, further exploration of a variety of child, parental, and contextual factors are needed to understand the mechanisms.

Strengths and limitations

This study had several strengths. It involved CWSI families with toddler-aged children at the beginning of their CWS contact. It used observational measures of parenting and child emotional regulation, orientation/engagement, and secure base behavior. We used an analytic approach involving three data points to test divergent models on the role of a parent's early trauma and depression on subsequent parenting and child outcomes, beginning at the point of a family's involvement with CWS.

This study also had several limitations. With regards to parent outcomes, depression and a history of childhood adversity were measured concurrently by parent report at T1. Although the association between the two constructs is well-established (Chapman et al., 2004), the type and timing of the measurement of these constructs means the support for a mediating role of depression on the effects of childhood adversity is modest. We did not assess for symptoms of PTSD/anxiety, so we could not address the possible role of comorbid anxiety/ PTSD, which is high among mothers with a history of childhood trauma (Oh, et al., 2016).

Similarly, we did not assess symptoms of substance abuse disorders, which are associated with both early trauma history and CWS involvement (Seah & Kohl, 2015). We did not have the power to test the moderating role of child sex, of which there are many examples in the literature, (e.g., McGinnis, Bocknek, Beeghly, Rosenblum, & Muzik, 2015).

With regards to child outcomes, in our study it's less likely the child's attachment system was activated during the home visit and thus, our measure of secure base behavior would not have captured nuances in attachment strategies, as compared to a procedure that takes place in an unfamiliar setting, such as the Strange Situation (Ainsworth, Blehar, Waters & Wall, 1978). Therefore, we had fewer opportunities to observe toddlers seeking a 'safe haven' through proximity to a parent. However, the research visit was long and taxing, and the parent was forced to split his/her attention between the interviewer and the toddler, a situation potentially frustrating for the child because it limited access to the parent. In this regard, it's interesting that child emotional regulation and secure base behavior were more strongly correlated ($r = .69$) than were emotional regulation and orientation/engagement, even though the latter were rated by items in the same measure ($r = .24$). Finally, the results of the model tested were on a sample of parents and children who were under investigation for maltreatment and represented a particular population. A more heterogeneous sample with high- and low-risk families would be useful in determining if this pattern of results is generalizable across risk groups.

Conclusions

We tested a model of the relations between parental depression and child regulatory outcomes first proposed by Lyons-Ruth and colleagues (2002). We hypothesized that both parent depression and parenting quality would mediate the effects of parents' early adversity on child regulatory outcomes. We found that depression acted as a mediator on one of three observed child outcomes and that parenting did not mediate the effects of parent childhood adversity for any child outcome. The association between parent depression and child secure base behavior was mediated by parenting sensitivity to distress cues but not sensitivity to non-distress. A focus on helping CWSI parents detect and respond to their children's distress cues will likely require a different intervention approach than simply improving their sensitivity during play and teaching. This new approach could have differential outcomes for the regulation, orientation/engagement, and secure base behavior of CWSI children.

Acknowledgments

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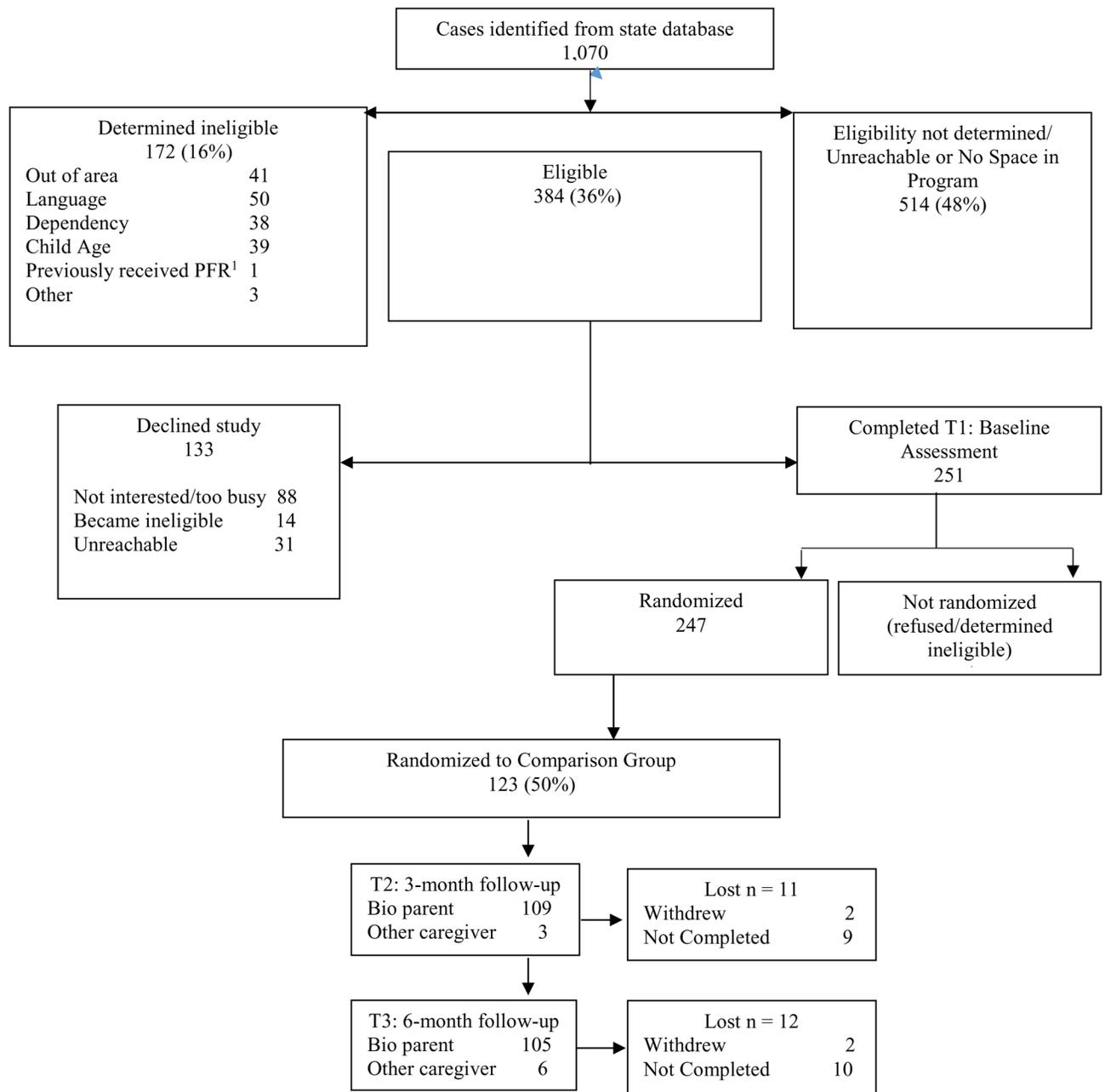Zimmerman, IL., Steiner, VG., Pond, RE. Preschool language scale. 4. Boston, MA: Pearson Education, Inc; 2002.

Figure 1.
Study flowchart
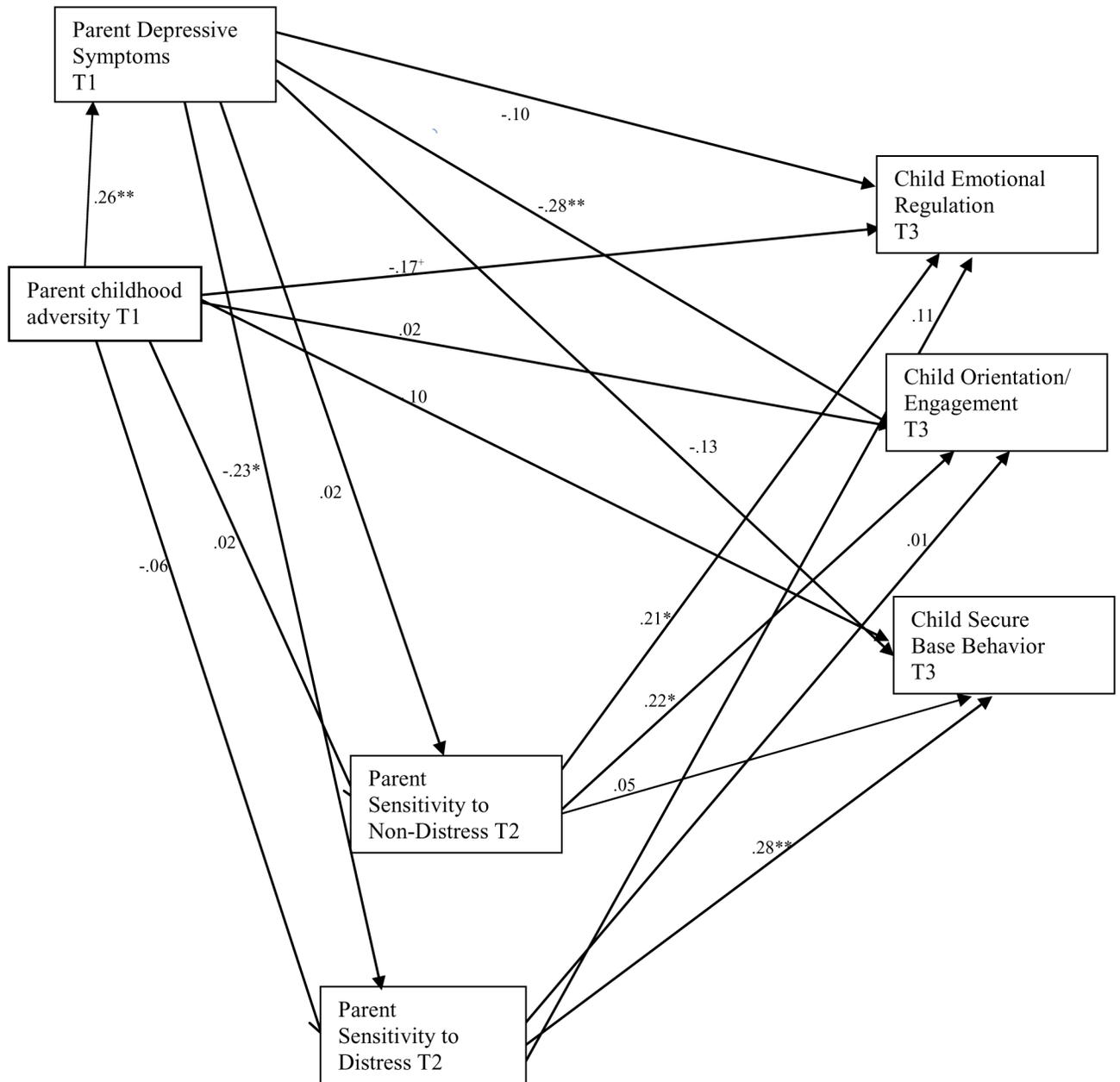Note: [1]PFR Promoting First Relationships® other research

Figure 2.
Path model

Table 1

Demographic Characteristics at T1 (N = 123)

	n (%)	
Parent female/mother	113 (11.9)	
Parent race		
American Indian or Alaska Native	3 (2.4)	
Asian	4 (3.3)	
African American	7 (5.7)	
White	95 (77.2)	
Mixed/Other	14 (11.4)	
Parent Hispanic	23 (18.7)	
Child male	71 (57.7)	
Child race		
American Indian or Alaska Native	2 (1.6)	
Asian	1 (0.8)	
African American	5 (4.1)	
White	72 (58.5)	
Mixed/Other	43 (35.0)	
Child Hispanic	36 (29.3)	
Parent education		
High school graduate	58 (47.2)	
GED	35 (28.5)	
Neither high school graduate nor GED	30 (24.4)	
Parent employment status		
Employed full-time	21 (17.1)	
Employed Part-time	14 (11.4)	
Unemployed/looking	33 (26.8)	
Homemaker	32 (26.0)	
Student	14 (11.4)	
Other (disability/retired)	9 (7.3)	
Parent marital status		
Never married	67 (54.5)	
Married	34 (27.6)	
Separated	12 (9.8)	
Divorced	10 (8.1)	
Parent live with spouse/partner	62 (50.4)	
Receive food stamps	99 (80.5)	
Income per household member < $5,800	80 (65.0)	
3+ other children in the household	18 (14.6)	
	M (SD)	*Range*

	n (%)	
Child age in months at T1	16.77 (4.55)	10.00 – 28.49
Child age in months at T2	20.63 (4.56)	13.49 – 33.85
Child age in months at T3	23.84 (4.69)	16.55 – 37.70
Parent age at T1	27.04 (6.25)	18 – 49
Cumulative risk at T1	1.82 (1.07)	0 – 4

Notes. GED = General Education Diploma.

Table 2

Means, standard deviations, and correlations among study variables

	M (SD)	1	2	3	4	5	6	7	8	9
(1) T1: Child's age in months	16.77 (4.55)									
(2) Child sex 1=Male	.57	−0.04								
(3) T1: Parent's cumulative risk	1.82 (1.07)	−0.16+	0.18*							
(4) T1: Parent's childhood adversity	1.01 (1.00)	−0.22*	0.04	0.23*						
(5) T1: Parent's depressive symptoms	15.02 (11.45)	−0.11	−0.04	0.22*	0.30**					
(6) T2: Parenting quality; sensitivity to non-distress	26.70 (3.96)	0.26**	−0.24*	−0.23*	−0.10	−0.04				
(7) T2: Parenting quality; sensitivity to distress	8.37 (2.24)	0.02	−0.16	−0.16+	−0.13	−0.25**	0.19*			
(8) T3: Child's emotional regulation	3.96 (0.65)	0.28**	−0.20*	−0.02	−0.26**	−0.17+	0.29**	0.20*		
(9) T3: Child's engagement/exploration	4.25 (0.58)	0.17+	−0.13	−0.20*	−0.13	−0.31**	0.27**	0.14	0.24*	
(10) T3: Child's secure base behavior	0.56 (0.34)	0.29**	−0.04	0.04	−0.22*	−0.24*	0.14	0.32**	0.69**	0.36**

+ p<.10,

* p<.05,

** p<.01,

T1 = Time 1, T2 = Time 2, T3 = Time 3