

**The Effects of Maternal Sensitivity on the Development of  
Empathy in Neglected Children**

by

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A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Honors Bachelor of Arts in Psychology with Distinction

Spring 2015

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## **ACKNOWLEDGMENTS**

I would like to thank everyone at the Infant Caregiver Project for their help, patience, and support over the past year with my thesis, especially Dr. Dozier, EB Meade, Teresa Lind, and Lizzie Allen. Thanks to Dr. Roben and Dr. Leon for their guidance. Last, but certainly not least, I would like to thank my family and friends for their endless encouragement throughout this process.

## TABLE OF CONTENTS

LIST OF TABLES .....	v
ABSTRACT .....	vi
1 INTRODUCTION .....	1
2 METHODS.....	6
3 RESULTS.....	11
4 DISCUSSION.....	14
REFERENCES .....	18
A MATERNAL BEHAVIOR DURING PLAY CODING SHEET .....	21
B EMPATHY CODING SHEET.....	22

## LIST OF TABLES

Table 1: <i>Correlations Among Variables</i> .....	12
Table 2: <i>Descriptives of Parenting Variables</i> .....	13

## **ABSTRACT**

Neglected children are often at risk for developing disorganized attachments, which can result in poor development of socioemotional skills, such as empathy. However, children who receive high-quality, sensitive parenting may be buffered from these negative outcomes. In this study, we examined the relationship between maternal sensitivity and child empathy in a sample of 155 caregiver-child dyads, who were referred by Child Protective Services for concerns of neglect when the children were infants. Maternal sensitivity was measured through a semi-structured play task at an early (0-18 months) and later (18-30 months) timepoint. We also measured child empathy skills through a simulated maternal distress task at 36 and 48 months. There were no significant associations between maternal sensitivity during play and child empathy.

## **Chapter 1**

### **INTRODUCTION**

Neglect is the most common form of child maltreatment, and children under the age of 3 are particularly vulnerable (USDHHS, 2013). Neglected children are at risk for developing disorganized attachments, which can have critical socioemotional consequences (Cyr, Euser, Bakersman-Kranenburg, & van IJzendoorn, 2010). One key socioemotional outcome is empathy, or the ability to recognize and respond to another's emotional state (Kestenbaum, Farber, & Sroufe, 1989). Thus, children in high-risk environments are more likely to experience suboptimal development of empathy than are children who live in low-risk environments. However, children in high-risk environments may be buffered from stress by sensitive, high-quality parenting (Asok, Bernard, Roth, Rosen, & Dozier, 2013).

### **Empathy**

Empathy can be defined as an emotional response resulting from the understanding of another person's emotional state or condition (Eisenberg & Fabes, 1998, p. 702). From a functional, evolutionary perspective, empathy is important for survival, needed to interpret other people's emotions, understand their intentions, and become invested in interpersonal relationships (Zahn-Waxler, Robinson, & Emde, 1992).

Empathy is associated with the development of morality and prosocial behavior, that is, positive helping actions towards people in need (Roth-Hanania,

Davidov, & Zahn-Waxler, 2011). Compared to less empathic children, more empathic children exhibit less anger, less aggression, more helping and prosocial behaviors, and more sophisticated moral judgment (Strayer & Roberts, 2004; van der Mark, van IJzendoorn, & Bakersman-Kranenburg, 2002). Empathy is also related to feelings of guilt and shame, which predict externalizing behavior in both childhood and adulthood, as well as internalizing symptoms in adulthood (Eisenberg, 2000). Therefore, for optimal socioemotional outcomes, it is crucial that children develop proper empathy skills.

Empathic skills develop at a young age and are used throughout one's lifetime. Even newborns seem capable of empathy, crying at the sound of another infant's cries (van der Mark et al., 2002). Beginning at age two, children are believed to have the foundations for more sophisticated empathic behavior than seen at younger ages. Two-year-olds have the cognitive capacity to understand the psychological and physical state of others, allowing them to interpret someone else's distress (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). They also have the emotional capacity to interpret others' emotional states, as well as the behavioral capabilities to act in ways that will comfort someone in distress (Zahn-Waxler et al., 1992). Therefore, by ages three and four, when the children are assessed in this study, empathy skills should be firmly developed.

### **Sensitivity**

Sensitive parenting may predict empathy in children. Sensitivity can be defined as "following the lead," in mothers' reactions and responses to the child's signals, expressions, and interests (NICHD ECCRN, 1996). Sensitive parenting is

focused on the child's wants and needs, with the mother following along with what the child wants to do, and giving the child an appropriate amount of stimulation.

Sensitive mothers create a “warm and trusting attachment relationship” with their children (van der Mark, van IJzendoorn, & Bakersman-Kranenburg, 2002). This secure attachment results in children looking to their mothers when ill or in distress, and feeling comforted by them, knowing they can depend on their mothers (van der Mark et al., 2002). In contrast, insensitive, frightening, and intrusive parenting has been associated with disorganized attachment (Hesse & Main, 2000). Children with secure attachments appear to exhibit more empathy than children with insecure attachments (Waters, Wippman, & Sroufe, 1979, as cited in van der Mark et al., 2002).

Because parental sensitivity and secure attachments are linked, and securely attached children exhibit greater empathy, sensitivity might predict empathy, as well. However, the studies that have examined the link between parental sensitivity and empathy thus far have shown conflicting results regarding this association. Although several studies have found associations between maternal sensitivity and empathy (Kiang, Moreno, & Robinson, 2004; Kochanska, Forman, & Coy, 1999; Robinson, Zahn-Waxler, & Emde, 1994), other research failed to find an association between maternal sensitivity and empathy (van der Mark et al, 2002). Spinrad & Stifter (2006) also found no association between maternal sensitivity and a closely related construct, prosocial behavior.

### **Empathy and Sensitivity in the Context of Neglect**

The previous literature examining the relationship between sensitivity and empathy has involved primarily white, middle-class families. These individuals are

typically not living in high-risk environments, and sensitivity and empathy may interact differently in normative samples compared to high-risk samples. That is, among low-risk children who receive generally acceptable parenting, perhaps other factors (such as temperament, gender) may be more important in predicting empathy (e.g., van der Mark et al, 2002; Young, Fox, & Zahn-Waxler, 1999).

In contrast, parenting may be a more critical predictor of empathy in extreme conditions, such as neglectful parenting or in high-risk environments with many external stressors. Specifically, neglectful parents may be predominantly detached or intrusive, unaware of their children's signals and how to interact appropriately. If children have had their own needs met in the past by a caretaker, they may be able to better focus on others' emotions without confusing them with their own, allowing for empathic responses to occur (Kestenbaum, Farber, & Sroufe, 1989). Since neglected children often do not have their needs met by their caretakers, these children may exhibit poorer empathy skills than non-neglected children. Abused toddlers have been found to respond to others' distress in non-empathic ways, such as by threatening or attacking (Main & George, 1985, as cited in Strayer & Roberts, 2004). Therefore, neglected children may also have inappropriate, non-empathic means of reacting to others' emotions.

Fortunately, through sensitive, high-quality parenting, parents may be able to buffer their children from the stressors of high-risk environments, allowing for the child to develop typically (Asok, Bernard, Roth, Rosen, & Dozier, 2013). It is important that we examine a high-risk sample, then, before generalizing findings about sensitivity and empathy to other populations.

### **Current Study**

The current study examines how maternal sensitivity in infancy influences the development of empathy in toddlerhood among neglected children. I hypothesized that infants of less sensitive mothers would exhibit lower levels of empathic responding in toddlerhood, compared to infants of more sensitive mothers.

## **Chapter 2**

### **METHODS**

#### **Participants**

This study included 155 parent-child dyads. Parents were predominantly female (97.2%), and were primarily African American (68.8%), with the remaining parents European American (10.4%), Hispanic (12.5%), or Biracial (4.9%). Children were African American (67.4%), Biracial (14.6%), Hispanic (11.8%), and European American (5.6%). Participants were referred to Child Protective Services (CPS) for concerns of neglect when the children were infants. All parent-child dyads were from the Philadelphia area. These dyads were part of a larger randomized clinical trial of the effects of an attachment-based intervention. The Infant Caregiver Project at the University of Delaware randomly assigned half of the families to an intervention known as Attachment and Biobehavioral Catch-up (ABC), which coaches parents to develop appropriate behaviors and ways to engage with their children. Through this intervention, parents learn to reduce frightening behaviors and increase engagement in sensitivity, nurturance, and delight. Children can therefore form organized attachments with their parents. The other half of the sample was randomly assigned to the Developmental Education for Families (DEF) intervention, which was focused on physical and cognitive development, and was not expected to affect children's attachment. Intervention group was not considered in these analyses.

## Procedure

Maternal sensitivity and empathy were assessed at multiple home and lab visits. For the purposes of this study, available data for maternal sensitivity were grouped into 2 time ranges, early (0-18 months) and late (18-30 months). Children were approximately 9.3 months old ( $SD = 5.2$ ) when early maternal sensitivity was assessed, and approximately 24.9 months old ( $SD = 3.9$ ) when later maternal sensitivity was assessed.

Empathy was assessed at the 36 and 48-month visits. Children were approximately 37.8 months old ( $SD = 2.9$ ) at the 36-month visit, and approximately 49.8 months old ( $SD = 3.6$ ) at the 48-month visit. Parents were approximately 30.0 years old ( $SD = 9.2$ ) at the 36-month visit and 30.8 years old ( $SD = 8.7$ ) at the 48-month visit.

## Measures

**Maternal behavior.** Maternal behaviors were measured through a video-recorded, semi-structured play session. In this task, the mother was instructed to play with her child as she normally would, for about 7-10 minutes. The mother and child were given specific, age-appropriate toys from the researcher. Reliable coders watched these videotaped sessions, looking for micro-level behaviors exhibiting sensitivity to non-distress, intrusiveness, and positive regard (NICHD ECCRN, 1996).

Videorecordings were coded on Likert scales of 1 (not at all characteristic) to 5 (highly characteristic) for micro-level behaviors, including sensitivity to non-distress, intrusiveness, and positive regard.

*Sensitivity.* The sensitivity to non-distress scale measured the mother's ability to follow the child's lead, interacting with the child at an appropriate pace, and responding to the child's signals. Mothers who scored high on this scale followed along with what the child wanted to do and responded contingently to child bids, while mothers lower on the scale were either predominately intrusive or detached/non-responsive.

*Intrusiveness.* Intrusive mothers often ignored their children's signals, and focused the interaction on what they wanted to do, oftentimes through overstimulating, fast paced interactions. Intrusive mothers often asked controlling questions, led interactions, and took toys away from the child. Intrusive mothers may have been physically intrusive, as well, by tickling the child, constantly touching the child, or putting toys in the child's face.

*Positive Regard.* The positive regard scale measured the mother's enjoyment and positive expressions towards the child, including warm tone of voice, smiling, laughing, hugging, and genuine, child-specific comments and praise. Mothers who were high in positive regard clearly delighted in being with their child, while mothers who were low in positive regard tended to appear detached and uninterested.

Since play was assessed during multiple visits, two time points were created, an earlier time point, 0-18 month play ( $M = 9.3$ ,  $SD = 5.2$ ) and an older time point, 18-30 month play ( $M = 24.9$ ,  $SD = 3.9$ ). Data were used from the child's youngest age at assessment within the 0-18 month time point, and the oldest age at assessment within the 18-30 month time point.

For this sample, 13 coders completed ratings, with 10% of play assessments double-coded. Reliability ranged from fair to good across scales, with one-way,

random effects, single-measures ICCs of .57 for sensitivity, .68 for intrusiveness, and .69 for positive regard. A one-way, random effects ICC is appropriate when a variety of coder pairs rate a subset of the sample (Shrout & Fleiss, 1979), and ICCs in the range of .40-.59 are considered fair, .60-.74 considered good, and above .75 considered excellent (Cicchetti & Sparrow, 1981).

**Empathy.** Child empathy was assessed through simulated maternal distress episodes (Zahn-Waxler, Robinson, & Emde, 1992). In this task, the mother simulated distress by pretending to hurt her knee. For the first 30 seconds, known as the “Distress Period,” the mother pretended to injure her knee, and complained about her knee hurting. After 30 seconds, the “Recovery Period” began, as the researcher suggested, “Maybe if you rub it, it will feel better.” The mother then began to rub her knee, talking about her knee beginning to feel better. In the last 30 seconds, the mother acted as if she felt completely better.

The child’s responses were videotaped for 90 seconds. Videos were coded for several qualities of empathy or lack of empathy, including prosocial acts, empathic concern, self-distress, and indifference. Coding was completed on a series of Likert scales developed by Zahn-Waxler, Robinson, & Emde (1992).

Factor analyses were conducted to explore patterns of correlation between empathy coding variables. These analyses informed creation of three composite scales, including Empathy/Prosocial, Social Referencing/Ambivalence, and Callous, and children received scores on each of the scales. Empathy/Prosocial included scores for global empathy, hypothesis testing, arousal, concern for victim, prosocial acts, and proximity to victim. Children who received high scores on this scale were the most empathic. Social Referencing/Ambivalence included positive affect, distress/fear, self-

referencing, ambivalence, and social referencing. Children who received high scores on this scale seemed to be unsure of how to react to the situation. Callous included anger, and callous/hostile. Children who received high scores on this scale were the least empathic.

Undergraduate coders who were blind to other study information coded videos of the interactions between parents and children. An acceptable level of inter-rater reliability was established prior to coding for the present study. Twenty percent of the videos were double coded to assess reliability. The Spearman correlations for inter-rater reliability for the individual scales ranged from  $\rho = 0.69$  to  $\rho = 0.86$ , with the exception of the distress scale, which was  $\rho = 0.35$ . However, the Spearman correlations for inter-rater reliability for the composites ranged from  $\rho = 0.72$  to  $\rho = 0.85$ .

### **Data Analyses**

Planned analyses included correlations between the scores for sensitivity, intrusiveness, and positive regard for the 0-18 month play and 18-30 month play and the three composite empathy scales (Empathy/Prosocial, Social Referencing/Ambivalence, and Callous).

Due to the large amount of correlation analyses run, the likelihood of finding significant results by chance was high. A Bonferroni correction (Holm, 1979) was used to calculate an appropriately smaller p-value, to ensure that results were meaningful and not just due to chance. Specifically, the conventional 0.05 was divided by the number of correlations (36), to give a corrected significant value of 0.00138.

### **Chapter 3**

### **RESULTS**

As shown in Table 1, no significant correlations were found between maternal sensitivity in play and child empathy, with the adjusted  $p$ -value from the Bonferroni correction. Without the Bonferroni correction, there were two correlations significant at the  $p < .05$  level; however, given the number of analyses conducted, these findings are likely better attributed to chance. Table 2 shows descriptives for parenting variables. Descriptives for empathy variables were not included because they were composite scales, and all have a mean of zero with  $SD$  ranging from 0.52 to 0.95.

Table 1: *Correlations Among Variables*

	36 months			48 months		
	Empathy/ Prosocial	Social Referencing/ Ambivalence	Callous	Empathy/ Prosocial	Social Referencing/ Ambivalence	Callous
Sensitivity 0-18 months	-.155	-.022	-.019	-.100	.039	-.075
Intrusiveness 0-18 months	.200	.183	.043	.159	.106	.007
Positive Regard 0-18 months	-.037	.263	.003	-.038	.005	-.051
Sensitivity 18-30 months	-.044	.088	.185	.018	-.060	.009
Intrusiveness 18- 30 months	-.056	-.133	-.059	-.018	.102	.046
Positive Regard 18-30 months	-.089	.050	.005	.113	-.037	-.092

\*  $p < 0.00138$

Table 2: *Descriptives of Parenting Variables*

	Assessment (Months)	Mean	Standard Deviation
Sensitivity	0-18	2.09	.979
Intrusiveness	0-18	1.31	1.31
Positive Regard	0-18	3.16	1.25
Sensitivity	18-30	2.35	1.10
Intrusiveness	18-30	2.52	1.40
Positive Regard	18-30	2.78	1.24

## **Chapter 4**

### **DISCUSSION**

In the current study, we looked at maternal sensitivity during play in infancy and child empathy scores in toddlerhood. We predicted that infants of less sensitive mothers would exhibit lower levels of empathic responding in toddlerhood, compared to infants with more sensitive mothers.

No significant correlations were found between maternal sensitivity during play and child empathy. Although this finding is not what we hypothesized, it is consistent with some previous literature, such as that of van der Mark et al., (2002) and Spinrad & Stifter (2006) who also did not find associations between maternal sensitivity and empathy/prosocial acts. van der Mark et al. (2002) stated that in their research, “sensitive parenting does not seem to be relevant at all in relation to empathic concern for the mother.” The findings of the current study would agree with this statement.

Given these null findings, we explored relations between empathy and other theoretically related constructs. However, our empathy data also did not correlate with these other measures, such as attachment as measured by the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978) and parental attachment state of mind, as measured by the Adult Attachment Interview (George, Kaplan, & Main, 1984, 1986, 1996). Given that previous studies had found associations between attachment and empathy, it was striking that there were no associations emerging as significant in this

study. This led us to consider that our empathy measurement may not have fully captured the construct of interest.

The empathy coding system encompasses many different behaviors and actions, utilizing both Likert scales and dichotomous variables. Therefore, in order to run analyses, we were forced to narrow down these variables, creating the composite scales. By creating these scales, we lost many variables, namely the ones that were dichotomous. This study does not utilize all of the variables coded, but rather only the ones that appeared to be correlated with each other through factor analysis. Perhaps some of these variables were important to the empathy assessment and could have changed our results. Alternatively, the current coding system may incorporate too many different variables, and be hindered by lack of consensus about which variables are most important and how they should be combined.

Further, it was observed that at 48 months, children who were tested at home had higher empathy scores than children who were tested in the lab. This appeared to be because children in the lab (a novel environment with many toys) were more distracted than the children in their homes. The children in the lab seemed very engaged with the toys, often walking around the room, exploring and interacting with many different toys. In contrast, the children at home were in a familiar environment, and often were given a book to look at. Therefore, when the maternal distress simulation began, the children in their homes were more likely than the children in the lab to pay attention to the distress, as the environment and toy were not as distracting. This posthoc hypothesis was supported by the data, with Empathy/Prosocial and Social Referencing/Ambivalence scores higher when conducted in the home vs. lab,  $t(96.9)=2.98$  and  $t(102.6)=3.48$ , both  $p's < .01$ . Because of this finding, correlations

between play and empathy were re-run separately for home and lab. Findings remained unchanged.

Another possible reason for the lack of findings in the current study is a restricted range on the sensitivity scale. The sample used in this study consisted of neglecting birth mothers who were referred by Child Protective Services. During the play measure, these mothers typically received low scores on the sensitivity scale, at both the 0-18 month play assessment ( $M = 2.09$ ,  $SD = .98$ ) and the 18-30 month play assessment ( $M = 2.35$ ,  $SD = 1.10$ ). “High” sensitivity scores (a 4 or 5 on the 5-point scale) were only received by 11 of 122 mothers at 0-18 months, and by 20 of 124 mothers at 18-30 months. Thus, although we predicted that mothers with higher sensitivity scores would have children with higher empathy scores, “high sensitivity” within this sample was very infrequent. Since the majority of the sample received low scores on sensitivity, perhaps the truncated range on the scale was not sufficient to tease out variability in parents exhibiting low levels of sensitivity.

### **Future Directions**

In the future, in order to test the validity of the current empathy coding used, a low-risk sample could be examined as a comparison group. The composite scales could be reworked, as well, if the coding still does not yield significant correlations. In future studies, empathy should also be uniformly assessed at one location, whether it is at home or in lab. In the lab, though, the environment should not be overwhelmingly distracting to the child. Empathy could also be explored in other populations that our lab works with, such as children adopted internationally and toddlers in foster care. These populations are different from the typical high-risk/low-risk samples, so perhaps

they would exhibit interesting differences in empathic responding. Children could also be tested for empathy at older ages, as perhaps that would allow for even more sophisticated responses, but it may be risky, as children may become less likely to believe the task as they grow older.

### **Conclusion**

While neglected children are at risk for developing disorganized attachments and poor socioemotional skills, like empathy, through sensitive, high-quality parenting, neglected children may be buffered from these negative outcomes. Therefore, this study examined the relationship between maternal sensitivity and child empathy in a sample of neglecting birth parents and their children. Our study found no significant associations between maternal sensitivity and child empathy. However, future studies should still be conducted using this sample, using a uniform testing environment, better composite scales for empathy, and a sensitivity scale allowing for greater range within scores. Without such limitations, we may be able to accurately assess empathy, allowing us to truly examine the relationship between maternal sensitivity and child empathy in a high-risk sample.

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Appendix A

MATERNAL BEHAVIOR DURING PLAY CODING SHEET

<b>Coder:</b>						
<b>Date coded:</b>						
<b>Video name:</b>						
<b>Length of Video:</b>						
<b>Visit type:</b>						
<b>Date of Visit (on White Board):</b>						
<b>Toy type:</b>						
<b>1. Sensitivity/Responsiveness to Non-distress ("Following the lead")</b>						
	1	2	3	4	5	
<b>2. Intrusiveness</b>						
	1	2	3	4	5	
<b>3. Positive Regard for the Child ("Delight")</b>						
	1	2	3	4	5	

## Appendix B

### EMPATHY CODING SHEET

Victim: 

Mother	Stranger
--------	----------

      Location: 

Home	Lab
------	-----

In the row below, circle every behavior that occurred during the DISTRESS portion only:

<i>Ignores</i>	<i>Disruption</i>	<i>Freezing</i>	<i>Aimless play</i>	<i>Active play</i>	<i>Self-soothing</i>	<i>Masks affect</i>
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In the rows below, circle a rating for EACH scale for the DISTRESS portion only:

<b>Concern for victim</b>	1	1.5	2	2.5	3	3.5	4	4.5	5
<b>Positive affect</b>	1	1.5	2	2.5	3	3.5	4		
<b>Arousal</b>	1	1.5	2	2.5	3				
<b>Anger</b>	1		2						
<b>Ambivalence</b>	1		2						
<b>Distress/Fear</b>	1		2		3		4		

In the row below, circle every behavior that occurred for the ENTIRE 90-second episode:

<i>Unconscious gesturing</i>	<i>Seeks reassurance</i>	<i>Distracts</i>	<i>Shares</i>	<i>Helps</i>	<i>Offending object</i>	<i>Imitation</i>	<i>Verbal sympathy</i>
What was the <b>latency</b> to the first victim-oriented behavior? _____ seconds							

In the rows below, circle a rating for EACH scale, for the ENTIRE 90-second episode:

<b>Proximity to victim</b>	1	2	3	4				
<b>Hypothesis testing</b>	1	2	3	4	5			
<b>Number of pro-social acts</b>	0	1	2	3				
<b>Callous/hostile</b>	1	2	3					
<b>Self-referencing</b>	1	2	3					
<b>Social referencing</b>	0	1	2					
<b>GLOBAL rating of empathy</b>	1	2	3	4	5	6	7	