SENSITIVITY TO DISTRESS

IN

AUTONOMOUS VS. NON-AUTONOMOUS

CAREGIVERS

by

Cassandra L. Simons

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

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ABSTRACT

This thesis examines the relationship between adult attachment state of mind and observed ratings of parent sensitivity during periods of child distress. Although sensitive responsiveness in every day interaction is an essential part of building the attachment relationship, the way parents respond to infants during times when they are distressed may represent an especially important part of attachment development. Parents' adult attachment state of mind is the strongest predictor of attachment in mother-child dyads (van Ijzendoorn, 1995). In the current study, a group of mothers from a high-risk sample were evaluated for sensitivity to distress using a 5-point scale during two stressful events, including the Strange Situation (Ainsworth, 1978) and a child finger prick episode. The results of this study showed that caregivers with autonomous states of mind were more sensitive than non-autonomous mothers during the finger prick, but were not significantly different from non-autonomous mothers in sensitivity during the Strange Situation. This finding is important because it suggests that maternal responsiveness and sensitivity are related to adult attachment state of mind, such that mothers with autonomous state of mind are more sensitive than non-autonomous mothers during situations in which their children are experiencing pain.

Chapter 1

INTRODUCTION

Infants are often not capable of regulating their own distress without caregiver intervention (Bell & Ainsworth, 1972). Thus, parents play an integral role in helping to regulate infants' negative emotions. Attachment is an important aspect of the relationship between a child and a parent, with its purpose being to make a child feel secure, safe, and protected. Attachment represents a child's internal mental representation of their self and others based on early affective experiences (Bowlby, 1969/1982). Infants organize their attachment behaviors based on their caregivers' level of availability during times of need (Ainsworth, 1978). Children learn to expect the parent to respond or not respond based on past behavior patterns, and then direct their attachment behavior according to this expectation. Attachment behaviors are signals produced by the infant that are meant to maintain proximity to a caregiver and to indicate that the infant needs emotional support. Thus, parental responses to infant attachment signals have been found to influence children's attachment relationships with parents, as well as children's socio-emotional development (van Ijzendoorn, 1995).

Ainsworth, Bell, & Stayton (1974) define sensitive parental responsiveness as the parent being able to take the infant's perspective, notice the infants goals, and respond empathically to those goals. In Ainsworth's original study of maternal

behavior, the degree of sensitivity that mothers showed in perceiving infant signals and responding in a prompt and appropriate manner was found to be a key variable. Mothers with high sensitivity during the Strange Situation also had high acceptance, co-operation, and accessibility (Ainsworth et al., 1974). No other examined factor seemed to have the same key relationship with other maternal behaviors (Ainsworth, et al, 1974). Thus, maternal sensitivity has been shown to be one of the most important caregiving behaviors.

Although sensitive responsiveness in every day interaction is an essential part of building the attachment relationship, the way parents respond to infants during times when they are distressed may represent an especially important part of attachment development. Sensitivity to distress is how the caregiver responds to the child's signals of distress such as crying or fretting. Generally, caregivers attempt to provide high quality responses to their children during times of distress. Ainsworth, Stayton, and Bell (1974) found that most parents who were insensitive to their child's distress during the Strange Situation were either emotionally unfit to deal with their infant's distress, or operating under the assumption that the response they were giving was a good one, because they were teaching the child that they should not expect to get his or her own way all the time (Ainsworth et al., 1974). However, these two rationales behind insensitive behavior are only self-reported explanations of a higher mental framework.

One construct representing a mental framework is attachment state of mind. In fact, parents' adult attachment state of mind is the strongest predictor of attachment in

mother-child dyads (van Ijzendoorn, 1995). Attachment state of mind is assessed using the Adult Attachment Interview (George, Kaplan, & Main, 1985) and serves as a mental framework for organizing and controlling access to information related to attachment (Main, Kaplan, & Cassidy, 1985). It is not just a mother's past experience with her own caregiver that affects her parenting behavior, but also her ability to conceptualize her childhood attachment experience. Parents can have four broad types of attachment state of mind. These classifications include Secure/Autonomous/Free (F), Dismissing of Attachment (Ds), Preoccupied/Entangled (E), and Unresolved/Disorganized with Respect to Traumas (U/d).

Multiple studies have linked adult attachment state of mind with infant Strange Situation classifications (Main, 1985; Main, Kaplan & Cassidy, 1985; van Ijzendoorn, 1995). Adults with autonomous Adult Attachment Interview classifications often have children with secure attachment, dismissing parents often have avoidant children, preoccupied parents are likely to have ambivalent children, and adults with unresolved trauma or loss often have infants with disorganized attachment in the Strange Situation (Main, 1995). Thus, parents' mental representations of past relationships with caregivers influence their caregiving behaviors and expectations of relationships with their own infants (Korfmacher et al., 1997).

Researchers have also found significant relations between adult attachment and another paradigm called parental reflective functioning, with autonomous caregivers showing the highest levels of reflective functioning (Slade et al., 2005). Parental reflective functioning refers to a mother's ability to hold her baby and his or her

mental states in mind (Slade et al., 2005). Parental reflective functioning plays a vital role in the intergenerational transmission of attachment because it determines how well a mother can interpret and respond to her infant's goals. Relations between parental reflective functioning and infant attachment have also been found to be significant (Slade et al., 2005). In addition, mediation analyses suggest that parental reflective functioning plays a crucial role in the intergenerational transmission of attachment (Slade et al., 2005). This finding is consistent with the hypothesis that autonomous caregivers will show higher levels of sensitivity to distress because it shows that those parents may be better able to infer meaning from their child's distress signals and respond to them in a way that is more empathetic than other caregivers.

Specific parenting behaviors have been shown to differ depending on mothers' mental representations of their attachment relationships. Researchers have hypothesized that current attachment state of mind with respect to relationships may determine parents' sensitivity to their infants' attachment behavior (Main & Goldwyn, 1998). Secure and autonomous parents tend to be more sensitive than others to infant signals (Main and Shaver, 1999). A meta-analysis conducted by van IJzendoorn (1995) demonstrated a strong, consistent relationship between maternal attachment state of mind and maternal responsiveness to children across multiple studies. In addition, Cohn at al. (1992) found that autonomous parents provided more structure for their children during laboratory play tasks and responded to their children in a warmer fashion than non-autonomous parents. Crowell and Feldman (1998) found

similar results, with autonomous caregivers showing greater support, assistance, and warmth during problem solving tasks with infants than other mothers.

Although attachment state of mind has been linked to a variety of positive parenting behaviors, Bowlby (1984) theorized that attachment behavior may be more visible in stressful situations than in non-stressful contexts. For example, attachment behavior may be more evident when the infant is separated from the attachment figure than when the infant experiences pain, hunger, fatigue, and sickness; or when alarming events occur in the environment (Feeney & Noller, 1996). Several theorists believe that attachment behavior is provoked by stress, and it is precisely under conditions of acute and chronic stress that individual differences in attachment behavior should be most visible (Simpson et al., 1996; Leerkes, 2011).

Although the field has linked mothers' attachment state of mind with general responsiveness to children, times when children are distressed may represent unique situations in which mothers' sensitive responsiveness is more critical and more influential on children's attachment expectations. Previous work has explored the links between maternal responsiveness to distress and children's attachment security. This thesis will explore the links between maternal attachment state of mind and sensitivity to children's distress.

Attachment State of Mind: The Adult Attachment Interview

Adult attachment classifications were assessed using the Adult Attachment Interview (AAI), a semi-structured interview that measures internal working models of

attachment (George, Kaplan, and Main, 1985). The AAI assesses discourse coherence of previous attachment relationships. The idea of attachment state of mind is an extension of Mary Ainsworth's work on infant attachment classifications.

The Adult Attachment Interview (Main, 1998) is a measure used to assess state of mind with regard to attachment. It is approximately one hour in duration and focuses on experiences with attachment figures during childhood. The interview begins with a question that asks participants to give five words or phrases that describe their relationship with their caregivers during childhood. The interview then goes on to ask subjects to provide specific examples of incidents in childhood that support the adjectives that they chose. Then subjects are asked about what happened when they were hurt or sick during childhood, what happened when they felt upset, if parents were ever threatening to them, and why they think their caregivers acted the way they did. Subjects are also asked to describe any deaths of significant attachment figures and how they responded to such losses. The final question of the interview asks individuals to describe any experiences that may have been a "setback" to their development, and how they think their current personalities may have been shaped by their overall experiences (Main, 1998).

This interview is transcribed verbatim, and the resulting narrative is coded according to several stages. These stages culminate in the assignment of an AAI classification, which represents overall attachment state of mind, taking into account both ratings of experiences with caregivers and ratings of the subjects' current state of mind (Main, 1998).

Adults with autonomous attachment state of mind give a coherent and objective report of attachment relationships and experiences. They value attachment relationships and acknowledge that these relationships are very influential in personal development. Adults do not need to have completely positive childhood attachment experiences to be classified as autonomous. Instead, subjects must demonstrate that they are not preoccupied with feelings of anger towards a caregiver, and that they are not idealizing of their experiences (Main, 1998). Although positive childhood experiences are not necessary for an autonomous attachment state of mind, it has been shown that in three out of four low risk samples, secure Strange Situation categorizations have predicted autonomous AAI classifications 16 to 20 years later (Cassidy & Shaver, 1999).

Most non-autonomous adults fall into the dismissing category (Bakermans-Kranenburg & van Ijzendoorn, 2009). Adults with dismissing attachment state of mind are often idealizing or devaluing of attachment experiences, and do not acknowledge that early attachment experiences have affected their personal development (Main, 1998). Dismissing adults have a mental framework that allows them to keep attachment relatively de-activated (Main, 1998). Furthermore, adults classified as dismissing employ a number of strategies to keep attachment de-activated. First, they often speak of caregivers as having the ability to be ideally responsive in hypothetical times of distress, but cannot come up with concrete examples of such ideal responses during their childhood (Main, 1998). Dismissing adults insist that their adult self has not been affected by any malignant experiences

and that they were not distressed by negative attachment related experiences during childhood (Main, 1998). Additionally, devaluing of attachment figures can allow the individual to keep the attachment system de-activated by conceptualizing the attachment figure as unworthy of approach (Main, 1998). If an attachment figure is deemed unworthy, then the rejection that they may have dealt can be more easily discounted. Finally, one of the most prominent characteristics of a dismissing narrative is an insistence upon lack of memory of childhood (Main, 1998). This lack of memory is a protective measure built into the state of mind to shield the self from potentially painful memories.

Adults with preoccupied attachment state of mind are unable to coherently describe or dismiss the importance of attachment experiences and relationships. They are "confused, unobjective, and preoccupied" with past relationships or experiences within the family (Main, 1998). The language used in their narratives is vague and passive, and they are often fearful, angry, and overwhelmed with respect to the interview (Main, 1998). Preoccupied adults may also alternate between positive and negative evaluations of parents or past experiences (Main, 1998). The resulting preoccupied narrative leaves the interviewer with no clear sense of the subject's personal identity outside of the family unit or her past traumatic experiences (Main, 1998).

Unresolved/disorganized attachment state of mind indicates that the individual has experienced attachment-related traumas or losses, and is unable to reconcile them with their current life (Main, 1998). In order to obtain a classification of unresolved,

subjects must exhibit lapses in monitoring and extreme behavioral reactions during the discussion of attachment related traumas, like loss and abuse (Main, 1998). When a rating of unresolved is assigned, the subject is also given a secondary rating of F, Ds, or E (Main, 1998). However, U/d is considered a full classification on it's own. For the purposes of this study, only adults with a classification of unresolved and dismissing (U/Ds) will be considered for analysis. This is due to low representations of unresolved and preoccupied (U/E) state of mind and potentially confounding overlap between autonomous (F) and unresolved-autonomous (U/F) state of mind classifications.

It may seem like an easy task for any adult to create a coherent narrative despite their past attachment related experiences, but the pace and structure of the AAI allow many opportunities for contradiction (Cassidy & Shaver, 1999). George et al. (1984,1985) have noted the potential of the interview to "surprise the unconscious." The speaker is required to answer and reflect on a many questions regarding life history that can become quite complicated (Cassidy &Shaver, 1999). Thus the concentrations of adults with secure/autonomous AAI's in clinical samples have been quite low (Cassidy & Shaver, 1999).

For the purposes of analysis in the current study, dismissing, preoccupied, and unresolved parents will be grouped into the category of "non-autonomous" caregivers. This is because these attachment classifications are all linked with maladaptive infant attachment organizations and restricted mental access to information related to attachment (Main, 1998). Although dismissing parents are part of the wider group of

non-autonomous caregivers, additional comparisons will be made between autonomous and dismissing caregivers. This is due to the fact that dismissing caregivers accounted for the largest percentage of non-autonomous caregivers in the current study and in other North American samples (Bakermans-Kranenburg & van Ijzendoorn, 2009). It is also important to examine dismissing parents outside the group of non-autonomous caregivers, because unresolved caregivers may only be unresolved with respect to a small portion of attachment related information, while the dismissing state of mind leaves parents with largely deactivated attachment in general (Main, 1998).

Caregiver Sensitivity to Distress

The current literature supports the hypothesis that sensitivity to distress may be predicted by adult attachment state of mind. The current study will test this by quantifying sensitivity to distress using an observational scale. In the current study, caregivers are assigned a global rating of one to five, which represents their observed level of sensitivity along three dimensions. Level of sensitivity will be determined using the coding scale from the Margret Tresh Owen Three Boxes Task originally used in the NICHD study of early child care (1992). The coding scale measures how the caregiver responds to infant cries, frets, and distress. A sensitivity rating is given according to the following three dimensions: the proportion of distress signals to which the caregiver responds; the latency of response, or how long it takes the caregiver to respond to distress signals; and the appropriateness of responses.

Appropriate responses are effective in soothing the child, and appear to be a good fit for the child's level of distress.

The Current Study

The current study will examine sensitivity to distress between autonomous and non-autonomous caregivers as categorized by the Adult Attachment Interview (George, Kaplan, and Main, 1985). One of the most important aspects of this study is the child distress under which caregiver responses are observed. Crying has been labeled as the most salient indicator of negative emotions during infancy, and has been shown to promote proximity seeking and caregiving behavior in adults (Bell & Ainsworth, 1972). For this reason, the current study will investigate maternal sensitivity during events that will likely elicit crying in infants, including a finger prick event and the Strange Situation (Ainsworth et al., 1978).

After considering the current literature on attachment state of mind as it relates to maternal sensitivity, it is logical to hypothesize that maternal attachment states of mind will influence mothers' ability to respond appropriately to children during periods of distress. The current study examines differences in the level of maternal sensitivity to distress of autonomous vs. non-autonomous mothers during a painful finger prick situation and a stressful "Strange Situation" (Ainsworth, 1985).

Specifically, the hypothesis is that mothers who have autonomous attachment states of mind will have higher average levels of sensitivity to distress than mothers with non-autonomous states of mind in both contexts. Autonomous mothers who are

able to generate a cohesive and realistic narrative of past experiences may have an easier time interpreting and addressing infant distress. Non-autonomous mothers may be less responsive and less sensitive to their child's negative emotions because thinking of how to nurture a crying child may bring out intellectual conflicts that arise when they think of their own attachment relationships with caregivers. Furthermore, their current state of mind may not allow them to easily access attachment information necessary for a sensitive response (Main, Kaplan, & Cassidy, 1985).

The results will be important for further research because nurturance in response to distress is an important building block of attachment relationships, and showing a positive relationship between autonomy and sensitivity to distress will help to support the claim that attachment state of mind of a mother affects her ability to nurture and respond to her children in times of distress.

THE FINGER PRICK EPISODE

Participants

Participants included 47 primary caregivers from a larger randomized controlled trial of the Attachment and Biobehavioral Catch-Up intervention for high-risk birth mothers. Caregivers were referred by the child welfare agency in Philadelphia due to neglect or risk of neglect. Primary caregivers ranged in age from 19 to 49 years old (M = 30.95, SD = 8.11) at the time of data collection. Of the 47 caregivers, 100% were female. Children were 38.8% female and 61.2% male. Caregivers were mostly African American (77.6%), but there were also 3 biracial

(6.1%), 6 Caucasian (12.2 %), and 2 Hispanic (4.1%) caregivers. Children were predominantly African American (77.6%), with the remaining population being comprised of 6.1% Biracial, 12.2 % Caucasian, and 4.1% Hispanic children. Children were ages 46 to 73 months at the time of the finger prick (M = 56, SD = 6.7). The income of caregivers who completed the finger prick ranged from $2,000 to $60,000 ($M$ = $16,068.39, SD = $13,096.56). All participants used for this study completed both the AAI and the finger prick.

Methods

The Finger Prick Event

This study reviewed videos of a child finger prick, where both the mother and their 48-month-old child were present, and recorded the levels of sensitivity apparent in the mothers when their children were experiencing pain. The video recorded finger prick events were originally part of a study involving evaluation of biological measures using blood samples.

The videos catalogued a routine home visit. The general format of these sessions is as follows: first, a researcher sets up a cloth, glove, finger prick needle, and test paper. The researcher then explains the procedure to the child and pricks the child's finger. After the prick, the child must place drops of blood onto a sheet of test paper. This procedure usually causes the child to become somewhat upset, so ample opportunities are presented for the parent to provide nurturance. The episode was

considered to start when the researcher began setting up, and was considered to end when the child had fully settled after the prick and chose a prize and a bandage.

The current study measured maternal sensitivity to distress scores using viewings of video recordings described above. Sensitivity scores were generated from the finger prick test by measuring how consistently and appropriately the mother responded to their child's distress before, during, and after the blood sample was collected.

Coding Sensitivity to Distress During the Finger Prick

Responses to distress that were generally considered sensitive include offering help or intervening during the finger prick, picking up the child, holding the child closely, and speaking sympathetically to the child. Mothers' effectiveness in soothing their children also affected sensitivity to distress ratings. Maternal behaviors were considered to be sensitive as long as they soothed the child. If the child remained distressed, these responses may have been rated as less sensitive. However, an ineffective response was usually rated as being more sensitive than giving no response at all. Caregivers were assigned ratings from 1 to 5 based on the Margret Tresh Owen coding scale for sensitivity to distress in the Three Boxes Task originally used in the NICHD study of early child care (1992). A sensitivity rating was given according to the following three dimensions: the proportion of distress signals to which the caregiver responded; the latency of response, or how long it took the caregiver to respond to distress signals; and the appropriateness of responses. Appropriate

responses were effective in soothing the child, and appeared to be a good fit for the child's level of distress.

Ratings of sensitivity were assigned based on qualitative and quantitative dimensions. Coders took detailed notes about the caregiving responses exhibited during the session, and tracked the level of distress present in the child. A rating of 1 was given to caregivers who did not respond to the child, or did so in a way that was too slow, infrequent, or inappropriate to soothe the child. Mothers with a score of 1 were frequently punitive or oblivious to the child's distress. A rating of 3 was assigned when mothers responded appropriately to a greater proportion of distress than they ignored. A rating of 5 was given to caregivers who were exceptionally sensitive and responsive at all times.

Results

Finger Prick

Autonomous vs. Non-autonomous

An independent samples t-test was conducted to compare sensitivity to distress in mothers with autonomous and non-autonomous states of mind. Non-autonomous states of mind included dismissing and unresolved AAI classifications. There was one participant with preoccupied state of mind who was excluded from analysis. Participants with a primary classification of unresolved (U) and a secondary classification of autonomous (F) were excluded from analysis because although

unresolved parents are non-autonomous, they may show the same characteristics as autonomous adults when they are not confronted with the specific loss or abuse memories that caused their unresolved rating. Thus there may be overlapping characteristics that could obscure the results of the study.

Mothers with autonomous states of mind were more sensitive to their children's distress (M=3.19, SD=1.41) than parents with non-autonomous states of mind (M=2.42, SD=1.13); $t(47)= -2.05$, $p < .05$, as shown in Figure 1.

Figure 1: Sensitivity to Distress Finger Prick.

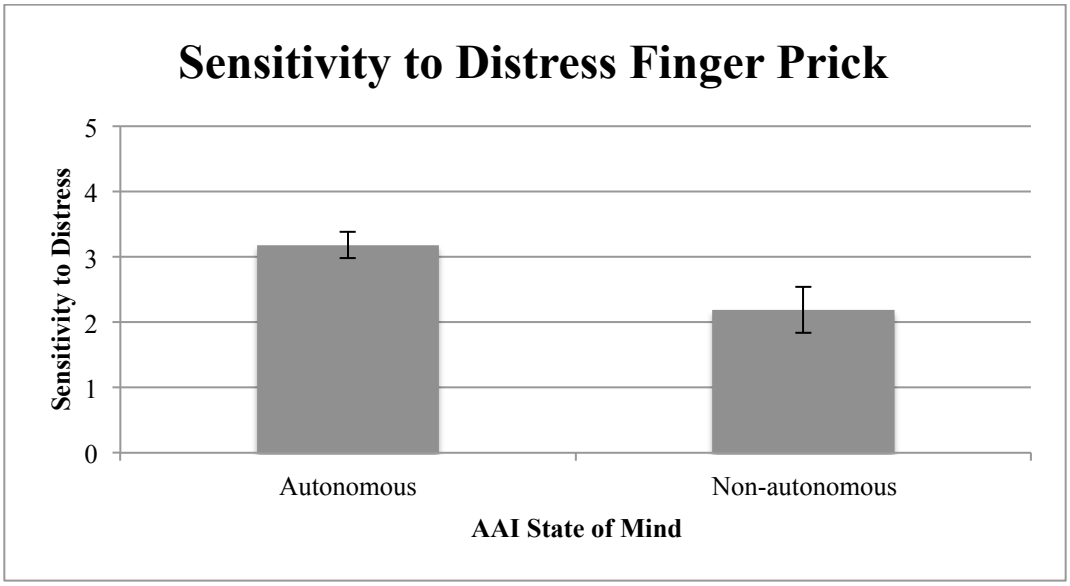

Figure 1 Sensitivity to distress in autonomous vs. non-autonomous caregivers in the finger prick experiment

Autonomous vs. Dismissing

Dismissing parents account for the largest proportion of non-autonomous caregivers in the collected sample, as well as in other North American non-clinical populations (Bakermans-Kranenburg & van Ijzendoorn, 2009). Thus, it is important to test the level of sensitivity to distress in this group versus mothers with autonomous state of mind. An independent samples t-test was also conducted to compare sensitivity to distress in parents with autonomous and dismissing states of mind. Mothers with autonomous states of mind ($M = 3.19$, $SD = 1.41$) were more sensitive to their children's distress than parents with dismissing states of mind ($M = 2.17$, $SD = 1.05$); $t(35) = 2.52$, $p < .05$, as shown in Figure 2.

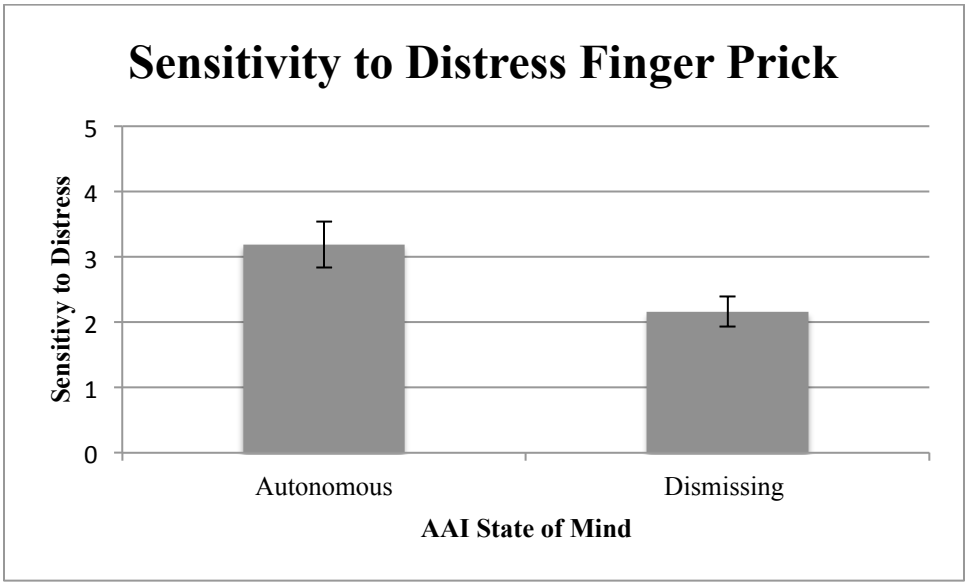

Figure 2 Sensitivity to distress in autonomous vs. dismissing caregivers in the finger prick experiment

The findings of this study suggest that there is a significant difference in the level of sensitivity to distress provided by autonomous caregivers as opposed to non-autonomous caregivers, such that autonomous mother's show more sensitivity to distress than non-autonomous (Ds, U, and U/Ds) caregivers. There was also a significant difference in the level of sensitivity provided by autonomous vs. dismissing parents, such that autonomous caregivers provided more sensitive responses than dismissing parents during the finger prick event.

Chapter 2:

SENSITIVITY IN THE STRANGE SITUATION

Participants

Participants included 38 primary caregivers from a larger randomized controlled trial of the Attachment and Biobehavioral Catch-Up intervention for high-risk birth mothers. Caregivers were referred by the child welfare agency in Philadelphia due to neglect or risk of neglect. Primary caregivers ranged in age from 16 to 45 years old (*M*=27.79, *SD*=8.02) at the time of data collection. All of the caregivers were female. Caregivers were mostly African American (73.9%), although 3 were Bi-racial (6.5%), 6 were Caucasian (13%), and 2 were Hispanic (4.3%). Primary caregivers ranged in income from $2,000 to $60,000 per year (*M* = $15,760, *SD* = $13.054). Children were also predominantly African American (73.9%) with the rest of the sample being composed of 6.5% Bi-racial, 13% Caucasian, and 4.3% Hispanic children. The subjects' children ranged in age from 6 to 33 months old (*M* = 19.22, *SD* = 8.02) at the time of the Strange Situation. Children were 39.1% female and 58.7% male.

Method

Mother-child dyads participated in the Ainsworth et al. (1978) Strange

Situation as part of a routine 12 or 24-month laboratory visit for the ABC intervention. The Strange Situation provides multiple opportunities to observe attachment behaviors during separations and reunions with the caregiver. However, maternal sensitivity to distress has not often been measured during the Strange Situation with scales other than the original Ainsworth & Bell (1972) maternal behavior scale.

The Strange Situation was originally formulated as a measure of the attachment relationship between and infant and a caregiver (Ainsworth et al., 1978). The experiment is usually only coded for infant attachment organization. It is composed of eight episodes presented in standardized order. The least stressful episodes occur at the beginning, and the Strange Situation becomes more and more stressful from episodes one through eight. The experiment starts when the researcher shows the caregiver and infant into the experimental room, explains the procedure to the mother, and then leaves. This gives the mother and infant time to be observed in the unfamiliar, but not otherwise threatening environment (Ainsworth et al., 1978). After this, the caregiver is instructed to sit in a chair and to watch the child play. Caregivers are not given instructions on how to react to their children. Parents are told not to initiate play, but to respond the child as they normally would. After the parent and child have had a few moments together in the doctor's office like waiting room, the "stranger" enters. This is when the coding of the Strange Situation occurs for the purposes of measuring maternal sensitivity to distress in this study.

The Physical Situation

Two adjacent rooms were used for the observation and experimental rooms, so that parents and researchers could observe the child's distress while in the room alone. The rooms were attached by one wall with two one-way mirrors. This allowed the child to be observed without being able to see the experimenters in the observation room. The room contained two office chairs, and a box of standardized Strange Situation toys. Although, children often became very upset while in the room by themselves, mothers were only judged on their responses to the distress present when they were entering or exiting the room, or comforting the child thereafter.

The Strange Situation Procedure and Coding

Sensitivity to distress was assessed during a portion of the Strange Situation. Coding began when the stranger entered the room with the mother and infant. During the procedure, the stranger was silent at first, then talked to caregiver, and finally interacted with infant by sitting on the floor next to him and engaging in some unexciting play with standardized toys. Often children clung to the parent briefly when the stranger tried to play with them. Parents were coded for the sensitivity with which they responded to this "fretting" response as well as the more pronounced distress in the later separations.

After the stranger introduced herself to the child and attempted to engage the child in play, the mother left the room. This marked the first separation of the Strange Situation. The series of separations from the caregiver are meant to activate

attachment behaviors like crying and proximity seeking in infants (Ainsworth et al., 1974).

After a few minutes, the mother returned to the room and the stranger quietly left. This was the first reunion episode. Mothers were coded for sensitivity based on their responses to the child's distress when they entered the room.

An example of a sensitive reunion response would be to go to the child, quickly asses the level of distress that they are experiencing from the separation, and respond appropriately by giving both verbal and physical comfort. An insensitive parent may discount the child's distress by saying "You're okay" or react punitively, telling the child to "stop crying" and urging them to play with the toys before addressing the child's distress.

After the first reunion, the mother was instructed to interest her baby in the toys again once she had addressed their needs. This was done to help the child return to a base level of exploratory behavior (Ainsworth et al., 1978). Mothers who pushed their children to engage in play before they had completely settled were rated as being less sensitive than mothers who waited until they had adequately and completely addressed the child's distress before trying to interest them in the toys.

Once the child was interested in the toys again, the mother left the room. This was the second separation. The child was left alone in the room for a few minutes before the stranger came in and attempted to provide comfort. After the stranger tried to address the infant's distress, the mother came back into the room. The mother's sensitivity to distress in this episode was rated following the same guidelines

described above. Mothers must have provided an appropriate, timely, and thorough response to receive a high sensitivity score.

After the second separation and reunion, the mother is allowed to remain in the room with the child, responding as she normally would to the infant's distress. The sensitivity to distress coding of this experiment ends when the mother and child return to baseline stress, and the child begins playing with the toys again or engaging in another non-distressed activity.

Sensitivity to Distress Coding for the Strange Situation

Strange Situation sensitivity to distress was coded using the same NICHD (2009) that was used for the finger prick experiment above. The coding scale measures how the caregiver responds to infant cries, frets, and distress. A sensitivity rating is given according to the following three dimensions: the proportion of distress signals to which the caregiver responds; the latency of response, or how long it takes the caregiver to respond to distress signals; and the appropriateness of responses. Appropriate responses are effective in soothing the child, and appear to be a good fit for the child's level of distress.

Ratings of sensitivity are assigned based on qualitative and quantitative dimensions. Coders take detailed notes about the caregiving responses exhibited during the session, and track the level of distress present in the child. A rating of 1 is given to caregivers who do not respond to the child, or do so in a way that is too slow, infrequent, or inappropriate to soothe the child. Mothers with a score of 1 are

frequently punitive or oblivious to the child's distress. A rating of 3 is assigned when mothers respond appropriately to a greater proportion of distress than they ignore. A rating of 5 is given to caregivers who are exceptionally sensitive and responsive at all times. In order to receive a high sensitivity to distress score during the Strange Situation, parents are expected to provide nurturance in the form of sympathetic speech, picking the child up, and soothing them for an adequate length of time before urging them to play with the toys.

Videos were coded by an undergraduate coder. In order to ensure that coding was accurate, 15% of the 57 videos were double coded by another coder. The agreement was 88%. Original Coder 1 scores were used for analysis.

Results

Autonomous vs. Non-autonomous

An independent samples t-test was conducted to compare sensitivity to distress in autonomous caregivers and non-autonomous caregivers. There were no significant differences in the levels of sensitivity to distress observed in autonomous caregivers ($M = 3.20$, $SD = 1.23$) and non-autonomous caregivers ($M = 3.40$, $SD = 1.06$); $t(38) = -0.53$, $p > .05$.

Autonomous vs. Dismissing

An independent samples t-test was conducted to compare sensitivity to distress in autonomous caregivers and dismissing caregivers. There were no significant differences in the scores for autonomous caregivers ($M = 3.40$, $SD = 1.06$) and dismissing caregivers ($M = 3.30$, $SD = 1.22$); $t(33) = .25$, $p > .05$.

DISCUSSION

This study examined maternal sensitivity to distress in two different stressful situations and its association with maternal attachment state of mind. In concordance with the literature, mothers with autonomous AAI state of mind showed higher levels of sensitivity to distress. However, this was only found in one distress situation, specifically a pain-eliciting finger prick event. The other experimental situation, a stressful separation from the caregiver, did not produce the same differences in sensitivity between autonomous and non-autonomous mothers. Possible reasons for incongruent associations between maternal AAI state of mind and sensitivity to distress in different distress situations will be discussed below.

Attachment State of Mind and Pain-Eliciting Distress

The findings of the finger prick experiment are important for further research because they show that parents do differ in sensitivity according to their adult attachment state of mind, and that the differences are evident during periods of child distress in reaction to pain.

The findings of this study will be important for the administration of attachment related interventions. This is because interventions can be tailored to fit the needs of caregivers with non-autonomous, and specifically dismissing, AAI

classifications. The results of this study indicate that non-autonomous parents have lower sensitivity to distress than autonomous parents during pain-provoking situations, and that the subgroup of dismissing (non-autonomous) parents also has lower sensitivity to distress than autonomous caregivers. For this reason, it is important to make sure that these parents receive the most coaching possible to allow them to improve sensitivity to distress behaviors. Using this information, clinicians may be able to help parents learn to respond in a sensitive way before they transmit non-autonomous attachments to their children through their caregiving behavior.

Because caregivers with dismissing and generally non-autonomous state of mind are lower in sensitivity to distress than caregivers with an autonomous state of mind, they may need more coaching through times of infant distress than others. An intervention could potentially provoke a stressful event and provide sensitivity training during that event to help improve sensitivity.

One example of an intervention program that employs on-site parent training techniques to improve parent sensitivity to distress is the Attachment and Biobehavioral Catch-up (ABC) intervention. The ABC intervention is an attachment-based intervention program, which has been shown to successfully affect child outcomes including attachment (Bernard et al., 2012). The intervention program is manualized, and provides home-based therapy with a parent trainer over the course of ten weekly sessions (Bernard et al., 2012). Subjects of the ABC intervention include families with infant foster children and families with children at risk for abuse and neglect, all who may be at risk for attachment problems (Bernard et al., 2012; Dozier et al., 2009; Dozier et al., 2008; Dozier et al., 2006). The ABC intervention uses video feedback and parent coach commenting techniques to praise, correct, or scaffold

caregiving behaviors that are occurring "in the moment". Parent coach commenting is used to draw caregivers' attention to targeted behaviors that have been shown to affect attachment. One of these behaviors is "nurturance" which is very similar to sensitivity to distress.

By using the Adult Attachment Interview as a clinical tool to determine attachment state of mind before the start of intervention, ABC interventionists may be able to target non-autonomous caregivers and give them more coaching for sensitivity to distress. Thus, it is logical to target specific parts of the caregiving interaction that non-autonomous adults may have issues with, instead of trying to change their entire state of mind.

Attachment State of Mind and Separation Distress

Contrary to expectations, there were no significant differences found between the sensitivity to distress of autonomous and non-autonomous caregivers, or non-autonomous and dismissing caregivers. It is possible that there is less of a difference between autonomous and non-autonomous states of mind when children are less distressed. The results of this experiment do not support the original hypothesis, that caregivers with autonomous state of mind would have higher sensitivity to distress in both the finger prick and the Strange Situation. However, it is possible that all parents have less responsiveness to the type of distress displayed in the Strange Situation versus the painful finger prick experiment. Because no objective measure of child distress was used in the current study, connections between type of distress and maternal sensitivity cannot be made. Future studies should replicate this experiment, adding a child distress scales in both contexts, so that specific reactions to separation and pain distress can be compared across contexts.

After considering the findings from the Strange Situation experiment above, it seems that differences between autonomous and non-autonomous caregivers are not visible in the Strange Situation context. This may be due to a multitude of factors. First, It is difficult to observe true maternal sensitivity during the Strange Situation because caregivers are told not to initiate interactions, but to respond to the child as they normally would. These instructions can feel somewhat constraining to parents. And they may feel inhibited in responding to their children during separations.

Second, attachment behaviors in the Strange Situation may also be seen as being complicated by "negative" behaviors, like aggression or avoidance (Ainsworth & Bell, 1970). For example, an avoidant child may not allow the parent to give nurturance during times of distress, causing the parent to score lower on sensitivity.

Lastly, a significant limitation may be the fact that not all children show outward signs of distress like crying or yelling. Many children experience high anxiety during separations, but do not call out for their caregivers. Since there is no outward display of distress, caregivers may not show sensitivity to distress during the Strange Situation experiment. It was difficult to rate caregivers for sensitivity when no distress was present because no response is technically appropriate for no distress. A mother who showed no reaction may therefore receive a score similar to a mother that provided a moderately high level of comfort to their distressed child.

Overall, sensitivity to distress was shown to be significantly higher for autonomous caregivers in both analyses of the finger prick experiment. However, neither of the analyses in the Strange Situation context showed significantly higher sensitivity for autonomous mothers. After considering the findings presented above, it seems that sensitivity to distress does differ between autonomous and non-autonomous

caregivers when children are experiencing heightened attachment behaviors due to pain. This information is valuable to the field of attachment related intervention, because it shows that sensitivity to distress may be best evaluated during spontaneous periods of pain for the child. If intervention programs are able to target situations when the child may experience mild pain, and use these opportunities to give direct instruction on how to provide high levels of sensitivity to distress, many caregivers and children may benefit from the results of attachment related therapy.

Future Directions

There are many future directions for research relating to attachment state of mind and sensitivity to distress. The first step that should be made in investigating the results of the current study is directly testing for differences in child distress between the finger prick and Strange Situation contexts. If an objective measure of child distress were added to this experiment, it would be possible to examine which type of distress evoked more sensitivity from the mother.

Future studies should also investigate whether parents are more or less sensitive depending on child gender. Due to social stereotyping, parents may expect boys to show less distress, and may be less sensitive to their attachment related behavior. Studies could also investigate whether parents are more sensitive depending on whether the child was their same or opposite gender. For example, mothers may be more sensitive to daughters than sons because they can better relate to their emotions as members of the same gender.

It would also be interesting to test for moderating effects of attachment state of mind on attachment related interventions. One would expect that because dismissing parents have less access to attachment related information due to their state of mind,

they may be less able to address their state of mind through traditional therapy. Whereas autonomous adults, who are able to coherently and fluidly discuss attachment-related memories, may be better able to participate in traditional attachment related therapy programs. It is also possible that we might see greater improvement in caregivers with a dismissing state of mind, because attachment-related interventions such as ABC are targeting exactly the parenting issues most challenging for them, such as sensitivity to distress

One limitation of this study was that not enough subjects were tested to include the full range of adult attachment states of mind. Future studies should investigate sensitivity to distress in caregivers with all types of AAI state of mind. Firstly, parents with preoccupied state of mind should be included in further analyses. It would also be interesting to differentiate between caregivers with unresolved state of mind due to loss and abuse. These two different types of unresolved caregivers may react very differently to child distress.

In conclusion, the current study shows that mothers with autonomous state of mind are more sensitive to their children's distress in a pain-provoking situation than parents with non-autonomous and specifically dismissing states of mind. These results support the theory that attachment state of mind is a valuable predictor of maternal sensitivity to distress. It is hopeful that the results of this study can be used to support further research in the area of adult attachment state of mind as a clinical tool to identify treatment needs during attachment related intervention.

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