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Childhood experiences of trauma and loss have different relations to maternal unresolved and Hostile-Helpless states of mind on the AAI

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Abstract

This study of 45 high-risk mothers and infants examined the current indirect effects model of intergenerational transmission of disorganised attachment, which posits that maternal childhood experiences of loss or trauma contribute to maternal states of mind on the AAI which in turn contribute to infant disorganization. The severity of experiences of both abuse and loss were examined in relation to both Unresolved states of mind and Hostile-Helpless states of mind on the AAI and to infant disorganization at both 12 and 18 months. Neither the experiences of parental death in childhood nor the severity of abuse in childhood was related to Unresolved states of mind on the AAI. Instead, an Unresolved state of mind and the experience of parental death contributed independently and additively to the prediction of infant disorganization at 12 months. At 18 months, an indirect effects model was supported in relation to Hostile-Helpless but not Unresolved states of mind, in that severity of trauma had no direct relation to infant disorganization but severity of trauma was related to Hostile-Helpless states of mind which in turn predicted infant disorganization. Unresolved states of mind and experiences of parental loss did not add to prediction of disorganization at 18 months. The findings suggest that the influence of maternal trauma on infant attachment may become more prominent at 18 months as the infant makes the transition to toddlerhood. The results also suggest that a more complex etiologic model may be needed of the aspects of early experience that contribute to adult Unresolved states of mind on the AAI.

Keywords

trauma; loss; disorganization; unresolved; hostile-helpless

MATERNAL TRAUMA AND MATERNAL LOSS HAVE DIFFERENT RELATIONS TO MATERNAL UNRESOLVED AND HOSTILE-HELPLESS STATES OF MIND ON THE AAI

According to Main and Hesse (1990), disorganized infant attachment behavior is a ‘second generation effect’ of unresolved loss or trauma on the part of attachment figures. Unresolved loss or trauma refers to a lack of full integration into consciousness of the occurrence and immediate implications of the loss or traumatic event. Lack of resolution is inferred when the parent provides evidence of loss of monitoring of reasoning or discourse during the discussion of a loss or trauma on the Adult Attachment Interview (AAI). This may be seen, for example,

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[1]Unresolved scale scores are not reported in text because reliabilities were computed only at the level of classification. However, use of a combined scale score for unresolved loss or trauma did not change the findings. Level of Hostile-Helpless by overall lack of resolution scale $r = .01$.

in extreme attention to the details of the loss or trauma or in indications that the person felt unrealistically responsible for the loss or trauma (Main & Goldwyn, 1985 – 1998). Such a parent would be classified as Unresolved (*U*) on the Adult Attachment Interview. Hesse and Main (1999) view these slippages as brief and isolated and generally as occurring in the presence of an otherwise organized interview. They hypothesize further that an attachment figure who has experienced unresolved loss or trauma behaves in a manner toward the infant that is frightened or frightening and that causes the infant to experience dysregulating fear in relation to the caregiver, leading to disorganization of the infant's attachment strategy.

Through this formulation, Main and Hesse (1990) have placed front and center the question of how loss or abuse experiences affect state of mind and quality of attachment. The present study explores how the severity of loss or trauma experienced before age 16 is related to two independently-rated states of mind on the AAI: parental Unresolved states of mind and parental Hostile-Helpless states of mind.

According to a meta-analysis performed by van IJzendoorn, Schuengel, and Bakermans-Kranenburg (1999), 53% of disorganized infants have parents classified as Unresolved, thus confirming a significant relationship between Unresolved loss or trauma and infant disorganization. As Spangler and Grossmann (1999) observe, however, this figure also suggests that '…multiple pathways to disorganized attachment seem to exist (p. 108),' since 47% of disorganized infants have parents who are not classified as Unresolved.

The operationalization of this intergenerational pathway has depended heavily on identifying particular indicators of an 'Unresolved' state of mind on the Adult Attachment Interview. These indicators are only coded once a death or a specific experience of abuse has been identified by the parent during the course of the Adult Attachment Interview. If no death or experience of abuse is identified by the participant, then the state of mind of the parent cannot be coded Unresolved.

In addition, although the coding for Unresolved states of mind is complex, only the portions of the interview that can be shown to have relevance to the topic of the loss or abuse experience are relevant to the coding of an Unresolved state of mind. The coding for lack of resolution departs, then, from the practice established for coding other states of mind regarding attachment. Autonomous, dismissing, or preoccupied states of mind are viewed as pervasive mental models for organizing discourse regarding attachment-related affects; therefore, indicators of those states of mind are not topic-related but are coded in relation to all portions of the discourse throughout the interview.

Finally, despite the labeling of lapses in monitoring as indicating lack of resolution of loss or trauma, no data to date establish that the loss or abuse experience itself has any causal role in relation to the lapses in monitoring displayed on th AAI. Main and Hesse (1990) first reported a relation between the experience of parental death in childhood and infant disorganization in the next generation. Ainsworth and Eichberg (1991) subsequently failed to replicate the relation between infant disorganization and parental death in childhood but did confirm a relation between infant disorganization and aspects of the mother's discourse regarding the loss. These early findings led to the assumption that it is the mother's processing or resolution of the loss experience itself that is somehow critical to the intergenerational transmission of disorganized attachment. However, it is equally plausible that difficulty mentally integrating painful affective experiences is primarily causally related to characteristics of early care (e.g. Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997) and that the discussion of loss or abuse experiences on the AAI is simply the context in which this difficulty in integration becomes evident.

If the loss experience itself is indeed causally related to lack of resolution of loss, one would expect that characteristics of the loss or abuse experience itself should be related to how difficult such an experience is to resolve. However, the finding that lapses of monitoring may be shown in relation to any death, including deaths of persons not closely related to the interviewee, works against the hypothesis that lapses of monitoring should be viewed as causally related to the traumatic experiencing of the loss, rather than to other factors. Schuengel, Bakermans-Kranenburg, and van IJzendoorn (1999) found that women who lost a father, sibling, or infant to death (all mothers were still living) did not show an elevated incidence of frightened or frightened behavior with their infants, compared to mothers with less significant losses. This data further suggests that the severity of the loss experience itself may not play a primary etiological role in the phenomena related to disorganization. Converging results on the relation between severity of loss and Unresolved status are also available in the seminal study by Ainsworth and Eichberg (1991) on Unresolved loss among 45 middle income families. An examination of the individual case data listed in that manuscript revealed that among mothers who had lost a parent in childhood, none were classified Unresolved, compared to 40% classified Unresolved among mothers who had had other losses. Among mothers who had lost any first-degree relative at any time in their lives, 33% were Unresolved, while among mothers who had lost second degree relatives or others, 33% were also classified Unresolved. Among mothers classified Unresolved, the earliest age of a loss was age 13, while among mothers considered resolved, the earliest age of loss was age 5. Therefore neither age of loss nor closeness of kin demonstrated any relation to whether or not lapses were shown in the discussion of that loss. If Unresolved states of mind have no reliable relation to the severity of experiences of loss or trauma, then the etiological role of those particular experiences will need to be questioned and other etiological factors assessed.

Trauma and pervasively unintegrated states of mind

In the Main and Goldwyn coding system, and AAI participant may be coded Unresolved with respect to either loss or trauma. However, most empirical work that has demonstrated a relationship between parental lack of resolution and infant disorganization has primarily examined parents' lack of resolution of loss. Few studies have looked specifically at parental lack of resolution of trauma and its impact on infant attachment classification.

Previous work with the present sample has indicated that parental experiences of separation and loss in childhood may affect parent – infant interaction in the next generation differently than experiences of conflict and abuse (Lyons-Ruth, Zoll, Connell, & Grunebaum, 1989). Using a structured Childhood Experiences Questionnaire (Lyons-Ruth, 1984) administered in infancy, Lyons-Ruth et al. (1989) found that parental death or separation/divorce, number of family moves, and lack of structure and supervision in mother's childhood correlated with decreased involvement with the infant at home at 12 to 18 months. In addition, experiences of sexual abuse in childhood coded from the AAI were associated with decreased involvement at home (Lyons-Ruth & Block, 1996). In contrast, family conflict, lack of warmth, severe punishment, and parental mental health problems reported in the mother's childhood correlated with increased hostile-intrusive behavior toward the infant at home. Witnessed violence and physical abuse in childhood coded from the AAI were also related to hostile-intrusive behavior at home (Lyons-Ruth & Block, 1996). Given these differential effects of loss vs. abuse on mother–infant interaction, loss and physical abuse experiences in childhood would also be predicted to have different correlates in maternal state of mind on the AAI. Therefore, it is important to examine the trauma literature to understand how unresolved trauma may continue to have on-going emotional and cognitive consequences for the parent's state of mind regarding attachment.

Herman (1992) describes trauma as what occurs '…when neither resistance nor escape is possible, [and] the human system of self defense becomes overwhelmed and disorganized (p. 35).' Terr (1991) further distinguishes acute trauma, involving a single overwhelming event, from chronic trauma, in which the trauma is prolonged and/or repeated. Herman (1992) and Terr (1991) both suggest that coping with chronic trauma may result in profound character changes and the crystalization of a personality style based on psychological construction, massive numbing, rage, and, in some cases, identification with the an aggressive perpetrator.

Van der Kolk and Fisler (1994), too, distinguish the effects of isolated incidents of trauma, which result in '…rather discrete conditioned biological and behavioral responses to reminders of the trauma,' from chronic abuse and neglect, which are '…likely to have a more pervasive effect on psychological and behavioral regulatory processes' (p. 147). These authors describe the inability of some people exposed to interpersonal trauma at an early age to regulate their affective states and behavioral responses. When occurring at an early age, such experiences affect not only current functioning but '…the totality of personality development' (p. 147), resulting in a syndrome of complex PTSD which includes problems regulating affective arousal, dissociation, somatization, changes in perception of self and other, and changes in systems of meaning (also see Herman, 1992).

Extreme forms of segregated systems have been described by students of trauma and psychopathology under the labels of 'dissociation' and 'splitting'. Dissociation is a more general term referring to a protective defense against the overwhelming memories and associated affects connected with experiences of trauma. Dissociation is sometimes referred to as a 'vertical split' because disparate representations of the self and other are observed to be maintained in seperate mental 'compartments' unintegrated with one another but available to consciousness in alternating states (Horowitz, 1986; Kluft, 1991). Thus, a traumatized individual may dissociate affects and associated meaning systems that are too overwhelming to experience at the time of the trauma or may dissociate self-schemas that are threatening to their identity. Though the person may not be simultaneously aware of these unintegrated contents, they both remain mentally active and find expression in discourse and behavior.

Splitting is a clinical concept that plays a central role in the understanding of borderline psychopathology and was developed to capture the clinical experience of being alternately globally idealized and globally devalued in the relationship between patient and therapist. This mechanism was central to understanding borderline psychopathology and was subsequently related to a history of trauma (Herman, Perry, & van der Kolk, 1989). Splitting is conceptualized as an unconscious process that actively separates contradictory feelings and representations of 'good' and 'bad' aspects of the 'other' and the 'self', and is thought to develop to protect a positive representation of the self and of the caregiver on whom the child depends for care. Calverley, Fischer, and Ayoub (1994) have documented the presence of such a core negative self among victims of childhood abuse. The mental mechanism of splitting is more extreme and more unstable than the stable idealization that occurs in dismissing stances. Alternations in states of consciousness result, so that disappointment in a previously idealized relationship activates representations of the 'bad' caregiver expressed as affectively intense devaluation. Post-traumatic states are also described as alternating between states of 'flooding', in which memories and emotions associated with a traumatic event invade consciousness, and states of 'numbing' or 'affect intolerance', characterized by emotional constriction that excludes both traumatic memories and associated affects such as anger, emotional pain, or fear and vulnerability from the discourse.

The Hostile-Helpless coding system

The Hostile-Helpless coding system for the AAI was developed to expand on the work of Main and Goldwyn (1985 – 1998) and Hesse (1999) by creating additional interview-wide codes to

capture indicators of a pervasively unintegrated state of mind with respect to attachment. The Hostile-Helpless codes were developed to operationalize the states of mind that might present on the AAI secondary to chronic relational trauma, including sexual, physical, or emotional abuse. They were also derived empirically through close examination of the AAI's of mothers in a development sample, as explained in Methods. The concept of an underlying process in which globally negative evaluations of caregiver and self remain unintegrated with other aspects of the individual's thinking about attachment was a central aspects of the Hostile-Helpless coding system. The extent to which the individual has unconsciously identified with either an aggressive or helpless-fearful caregiver was also operationalized by specific codes for identification with a hostile caregiver or references to fearful affect.

In the resulting coding system, a Hostile-Helpless state of mind is characterized by pervasive indicators of hostile and/or fearful states of mind and, in some cases, by explicit continued identifications with hostile or helpless caregivers from the past. These processes of devaluation with identification result in explicit contradictory but unintegrated emotional evaluations of a central caregiver across the transcript. In addition, the individual may make recurrent references to fearful affect which does not necessarily have an identified source in a traumatic experience. There are often concurrent indicators of affective numbing, as operationalized by laughter at painful anecdotes, and evidence of affectively intense, unstable relationships, as operationalized by ruptures in contact with family members in adulthood. These characteristics are consistent with the types of more pervasive mental segregation observed among survivors of chronic abuse, as described earlier. Additional detail regarding the coding system and the ways that it differs from the Main and Goldwyn (1985 – 1998) dismissing/derogating (Ds2), preoccupied/angry involved (E2), fearfully preoccupied by traumatic events (E3), and cannot classify (CC) descriptors can be found in Yellin, Atwood, Melnick, and Lyons-Ruth (2003).

This newly developed coding system expands on the existing coding system of Main and Goldwyn (1985 – 1998) in several ways. First, whereas the existing Main and Goldwyn coding system classifies mothers as Unresolved when they show lapses of monitoring of reason or discourse in response to material related to loss or trauma, the coding system for Hostile-Helpless states of mind examines discourse patterns throughout the whole interview regardless of relevance to loss or trauma.

Second, the Hostile-Helpless coding system is compatible with the entire range of relational experiences in childhood and is not contingent on the interviewee being able to identify instances of loss or abuse, as is the case coding for indicators of Unresolved states of mind.

Third, the Hostile-Helpless coding system is informed by clinical descriptions of defensive functions among clinical populations with chronic trauma histories (e.g., splitting, identifications with hostile caregivers), thus extending the potential of the codes for capturing variations in attachment -related states of mind within clinical and violence-exposed populations.

In the first report on this coding system, Yellin et al. (2003) found that overall level of Hostile-Helpless state of mind was related to severity of trauma in mother's childhood as well as to infant disorganization at 18 months of age. In addition, several frequency codes that contribute to the overall rating were also significantly related to infant disorganization, including global devaluation of a caregiver, recurrent laughter at pain, and ruptured attachments in adulthood, r's = .31 – .43. Frequency codes for identification with a hostile caregiver, references to fearful affect, and sense of self as bad were marginally significantly related, r's = .27 – .29.

The central hypothesis tested in the current study was that experiences of childhood separation and loss would have different correlates in maternal states of mind than experiences of violence or abuse. It was predicted that Unresolved states of mind would be more strongly related to

parental loss in childhood than to severity of trauma in childhood while Hostile-Helpless states of mind would show discriminant validity as sequelae of trauma but not parental loss. Among the Hostile-Helpless codes, only references to fearful affect were predicted to relate to severity of loss, based on Main and Hesse's (1990) theoretical linking of unresolved loss to unintegrated frightened affect. Secondary analyses explored whether sexual abuse and physical abuse might have different correlates in maternal states of mind based on their differential relations to mother-infant interaction.

Second, the current indirect- effects model of the intergenerational transmission of disorganized attachment, which posits that maternal childhood experiences of loss or trauma contribute to maternal states of mind on the AAI which in turn contribute to infant disorganization, was tested in relation to both Unresolved states of mind and to Hostile-Helpless states of mind on the AAI and to infant disorganization at both 12 and 18 months of age.

METHODS

Participants

The sample for this study consisted of 45 low-income mothers and their children (28 male) who had been participating in a longitudinal study since infancy (Lyons-Ruth, Connell, Grunnebaum, & Botein, 1990). Mothers were interviewed on the AAI when their children were 7 years of age. Sixty-six percent of families had incomes under $50 per person/per week, and 62% received Aid to Families with Dependent Children. The sample was 80% Caucasian and 20% Latino, African American, or biracial children. Sixty percent of the mothers were high school graduates and 49% were single parents.

The infant sample consisted of 76 families, 41 low-income families referred to the study by health or social service agency staff because of concerns about the quality of the parent – infant relationship and 35 demographically matched families from the community who were screened for histories of maltreatment or psychiatric hospitalization. At the 7-year assessment, five families refused participation, and the remainder could not be relocated. The families who participated in the 7-year sample did not differ significantly from those who did not participate on demographic measures or measures of infant attachment, maternal depression, or mother – infant interaction. The infant attachment distribution of the infants seen at age 7 was 42% secure, 16% avoidant, 10% disorganized-forced secure, and 32% disorganized-forced avoidant or ambivalent.

Measures

Demographic risk—A cumulative demographic risk variable was computed by summing the presence of the following six factors: mother black or hispanic; mother not a high school graduate; mother a single parent; mother under the age of 20 at birth of first child; family supported by government assistance; and family included three or more children under the age of six.

Infant attachment security—At 12 and 18 months of age, mothers and infants were videotaped in the Ainsworth Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978). In this procedure the infant is observed in a playroom during a series of eight 3-minute episodes in which the mother leaves and rejoins the infant twice. Videotapes were coded for infant attachment behaviors and for the three attachment classifications as described by Ainsworth et al. (1978) and for disorganized/disoriented behaviors as described by Main and Solomon (1990). The three original attachment classifications (secure, avoidant, ambivalent) were assigned by both a computerized multivariate classification procedure developed on the

original Ainsworth data (Connell, 1976; see Lyons-Ruth, Connell, Zoll & Stahl, 1987, for additional details; see also reference in Richters, Waters, & Vaughn, 1988) and a coder trained by M. Main. Agreement between the two sets of classifications was 86%. Seventy-five percent of the disagreed-upon tapes were later found to meet criteria for the disorganized/disoriented classification. Agreement on the disorganized classification between M. Main and a second coder for 32 randomly selected tapes was 83%, Kappa = .73. Coder reliability for the nine-point Level of Disorganized Behavior Scale was r = .84.

Unresolved state of mind on the adult attachment interview—Adult Attachment Interviews were administered to mothers when the children were age seven. The Adult Attachment Interview (George, Kaplan, & Main, 1985) is a semi-structured interview designed to elicit a participant's current state of mind regarding attachment experiences with parents and other significant caregivers during childhood. The interviewer asks about the quality of childhood experiences with parents, the participant's responses to experiences of rejection, separation, loss, and trauma during childhood, and the participant's evaluation of the effects of those childhood experiences on his or her current functioning.

The interview is scored from a transcript using scale points that characterize the degree to which each parent was loving, neglecting, rejecting, involving, and pressuring to achieve. A second set of scales is used to assess the participant's state of mind and discourse style, including scales for overall coherence of transcript and of thought, idealization, insistence on lack of recall, derogation, fear of loss of child, metacognitive monitoring, passivity of speech, involved anger, and lack of resolution of loss or trauma. The scale scores are used to assign the adult to one of four major attachment classifications: secure, insecure/dismissing, insecure/preoccupied, and unresolved with respect of loss or trauma (Main & Goldwyn, 1985 – 1998). Emerging criteria for a fifth category, currently designated Cannot Classify, include shifting from one strategy to another over the course of the interview (e.g. dismissing to preoccupied) or displaying low coherence on the interview as a whole without an elevated score on any of the indicators of an insecure state of mind (Hesse, 1999). The AAI has demonstrated stability (Bakermans-Kranenburg & Van IJzendoorn, 1993; Benoit & Parker, 1994), and discriminant validity of the AAI has been demonstrated with respect to intelligence, memory, cognitive complexity, social desirability, and overall social adjustment (Bakermans-Kranenburg, & van IJzendoorn, 1993; Crowell et al., 1996; Sagi et al., 1994).

Coding how the participant discusses traumatic experiences is critical to coding lack of resolution of trauma on the AAI. Because the Adult Attachment Interview was developed for low-risk samples, the occurrence of potentially traumatic experiences other than deaths was not asked about in depth. In interviewing mothers in this study on the AAI, additional questions were included in the interview asking about experiences of physical abuse, sexual abuse, or witnessed violence, based on the Antecedent Experiences Questionnaire of Herman et al. (1989). These additional probes followed the question, ‘Were your parents ever threatening to you in any way?’ and maintained the narrative format of the AAI.

Interviews were coded using the standard Main and Goldwyn (1994) coding system by a coder who was certified as reliable through the standard training procedures of Main and Hesse. The coder was quite experienced in using the coding system and had received additional training in applying criteria for the Cannot Classify category.

Severity of trauma in mothers' childhoods—Childhood experiences of violence, neglect, or abuse were assessed from the Adult Attachment Interview (Main & Goldwyn, 1985 – 1998), as augmented by the trauma questions from the Antecedent Experiences Questionnaire (Herman et al., 1989). Five-point rating scales were developed to rate severity of neglect, sexual abuse, physical abuse, and witnessed violence (Lyons-Ruth & Block, 1996). Trauma ratings

were made several years prior to AAI classifications by raters blind to all other data. These ratings reflected both extent of abuse and chronicity of abuse. Ratings of 4 or 5 on the abuse or neglect scales were worded to meet state Department of Social Services guidelines for maltreatment. For example, on the physical abuse scale, repetitive experiences of being hit other than on the buttocks or hand by a primary caregiver were rated at 5, while very rate experiences of being similarly hit by a primary caregiver were rated a 3. Subjects who were inadequately fed, clothed, or supervised in childhood were rated as having been neglected. All of the protocols were coded by two raters on the four 5-point scales, with kappas ranging from . 89 for physical abuse to .55 for witnessing violence. Discrepancies were resolved by discussion between the raters.

Because many mothers experienced more than one type of childhood trauma, individuals were also placed in one of six categories for overall severity of trauma, ordered as follows: 0 = None; 1 = Neglect only (neglect rating ≥ 3; all other ratings ≤ 2); 2 = Harsh or inappropriate treatment only (physical or sexual abuse rating = 3; witnessed violence ≤ 2); 3 = Witnessed violence only (witness violence ≥ 3; sexual or physical abuse < 4); 4 = Sexual abuse only or physical abuse only (sexual or physical abuse ≥ 4); 5 = Both physical and sexual abuse (both ratings ≥ 4).

Maternal childhood history of separation or loss—Following the protocol used by Belle (1982), mothers were asked to trace all changes in numbers and identities of the adults they lived with from birth to age 16, through the following repeated series of questions: Who did you live with when you were born? What happened to change that? Who did you live with then? This historical narrative yielded the following summary measures: incidence of parental death, parental separation (3 months or longer) or divorce, and occurrence of out-of-home care (1 month or longer), including placement of the child with relatives, out-of-home care secondary to the child's running away, or state-mandated foster placement. These codes were summarized in a four-point scale for severity of parental loss: 1 = No changes of caregiver; 2 = parental death only; 3 = parental separation or divorce; 4 = placement in out of home care.

Hostile-Helpless state of mind on the adult attachment interview—The Adult Attachment Interview, augmented by the Antecedent Experiences Questionnaire as described earlier, was also coded using the Hostile-Helpless coding system. Coding was carried out concurrently with the Main and Goldwyn coding, which occurred in another lab, by an independent team of coders blind to all other data on the families, including the AAI codes.

Following the coding conventions in the attachment literature, the Hostile-Helpless coding system was made up of a number of indicators which culminated in an overall scaled score from one to nine for level of Hostile-Helpless state of mind, with a score of six or above resulting in a Hostile-Helpless classification and a score of five leaving the classification decision open to the coder's judgment. This continuous score integrated the judgments made about all of the other variables.

Because trauma and loss experiences were also evident in the AAI transcript, it was felt to be important methodologically to tie the coding to explicit features of the discourse. Therefore, the system also yielded a set of six individual frequency codes that contributed to the assignment of the overall scaled score as follows:

'*Global devaluation of a caregiver*' was scored whenever the participant's language suggested that globally negative representations of caregivers were held in the past and that these representations continued to be active in the present (i.e., have not been mitigated or distanced in adulthood). Common examples included references to caregivers such, 'She was my enemy.' This 'all-bad' language could also be described as 'hot' devaluation in comparison to the 'cool' derogation described by Main and Goldwyn as a hallmark of the DS2 Dismissing subcategory.

However, it should be noted that cool derogation that was globally devaluing of a caregiver was also counted in these frequencies and was considered a potential predictor of infant disorganization rather than of infant avoidance.

'*Identification with a hostile caregiver*' was scored whenever a globally negative evaluation of a caregiver was stated, yet the reader noted that the participant also identified with or appeared to value or accept similarities between the negatively evaluated attachment figure and the self without noting the tension between these two views. In some cases the parent's negative qualities were emphasized throughout the interview and the identification with parent was repeated in unrecognized form in the present (e.g. participant's parent was highly rejecting of the participant as a child, and the participant rejected her child without commenting on her behavior; participant's parent was extremely anxious and overprotective, and participant justified her overly restrictive actions towards her own child). In other cases, the parent's negative qualities were emphasized, but the participant's similarity or closeness to the parent was also emphasized in the narrative and the anger, conflict, or negative consequences of the parent's behavior were downplayed without addressing the inherent contradiction in mental contents that this contradiction represented, e.g., 'she was my enemy… we're very close…I'm just like her [the negatively represented caregiver].' This form of contradiction was distinguished from the immediate evaluative oscillation described by Main as characterizing Preoccupied participants in that these contradictions were inferred over the entire interview, rather than existing as immediately juxtaposed contradictory statements. Therefore, the negative evaluation was not noted and reversed by the participant. In addition, these statements were not accompanied by involved anger, suggesting that the expected negative affect had been segregated from the conscious content (e.g., 'We fight all the time because we're so much alike.')

'*Recurrent references to fearful affect*' was a frequency measure coded whenever the participant made a reference to her own experiences of fearful affect states in the interview. All fearful references were coded. Fearful references were often made in relation to a variety of unrelated and/or not particularly threatening circumstances (e.g. 'I was terrified of that teacher…').

'*Sense of self as bad*' referred to an internalized sense of 'badness' or 'blameworthiness' in which the participant felt guilty, responsible, deserving of disrespectful treatment, or undeserving of positive attention. This attitude was coded when participants uncritically related anecdotes that depicted themselves as especially troublesome or 'bad' as a child and therefore deserving of the treatment they received ('e.g. I was the troublemaker…'). By noting the continuation of this attitude into adulthood, this code was thought to index an ongoing need to preserve a positive view of caregivers by continuing to blame oneself.

'*Laughter at pain*' was coded whenever laughter followed anecdotes about psychological or physical distress. Laughter at pain was understood as a defensive behavior to communicate toughness and deny the impact of childhood experiences of vulnerability.

'*Ruptured attachments*' was coded when a participant referred to no longer having contact with one or more members of his or her nuclear family through a deliberate decision to terminate contact. Because this code was relatively infrequent, the frequency data were converted to a dichotomous score with 0 = no references and 1 = 1 or more references.

The initial version of the coding system for Hostile-Helpless States of Mind was developed by Atwood and Lyons-Ruth (Atwood, 1995). Blind to infant classification, Atwood and Lyons-Ruth examined a development set of 10 randomly selected AAIs stratified to include a sizeable number of interviews of mothers of disorganized infants. Atwood and Lyons-Ruth identified

a set of indicators hypothesized to distinguish mothers of organized vs. disorganized infants, developed individual frequency codes, and developed the scale and classification criteria for rating degree of Hostile-Helpless state of mind.

Two additional coders (C.Y. and S.M.) were then trained on this system. All coders were blind to all other data on the sample. Reliability coefficients on 15 additional randomly chosen interviews were as follows: scaled score for Hostile-Helpless state of mind, r_i = .83, 'Hostile-Helpless' classification, kappa = .86, global devaluation of a caregiver, r_i = .77; identification with a hostile caregiver, r_i = .80; sense of self as bad, r_i = .85; recurrent references to fearful affect, r_i = .70; recurrent laughter at pain, r_i = .90; and ruptured attachments in adulthood, r_i = .71.

RESULTS

Maternal states of mind and demographic risk factors

Pearson correlations revealed no reliable relations between Unresolved state of mind and cumulative demographic risk, point biserial $r = -.04$, or between the Hostile-Helpless state of mind scale and cumulative demographic risk, $r = .13$, n.s. There were also no reliable relations between individual demographic risk factors and either H/H level or Unresolved status, r's = −.11 to .15, all p = n.s. Given the lack of relations between demographic factors and maternal states of mind, demographic variables were not included in further analyses.

Relations between unresolved and Hostile-Helpless states of mind

Using the standard Main and Goldwyn system, 58% of AAI's were classified in organized categories, 29% were classified Unresolved, and 13% were considered Cannot Classify. Despite the fact that 47% of mothers had childhood experiences that met state guidelines for abuse or neglect (Lyons-Ruth & Block, 1996), only 13% of the 23 who had experienced trauma as defined on the AAI were classified Unresolved with respect to trauma. In comparison, 16% of the 38 who had experienced a loss were classified Unresolved with respect to loss. This resulted in a final *n* of 10 mothers classified Unresolved for loss and three mothers classified Unresolved for trauma.

Fifty-one percent of mothers were classified as displaying a hostile-helpless state of mind on the AAI. There was no relation between Unresolved status and Hostile-Helpless classification, 2 (1, $N = 45$) = .82, n.s., *phi* = .15. Sixty-one percent of Unresolved mothers were classified Hostile-Helpless, and 40% of Hostile-Helpless mothers were classified Unresolved.

Relations between severity of trauma and severity of loss

Forty-seven percent of mothers were rated as having experienced sexual abuse, physical abuse, or both, according to state guidelines for defining abuse experiences (Lyons-Ruth & Block, 1996). Another 11% of mothers had witnessed serious violence between others. Cell *n*'s were as follows: None $n = 4$; Neglect $n = 8$; Harsh $n = 6$; Witness Violence $n = 6$; Physical Abuse $n = 7$; Sexual Abuse $n = 9$; Both Physical and Sexual Abuse $n = 5$.

Five mothers lost a parent to death before age 16. There of those five mothers also experienced parental divorce or out-of-home care. Twenty mothers had no changes of caregivers through age 16; 14 mothers experienced parental separation or divorce; and 9 mothers experienced out-of-home care for 3 months or more.

There was substantial positive correlation between severity of trauma and severity of parental loss, $r = .48$, $p < .01$. Therefore, in order to assess the unique relations of childhood parental loss and childhood trauma to maternal states of mind, multiple regression analyses were run

controlling for loss in all analyses of trauma and controlling for trauma in all analyses of parental loss.

Relations between maternal unresolved states of mind, severity of parental loss, and severity of trauma

Contrary to prediction, maternal Unresolved states of mind were unrelated to the overall severity of parental loss, *r* partial = .05, n.s., as shown in Table 1. Because three of the 13 mothers were Unresolved with respect to trauma, the regression analyses were recomputed with those three mothers omitted. The results were somewhat stronger but still not significant, r partial = .20, n.s.

When types of parental loss were examined separately with trauma controlled, Unresolved states of mind were no more frequent among mothers who had experienced parental death in childhood than among mothers from intact families, as shown in Table 2. Of the 10 mothers classified Unresolved for loss, only one was Unresolved in relation to parental death in childhood. Unresolved states of mind were also no more frequent among mothers who had experienced out of home care than among mothers from intact families. Combining Unresolved with Cannot Classify protocols decreased rather than increased these relations, as also shown in Tables 1 and 2. Results were the same with the three mothers classified Unresolved for trauma removed.

The predicted positive association between experiences of parental loss and references of fearful affect also was not observed. Instead, references to fearful affect tended to decrease with increased severity of separation/loss experiences, following the overall trend in Hostile-Helpless scores discussed further below.

As also shown in Table 1, there was no relation between severity of trauma in childhood and maternal Unresolved state of mind. Due to the small number of mothers classified Unresolved for trauma (*n* = 3), separate analyses could not be computed for the Unresolved trauma group.

Hostile-Helpless state of mind severity of trauma in mothers' childhoods

As predicted, Hostile-Helpless state of mind codes were strongly related to severity of trauma in mothers' childhoods, as shown in Table 1. In addition to the summary classification and Hostile-Helpless scale scores, four specific discourse characteristics were significantly more frequent as trauma became more severe, including references to Identification with a Hostile Caregiver, Laughter at Pain, Global Devaluation of a Caregiver, and Sense of Self as Bad.

One counter-intuitive aspect of the findings was that references to fearful affect were *not* more frequent when trauma had been more severe, *r* = .13, n.s. Instead, as the severity of trauma increased, mother's discourse on the AAI was characterized by more frequent laughter at pain and by increased frequency of describing both the self and one or more caregivers in ‘all-bad’ devalued terms.

Sexually abused vs. violence-exposed mothers

An additional set of analyses explored whether sexual abuse experiences alone were associated with the same state of mind indicators as exposure to violence. For those analyses, severity of trauma was divided into three groupings: no violence (none/neglect/harsh treatment, *n* = 17), violence exposed (witnessed violence, physical abuse, *n* = 13), or sexual abuse only (*n* = 9). Mothers who had suffered *both* sexual and physical abuse were omitted from these comparisons. Planned comparisons separately contrasted the no-violence group with the violence-exposed and sexual abuse groups, with parental loss controlled. Results are displayed in Table 3.

Both violence-exposed mothers and sexually abused mothers differed significantly from the no violence group in overall Hostile-Helpless state of mind and in frequency of laughter at pain. Both sexually abused and violence-exposed mothers laughed at painful memories an average of 30 times during the AAI compared to only eight times for non-violence-exposed mothers.

Only the violence-exposed mothers differed from the no-violence group on global devaluation of caregiver, identification with a hostile caregiver, and recurrent references to fear, as also shown in Table 3. Violence-exposed mothers made an average of eight references to fearful affect during the AAI compared to an average of 3.5 references to fearful affect among sexually abused or non-violence exposed mothers. Results were the same with the witness-only group omitted from the violence-exposed grouping.

These results indicate that numerous references to fearful affect on the AAI are not generally associated with experiences of parental death or separation nor are they associated with experiences of sexual abuse. Instead, they are specifically related to witnessed or experienced physical violence. This is a notable finding because of the pivotal role of fear in the theory of unresolved/disorganized states of mind. It should be noted that most references to fearful affect were not directly tied in the text to experiences of violence or abuse but were displaced references to nightmares or to being anxious or nervous in other situations. It is also notable that such ‘displaced’ references to fear or anxiety were intermingled with even more frequent laughter at painful experiences.

Hostile-Helpless state of mind and severity of parental loss

Unexpectedly, severity of parental loss was *negatively* related to HH state of mind, with bivariate *r*'s ranging from −.02 to −.27. as shown in Table 1. Regression analyses further revealed that severity of trauma was exerting a suppressor effect on the magnitude of the negative relation between parental loss and HH state of mind. With trauma controlled, the absolute magnitude of the negative relation between parental loss and HH state of mind increased, partial *r*'s (trauma controlled) ranging from −.16 to −.41, $p < .01$ (see Table 1). These opposite effects of trauma and loss on maternal HH state of mind suggest that the psychological effects of loss and trauma are quite different.

This negative relation was explored further by using planned comparisons to contrast both the death/separation only group ($n = 16$) and the out-of-home care group ($n = 9$) with the group of mothers who had experienced no disruptions ($n = 20$). Severity of trauma was controlled in all analyses.

All forms of parental loss contributed to the negative relations with HH state of mind, as shown in Table 2. All HH indicators were less frequent among mothers who had experienced out-of-home care, with effect sizes ranging from −.01 (Ruptured Attachment) to −.37, $p < .07$ (HH classification). All HH indicators were also less frequent among mothers who had experienced parental death or separation, effect sizes from −.02 (HH global classification) to −.34, $p < .05$ (identification with a hostile caregiver). These findings indicate that not only the severe losses represented by out of home care but also the more common parental losses attendant on parental death or divorce are associated with decreases in Hostile-Helpless state of mind codes, even in the presence of significant concurrent trauma. This suppressive effect of parental loss on maternal HH states of mind was quite general and unpredicted.

The negative relation between Hostile-Helpless states of mind and severity of parental loss can be illustrated most clearly through the percentages of abused mothers classified Hostile-Helpless at each level of parental loss. Among abused mothers from intact families, 86% were

classified Hostile-Helpless; among abused mothers who lost a parent to death separation, or divorce, 75% were classified care, 67% were classified Hostile-Helpless.

Infant disorganization at 12 months and severity of maternal childhood trauma or parental loss

In previous work with this sample, mother's childhood experience of parental death was associated with infant disorganization at 12 months, *phi* = .37, $p < .01$, n=52 replicating the effect reported for the Berkeley sample (Lyons-Ruth, Repacholi, McLeod, & Silva, 1991; Main & Hesse, 1990). However, as shown above, there was no relation between the occurrence of parental death and maternal classification as Unresolved.

In order to further evaluate the relations among experiences of parental death, maternal Unresolved or HH state of mind, and level of infant disorganization at 12 months, a regression analysis was conducted on level of infant disorganization. Variables were entered in the following order: severity of trauma, occurrence of parental death, maternal Unresolved state of mind, and maternal Hostile-Helpless state of mind.

Both parental death in mother's childhood and maternal Unresolved state of mind made independent contributions to infant disorganization at 12 months, as shown in Table 4. Neither severity of trauma in mother's childhood nor maternal Hostile-Helpless state of mind accounted for additional variance in infant disorganization at 12 months.

Infant disorganization at 18 months and severity of maternal childhood trauma or parental loss

There was no significant correlation in this sample between level of infant disorganized behavior at 18 months of age and either severity of trauma or severity of parental loss in mother's childhood, as shown in Table 1. Infants of mothers from intact families displayed the same level of disorganization (mean scaled score 3.6) as infants of mothers who received out of home care (mean scaled score 3.6), with infants of mothers who experienced parental death or divorce/separation somewhat lower (mean scaled scores both 3.2).

A regression analysis on the level of disorganized infant behavior at 18 months was also conducted, using the same procedure as described above. The only significant predictor of 18 months disorganization was Hostile-Helpless state of mind, as shown in Table 4. Neither severity of trauma, parental loss, nor Unresolved and Cannot Classify States of Mind made additional contributions to prediction of infant disorganization at 18 months.

DISCUSSION

This study tested the current indirect effects model of the relation of maternal childhood experiences to infant disorganization by examining the contributions of maternal childhood experiences and maternal states of mind on the AAI to the etiology of infant attachment disorganization in a high-risk sample. The severity of experiences of both abuse and loss of attachment figures were examined in relation to two independently coded aspects of maternal state of mind on the AAI and to infant disorganization at both 12 and 18 months.

It should be noted that childhood experiences of parental death, separation/divorce, or out-of home-care, as well as experiences of sexual or physical abuse, were coded from retrospective parental report. Therefore, the validity of these reports cannot be clearly established. However, the safeguards to validity in the present study were several. First, subjects were asked about the occurrence of specific objective loss and abuse experiences were probed within a narrative format in which the interviewer asked followup questions to fill out the details of the event rather than being assessed in a simple yes/no questionnaire format. Third, judgments of severity

of experiences of abuse were reliably rated by independent coders blind to all other data rather than by the subjects themselves. Finally, retrospective reports of objective events such as the ones in question here have shown good convergent validity when two or more reporters are available (Crook, Raskin, & Eliot, 1981; Robins et al., 1985).

Clinical experience indicates that a major threat to validity would be that abuse experiences would be underreported on the AAI and recent studies support this concern in relation to experiences of sexual abuse (Bailey, 2003; Hill, Byatt, & Burnside, 2003). As reported in Methods, the present study incorporated additional specific questions regarding the occurrence of sexual or physical abuse as a safeguard in relation to this possibility of underreporting. It should be noted, however, that use of the Hostile-Helpless coding system does not depend on the incorporation of additional trauma probes into the AAI format. Recently, the Hostile-Helpless system has been shown to distinguish borderline psychiatric outpatients from neurotic depressed outpatients in a study that used a standard interview protocol without additional trauma probes (Melnick & Patrick, 2003).

Finally, it should be noted that the AAI data were collected when the children were age 7, or 5½ to 6 years after the infant attachment observations were made. It is possible that some mothers may have come to terms with their experiences of loss or trauma in those intervening years while others may have experienced additional unresolved episodes of loss or trauma. These sources of change may have reduced the relation between the infant attachment data and the maternal AAI data. However, in the initial report by Main, Kaplan, and Cassidy (1985) of a relation between infant attachment disorganization and maternal Unresolved status in a middle-income sample the maternal AAI's were administered at age 6, so there is precedent in the literature for believing these processes to be somewhat stable over time. The robust associations in these data between maternal state of mind at age 7 and infant attachment behaviors at both 12 and 18 months of age is further evidence for such stability.

Four major points emerged from this study. First, in a sample with high rates of loss and abuse, both mothers' experiences of parental death in childhood and mothers' Unresolved states of mind were independently related to infant disorganization at 12 months, with severity of trauma controlled. However, an additive model rather than a mediational model was supported. First, parental Unresolved states of mind were unrelated to a history of parental loss in childhood so that Unresolved states were not a function of more severe losses. Second, Unresolved states of mind did not mediate the effect of parental loss in childhood on infant disorganization. Instead, both Unresolved mothers and mothers who had experienced parental death were more likely to have disorganized infants at 12 months of age.

Other work exploring the developmental effects of parental loss have found that quality of care following the loss is more predictive of later adaptation than the occurrence of loss per se (Harris, Brown, & Bifulco, 1986). The significant effect of parental death in this sample on infant disorganization in the third generation may indicate that poor quality care following the death was more likely in a low-income sample with few resources. It remains notable, however, that even in a sample where the occurrence of parental death had documented intergenerational effects, these effects were not mediated by the mother's Unresolved state of mind. Additional studies are needed to test whether the lapses of reasoning or discourse that lead to a classification as Unresolved might be better understood as indices of some other aspect of mental or emotional functioning that is not primarily loss-related, such as poor care in childhood. For example, Hill et al. (2003) have recently shown that self-reported poor parental care in childhood is one correlate of Unresolved states of mind on the AAI.

Second, Hostile-Helpless maternal states of mind, but not Unresolved states of mind, were associated with infant disorganization at 18 months of age, and Hostile-Helpless states of mind

were strongly and significantly related to the severity of trauma in mothers' childhoods. The differences in predictors of infant disorganization at 12 months and 18 months may be related to the difference in composition of the disorganized group at the two ages. Previous publications have documented a significant increase in disorganization in this high-risk longitudinal sample from 12 to 18 months of age (Lyons-Ruth et al., 1991), with all of the increase occurring in the Disorganized-Insecure subgroup. At 12 months, 54% of infants were classified Disorganized-Secure. At 18 months, only 30% of infants were classified Disorganized-Secure, while 70% were classified Disorganized-Insecure.

These data as a whole suggest that the influence of maternal trauma on infant attachment may become more prominent at 18 months as the infant makes the transition to toddlerhood. Among mothers exposed to violence or abuse, the infant's increased mobility and agency, including the new capacity to say ‘no’, may be a particularly potent trigger for the mother's feelings of both helplessness and hostility related to past abuse. If this interpretation is correct, we would only expect to find such an increase in disorganization by 18 months, as well as a shift in maternal predictors at 18 months, in samples with a high rate of maternal trauma and not in samples with little exposure to violence.

The findings also indicate that sexually abused mothers displayed a somewhat different set of Hostile-Helpless indicators than did violence-exposed mothers. Specifically, violence-exposed mothers were more likely to display contradictory states of mind toward caregivers (both devaluation and identification) on the AAI, as well as laughter at pain, references to fear, and a view of the self as bad or unworthy. Sexually abused mothers were no less likely to be classified Hostile-Helpless and also displayed frequent laughter at pain during the interview. However, they were not significantly more likely than non-violence-exposed mothers to identify with a hostile caregiver or to devalue a caregiver. These findings converge with and expand on previous mother-infant interaction data indicating that violence-exposed mothers were more likely to display both hostile behavior and lack of involvement with their infants at home, while sexually abused mothers were not hostile but were equally likely to lack involvement with the infant (Lyons-Ruth & Block, 1996).

Third, unexpectedly, experiences of loss and experiences of abuse had opposite effects on parental Hostile-Helpless states of mind. These opposing effects suggest that for parents who have experienced both loss and trauma, adult states of mind regarding attachment on the AAI may be quite complex and may need to be viewed through multiple lenses. Our current hypothesis regarding these opposite effects is that ‘absence makes the heart grow fonder.’ That is, loss appears to lead to an inhibition in viewing the parent in malevolent terms, even in cases of both loss and abuse. Alternately or in addition, one might theorize that chronic family conflict in intact families *creates* certain psychological processes over time that are being captured in the Hostile-Helpless coding scheme but that are relieved or interrupted upon breakup of the family. These opposing effects on state of mind deserve further research as they may also be relevant to understanding clinical presentations of adults who have experienced both loss and trauma.

Previously published data from the current study independently indicate that parental loss and family violence have different effects on parenting. In analyses of data collected in infancy relating maternal childhood experiences reported on the Childhood Experiences Questionnaire (Lyons-Ruth & Botein, 1984) to the quality of mother-infant interaction at home, parental death or divorce in the mother's family or origin was related to decreased involvement with her own infant at home at both 12 and 18 months. In contrast, experiences of family conflict, severe punishment, maternal psychopathology, and lack of parental warmth were related to increased hostile-intrusive behavior toward the infant (Lyons-Ruth et al., 1989). In other analyses, similar forms of parental behavior observed in the strange situation were related in turn to different

subtypes of disorganized infant attachment behavior. Maternal negative-intrusive behavior in the Strange Situation at 18 months was related to disorganized-insecure forms of infant attachment behavior, in which infants displayed reciprocating forms of rejecting or ambivalent behavior toward the parent, as well as disorganized behaviors. Maternal withdrawal was related to disorganized-secure patterns of attachment in which infants continued to seek contact with the parent with little rejecting or ambivalent behavior (Lyons-Ruth, Bronfman, & Parsons, 1999; Lyons-Ruth Bronfman, & Atwood, 1999). Therefore, both home and laboratory interaction data converge with these findings that loss and trauma experiences leave different legacies in relation to maternal states of mind and maternal interaction with the infant.

Finally, contrary to prediction and to the current etioloigical model of the origins of maternal Unresolved states of mind, severity of maternal childhood experiences of loss or trauma were unrelated to maternal Unresolved states of mind, raising the question of whether maternal lapses of monitoring of reason or discourse on the AAI have any true etiological relation to experiences of loss or trauma. There is a strong theoretical model positing that the lapses in reasoning and discourse that occur on the AAI in discussions of loss or trauma are etiologically related to those same events. Indeed, this assumption is built into the classification category label of ‘Unresolved in relation to loss or trauma.’ However, there are few studies that have examined this etiological assumption.

If trauma and loss are etiologically related to Unresolved states of mind, one plausible hypothesis is that parents classified Unresolved would constitute a subset of those who have experienced particularly severe loss or trauma. However, data from the current study did not support this hypothesis. Lapses in reasoning and discourse coded on the AAI as indicators of unresolved loss or trauma were not related to the severity of either loss or trauma experienced in childhood. Severity of loss was operationalized both as parental death in childhood, compared to growing up in an intact family, and also more broadly as parental loss due to death, divorce, or placement in out of home care. Neither form of severity of loss was significantly related to increased incidence of Unresolved states of mind.

Schuengel et al. (1999) found no relation between severity of loss, defined as loss of infant, sibling, or father (all mothers were still living), and maternal frightening behavior, but they did not report whether severity of loss was associated with lack of resolution of the loss.

Further study is needed of whether particular types of losses (e.g. infant deaths, sudden violent deaths, deaths during pregnancy) are statistically associated with lack of resolution and whether the quality of care received, both before and after a loss, is an important contributor of lapses of monitoring when discussing painful events on the AAI.

The potential lack of a causal relation between loss/trauma events and lapses in discourse in discussing such events is also congruent with the actual coding of lapses of reasoning or discourse on the AAI in that such lapses are coded in relation to the discussion of any death in either childhood or adulthood, regardless of the importance of the relationship. Therefore, one would not assume that the particular death that elicits the lapses in discourse is the ‘cause’ of the parental state of mind regarding attachment. More research is now needed to evaluate the aspects of early experience that contribute etiologically to adult Unresolved states of mind on the AAI. If Unresolved states of mind are not necessarily related to the severity of either loss or trauma, a more complex etiological model may be needed in which more subtle and continuing aspects of childhood care contribute to the development of unintegrated mental states (e.g. Ogawa et al., 1997), with a concomitant susceptibility to lapses in reasoning or discourse when emotion-laden topics are discussed.

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Table 1

Magnitude of association between maternal states of mind and severity of trauma and severity of parental loss in mother's childhood

	Severity of trauma (parental loss controlled)		*Severity of parental loss (severity of trauma controlled)*	
Maternal state of mind	***r partial***	***r***	***r partial***	***r***
Unresolved state of mind:				
Classification as Unresolved	.19	.24	.05	.15
Classification as U or CC	.16	.16	−.04	.03
Hostile-Helpless state of mind				
Level of HH state of mind	.52**	.46**	−.26x	−.02
HH classification	.42**	.37*	−.21	−.03
Individual codes:				
Identification with a hostile caregiver	.38**	.23	−.41**	−.27
Global devaluation of caregiver	.36*	.31	−.20	−.05
Sense of self as bad	.33*	.25	−.25	−.12
Recurrent references to fearful affect	.13	.02	−.25	−.22
Recurrent laughter at pain	.43**	.35*	−.29x	−.10
Ruptured attachments in adulthood	.27*	.22	−.16	−.06
Level of infant disorganization				
12 months of age[a]	.15	.15	−.05	.02
18 months of age[b]	.24	.18	−.17	−.09

Note: Severity of trauma × severity of parental loss $r = .48$, $p < .01$.

Partial correlations from logistic or linear regression reported; significance assessed by *F*chg for regression.

[a] N = 34

[b] N = 41

x $p<.10$

* $p<.05$

** $p<.01$

Table 2

Magnitude of association between maternal state of mind codes and subtypes of parental loss

	All experiencing parental death vs. no loss	*Parental death/ separation vs. no loss (out of home care excluded)*	*Out of home care vs. no loss*
Unresolved state of mind			
Classification as Unresolved	−.09	−.11	.02
Classification as U or CC	−.06	−.13	−.09
Hostile-Helpless state of mind			
Overall state of mind codes:			
Level of HH State of Mind	−.18	−.15	−.25
HH Classification	−.23	−.02	−.37[x]
Individual codes:			
Identification with a hostile caregiver	−.14	−.34[*]	−.25
Global devaluation of caregiver	−.09	−.14	−.18
Sense of self as bad	−.22	−.19	−.20
Recurrent references to fearful affect	−.21	−.16	−.19
Recurrent laughter at pain	−.26	−.25	−.20
Ruptured attachments in adulthood	−.22	−.25	−.01

Note: Beta coefficient from logistic or linear regression reported. Severity of trauma controlled in all analyses. No loss $n = 20$; all experiencing parental death = 5; parental death or separation only $n = 16$; out of home care $n = 9$. Two mothers experienced parental death only; two mothers experienced parental death plus divorce, and one mother experienced parental death plus out of home care.

[x] $p<.10$

[*] $p<.05$

Table 3

Magnitude of association between maternal states of mind and subtypes of trauma

	Sexual abuse only vs. no trauma	*Exposure to violence vs. no trauma*
Unresolved state of mind		
Classification as Unresolved	.11	.12
Classification as U or CC	.02	.17
Hostile-Helpless state of mind		
Overall state of mind codes:		
Level of HH State of Mind	.48*	.53**
HH Classification	.41*	.40*
Individual codes:		
Identification with a hostile caregiver	.25	.46*
Global devaluation of caregiver	.46	.57**
Sense of self as bad	.28	.40*
Recurrent references to fearful affect	−.07	.48*
Recurrent laughter at pain	.61**	.43*
Ruptured attachments in adulthood	.47*	.48*

Note: Beta coefficient from logistic or linear regression reported; significance assessed by *F*chg from regression. Severity of parental loss controlled in all analyses. No trauma $n = 17$; Sexual abuse only $n = 9$; Exposure to violence $n = 13$.

* $p<.05$

** $p<.01$

Table 4

Regression analyses predicting infant disorganization from maternal childhood experiences and maternal state of mind

Variables	*R^2chg*	*F chg*	*Beta*
Infant disorganization – 12 months			
Severity of trauma	.02	.60	.05
Occurrence of parental death	.18	6.08*	.45*
Unresolved state of mind[a]	.12	4.75*	.36*
Hostile-Helpless state of mind	.00	.13	.06
Infant disorganization – 18 months			
Severity of trauma	.03	1.11	.06
Occurrence of parental death	.00	.08	.00
Unresolved state of mind[a]	.02	.64	−.16
Hostile-Helpless state of mind	.10	4.27*	.35*

Note: At 12 months, 54% of D infants were subclassified D – Secure. At 18 months, 70% of D infants were subclassified D – Insecure.

[a]Cannot Classify omitted from analysis.

*$p<.05$