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Promoting Compliance in Children Referred to Child Protective Services: A Randomized Clinical Trial

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Early experiences of maltreatment have long-term negative effects on children's compliance. This randomized clinical trial examined whether a brief preventative intervention (Attachment and Biobehavioral Catch-up; ABC) was effective in enhancing compliance in children who had been referred to Child Protective Services. Participants included 101 parent–child dyads who received either ABC or a control intervention when children were infants (M = 9.4 months old, SD = 6.1). When children were approximately 36 months old (M = 38.5, SD = 3.0), ABC children demonstrated significantly better compliance than control children. Further, parent sensitivity, measured 1 month post intervention when children were, on average, 18.4 months old (SD = 6.9) partially mediated the effect of ABC on child compliance at 36 months old.

Children who experience maltreatment are at risk for developing difficulties with self-regulation across many domains. In particular, maltreated children often exhibit deficits in compliance, which can lead to other negative outcomes including problems with anger regulation (Campbell, Shaw, & Gilliom, 2000), aggression (Calkins & Fox, 2002), and academic difficulties (Blair & Raver, 2015; McClelland et al., 2007). Given the critical role that compliance plays in long-term development, it is important to intervene early among high-risk children to enhance this capacity. Attachment and Biobehavioral Catch-up (ABC) is a preventative home-visiting intervention for parents of children who have experienced early adversity. The ABC intervention is designed to help parents increase sensitivity by following children's lead, providing nurturance when children are distressed, and avoiding frightening behaviors, thereby enhancing children's self-regulation and compliance.

Sensitive Parenting and Child Compliance

Sensitive parenting, or a parent's "ability to perceive and to interpret accurately the signals and communications implicit in her infant's behavior and, given this understanding, to respond to them appropriately and promptly," plays an important role in the development of children's self-regulation and compliance (Ainsworth, Blehar, Waters, & Wall, 1978, p. 127; Kopp, 1982). In particular, parent sensitivity to non-distress signals (e.g., responding to a child's vocalizations, imitating a child using a block as a telephone) is a unique predictor of child self-regulation and attachment (Leerkes, Blankson, & O'Brien, 2009; McElwain & Booth-LaForce, 2006). This parental attunement to children's non-distress signals has also been described as synchrony, following the child's lead, and contingent responsiveness (Beebe & Lachmann, 1994; Feldman, 2007). Shonkoff, Siegel, Dobbins, Earls, and Garner (2012) described this pattern of parental response to child-initiated signals as "serve and

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return," noting that parent sensitivity is critical to maintaining a synchronous interaction.

Parents who are responsive to children's non-distress cues during feeding, play, and other daily experiences help children develop adequate self-regulation skills, as these regulation abilities develop in the context of responsive interactions with primary caregivers (Ainsworth, 1974; Kopp, 1982). During infancy, children are reliant on their parents as co-regulatory partners to help with emotional, attentional, and behavioral modulation (Raver, 1996). Through contingent interactions with a sensitive parent, children gradually develop the ability to self-regulate, which forms the basis for early compliance (Kochanska, Aksan, Prisco, & Adams, 2008).

Several studies have demonstrated that when parents are sensitive and follow their children's lead, children show better compliance than when parents do not follow their children's lead (Bradley & Corwyn, 2007; Rocissano, Slade, & Lynch, 1987; van Berkel et al., 2015). For example, Schueler and Prinz (2013) found that maternal sensitivity and responsiveness were associated with greater preschooler compliance during parent–child interactions. Feldman and Klein (2003) also found that maternal sensitivity and warm control predicted toddler compliance with caregiver instructions. Additionally, there is growing evidence that sensitive parenting can serve to buffer the risks for behavior dysregulation and noncompliance associated with difficult temperament (Bradley & Corwyn, 2008; Kochanska & Kim, 2013). The reciprocal positive relationship between children and sensitive parents is believed to help children want to comply with parental instructions, and these children are better able to comply with parental commands due to stronger emotion and behavior regulation abilities (Grusec & Davidov, 2010; Kok et al., 2012).

Parent sensitivity has also been linked to the development of critical skills related to child compliance, such as executive functioning (Hughes & Ensor, 2005). Parent sensitivity in the form of autonomy support, which includes parental behaviors aimed at supporting children's goals, choices, and sense of volition, have been found to predict later child executive functioning in toddlerhood (Bernier, Carlson, & Whipple, 2010). These increased executive functioning capabilities can help contribute to improved child compliance.

Children who have experienced maltreatment are at risk for difficulites with compliance, as they often do not receive the type of sensitive parenting needed for the development of self-regulatory capabilities. In general, maltreating parents engage in fewer positive, reciprocal interactions consistent with following the lead, instead showing elevated levels of negative, intrusive, and frightening behaviors, than do non-maltreating parents (Wilson, Rack, Shi, & Norris, 2008). Parent–child interactions in maltreating families are also often marked by inconsistency, unpredictability, and a lack of parent sensitivity (Cerezo, D'Ocon, & Dolz, 1996).

Intervening to Enhance Child Compliance

There are several models of early preventative interventions aimed at promoting children's self-regulatory skills, including attachment-based interventions and behavioral-based interventions. In general, attachment-based interventions such as ABC, Child Parent Psychotherapy (Lieberman, Ippen, & Van Horn, 2015), Circle of Security (Powell, Cooper, Hoffman, & Marvin, 2014), and Video-Feedback Intervention to Promote Positive Parenting (Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2008) aim to increase parent sensitivity. Studies have shown significant increases in parent sensitivity following these interventions (Bick & Dozier, 2013; Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2005; Lieberman, Weston, & Pawl, 1991). Despite the importance of parent sensitivity in the development of child compliance, however, these interventions have largely focused on more proximal child outcomes, such as attachment security (Cicchetti & Toth, 2006; Juffer et al., 2005). A few studies have linked attachment-based interventions with fewer parent-reported behavior problems (Ippen, Harris, Van Horn, & Lieberman, 2011; Lieberman, Ippen, & Van Horn, 2006). However, these studies have either failed to examine the role of parent sensitivity mediating intervention effects on child behavior problems, or found no significant link (Velderman et al., 2006).

In contrast, preventative behavioral-based interventions, such as Incredible Years (Webster-Stratton & Reid, 2004) and Family Check-Up (Dishion & Stormshak, 2007) tend to target parenting behaviors somewhat differently than the attachment-based interventions. In behavioral-based interventions, parents are encouraged to ignore disruptive child behaviors such as yelling, sassing, and whining, and to reinforce positive child behaviors with praise and attention. In contrast, attachment-based interventions focus on improving appropriate parental responsiveness to child distress signals such as fussing and crying, as well as to child non-distress

signals. Studies have shown that improvements in behaviorally based positive parenting skills, such as ignoring and redirecting, logical consequences, and problem solving, mediate the effects of the preventative intervention on children's behavior problems (Dishion et al., 2008; Gardner, Hutchings, Bywater, & Whitaker, 2010).

Attachment and Biobehavioral Catch-up

ABC has been found to be effective in changing parenting behavior and improving child outcomes among children who have experienced different forms of early adversity, including foster care placement and referral to Child Protective Services (CPS). Specifically, parents who received ABC were better able to follow their children's lead than parents who received a control intervention (Bick & Dozier, 2013; Yarger, Hoye, & Dozier, 2016), and children who received ABC showed higher rates of secure and organized attachments (Bernard et al., 2012; Dozier et al., 2009), more normal diurnal cortisol levels (Bernard, Dozier, Bick, & Gordon, 2015; Bernard, Hostinar, & Dozier, 2015), better executive functioning (Lewis-Morrarty, Dozier, Bernard, Terracciano, & Moore, 2012; Lind, Raby, Caron, Roben, & Dozier, 2017), and less negative affect expression (Lind, Bernard, Ross, & Dozier, 2014), than children who received a control intervention.

Whereas ABC has been found to improve other outcomes related to self-regulation, the effects on child compliance have not yet been examined. Given that behavior regulation abilities are foundational to a range of self-regulatory capabilities and are known to be adversely affected by early maltreatment, it is important to assess whether ABC can affect compliance. Thus, the current study compared compliance in 36-month-old children who received either ABC or a control intervention during infancy. We expected that children who received the ABC intervention during infancy would show better compliance at 36 months of age than children who received a control intervention. Further, we examined whether parent sensitivity (i.e., following the lead) measured 1 month following intervention would mediate the effect of ABC on later child compliance. Such findings would highlight the value of a targeted preventative intervention for CPS-referred children in enhancing compliance, and provide experimental support of the role of sensitive parenting in the development of compliance.

Method

Participants

Participants were 101 children and parents who had been investigated by CPS. These families were enrolled in a city program that was intended to divert children from foster care in a large, mid-Atlantic city. Children were, on average, 9.4 months old at the beginning of the intervention (SD = 6.1). Common issues identified by CPS included domestic violence, parental substance use, homelessness, and neglect. Demographic characteristics for parents and children are presented in Table 1.

Procedure

Parents were referred to the study by CPS workers if children were younger than 2 years old and remained living with a biological parent following CPS involvement. Parents were contacted by research staff and invited to participate in the study, with written informed consent obtained from parents if they agreed to participate. After consent, a project coordinator randomly assigned participants to the experimental intervention (ABC) or control intervention (Developmental Education for Families; DEF) using a randomly generated number sequence (with group assignment based on even vs. odd digits). Approval for the conduct of this research was obtained from the *University of Delaware* institutional review board.

Follow-up assessments were planned to include a post-intervention home visit approximately 1 month after the completion of the intervention, and yearly post-intervention research visits around the time of the child's birthday continuing until children reached 48 months old (i.e., a 12-month visit, a 24-month visit, a 36-month visit, and a 48-month visit). Efforts were made to conduct research visits with children during the follow-up phase even if families did not complete the intervention. See Figure 1 for the Consolidated Standards of Reporting Trials diagram. A total of 212 children were enrolled in the study and were randomized to receive either the ABC or control intervention. Of these 212 children, 183 participated in at least one visit following the intervention.

Primary outcome data for the present study were collected during the laboratory post-intervention visit that occurred when children were approximately 36 months old (M = 38.5, SD = 3.0). Time since intervention completion at this assessment was, on average, 25.8 months (SD = 6.7). Of the initial 212 children who received one of the

Table 1
Child and Parent Demographic Characteristics

	ABC intervention (n = 45)	DEF intervention (n = 56)
Child characteristics		
Sex, no. (%)		
Male	29 (64.4)	23 (41.1)
Female	16 (35.6)	33 (58.9)
Race and ethnicity, no. (%)		
White	3 (6.7)	3 (5.4)
African American	31 (68.9)	39 (69.6)
Hispanic	2 (4.4)	9 (16.1)
Biracial	9 (20.0)	5 (8.9)
Age at intervention, months		
M (*SD*)	9.3 (5.9)	9.4 (6.3)
Range	0.6–21.9	1.3–23.3
Age at post-intervention, months		
M (*SD*)	17.9 (6.2)	19.2 (7.4)
Range	7.7–32.8	8.3–34.1
Parent characteristics		
Sex, no. (%)		
Male	0 (0)	0 (0)
Female	45 (100)	56 (100)
Race and ethnicity, no. (%)		
White	5 (11.1)	4 (7.1)
African American	31 (68.9)	40 (71.4)
Hispanic	5 (11.1)	9 (16.1)
Biracial	4 (8.9)	3 (5.4)
Age at intervention, years		
M (*SD*)	27.4 (7.4)	25.1 (7.3)
Range	16.1–44.3	15.0–43.9
Education level, no. (%)		
Less than high school	27 (60.0)	32 (57.1)
High school	14 (31.1)	17 (30.4)
More than high school	1 (2.2)	1 (1.8)
Not reported	3 (6.7)	6 (10.7)
Employment status, no. (%)		
Not employed outside of home	36 (80.0)	46 (82.1)
Employed outside of home	6 (13.3)	8 (14.3)
Not reported	3 (6.7)	2 (3.6)
Annual income, no. (%)		
Less than $10,000	26 (57.8)	39 (69.6)
$10,000–$19,999	4 (8.9)	6 (10.7)
$20,000–$29,999	6 (13.3)	2 (3.6)
$30,000–$39,999	1 (2.2)	3 (5.4)
$40,000–$59,999	1 (2.2)	0 (0)
More than $60,000	0 (0)	0 (0)
Not reported	7 (15.6)	6 (10.7)
Marital status, no. (%)		
Single	28 (62.2)	34 (60.7)
Married or living with partner	12 (26.7)	18 (32.1)
Separated or divorced	3 (6.6)	1 (1.8)
Not reported	2 (4.4)	3 (5.4)

Note. ABC = Attachment and Biobehavioral Catch-up; DEF = Developmental Education for Families.

interventions, 110 children participated in this 36-month-old follow-up assessment. Nine of these children were excluded from the current analysis due to more than one sibling participating in the study, the participating parent being male, or the participating caregiver for the follow-up assessment being a foster or relative caregiver. Therefore, analyses in the current study focused on mother–child interaction using one child from each family.

The role of parent sensitivity mediating intervention effects was assessed using data collected during a visit conducted approximately 1 month post-intervention. Data at this assessment were available for 89 children. On average, children were 18.4 months old at this 1-month post-intervention assessment (SD = 6.9), and the time between the 1-month post-intervention assessment and the 36-month-old assessment was, on average, 19.5 months (SD = 7.3).

Interventions

The experimental and control interventions were similar in structure, frequency, and duration. Both interventions consisted of 10 sessions conducted in the families' homes and were based on structured manuals.

Experimental intervention

Attachment and Biobehavioral Catch-up Intervention (ABC). The ABC intervention had three primary targets: (a) to increase parents' sensitivity and following their children's lead (e.g., parent clapping blocks together after child claps blocks together), (b) to increase parents' nurturing behavior in response to children's distress (e.g., hugging child when he or she is upset), and (c) to decrease parents' frightening behavior (e.g., yelling at a child or grabbing him or her roughly). Parent coaches

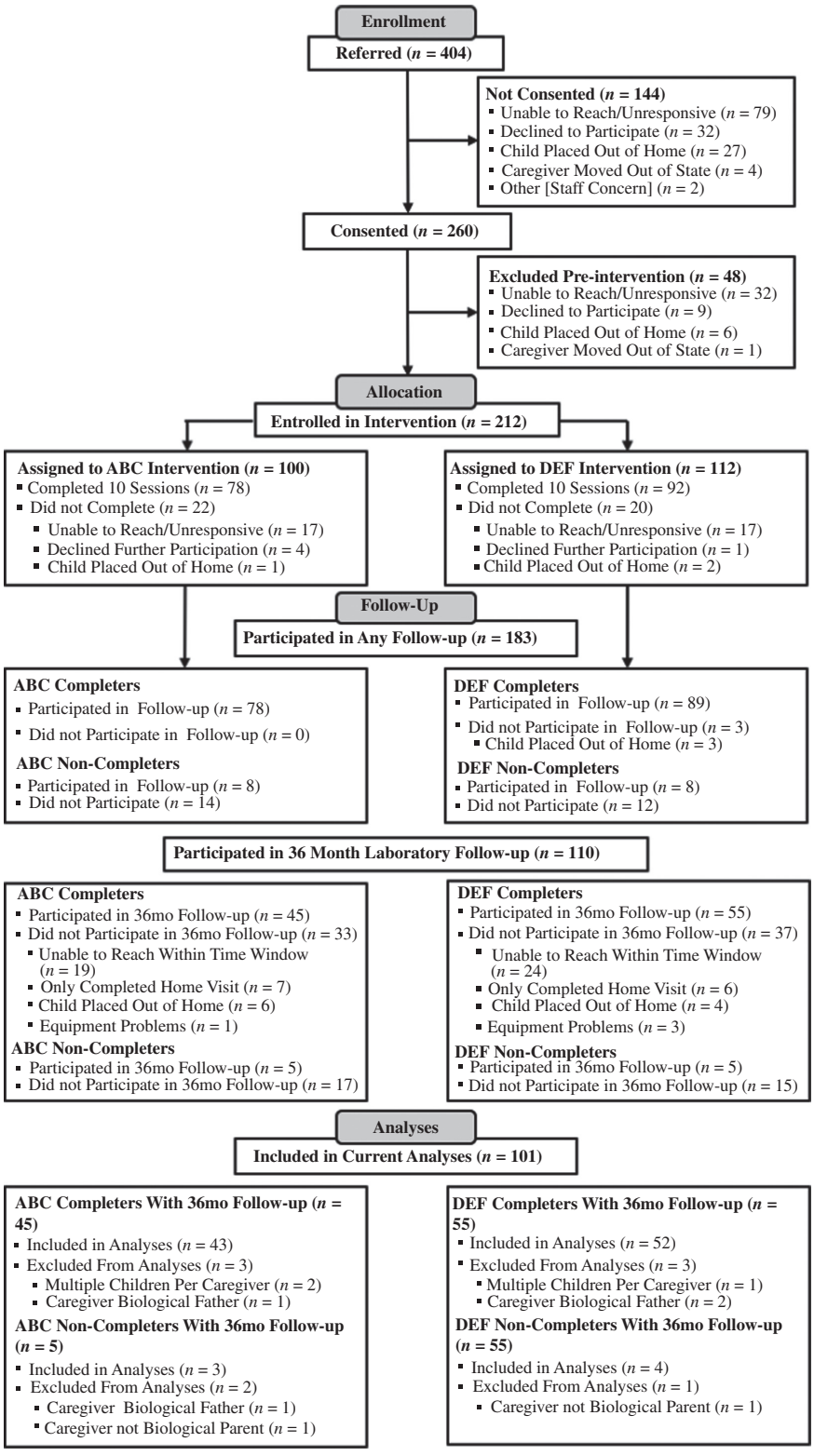

Figure 1. Consolidated Standards of Reporting Trials flow diagram. ABC = Attachment and Biobehavioral Catch-up; DEF = Developmental Education for Families.

worked to change parenting behaviors through discussion of relevant research, practice of target behaviors during structured activities and throughout sessions, and presentation of videos to illustrate and reinforce target behaviors. In addition, parent coaches provided frequent "in the moment" feedback about parents' interactions with their children during sessions. Parent coaches observed parents' behavior and made comments about behaviors relevant to intervention targets. This in vivo feedback was intended to enhance parents' understanding and consolidation of the target behaviors, as both quantity and quality of comments have been found to predict parent behavior change in ABC (Caron, Bernard, & Dozier, 2016).

Control intervention

Developmental Education for Families (DEF). The DEF intervention focused on enhancing children's motor, cognitive, and language skills. It was adapted from a home-visiting program that was previously shown to be effective in enhancing intellectual functioning when provided intensively and for a long duration (Brooks-Gunn, Klebanov, Liaw, & Spiker, 1993; Ramey, Yeates, & Short, 1984). Parent coaches discussed methods to help children reach developmental milestones and taught parents how to integrate activities designed to support their children's development in the targeted areas with play activities (e.g., exercises aimed at gross motor development that are presented to the child as playing with a ball). During sessions, parent coaches practiced these skills with parents and children, and video feedback was also used to review skills and demonstrate children's gains throughout the intervention.

Measures

Outcome: Child Compliance at 36-Month-Old Follow-Up

Child compliance was assessed during a laboratory visit conducted when children were approximately 36 months old. During this assessment, parents and children participated in a 5-min waiting task drawn from the Disruptive Behavior Diagnostic Observation Schedule (Wakschlag, Briggs-Gowan, et al., 2008; Wakschlag, Hill, et al., 2008). Parents were told that their child could read a book but should not touch a collection of attractive toys placed on a nearby low shelf while parents completed a series of questionnaires. Challenging tasks have frequently been used in the study of child self-regulation, and studies have shown that waiting while interesting toys are nearby is frustrating for children at this age (Cole et al., 2011). The task was video-recorded through a one-way mirror.

Videos were coded second-by-second for the child touching the forbidden toys using Noldus Observer XT 11 (Noldus, Wageningen, The Netherlands). This coding consisted of recording whether or not the child was touching the toys for each second during the task. Coders were undergraduate student research assistants who were blind to children's intervention group assignment. Twenty percent of videos were double coded, and an inter-rater reliability of $\kappa = .85$ was achieved for children touching the forbidden toys. This coding of whether or not the child was touching the toys during each second of the videos was used to calculate three variables: a categorical variable of whether or not the child touched the toys, the overall amount of time (in seconds) that the child touched the toys during the entire task, and the latency (in seconds) to the child touching the toys. Descriptive statistics split by intervention group are presented in Table 2. Because the time spent touching the toys was negatively skewed, scores were log transformed to normalize the distribution of the data. The original skew statistic was 5.67 ($SE = 0.24$) and kurtosis statistic was 40.56 ($SE = 0.48$). The transformed data skew was 1.12 ($SE = 0.23$) and the kurtosis was 0.08 ($SE = 0.48$). Finally, a composite for child compliance was calculated by taking the mean of these three standardized scores, with the categorical and overall amount of time spent touching toys variable reverse-scored. For this composite, a higher score indicated better compliance.

Mediator: Parent Sensitivity at 1-Month Post-Intervention

Parenting behavior was assessed through global coding of parent sensitivity during a free play activity conducted approximately 1 month post-intervention. Children were, on average, 18.4 months old at this assessment ($SD = 6.9$). During this task, parents were instructed to play with their child as they normally would, and were provided with a series of toys that varied based on the child's age. Children younger than 18 months at post-intervention were placed in a high chair and given a set of three toys (i.e., squeaky toy, rattle, stacking cups). Parents were instructed to interact first at a distance of approximately 3 feet away from the child (without touching the toys) for 2 min and then at whatever distance from the child they liked (allowed to touch the toys) for an additional 7 min. Although parents' behavior during the 2 min of distance

Table 2
Descriptive Statistics and Effect Sizes for Intervention Effects

	Intervention group				
	ABC *M* (*SD*)	DEF *M* (*SD*)	Univariate *F* for group	*p* Value	Effect size *d*
1-month post-intervention					
Parent sensitivity: global coding	2.49 (1.32)	1.94 (1.02)	4.90	.030	.47
36-month-old follow-up					
Parent sensitivity: duration (seconds)	31.23 (29.67)	21.37 (24.94)	3.90	.051	.40
Child compliance composite (*z*-score)	0.26 (0.78)	−0.21 (0.98)	7.09	.009	.53
Child compliance: duration of child touching toys (seconds)	4.35 (10.91)	11.78 (29.10)	4.32	.040	−.42
Child compliance: latency to child touching toys (seconds)	263.47 (73.85)	199.89 (114.29)	10.42	.002	.68

Note. ABC = Attachment and Biobehavioral Catch-up; DEF = Developmental Education for Families.

interaction was considered in the overall rating, their behavior during the 7 min of close interaction was weighted more heavily when deciding on the overall rating, given that it was expected to approximate more typical interactions when parents were free to play as they wished. For children older than 18 months at post-intervention, parents were provided with a set of blocks and asked to play with their children for 7 min.

Video-recorded play interactions were coded using a global 5-point scale of sensitivity, adapted from the Observational Record of the Caregiving Environment (ORCE; NICHD Early Child Care Research Network, 1999, 2003). The sensitivity scale assessed the extent to which the parent followed the child's lead by responding appropriately to the child's signals. Parents who displayed high levels of sensitivity responded contingently to their child's cues, and adjusted their behavior to the interests and pace of the child. Parents who exhibited low levels of sensitivity failed to respond appropriately to the child's bids, frequently took the lead in the interaction, or appeared detached from the child. Coders who were blind to study condition, date of collection, and study hypotheses were trained to reliability by achieving at least a 0.75 correlation with a master coder on a reliability set of 10 videos. Interrater reliability was further assessed by randomly selecting 20% of videotapes for double-coding. A one-way random effects intraclass correlation (ICC) revealed an ICC of .69.

Covariate: Parent Sensitivity at 36-Month-Old Follow-Up

Parent sensitivity was also coded second-by-second from the waiting task using Noldus Observer XT 11, to control for differences in parenting exhibited during the child compliance task. Similar to the assessment of parent sensitivity at 1-month post-intervention, the coding of parent sensitivity during the compliance task followed the conceptualization of parent sensitivity used in the ORCE (NICHD Early Child Care Research Network, 1999, 2003). Parents were determined to behave in a sensitive manner when they followed their child's lead by responding contingently to the child's actions, commenting on the child's actions, or reacting to the child's actions through facial expressions. The current system, therefore, coded parent sensitivity at each individual second by considering whether or not parents were behaving in a sensitive manner in the context of the child's preceding behavior. Undergraduate coders who were blind to intervention group assignment and the child compliance coding coded the observations. Twenty percent of videos were double-coded, and an inter-rater reliability of $\kappa = .79$ was achieved for parent sensitivity. A variable of total duration (in seconds) of parent sensitivity was derived.

In many microlevel coding systems for parent sensitivity, parent behavior is coded irrespective of context in terms of child behaviors, using a predefined set of specific behaviors (Mesman, 2010). The link with child behaviors is made after coding is completed by combining the parent behavior codes with child behavior codes and using methods such as sequential analyses to examine the contingency of parent–child behaviors. Unlike these microlevel coding approaches, our coding system for assessing parent sensitivity at the 36-month-old follow-up used a mixed approach, which considered the parent's contingent responses to the child's cues

(similar to global ratings of sensitivity), on a moment-by-moment basis (similar to microlevel approaches to coding). This approach was used because it used the same coding methodology used for child compliance, while applying a similar definition of parent sensitivity as used at the earlier time point.

Statistical Analyses

Preliminary analyses were conducted to check the randomization of groups, the effects of gender on the target variables, and possible effects of attrition. Primary analyses tested intervention effects on parent sensitivity at 1-month post-intervention and 36-month-old follow-up, and on the composite for child compliance at the 36-month-old follow-up. Intervention effects on each indicator of child compliance (i.e., whether or not the child touched the toys, latency to touch the toys, and total time spent touching the toys) were also examined in order to report group differences in raw data units that could be interpreted. A mediation model was then tested to assess whether the intervention effects on child compliance at 36 months old were mediated by earlier changes in parent sensitivity.

Results

Preliminary Results

Randomization Check

There were no significant differences between the ABC and DEF intervention groups in parent age, parent race or ethnicity, parent education, parent marital status, parent yearly income, and child age at intervention enrollment, child age at follow-up assessment, or child race or ethnicity, all p values > .05. Whereas there were no significant differences in child gender in the original sample of 212 children, $\chi^2(1, N = 212) = 0.62$, $p = .43$, there were more males in the ABC group who completed the 36-month-old follow-up than in the DEF group (64% and 42%, respectively), $\chi^2(1, N = 101) = 5.46$, $p = .02$.

Gender and Child Compliance

Given the differences in gender between the intervention groups, analyses were performed to examine the association between gender and the target compliance variables. Boys and girls did not differ with regard to the compliance composite, whether or not they touched the toys, in the total amount of time they spent touching the toys, or in the latency to touching the toys (all p values > .05). Thus, gender was not significantly associated with the target compliance variables and therefore not included as a covariate.

Attrition

To assess whether differential attrition threatened the validity of the 36-month assessments, characteristics of included and excluded children were compared. No significant differences between the groups were found with regard to child age at the beginning of the intervention, child gender, child race or ethnicity, parent age, parent gender, parent race or ethnicity, parent income, parent education, or parent marital status (all p values > .05).

Primary Results

Differences between parents and children in the ABC and DEF intervention groups were examined using an intent-to-treat approach. Descriptive statistics and effect sizes for intervention effects can be found in Table 2. Bivariate correlations between primary variables are reported in Table 3.

Intervention Differences in Parent Sensitivity

Intervention group differences in parent sensitivity were examined at two time points: the 1-month post-intervention assessment and the 36-month-old follow-up assessment.

Parent sensitivity at 1-month post-intervention. Anal yses of variance were conducted to assess intervention effects on parent sensitivity at 1-month post-intervention. Parents who received ABC demonstrated significantly higher sensitivity than parents who received the control intervention at the 1-month post-intervention assessment, $F(1, 87) = 4.80$, $p = .03$, Cohen's $d = .47$.

Parent sensitivity at 36-month-old follow-up. Intervention differences in the second-by-second coding of parent sensitivity at the 36-month-old follow-up assessment were examined using analysis of variance. Parents who received the ABC intervention engaged in sensitive behavior for more of the interaction than parents who received the control intervention, though the difference was not statistically significant, $F(1, 87) = 3.90$, $p = .05$, Cohen's $d = .40$. The correlation between parent sensitivity at the 1-month post-intervention assessment and parent sensitivity at 36-month-old follow-up assessment was moderate but nonsignificant, $r = .20$, $p = .06$.

Table 3
Bivariate Correlations Between Primary Variables

Variables	1	2	3	4	5	6	7	8	9
1. Child gender	—								
2. Child age at intervention	−.03	—							
3. Child age at 36-month-old follow-up	−.02	.20*	—						
4. Time between intervention and 36-month follow-up	.03	−.85**	.28**	—					
5. Parent sensitivity, 1-month post-intervention	−.01	.11	.05	−.05	—				
6. Parent sensitivity, 36-month-old follow-up	.09	−.04	−.18	−.06	.20^{+}	—			
7. Child compliance composite	−.01	.04	−.03	−.07	.17	.02	—		
8. Child compliance: child touching toys (categorical)	−.01	−.01	.09	.08	−.15	−.01	−.94**	—	
9. Child compliance: duration of child touching toys	.01	−.06	−.04	.04	−.07	−.03	−.92**	.83**	—
10. Child compliance: latency to child touching toys	−.01	.04	−.03	−.08	.26*	.01	.91**	−.78**	−.72**

Note. Child gender was coded 1 for male, 0 for female. Child touching toys was coded 1 if the child touched the toys and 0 if the child did not touch the toys.
$^{+}p < .10$. $*p < .05$. $**p < .01$.

Intervention Differences in Child Compliance

Differences between children in the ABC and DEF intervention groups were examined for the composite of child compliance, and also separately for the three indicators of child compliance: (a) whether or not the child touched the toys, (b) the overall amount of time (in seconds) that the child touched the toys during the entire task, and (c) the latency (in seconds) to the child touching the toys.

Child compliance composite. Children in the ABC group had significantly higher compliance composite scores than children in the DEF group, $F(1, 99) = 7.09$, $p < .01$. The effect size, calculated using Cohen's d was .53. Given the variability in children's age at intervention and the time interval from treatment to the 36-month-old follow-up, we examined whether the child compliance composite was associated with either of these variables in the ABC group. No significant associations were found between the child compliance composite and children's age at intervention or between the child compliance composite and the time interval from intervention to follow-up, p values > .05.

Individual indicators of child compliance. Significantly fewer children in the ABC group touched the toys than children in the DEF group, $\chi^2(1, N = 101) = 4.14$, $p < .05$. Only 33% of the ABC group touched the toys as compared with 54% of children from the DEF group who touched the toys. The resulting effect size, calculated using Cohen's d, was −.64. Children in the ABC group spent significantly less time touching the toys than children in the DEF group, $F(1, 99) = 4.32$, $p = .04$. The effect size, calculated using Cohen's d, was −.42. Among children in the ABC group, the latency to touch the toys was longer than among children in the DEF group, $F(1, 99) = 10.42$, $p < .01$. Children in the DEF group touched the toys, on average, 63.58 s earlier than children in the ABC group. The resulting effect size, calculated using Cohen's d, was .68.

Parent Sensitivity Mediating Intervention Effects on Child Compliance

We next examined whether parent sensitivity at 1-month post-intervention mediated intervention effects on child compliance at the 36-month-old follow-up. Examination of bivariate correlations between the variables revealed that parent sensitivity at post-intervention was significantly associated with latency to touch the toys (see Table 3). Parent sensitivity at post-intervention was not significantly associated with the compliance composite, the categorical variable of touching toys, or the overall amount of time that the child touched the toys. Therefore, we specifically examined a mediation model with latency to touch toys as the outcome. PROCESS 2.16.3 (Hayes, 2016) was used to test a mediation model, with intervention group as the predictor, latency to touch toys at the 36-month-old follow-up as the outcome, and parent sensitivity at 1-month post-intervention as the mediator; parent sensitivity at the 36-month-old follow-up (during the compliance task) was included as a covariate. Results supported significant mediation, given that the 95% confidence interval around the unstandardized coefficient of the indirect effect [0.59, 31.47] did not include 0 (see Table 4, Figure 2). The direct effect of intervention group on latency to touch toys was still significant with the mediator included, suggesting that parent sensitivity at 1-month post-

intervention partially mediated the association between intervention group and child compliance at the 36-month-old follow-up assessment.

Discussion

Our findings suggest that a preventative intervention implemented in infancy can promote later child compliance among children at risk for maltreatment. Specifically, fewer children in the ABC group touched the prohibited toys than in the DEF group. Children in the ABC group also touched the toys for shorter periods of time, and were able to wait longer before touching the toys, than children in the control group. Parents who received the ABC intervention also showed significantly higher levels of parent sensitivity 1-month post-intervention compared with parents who received the control intervention. Finally, there was some evidence that the intervention effects on aspects of children's compliance (specifically the latency to touch toys) at 36 months old were partially mediated by parent sensitivity at 1-month post-intervention, controlling for parent sensitivity during the compliance task. These results suggest that ABC effectively enhanced CPS-referred children's compliance, and raise the possibility that parent sensitivity may play a role in mediating some of these effects.

These results are particularly important given the critical role that child compliance plays in the overall development of child physiological, emotional, and cognitive regulation. Child compliance has been found to predict a wide range of later outcomes, from socioemotional competence to academic performance (Blair & Raver, 2015; Campbell et al., 2000; McClelland et al., 2007). Thus, the effectiveness of ABC in enhancing child compliance has far reaching implications, as it may prevent CPS-referred children from consistently falling behind their peers due to early deficits in compliance.

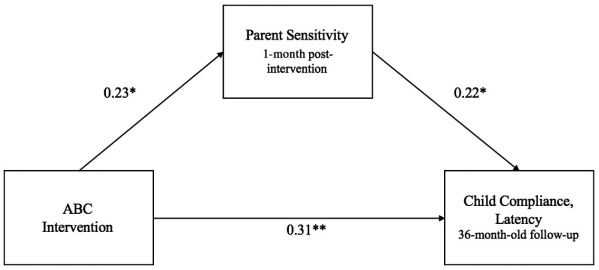

Figure 2. Mediation model demonstrating that parent sensitivity (at 1-month post-intervention) mediates the effect of intervention group on child compliance (i.e., latency to touch toys) at 36-month-old follow-up. Values reflect standardized regression coefficients. Figure does not depict that parent sensitivity at 36-month-old follow-up (during compliance task) was included as a covariate.
*$p < .05$. **$p < .01$.

The finding of parent sensitivity mediating the intervention's effect on children's latency to touch toys is suggestive of the important role that parent sensitivity may play in the development of later child compliance. These results suggest that parent sensitivity may be an important target not only for promoting children's attachment security but also for increasing compliance to parental requests. This mediation effect was examined specifically for children's latency to touch the toys, given that parent sensitivity at 1-month post-intervention was significantly associated with this indicator of child compliance, but not others. It is possible that the variable of latency is tapping into a slightly different aspect of child compliance than the other variables. For example, executive functioning and inhibitory control may play a more significant role in the ability to wait longer before touching the toys than the length of time spent touching the toys. If so, the findings related to parent sensitivity

Table 4
Mediation Model of Attachment and Biobehavioral Catch-up (ABC) Intervention Predicting Child Compliance via Parent Sensitivity

Effect	Unstandardized estimate	*SE*	*t*	*p*	95% CI [lower, upper]
Outcome: sensitivity, $R = .23$, $R^2 = .05$, $F(1, 87) = 4.90$, $p = .030$					
(Constant)	1.94	0.16	11.85	.000	[1.61, 2.27]
ABC intervention	0.55	0.25	2.21	.030	[0.06, 1.04]
Outcome: child compliance (latency), $R = .41$, $R^2 = .17$, $F(3, 85) = 5.63$, $p = .001$					
(Constant)	197.64	28.74	6.88	.000	[140.50, 254.78]
Sensitivity (at 1-month post-intervention)	19.33	9.10	2.12	.037	[1.24, 27.43]
ABC intervention	64.64	21.60	2.99	.004	[21.70, 107.58]
Sensitivity (at 36-month follow-up)	−30.44	19.44	−1.57	.121	[−69.09, 8.21]
Indirect effect: ABC on child compliance via sensitivity	10.58	7.62	—	—	[0.59, 31.46]

and latency would be consistent with previous literature showing that parent sensitivity is linked to child executive functioning (Bernier et al., 2010). However, parent sensitivity was not found to mediate intervention effects on the other two components of compliance (a categorical variable of whether or not the child touched the toys and the overall amount of time that the child touched the toys), nor the composite of compliance that included all three components. Therefore, these results should be viewed as suggestive of the role of parent sensitivity as a mediator of intervention effects on child compliance, although further investigation is required.

Several considerations should be noted when interpreting the results of this study. First, given the young age of children at the beginning of the intervention, there was no pre-intervention assessment of compliance; the randomized design, however, allows us to assume baseline equivalence across groups. This gives greater confidence in the results, but caution should still be taken given the lack of pre-intervention assessment of compliance. In addition, some caution in interpreting the results should be taken, as the inter-rater reliability of the measure of parent sensitivity at 1-month post-intervention was somewhat low (ICC = .69). Additionally, there was variability in the contexts for assessing sensitivity within time-point (i.e., at the 1-month post-intervention visits, parents of children younger than 18 months were observed for 9 min, whereas parents of children older than 18 months were observed for 7 min) and in the approach for assessing sensitivity across time-points (i.e., global rating of sensitivity at 1-month post-intervention vs. a microlevel second-by-second coding at the 36-month-old follow-up). Differences between macrolevel and microlevel coding of parent sensitivity are particularly important to consider, as studies have traditionally found little association between the two (Lohaus, Keller, Ball, Elben, & Voelker, 2001; Voelker, Keller, Lohaus, Cappenberg, & Chasiotis, 1999). These micro-coding methods tend to consider parent behavior irrespective of context in terms of child behaviors, using a predefined set of specific parent behaviors. In contrast to these methods, the current coding system used a mixed approach in which parent behavior were coded in small time intervals using global conceptions of parent sensitivity. Therefore, parent behavior was coded second-by-second, but coders considered the preceding child behaviors. This distinction allowed for more consistency across the global and micro-coding systems. This consistency was reflected in a small, nonsignificant correlation of .20 ($p < .10$) between the global rating of sensitivity at 1-month post-intervention and the microlevel second-by-second coding of parent sensitivity at the 36-month-old follow-up; the modest correlation might have reflected differences in methodology between the two coding systems, changes in parenting behavior over time, and measurement error. Differences between macro- and microlevel coding of parent sensitivity should be considered a limitation, and therefore caution used in the interpretation of the results. Importantly, we found a mediating effect of sensitive parenting for children's latency to touching the toys despite these methodological differences.

This study had many strengths, including the inclusion of longitudinal data that allow for the analysis of a mediator measured 1-month post-intervention when children were, on average, 18.4 months old (SD = 6.9), influencing outcomes at the 36-month-old follow-up. The study also benefits from the use of an observational method of assessing child compliance, rather than parent- or teacher-report data. Additionally, the use of second-by-second coding allowed for the examination of several aspects of compliance (e.g., time spent touching, latency to touching). Overall, the findings demonstrate that a brief, preventive intervention conducted in infancy can have long-lasting impacts on CPS-referred children's compliance, and suggests that these effects may be mediated through changes in parent sensitivity.

References

Ainsworth, M. D. S. (1974). Infant mother attachment and social development: Socialization as a product of reciprocal responsiveness to signals. In M. P. M. Richards (Ed.), *The integration of the child into a social world* (pp. 99–135). Cambridge, UK: Cambridge University Press.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment*. Hillsdale, NJ: Erlbaum.

Beebe, B., & Lachmann, F. M. (1994). Representation and internalization in infancy: Three principles of salience. *Psychoanalytic Psychology*, *11*, 127–165. https://doi.org/10.1037/h0079530

Bernard, K., Dozier, M., Bick, J., & Gordon, M. K. (2015). Intervening to enhance cortisol regulation among children at risk for neglect: Results of a randomized clinical trial. *Development and Psychopathology*, *27*, 829–841. https://doi.org/10.1017/S095457941400073X

Bernard, K., Dozier, M., Bick, J., Lewis-Morrarty, E., Lindhiem, O., & Carlson, E. A. (2012). Enhancing attachment organization among maltreated children: Results

of a randomized clinical trial. *Child Development*, *83*, 623–636. https://doi.org/10.1111/j.1467-8624.2011.01712.x

Bernard, K., Hostinar, C. E., & Dozier, M. (2015). Intervention effects on diurnal cortisol rhythms of Child Protective Services—referred infants in early childhood: Preschool follow-up results of a randomized clinical trial. *JAMA Pediatrics*, *169*, 112–119. https://doi.org/10.1001/jamapediatrics.2014.2369

Bernier, A., Carlson, S. M., & Whipple, N. (2010). From external regulation to self-regulation: Early parenting precursors of young children's executive functioning. *Child Development*, *81*, 326–339. https://doi.org/10.1111/j.1467-8624.2009.01397.x

Bick, J., & Dozier, M. (2013). The effectiveness of an attachment-based intervention in promoting foster mothers' sensitivity toward foster infants. *Infant Mental Health Journal*, *34*, 95–103. https://doi.org/10.1002/imhj.21373

Blair, C. B., & Raver, C. C. (2015). School readiness and self-regulation: A developmental psychobiological approach. *Annual Review of Psychology*, *66*, 711–731. https://doi.org/10.1146/annurev-psych-010814-015221

Bradley, R. H., & Corwyn, R. F. (2007). Externalizing problems in fifth grade: Relations with productive activity, maternal sensitivity, and harsh parenting from infancy through middle childhood. *Developmental Psychology*, *43*, 1390–1401. https://doi.org/10.1037/0012-1649.43.6.1390

Bradley, R. H., & Corwyn, R. F. (2008). Infant temperament, parenting, and externalizing behavior in first grade: A test of the differential susceptibility hypothesis. *Journal of Child Psychology and Psychiatry*, *49*, 124–131. https://doi.org/10.1111/j.1469-7610.2007.01829.x

Brooks-Gunn, J., Klebanov, P. K., Liaw, F.-R., & Spiker, D. (1993). Enhancing the development of low-birthweight, premature infants: Changes in cognition and behavior over the first three years. *Child Development*, *64*, 736–753. https://doi.org/10.1111/j.1467-8624.1993.tb02940.x

Calkins, S. D., & Fox, N. A. (2002). Self-regulatory processes in early personality development: A multilevel approach to the study of childhood social withdrawal and aggression. *Development and Psychopathology*, *14*, 477–498. https://doi.org/10.1017.S095457940200305X

Campbell, S. B., Shaw, D. S., & Gilliom, M. (2000). Early externalizing behavior problems: Toddlers and preschoolers at risk for later maladjustment. *Development and Psychopathology*, *12*, 467–488. https://doi.org/10.1017/S0954579400003114

Caron, E., Bernard, K., & Dozier, M. (2016). In vivo feedback predicts parent behavior change in the Attachment and Biobehavioral Catch-up intervention. *Journal of Clinical Child and Adolescent Psychology*, *53*, 1–12. https://doi.org/10.1080/15374416.2016.1141359

Cerezo, M. A., D'Ocon, A., & Dolz, L. (1996). Mother–child interactive patterns in abusive families versus nonabusive families: An observational study. *Child Abuse and Neglect*, *20*, 573–587. https://doi.org/10.1016/0145-2134(96)00045-2

Cicchetti, D., & Toth, S. L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions. *Development and Psychopathology*, *18*, 623–649. https://doi.org/10.1017/S0954579406060329

Cole, P. M., Tan, P. Z., Hall, S. E., Zhang, Y., Crnic, K. A., Blair, C. B., & Li, R. (2011). Developmental changes in anger expression and attention focus: Learning to wait. *Developmental Psychology*, *47*, 1078–1089. https://doi.org/10.1037/a0023813

Dishion, T. J., Shaw, D., Connell, A. M., Gardner, F., Weaver, C., & Wilson, M. (2008). The Family Check-Up with high-risk indigent families: Preventing problem behavior by increasing parents' positive behavior support in early childhood. *Child Development*, *79*, 1395–1414. https://doi.org/10.1111/j.1467-8624.2008.01195.x

Dishion, T. J., & Stormshak, E. A. (2007). *Intervening in children's lives: An ecological, family-centered approach to mental health care*. Washington, DC: American Psychological Association. https://doi.org/10.1037/11485-000

Dozier, M., Lindhiem, O., Lewis, E., Bick, J., Bernard, K., & Peloso, E. (2009). Effects of a foster parent training program on young children's attachment behaviors: Preliminary evidence from a randomized clinical trial. *Child and Adolescent Social Work Journal*, *26*, 321–332. https://doi.org/10.1007/s10560-009-0165-1

Feldman, R. (2007). Parent–infant synchrony and the construction of shared timing; physiological precursors, developmental outcomes, and risk conditions. *Journal of Child Psychology and Psychiatry*, *48*, 329–354. https://doi.org/10.1111/j.1469-7610.2006.01701.x

Feldman, R., & Klein, P. S. (2003). Toddlers' self-regulated compliance to mothers, caregivers, and fathers: Implications for theories of socialization. *Developmental Psychology*, *39*, 680–692. https://doi.org/10.1037/0012-1649.39.4.680

Gardner, F., Hutchings, J., Bywater, T., & Whitaker, C. (2010). Who benefits and how does it work? Moderators and mediators of outcome in an effectiveness trial of a parenting intervention. *Journal of Clinical Child and Adolescent Psychology*, *39*, 568–580. https://doi.org/10.1080/15374416.2010.486315

Grusec, J. E., & Davidov, M. (2010). Integrating different perspectives on socialization theory and research: A domain-specific approach. *Child Development*, *81*, 687–709. https://doi.org/0.1111/j.1467-8624.2010.01426.x

Hayes, A. F. (2016). *The PROCESS macro for SPSS and SAS* (Version 2.16.3) [Software]. Retrieved from http://www.processmacro.org/index.html

Hughes, C., & Ensor, R. (2005). Executive function and theory of mind in 2 year olds: A family affair? *Developmental Neuropsychology*, *28*, 645–668. https://doi.org/10.1207/s15326942dn2802_5

Ippen, C. G., Harris, W. W., Van Horn, P., & Lieberman, A. F. (2011). Traumatic and stressful events in early childhood: Can treatment help those at highest risk?

Child Abuse and Neglect, *35*, 504–513. https://doi.org/10.1016/j.chiabu.2011.03.009

Juffer, F., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2005). The importance of parenting in the development of disorganized attachment: Evidence from a preventive intervention study in adoptive families. *Journal of Child Psychology and Psychiatry*, *46*, 263–274. https://doi.org/10.1111/j.1469-7610.2004.00353.x

Juffer, F., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2008). *Promoting positive parenting: An attachment-based intervention*. In F. Juffer, M. J. Bakermans-Kranenburg and M. H. van IJzendoorn (Eds). New York, NY: Taylor & Francis Group/Lawrence Erlbaum Associates.

Kochanska, G., Aksan, N., Prisco, T. R., & Adams, E. E. (2008). Mother–child and father–child mutually responsive orientation in the first 2 years and children's outcomes at preschool age: Mechanisms of influence. *Child Development*, *79*, 30–44. https://doi.org/10.1111/j.1467-8624.2007.01109.x

Kochanska, G., & Kim, S. (2013). Difficult temperament moderates links between maternal responsiveness and children's compliance and behavior problems in low-income families. *Journal of Child Psychology and Psychiatry*, *54*, 323–332. https://doi.org/10.1111/jcpp.12002

Kok, R., van IJzendoorn, M. H., Linting, M., Bakermans-Kranenburg, M. J., Tharner, A., Luijk, M. P. C. M., . . . Tiemeier, H. (2012). Attachment insecurity predicts child active resistance to parental requests in a compliance task. *Child: Care, Health and Development*, *39*, 277–287. https://doi.org/10.1111/j.1365-2214.2012.01374.x

Kopp, C. B. (1982). Antecedents of self-regulation: A developmental perspective. *Developmental Psychology*, *18*, 199–214. https://doi.org/10.1037/0012-1649.18.2.199

Leerkes, E. M., Blankson, A. N., & O'Brien, M. (2009). Differential effects of maternal sensitivity to infant distress and nondistress on social-emotional functioning. *Child Development*, *80*, 762–775. https://doi.org/10.1111/j.1467-8624.2009.01296.x

Lewis-Morrarty, E., Dozier, M., Bernard, K., Terracciano, S. M., & Moore, S. V. (2012). Cognitive flexibility and theory of mind outcomes among foster children: Preschool follow-up results of a randomized clinical trial. *Journal of Adolescent Health*, *51*, S17–S22. https://doi.org/10.1016/j.jadohealth.2012.05.005

Lieberman, A. F., Ippen, C. G., & Van Horn, P. (2006). Child–parent psychotherapy: 6-month follow-up of a randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, *45*, 913–918. https://doi.org/10.1097/01.chi.0000222784.03735.92

Lieberman, A. F., Ippen, C. G., & Van Horn, P. (2015). *Don't hit my mommy! A manual for child–parent psychotherapy with young children exposed to violence and other trauma* (2nd ed.). Washington, DC: Zero To Three.

Lieberman, A. F., Weston, D. R., & Pawl, J. H. (1991). Preventive intervention and outcome with anxiously attached dyads. *Child Development*, *62*, 199–209. https://doi.org/10.2307/1130715

Lind, T., Bernard, K., Ross, E., & Dozier, M. (2014). Intervention effects on negative affect of CPS-referred children: Results of a randomized clinical trial. *Child Abuse and Neglect*, *38*, 1459–1467. https://doi.org/10.1016/j.chiabu.2014.04.004

Lind, T., Raby, L. K., Caron, E., Roben, C. K. P., & Dozier, M. (2017). Enhancing executive functioning among toddlers in foster care with an attachment-based intervention. *Development and Psychopathology*, *29*, 575–586. https://doi.org/10.1017/S0954579417000190

Lohaus, A., Keller, H., Ball, J., Elben, C., & Voelker, S. (2001). Maternal sensitivity: Components and relations to warmth and contingency. *Parenting: Science and Practice*, *1*, 267–284. https://doi.org/10.1207/s15327922par0104_1

McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M., & Morrison, F. J. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. *Developmental Psychology*, *43*, 947–959. https://doi.org/10.1037/0012-1649.43.4.947

McElwain, N. L., & Booth-LaForce, C. (2006). Maternal sensitivity to infant distress and nondistress as predictors of infant–mother attachment security. *Journal of Family Psychology*, *20*, 247–255. https://doi.org/10.1037/0893-3200.20.2.247

Mesman, J. (2010). Maternal responsiveness to infants: Comparing micro- and macro-level measures. *Attachment & Human Development*, *12*, 143–149. https://doi.org/10.1080/14616730903484763

NICHD Early Child Care Research Network. (1999). Child care and mother–child interaction in the first three years of life. *Developmental Psychology*, *35*, 1399–1413. https://doi.org/10.1037/0012-1649.35.6.1399

NICHD Early Child Care Research Network. (2003). Early child care and mother–child interaction from 36 months through first grade. *Infant Behavior and Development*, *26*, 345–370. https://doi.org/10.1016/S0163-6383(03)00035-3

Powell, B., Cooper, G., Hoffman, K., & Marvin, R. (2014). *The circle of security intervention: Enhancing attachment in early parent–child relationships*. New York, NY: Guilford.

Ramey, C. T., Yeates, K. O., & Short, E. J. (1984). The plasticity of intellectual development: Insights from preventative intervention. *Child Development*, *55*, 1913–1925. https://doi.org/10.2307/1129938

Raver, C. C. (1996). Relations between social contingency in mother–child interaction and 2-year-olds' social competence. *Developmental Psychology*, *32*, 850–859. https://doi.org/10.1037/0012-1649.32.5.850

Rocissano, L., Slade, A., & Lynch, V. (1987). Dyadic synchrony and toddler compliance. *Developmental Psychology*, *23*, 698–704. https://doi.org/10.1037/0012-1649.23.5.698

Schueler, C. M., & Prinz, R. J. (2013). The role of caregiver contingent responsiveness in promoting compliance in young children. *Child Psychiatry and Human*

Development, *44*, 370–381. https://doi.org/10.1007/s10578-012-0331-0

Shonkoff, J. P., Siegel, B. S., Dobbins, M. I., Earls, M. F., & Garner, A. S. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, *129*, e232–e246. https://doi.org/10.1542/peds.2011-2663

van Berkel, S. R., Groeneveld, M. G., Mesman, J., Endendijk, J. J., Hallers-Haalboom, E. T., van der Pol, L. D., & Bakermans-Kranenburg, M. J. (2015). Parental sensitivity towards toddlers and infant siblings predicting toddler sharing and compliance. *Journal of Child and Family Studies*, *24*, 2270–2279. https://doi.org/10.1007/s10826-014-0029-y

Velderman, M. K., Bakermans-Kranenburg, M. J., Juffer, F., van IJzendoorn, M. H., Mangelsdorf, S. C., & Zevalkink, J. (2006). Preventing preschool externalizing behavior problems through video-feedback intervention in infancy. *Infant Mental Health Journal*, *27*, 466–493. https://doi.org/10.1002/imhj.20104

Voelker, S., Keller, H., Lohaus, A., Cappenberg, M., & Chasiotis, A. (1999). Maternal interactive behaviour in early infancy and later attachment. *International Journal of Behavioral Development*, *23*, 921–936. https://doi.org/10.1080/016502599383603

Wakschlag, L. S., Briggs-Gowan, M. J., Hill, C., Danis, B., Leventhal, B. L., Keenan, K., . . . Carter, A. S. (2008). Observational assessment of preschool disruptive behavior, part II: Validity of the Disruptive Behavior Diagnostic Observation Schedule (DB-DOS). *Journal of the American Academy of Child and Adolescent Psychiatry*, *47*, 632–641. https://doi.org/10.1097/CHI.0b013e31816c5c10

Wakschlag, L. S., Hill, C., Carter, A. S., Danis, B., Egger, H. L., Keenan, K., . . . Briggs-Gowan, M. J. (2008). Observational assessment of preschool disruptive behavior, part I: Reliability of the Disruptive Behavior Diagnostic Observation Schedule (DB-DOS). *Journal of the American Academy of Child Adolescent Psychiatry*, *47*, 622–631. https://doi.org/10.1097/CHI.0b013e31816c5bdb

Webster-Stratton, C., & Reid, M. J. (2004). Strengthening social and emotional competence in young children: The foundation for early school readiness and success. *Infants and Young Children*, *17*, 96–113. https://doi.org/10.1097/00001163-200404000-00002

Wilson, S. R., Rack, J. J., Shi, X., & Norris, A. M. (2008). Comparing physically abusive, neglectful, and non-maltreating parents during interactions with their children: A meta-analysis of observational studies. *Child Abuse and Neglect*, *32*, 897–911. https://doi.org/10.1016/j.chiabu.2008.01.003

Yarger, H. A., Hoye, J. R., & Dozier, M. (2016). Trajectories of change in Attachment and Biobehavioral Catch-up among high-risk mothers: A randomized clinical trial. *Infant Mental Health Journal*, *37*, 525–536. https://doi.org/10.1002/imhj.21585