Childhood maltreatment, complex trauma symptoms, and unresolved attachment in an at-risk sample of adolescent mothers

HEIDI NEUFELD BAILEY¹, GREG MORAN², & DAVID R. PEDERSON²

¹University of Guelph, ON, Canada, and ²University of Western Ontario, London, ON, Canada

Abstract
Associations between unresolved attachment, abuse history, and a wide range of trauma-related symptomatology were examined in an at-risk sample (N = 62). Fifty percent reported severe childhood physical and/or sexual abuse. An independent trauma interview elicited more reports of childhood sexual abuse than the Adult Attachment Interview (AAI); conversely, the AAI elicited more reports of physical abuse. Childhood physical abuse, sexual abuse, and general maltreatment were associated with unresolved status. Furthermore, sexual abuse history and general maltreatment predicted unresolved loss, suggesting that they adversely affected the integration of other emotional and/or traumatic experiences. Women classified as Unresolved reported higher levels of dissociation, confusion regarding self-identity, and relationship problems. Findings complement and extend empirical support for the theorized association between dissociative processes and unresolved attachment.

Keywords: Childhood maltreatment, complex trauma, Adult Attachment Interview (AAI), unresolved mourning, dissociation

Introduction
The Unresolved/disorganized/disoriented attachment classification is considered an index of the degree to which traumatic experiences have been cognitively integrated. Individuals are classified as U/d if they show signs of mental disorganization or disorientation when discussing experiences of loss or abuse during the Adult Attachment Interview (AAI), an interview used to assess adults’ current state of mind regarding early attachment relationships (George, Kaplan, & Main, 1985; Main & Goldwyn, 1998; Main & Hesse, 1990). Signs of disorganization or disorientation typically manifest as momentary conversational slips or lapses thought to result either from a high level of absorption or the intrusion of an unintegrated memory or belief system (Hesse & Main, 2000; Main & Hesse, 1990; Main & Morgan, 1996).

Growing evidence suggests that unresolved attachment is associated with risk for psychopathology, including anxiety disorders, Borderline Personality Disorder (BPD), dissociative symptoms, suicidal ideation and behavior, and emotional distress (Adam, Sheldon-Keller, & West, 1996; Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004; Fonagy et al., 1995, 1996; Patrick, Hobson, Castle, Howard, & Maughan, 1994; Riggs & Jacobvitz,
2002; Schuengel, Bakermans-Kranenburg, & van IJzendoorn, 1999; West, Adam, Spreng, & Rose, 2001). Furthermore, mothers classified as Unresolved are more likely to develop disorganized attachment relationships with their children, relationships in which infants evidence a breakdown in attachment strategy and are at risk for behavior problems in later childhood (Lyons-Ruth & Jacobvitz, 1999; van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999).

As a measure of observable indices of mental disorientation during the discussion of traumatic experiences, the Unresolved classification promises to advance our understanding of the processing of traumatic experiences. Traditional theoretical explanations for the occurrence of unresolved lapses have highlighted the potential role of symptoms of posttraumatic stress disorder (PTSD; Fearon & Mansell, 2001; Hesse & Main, 2000; Main & Hesse, 1990, 1992). Others have broadened this focus to include chronic, pervasive trauma-related symptoms associated with the experience of childhood trauma (DeOliveira, Bailey, Moran, & Pederson, 2004; Lyons-Ruth, 2003; Lyons-Ruth & Block, 1996; Lyons-Ruth, Yellin, Melnick, & Atwood, 2003) and the disorganizing effects of traumatic early life experiences (Liotti, 1999; Lyons-Ruth, 2003; Lyons-Ruth, Bronfman, & Atwood, 1999; Lyons-Ruth et al., 2003; Main & Hesse, 1990). Although such theories are central to our understanding of Unresolved attachment, empirical support for many of these premises is lacking (Lyons-Ruth et al., 2003). The purpose of the present study was to determine whether a history of childhood trauma and chronic trauma-related symptoms are associated with Unresolved attachment.

Childhood maltreatment and its developmental impact

The experience of childhood maltreatment can profoundly affect self-regulation, self-perception, and interpersonal functioning. Compared to their non-maltreated peers, maltreated children display divergent patterns of emotion expression and recognition, and heightened behavioral reactivity to stress (Cicchetti & Valentino, 2006; Maughan & Cicchetti, 2002; Pollack, Cicchetti, Hornung, & Reed, 2000). They are at risk for developing disorganized attachment relationships in infancy (van IJzendoorn et al., 1999), and displaying dissociative behavior in childhood (Macfie, Cicchetti, & Toth, 2001). Maltreated children also have demonstrated an impoverished awareness of their own internal states (Beeghly & Cicchetti, 1994) and impaired social interactions (Shields & Cicchetti, 2001). These difficulties can persist to adulthood. Although childhood maltreatment can take many forms and have wide-ranging ontogenic effects, adult abuse survivors seeking treatment frequently report a symptom constellation including dissociative symptoms, affect regulation and impulse control problems, disturbance in self-perception and the perception of others, and relationship problems (Briere, 2002; Courtois, 2004; Herman, 1992; Roth, Newman, Pelcovitz, van der Kolk, & Mandel; 1997; Terr, 1991). Referred to as complex PTSD, disorders of extreme stress (DES), and disorders of extreme stress not otherwise specified (DESNOS), this symptom constellation has been observed almost exclusively among individuals with a history of trauma (Roth et al., 1997).

Compared to other forms of trauma, childhood maltreatment has been associated with more frequent reports of complex PTSD symptoms (Roth et al., 1997; van der Kolk, 1996). Child maltreatment, together with domestic violence and other attachment-related trauma occurring within the family context, is considered “complex trauma” due to its typically chronic nature and its cumulative impact on psychological adjustment (Courtois, 2004). Children raised in a maltreating context are subjected to experiences that evoke intensely negative affect, including fear and feelings of powerlessness. Often, however, the
environment provided by maltreating parents does not support the development of age-appropriate, flexible coping strategies; thus, children often rely on aggression, dissociation, and avoidance to cope with these extreme emotions (Briere, 2002; Cicchetti & Valentino, 2006).

In the short term, dissociative and avoidant strategies are thought to serve a self-protective function: if reflective mental activity and other integrative processes would logically lead to anxiety-provoking conclusions (e.g., that the abusive parent was dangerous or that the child was bad), segregating this unwanted information from awareness would buffer a child from experiencing such anxiety (Fonagy, Target, & Gergely, 2000; Terr, 1991). However, an over-reliance on such coping strategies prevents the processing and therefore the normative integration of memories and experiences (Fischer, Ayoub, Singh, Noam, Naraganore, & Raya, 1997; Fonagy et al., 2000; Macfie et al., 2001). This lack of integration, in turn, is thought to give rise to a fragmented or distorted understanding of self and others that underlies many of the symptoms associated with complex trauma. The normative integration and organization of self-relevant experiences is the very basis of our developing sense of self (Macfie et al., 2001; Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997; Putnam, 1997). Over time, a failure to integrate self-relevant experiences is thought to hinder the development of a strong self-identity, a perceived sense of self that remains relatively constant across contexts and emotions (Briere, 2002; Ogawa et al., 1997; van der Kolk, 1996). Similarly, inconsistencies and incoherence in representations of others and of relationships are thought to reflect a lack of integration of disparate features of interpersonal experiences (Fonagy et al., 2000; Putnam, 1997). Putnam (1997) has theorized that distinctive representations and corresponding memories of self and others may be compartmentalized and become accessible only during the experience of the corresponding emotional and physiological states with which they have previously been associated.

Compounding the impact of this lack of integration, the content and valence of representations of self and others following trauma can give rise to additional symptoms. A chronic exposure to maladaptive relationships involving abuse gives rise to representations of others as self-serving and untrustworthy and to associated feelings of relational ineffectiveness, distrust of others, and difficulty maintaining relationships (Cole & Putnam, 1992; Courtois, 2004; Dilillo, 2001; Hodges & Steele, 2000; Roth et al., 1997; Toth, Cicchetti, Macfie, & Emde, 1997). These outcomes are consistent with the Lyons-Ruth et al. (2003; Lyons-Ruth, Yellin, Melnick, & Atwood, 2005) portrayal of a hostile-helpless representation of relationships: a representation of relationships as fundamentally imbalanced, with one person a hostile aggressor and the other the relatively helpless victim. Furthermore, if this imbalanced representation of self and others were relatively fragmented due to a lack of integration, it would be less open to change through new experiences.

Echoing the processes outlined above, an association between childhood maltreatment and unresolved attachment may be explained by the failure of maltreated children to normatively integrate memories and experiences. Some theoretical accounts of the processes that give rise to signs of mental disorganization/disorientation during discussion of loss or trauma are quite consistent with this hypothesis. Main and colleagues (Main & Hesse, 1990, 1992; Main & Morgan, 1996) have speculated that dissociative cognitive processes, broadly defined as the segregation of memory systems and internal representations, hinder the integration of trauma-related material resulting in the type of lapses in reasoning and discourse that are classified as Unresolved on the AAI. Specifically, they have argued that a
substantial portion of unresolved lapses resemble “(1) efforts to dissociate memories from awareness, (2) current interference from partially dissociated memories, and (3) co-existing but incompatible and dissociated memories” (Main & Morgan, 1996, p. 126). Empirical associations have been reported between Unresolved status and dissociative symptoms in both clinical and non-clinical samples (Schuengel et al., 1999; West et al., 2001). Dissociative symptoms are subjective experiences that include depersonalization (a sense of disconnection from oneself), derealization (feeling disconnected from one’s surroundings), and emotional numbing. Commonly reported among trauma survivors, these symptoms are thought to result from an over-reliance on dissociation as a coping strategy (Bremner, Vermetten, Southwick, Krystal, & Charney, 1998; Gershuny & Thayer, 1999; Putnam, 1997).

Other research adds to the possibility that Unresolved attachment is related to a chronic lack of integration of memories and experiences. The constellation of complex PTSD symptoms bears similarity to BPD, a diagnosis characterized by an unintegrated understanding of oneself and related problems, such as unstable interpersonal relationships and affective instability (Courtois, 2004; Herman, Perry, & van der Kolk, 1989; Landecker, 1992; Zanarini et al., 1997). Unresolved attachment is considerably over-represented among individuals with BPD (Fonagy et al., 1995, 1996; Patrick et al., 1994). To our knowledge, however, our study was the first to empirically investigate the link between complex trauma-related symptoms and Unresolved attachment in a sample that was not clinic-referred.

Related research on the link between traditional posttraumatic stress disorder (PTSD) and Unresolved attachment has yielded mixed findings. This association has been found in a clinical sample (Stovall-McClough & Cloitre, 2006); however, research with non-clinical samples has failed to reveal a significant association between Unresolved attachment and PTSD symptoms such as re-experiencing and avoidance (Turton, Hughes, Fonagy, & Fainman, 2004). An indirect association was reported, i.e., an increase in both PTSD symptoms and Unresolved status among women with a history of war-related trauma (Sagi Schwartz et al., 2003). Fearon (2004) has speculated that the “subtle cognitive and emotional processes” (p. 257) that give rise to Unresolved lapses in non-clinical samples may not be revealed by scales designed to diagnose PTSD. We hypothesized that within populations with high rates of childhood maltreatment, the link between more pervasive, complex trauma symptoms and Unresolved attachment might be more robust than these somewhat tenuous associations that have been established between PTSD and Unresolved attachment. This hypothesis was founded on the assumption that the dissociative processes theorized to give rise to complex trauma symptoms also might fundamentally impair the organization of trauma-related discourse.

Consistent with our prediction, Main and Hesse (1990) also have speculated that highly traumatic childhood events, including abuse, could result in an increased likelihood of signs of mental disorganization or disorientation during discussion of loss or trauma. Recent findings support the idea that adverse early experiences such as abuse may result in higher rates of Unresolved attachment. Riggs and Jacobvitz (2002) found an association between a history of physical and sexual abuse and Unresolved status in a normative sample. Reports of parental divorce or separation during childhood also predicted higher rates of Unresolved status, suggestive of a disorganizing impact of other adverse childhood experiences. In a clinical sample of 40 women who had been sexually abused, the majority (60%) were classified as Unresolved (Stalker & Davies, 1995). In contrast, Lyons-Ruth and colleagues (2003) found no association between a history of loss or abuse and Unresolved status in their high social risk sample: rather, a history of severe physical or sexual abuse predicted
mental disorganization at a more global level during the discussion of early attachment experiences.

The type of maltreatment experienced during childhood may be differentially related to Unresolved status. Childhood physical and sexual abuse have generally been associated with different symptomatic outcomes. Among clinical populations, childhood sexual abuse has been associated with the development of PTSD and complex trauma-related symptoms whereas a history of physical abuse has been associated with other negative outcomes such as behavioral and social difficulties (Adam, Everett, & O’Neal, 1992; Deblinger, McLeer, Atkins, Ralphe, & Foa, 1989; Kaplan et al., 1998; Pelcovitz, Kaplan, Goldenberg, Mandel, Lehane, & Guarrera, 1994; Roth et al., 1997; but see Macfie et al., 2001). We anticipated, therefore, that a history of sexual abuse would differentially give rise to the lack of integration that may underlie both complex trauma symptoms and signs of mental disorganization/disorientation during discussion of loss or trauma.

Research on the link between abuse history and Unresolved attachment has been confounded by methodological problems. Signs of mental disorganization (unresolved lapses) must be apparent during the discussion of loss or abuse in order to assign Unresolved status; therefore, if loss or abuse is not reported there is no opportunity to observe lapses in reasoning or discourse. From a methodological perspective, it is problematic that we cannot assess whether individuals show signs of mental disorganization/disorientation independent of whether they have experienced loss or abuse (see Lyons-Ruth et al., 2003). Furthermore, the possibility that some simply fail to report trauma is a growing concern: in a recent study, only 26% of those who reported childhood abuse during the first AAI reported it again during a second AAI administered 2 years later (Crowell, Treboux, & Waters, 2002). In contrast to the extensive probes around loss experiences, abuse (in particular, sexual abuse) experiences are explored in less detail during the AAI in order to avoid distressing the participants (Hesse & Main, 2000). The abuse query on the AAI, designed primarily to assess cognitive representations of attachment, calls for the respondent to evaluate whether an experience was abusive, a form of questioning that has been found to elicit fewer reports of abuse than specific, behaviorally phrased questions (Carlson, 1997). If abuse is denied or selectively reported, the topic is not explored further. Therefore, studies of abuse history and Unresolved status require a systematic independent assessment of abuse experiences.

Research objectives

In the current study we investigated associations between maltreatment history, Unresolved attachment, and symptoms of complex trauma. We studied a sample with a high prevalence of childhood trauma in order to provide the variability necessary to compare relations between these variables. An at-risk sample of women who gave birth in adolescence was expected to display higher rates of childhood maltreatment. Adolescent mothers are more likely than their peers to have experienced maladaptive parenting, including physical and sexual abuse, in their own childhood (Gershenson, Musick, Ruch-Ross, & Magee, 1989; Jaffee, Caspi, Moffitt, Belsky, & Silva, 2001; Osofsky, Osofsky, & Diamond, 1988). Our research objectives were as follows:

1. Maltreatment history and Unresolved status: We hypothesized that childhood maltreatment, and in particular, sexual abuse, would be related to Unresolved attachment. In the testing this hypothesis we attempted to address a number of potential methodological concerns. First, we conducted a trauma interview, independent of the AAI, that included a wide range of behaviorally phrased questions, and compared...
the rate at which physical and sexual abuse were reported on the two interviews. Another area of ambiguity concerned whether individuals who showed signs of mental disorientation during the discussion of abuse shared the same history as those who became disoriented when discussing loss: we calculated separately the associations between abuse history and these two forms of unresolved attachment. Third, although we focused primarily on sexual and physical abuse, two forms of maltreatment emphasized on the AAI, we also included a broader self-report index of childhood maltreatment in response to the growing consensus that forms of maltreatment such as emotional abuse and neglect can have a debilitating developmental impact and can act synergistically with other forms of abuse (Glaser, 2002; Hildyard & Wolfe, 2002).

(2) Unresolved status and complex trauma symptoms: As an index of mental disorientation during the discussion of loss or trauma, we predicted that Unresolved status would be associated with complex trauma symptoms. We also included a measure of PTSD symptoms, re-experiencing and avoidance, to determine whether maltreatment history was differentially related to complex trauma symptoms rather than to those symptoms traditionally associated with PTSD. To further delineate these associations, we investigated whether disorientation while discussing childhood abuse (Unresolved_{trauma}), as opposed to during the discussion of a loss (Unresolved_{loss}), was differentially related to trauma symptoms.

(3) Meditational models: If the associations suggested in the first two objectives of the study were found, it would then be possible to pursue more formally models of the maladaptive consequences of abuse involving Unresolved status and trauma symptoms. As a first step toward delineating potential developmental pathways stemming from childhood maltreatment, we conducted planned mediational analyses involving symptoms that were empirically associated with both abuse history and Unresolved attachment. Behavioral indices of mental disorientation when discussing loss or trauma, and the self-report of chronic trauma-related symptoms, both were thought to result from a lack of integration of earlier memories and experiences. Because the AAI was administered 4 years prior to the self-report instruments it made sense from a temporal perspective to consider Unresolved status as a potential mediator between abuse history and the subsequent self-report of chronic trauma symptoms.

Method

Participants

Participants were 62 women who gave birth during adolescence (i.e., less than 20 years of age). One hundred adolescent mothers originally were recruited from two city hospitals to take part in a larger longitudinal study on attachment representations and relationships. Ninety mothers completed the 2-year longitudinal study. When the children were 4½ years of age, mothers were invited to participate in an additional assessment. Reasons for attrition at 4½ years were as follows: 8 women declined to participate, 5 could not be reached by phone or letter, 10 moved away, 3 passively declined by continuing to cancel appointments, and 2 did not participate for other reasons. Women who participated in the 4½ year assessment did not differ from those lost to attrition in reports of trauma on the AAI (Pearson $\chi^2(1) = 0.055$; n.s.), or Unresolved classification (Pearson $\chi^2(1) = .005$, n.s.).
Women in the current sample ranged in age from 15.97 to 19.89 years when their infants were born ($M = 18.49; SD = 1.00$). Data on ethnicity were available for 61 participants: the majority ($n = 51$, or 84%) were Caucasian, with others of Native American ($n = 5$), Latin American ($n = 3$), Middle Eastern ($n = 1$), and Caribbean ($n = 1$) descent. At the follow-up visit, 35 women (56%) were married or living with a common-law partner, and 27 (44%) were single. The majority of single mothers were living on their own: only three were living with parents or grandparents. Data on maternal education level and household income were available for 60 participants. At the follow-up visit, mothers in the current sample had completed 12.28 years of education on average ($SD = 1.57$). Household income was assessed using an 8-point scale, where a score of 1 corresponded to an income of less than $5000 per year and a score of 8 indicated an income of greater than $60,000 per year. The average score was 3.97 ($SD = 1.53$), corresponding to an annual household income of between $20,000 and $29,000. Twenty-seven mothers (45%) lived on a household income of less than $20,000, with eight of these mothers reporting incomes of less than $10,000 annually.

Procedure
Participants completed the Adult Attachment Interview when their infants were 6 months old. At a follow-up laboratory visit 4 years later they provided additional information regarding abuse history and current trauma-related symptoms.

Measures

**Adult Attachment Interview** (AAI; George et al., 1985; Main & Goldwyn, 1998). The AAI was audiotaped, transcribed verbatim, and coded by fully qualified coders. The AAI includes questions regarding experiences with attachment figures, early childhood and perceptions of one’s parents at that time, experiences of early emotional and physical upsets, physical and sexual abuse, and deaths of loved ones. Respondents also are asked to reflect on how these past experiences may have affected their present personalities.

The focus of the current study was participants’ Unresolved status (U/d versus not U/d). Transcripts were classified as Unresolved (U/d) regarding loss or abuse if participants became disoriented when discussing loss through death or traumatic (usually abusive) experiences. They were given a score for lack of resolution with respect to loss, and one for lack of resolution with respect to abuse, each ranging from 1 to 9. Scores greater than 5 corresponded to a primary Unresolved classification. Scores of 5 required coders to decide whether or not to assign Unresolved as the primary classification.

Each transcript also was assigned a classification of Autonomous, Dismissing, or Preoccupied reflecting the strategy used primarily by mothers to think about and describe early relationships. For mothers who were not Unresolved, this was their primary classification; for mothers classified as U/d, this was their secondary classification. Autonomous individuals responded to questions about their childhood in a consistent, relevant, and coherent manner. Dismissing adults often idealized their childhood experiences, had difficulty providing explicit examples to support their overall positive characterizations of childhood relationships, and sometimes appeared oblivious to clear contradictions in their stories. Preoccupied adults, conversely, typically expressed confusion, passivity, anger, and/or distress when speaking about their attachment figures; interviews often were incoherent and difficult to follow. Thirty-five interviews were coded by two independent coders to assess inter-rater reliability. The percentage concordance between the two coders for the “Unresolved versus
Not Unresolved” distinction was 97% \((kappa = .94; p < .001)\) and for the primary \((D_s, F,\) and \(E)\) classifications was 80% \((kappa = .66; p < .001)\). Differences were resolved by conferencing.

**Reports of childhood abuse on the AAI.** The AAI captures only those experiences of physical and sexual abuse occurring at 12 years of age or younger. According to AAI coding criteria, chronic physical abuse is defined as repeated incidents (i.e., more than a few times) in which a parent or caregiver hit a child with an object or hit the child in a vulnerable area. Sexual abuse is defined as any incident in which a parent, caregiver, or trusted family friend behaved in a sexual manner toward a child, regardless of the chronicity of the abuse. Coders were blind with respect to AAI classification. Inter-rater reliability was calculated based on 18 (29%) independently coded AAI transcripts. Percent agreement was 100% for both types of childhood abuse.

**Childhood Trauma Interview (CTI; Fink, 1995).** The CTI was designed to provide optimal conditions for the reporting of abuse experiences. Questions refer to a range of potentially abusive experiences and are phrased in behavioral terms, avoiding use of the word “abuse” and therefore the need to evaluate such experiences before responding. The interview has demonstrated acceptable levels of reliability and validity (Fink, Bernstein, Handelsman, Foote, & Lovejoy, 1995). It is semi-structured, allowing participants to describe potentially abusive events in their own words. Prompt questions elicit specific details of traumatic events such as the number of perpetrators, their relationship to the respondent, and the severity, frequency, and duration of each type of traumatic event. Severity and frequency are scored on two, 6-point scales. Due to time constraints the interview was abridged to focus on physical and sexual abuse. In addition, questions were added regarding physical and sexual assault in adulthood. The interview ended with a question about coping strategies to refocus the discussion on coping and personal strengths. Interviews were audiotaped and coded for frequency and severity of physical and sexual abuse by a coder who was blind to all other information regarding participants.

**Reports of childhood abuse on the CTI.** The definition used for chronic physical abuse on the CTI was conceptually similar to that used for the AAI (i.e., it had to be relatively frequent and severe) but was more precise since additional systematic information on frequency and severity was available. Abuse was considered frequent if it occurred more than once per month (corresponding to at least 4 on the 6-point frequency scale) and was considered severe if it involved two of the following three criteria: (1) hit with an object, (2) hit in a vulnerable area or the bare skin, and (3) leaving marks such as welts or bruises. This level of severity corresponded to a score of at least 3 on the 6-point severity scale. For purposes of consistency with the AAI, childhood was defined as the period up to and including the age of 12, and the perpetrators of physical abuse were limited to parents and caregivers.

Sexual abuse was coded as present if the abuse warranted a score of 3 or greater on the severity scale, a level of severity described as “more intrusive contact experiences, such as contact experiences through clothing or contact experiences on skin.” This criterion excluded relatively less severe experiences such as adult exhibitionism, being kissed on the mouth by an adult, or patted on the behind in a sexual way. This criterion also excluded more intrusive contact experiences if they occurred with someone who was not an adult relative or trusted caregiver: childhood sexual experiences with other individuals (e.g., strangers, neighbors) were included only when they were relatively more severe (i.e., oral sex and/or penetration). Thus, this definition was somewhat more stringent than the criteria used for the AAI. Thirty interviews (48%) were coded independently for inter-rater reliability.
Percent agreement was 90% for physical abuse ($kappa = .754$) and 100% for sexual abuse in childhood.

*Childhood Trauma Questionnaire* (CTQ; Bernstein & Fink, 1998). The CTQ, a 28-item self-report instrument with extensive evidence of reliability and validity (Bernstein & Fink, 1998), contains questions about the estimated frequency of occurrence of five types of maltreatment: emotional, physical, and sexual abuse, and emotional and physical neglect. This measure provided a broad index of maltreatment history.

*Trauma symptoms.* The Trauma Symptom Inventory (Briere, 1995) assesses the occurrence of symptoms associated with traumatic experience. Reliability and validity of the TSI has been demonstrated using clinical and non-clinical samples (Briere, 1995). The Dissociation and Impaired Self-Reference scales were used as measures of complex PTSD symptoms, and the Intrusive Experiences and Defensive Avoidance scales were used to assess traditional PTSD symptomatology. The Inconsistent Response validity scale was used to indicate an incoherent understanding of the self, expressed behaviorally rather than reported explicitly.

The Borderline Features scale of the Personality Assessment Inventory (Morey, 1991) assesses four complex trauma symptoms: Affective instability (difficulty controlling negative emotions such as anger), Identity problems (confusion regarding self-identity and self-worth), Negative Relationships (intense and conflictual interpersonal relationships), and Self-harm (impulsivity that leads to self-destructive behaviors). Acceptable levels of reliability and validity have been reported (Morey, 1991; Trull, 1995).

**Results**

*Distribution of attachment classifications*

Thirty-five percent of participants ($n = 22$) were classified as Dismissing, 27% ($n = 17$) as Autonomous, and 37% ($n = 23$) as Unresolved. The 23 women classified as Unresolved were given the following alternate classifications: 13 Dismissing, 2 Autonomous, and 8 Preoccupied. Of the eight mothers with alternate Preoccupied classifications, six were subclassified as E3, or preoccupied/overwhelmed with trauma.² Participants using Dismissing or Preoccupied strategies were more likely to be classified as Unresolved than participants with Autonomous strategies (Pearson $\chi^2 (2) = 19.31; p < .001$). Specifically, 37% of Dismissing and 100% of Preoccupied women were classified as Unresolved, compared to 11% of Autonomous women.

Thirty percent of Unresolved participants ($n = 7$) were classified as Unresolved with respect to loss, 48% ($n = 11$) were Unresolved with respect to abuse, and 17% ($n = 4$) were Unresolved due to signs of mental disorientation during the discussion of both loss and abuse. Unresolved participants reported a lower income level ($t(57) = -2.21; p < .05$) and moderately lower educational attainment ($t(57) = -1.91; p < .10$). There was no association between Unresolved status and mothers’ age at the time of their child’s birth ($t(60) = 0.09; \text{ n.s.}$).

*Reports of childhood maltreatment*

Thirty-five percent of participants ($n = 22$) reported a history of physical abuse and 34% ($n = 21$) reported a history of sexual abuse on at least one of the two assessment interviews.
Twelve women reported both physical and sexual abuse; a total of 50% of participants \((n = 31)\) reported a history of at least one type of abuse. Abuse history was not related to mothers’ age at the time of their children’s birth or their income level at the time of the follow-up assessment; however, participants who reported a history of sexual abuse had completed fewer years of education \((r = -0.33; p < .01)\).

Because reports of loss or abuse are a necessary criterion for assessing Unresolved status, a central research question concerned the frequency with which individuals reported abuse experiences during the AAI. Of the 22 women who reported physical abuse during at least one interview (the AAI or the CTI), 20 reports (91%) were elicited by the AAI compared to 12 reports (55%) during the CTI. Percentage agreement for the two interviews, the percentage of cases for which abuse status was the same on the AAI and the CTI, was .82 for physical abuse \((\kappa = 0.55; p < .001)\). Of the 21 women who reported sexual abuse (on either the AAI or the CTI), only 13 participants (62%) reported sexual abuse during the AAI, whereas the CTI identified 20 cases (95%). Percentage agreement between the two measures was .86 \((\kappa = 0.63; p < .001)\). Therefore, compared to the CTI, the AAI appeared to be more effective at eliciting reports of physical abuse and less effective at eliciting reports of sexual abuse.

**Abuse history and Unresolved attachment**

The next series of analyses were conducted to test the hypothesis that childhood abuse history would result in a higher likelihood of Unresolved attachment. Both physical and sexual abuse history were significantly associated with Unresolved status: 55% of those reporting physical abuse and 71% who reported sexual abuse were classified as Unresolved. General maltreatment history, assessed using the CTQ, also was related to Unresolved status (see Table I). Table I lists chi-square values and corresponding correlation coefficients for these analyses.

To address the issue of methodological dependence between childhood abuse and Unresolved status, analyses were conducted to determine whether abuse history increased the likelihood of being classified as Unresolved with respect to loss. Loss experiences were reported by 52 participants (84%). Reports of loss were not significantly related to reports of physical abuse, sexual abuse, or general maltreatment scores. Among those who reported loss, childhood sexual abuse and general maltreatment both were associated with signs of mental disorientation during the discussion of loss experiences (Unresolved\(_{\text{loss}}\); see Table I). Physical abuse history did not predict Unresolved\(_{\text{loss}}\).

<table>
<thead>
<tr>
<th>Type of maltreatment</th>
<th>Unresolved(_{\text{loss/tr}}) ((N = 62))</th>
<th>Unresolved(_{\text{loss}}) ((n = 52))</th>
<th>Unresolved(_{\text{tr}}) ((n = 31))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(\chi^2) (r)</td>
<td>(\chi^2) (r)</td>
<td>(\chi^2) (r)</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>4.45* .27*</td>
<td>0.00 .01</td>
<td>0.55 -.13</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>16.04*** .51***</td>
<td>5.56* .33*</td>
<td>3.77† .35†</td>
</tr>
<tr>
<td>General maltreatment</td>
<td>N/A .59***</td>
<td>N/A .37*</td>
<td>N/A .59**</td>
</tr>
</tbody>
</table>

**Note:** Unresolved\(_{\text{loss/tr}}\) = mental disorientation during discussion of abuse (trauma) and/or loss; Unresolved\(_{\text{loss}}\) = mental disorientation during discussion of loss experiences; Unresolved\(_{\text{tr}}\) = mental disorientation during discussion of abuse experiences. Fifty-six participants completed the Childhood Trauma Questionnaire; therefore, for correlations between General Maltreatment and Unresolved categories, \(n = 56, 47, \) and \(26\), respectively. 

\*\*\*\(p < .001\); \*\*\(p < .01\); \*\(p < .05\); †\(p < .10\).
Parallel analyses were conducted with the subsample of 31 women (50%) who reported a history of physical or sexual abuse, to determine whether a particular type of abuse was associated with increased likelihood of being classified as Unresolved with respect to trauma (Unresolved\text{\textsubscript{tr}}). General maltreatment scores were strongly associated with Unresolved trauma, sexual abuse history was marginally associated, and physical abuse was unrelated to Unresolved trauma status (see Table I).

Binary logistic regressions were conducted to determine the relative contributions of physical and sexual abuse history to the prediction of Unresolved status. Table II lists beta, standard error, and Wald chi-square values, and significance levels. Sexual abuse history, but not physical abuse history, uniquely predicted Unresolved status with respect to loss and/or trauma. The Nagelkerke $R^2$ value, an estimate of the portion of variability in Unresolved status accounted for by the two predictors, was 0.33. This analysis was conducted a second time including the general maltreatment score as a third predictor variable. With this score included, neither sexual nor physical abuse history uniquely predicted Unresolved status; however, general maltreatment emerged as an independent predictor. Nagelkerke $R^2$ for this analysis was 0.44.

In a binary logistic regression predicting Unresolved loss ($n = 52$ who reported a loss experience) with the two abuse history variables, once again sexual abuse history but not physical abuse history uniquely predicted Unresolved loss (Nagelkerke $R^2 = 0.15$). A second binary logistic regression including the general maltreatment variable revealed no unique contributions from any of the three predictor variables although the contribution from general maltreatment approached significance. Nagelkerke $R^2$ for this analysis was 0.26.

### Table II. Binary logistic regressions predicting unresolved status: Physical and sexual abuse.

<table>
<thead>
<tr>
<th>Type of maltreatment</th>
<th>Unresolved\text{\textsubscript{loss/tr}} ($N = 62$)</th>
<th>Unresolved\text{\textsubscript{loss}} ($n = 52$)</th>
<th>Unresolved\text{\textsubscript{tr}} ($n = 31$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>With two predictors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical abuse</td>
<td>$\beta$ 0.63</td>
<td>$-0.44$</td>
<td>$-0.11$</td>
</tr>
<tr>
<td></td>
<td>$SE$ .64</td>
<td>.78</td>
<td>.89</td>
</tr>
<tr>
<td></td>
<td>Wald $\chi^2$ 0.96 (n.s.)</td>
<td>0.31 (n.s.)</td>
<td>0.02 (n.s.)</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>$\beta$ 2.17</td>
<td>1.69</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>$SE$ .64</td>
<td>.74</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td>Wald $\chi^2$ 11.46**</td>
<td>5.28*</td>
<td>3.64†</td>
</tr>
<tr>
<td>With three predictors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical abuse</td>
<td>$\beta$ $-0.08$</td>
<td>$-1.98$</td>
<td>2.46</td>
</tr>
<tr>
<td></td>
<td>$SE$ .86</td>
<td>1.39</td>
<td>2.04</td>
</tr>
<tr>
<td></td>
<td>Wald $\chi^2$ 0.04 (n.s.)</td>
<td>2.04 (n.s.)</td>
<td>1.45 (n.s.)</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>$\beta$ .31</td>
<td>.58</td>
<td>2.04</td>
</tr>
<tr>
<td></td>
<td>$SE$ .99</td>
<td>1.15</td>
<td>1.91</td>
</tr>
<tr>
<td></td>
<td>Wald $\chi^2$ .10 (n.s.)</td>
<td>.26 (n.s.)</td>
<td>1.13 (n.s.)</td>
</tr>
<tr>
<td>General maltreatment</td>
<td>$\beta$ .08</td>
<td>.05</td>
<td>.11</td>
</tr>
<tr>
<td></td>
<td>$SE$ .03</td>
<td>.03</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>Wald $\chi^2$ 5.68*</td>
<td>3.64†</td>
<td>4.64*</td>
</tr>
</tbody>
</table>

*Note: Unresolved\text{\textsubscript{loss/tr}} = mental disorientation during discussion of abuse (trauma) and/or loss; Unresolved\text{\textsubscript{loss}} = mental disorientation during discussion of loss experiences; Unresolved\text{\textsubscript{tr}} = mental disorientation during discussion of abuse experiences. Fifty-six participants completed the Childhood Trauma Questionnaire; therefore, for analyses with three predictors, $n = 56, 47,$ and 26, respectively.

**$p < .01$; *$p < .05$; †$p < .10$.**
Therefore, both sexual abuse history and general maltreatment were related to Unresolved loss, but neither variable independently predicted Unresolved loss after controlling for shared variance.

Regressions also were conducted to predict Unresolved trauma among those participants who reported a history of physical or sexual abuse (n = 31). Neither physical nor sexual abuse independently predicted Unresolved trauma although the latter approached significance (Nagelkerke $R^2 = 0.16$). When the analysis was conducted adding the general maltreatment variable, general maltreatment uniquely predicted Unresolved trauma and the physical and sexual abuse variables remained nonsignificant (Nagelkerke $R^2 = 0.51$).

Complex trauma symptoms: Descriptive statistics

The average scores on TSI scales included in this study did not differ significantly from mean scores of females in a normative standardization sample (18 to 54 years old; n = 291; Briere, 1995) with the exception that women in the current study endorsed slightly fewer symptoms of Impaired Self-Reference ($t(351) = 1.94; p < .10$). The scores of three women exceeded the clinical cut-off ($T > 65$; Briere, 1995) for the Intrusive Experiences scale, five for Defensive Avoidance, seven for Dissociation, and two for Impaired Self-Reference. Inconsistent Response levels exceeded a $T$-value of 65 in four cases; however, no scores exceeded the recommended cut-off of $T > 75$. Total scores on the Borderline Features Scale ranged from 32 to 75 with a mean score of 47.18 ($SD = 9.57, N = 59$). This score was substantially higher ($t(58) = 16.49; p < .001$) than the average reported score of a sample of over 1500 undergraduates, likely of comparable age to the mothers in this study ($M = 26.63; SD = 10.68$; Trull, 1995). The total scores of 50 participants (85%) fell above the recommended clinical cut-off (Morey, 1991).

Maltreatment history, Unresolved attachment, and complex trauma symptoms

A series of MANOVAs were conducted to determine whether physical and sexual abuse, Unresolved status with respect to loss or trauma, Unresolved loss, and Unresolved trauma were associated with complex PTSD symptoms. These independent variables were analysed separately in order to retain a power of .80 to detect associations corresponding to a large effect size. The omnibus test was significant for sexual abuse (Pillais’ $F(7, 50) = 3.87; p < .01$; partial $\eta^2 = .35$), Unresolved$_{loss/tr}$ status (Pillais’ $F(7, 50) = 3.71; p < .01$; partial $\eta^2 = .34$), and Unresolved$_{tr}$ status (Pillais’ $F(7, 50) = 2.43; p < .05$; partial $\eta^2 = .25$). In contrast, the omnibus tests for physical abuse and Unresolved$_{loss}$ were not significant.

Following up on significant findings, Table III lists results of univariate analyses and Table IV lists group differences by sexual abuse, Unresolved$_{loss/tr}$ and Unresolved$_{tr}$ status. Sexual abuse history was associated with higher levels of a broad spectrum of complex trauma symptoms, including dissociation, identity confusion (Impaired Self-Reference, Identity Problems), affective instability, and relationship difficulties. Both Unresolved$_{loss/tr}$ and Unresolved$_{tr}$ status were associated with higher self-reported dissociative symptoms and relationship problems. In addition, Unresolved$_{loss/tr}$ was related to greater identity confusion (Impaired Self-Reference) and also to inconsistent responding across items on the TSI.

To determine whether abuse history or Unresolved status predicted traditional PTSD symptoms, a parallel series of MANOVA’s were conducted with Intrusive Experiences and Defensive Avoidance TSI scales as dependent variables. Omnibus tests were significant for both physical abuse (Pillais’ $F(2, 59) = 3.90; p < .05$; partial $\eta^2 = .12$) and sexual abuse...
Table III. Complex PTSD symptoms by maltreatment and unresolved status: Univariate F-tests.

<table>
<thead>
<tr>
<th>Trauma scales</th>
<th>Sexual abuse</th>
<th>U_{loss/tr}</th>
<th>U_{tr}</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F(1, 56)</td>
<td>partial $\eta^2$</td>
<td>F(1, 56)</td>
</tr>
<tr>
<td>TSI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dissociation</td>
<td>12.11***</td>
<td>.18</td>
<td>4.78*</td>
</tr>
<tr>
<td>Impaired Self-Reference</td>
<td>8.12**</td>
<td>.13</td>
<td>7.39**</td>
</tr>
<tr>
<td>Inconsistent responding</td>
<td>1.03</td>
<td>.02</td>
<td>6.57*</td>
</tr>
<tr>
<td>PAI-BOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identity problems</td>
<td>4.10*</td>
<td>.07</td>
<td>2.03</td>
</tr>
<tr>
<td>Affective instability</td>
<td>15.88***</td>
<td>.22</td>
<td>1.98</td>
</tr>
<tr>
<td>Self harm</td>
<td>3.29†</td>
<td>.06</td>
<td>2.66</td>
</tr>
<tr>
<td>Negative Relationships</td>
<td>11.12**</td>
<td>.17</td>
<td>22.62***</td>
</tr>
</tbody>
</table>

Note: TSI: Trauma Symptom Inventory, PAI-BOR: Personality Assessment Inventory: Borderline Features Scales. Unresolved_{loss/tr} = mental disorientation during discussion of abuse (trauma) and/or loss; Unresolved_{tr} = mental disorientation during discussion of abuse experiences. Significant correlations are set in bold type. ***$p < .001$; **$p < .01$; *$p < .05$; †$p < .10$.

Table IV. Complex PTSD symptoms by maltreatment and unresolved status: Group means and standard deviations.

<table>
<thead>
<tr>
<th>Trauma scales</th>
<th>Sexual abuse</th>
<th>U_{loss/tr}</th>
<th>U_{tr}</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sexual abuse (n = 21)</td>
<td>No sexual abuse (n = 41)</td>
<td>U_{loss/tr} (n = 23)</td>
</tr>
<tr>
<td>TSI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dissociation</td>
<td>8.24 (7.48)</td>
<td>4.02 (2.78)</td>
<td>7.22 (7.29)</td>
</tr>
<tr>
<td>Impaired Self-Reference</td>
<td>6.90 (4.50)</td>
<td>3.90 (3.52)</td>
<td>6.70 (4.70)</td>
</tr>
<tr>
<td>Inconsistent responding</td>
<td>4.62 (2.09)</td>
<td>3.73 (2.45)</td>
<td>5.09 (1.98)</td>
</tr>
<tr>
<td>PAI-BOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identity problems</td>
<td>13.61 (4.02)</td>
<td>11.85 (2.51)</td>
<td>13.20 (3.52)</td>
</tr>
<tr>
<td>Affective instability</td>
<td>13.78 (3.39)</td>
<td>10.41 (2.68)</td>
<td>12.35 (3.01)</td>
</tr>
<tr>
<td>Self harm</td>
<td>11.00 (2.45)</td>
<td>9.59 (2.65)</td>
<td>10.85 (2.72)</td>
</tr>
<tr>
<td>Negative Relationships</td>
<td>15.44 (3.29)</td>
<td>12.41 (3.11)</td>
<td>15.90 (3.06)</td>
</tr>
</tbody>
</table>

Note: Standard deviations follow means in parentheses. TSI: Trauma Symptom Inventory, PAI-BOR: Personality Assessment Inventory: Borderline Features Scales. U_{loss/tr} = mental disorientation during discussion of abuse (trauma) and/or loss; U_{tr} = mental disorientation during discussion of abuse experiences. Three participants did not complete the PAI-BOR: all reported childhood sexual abuse and were classified as U_{tr} on the AAI. The TSI inconsistency scale could not be calculated for one participant due to missing data: she did not report a history of abuse and was not classified as Unresolved.

(Pillais’ $F(2, 59) = 3.87; p < .05; partial \eta^2 = .12$). Univariate tests revealed that both types of abuse history were significantly associated with higher levels of reported Intrusive Experiences (physical abuse: $F(1, 60) = 7.12, p < .01, partial \eta^2 = .11$; sexual abuse: $F(1, 60) = 7.86; p < .01; partial \eta^2 = .12$). However, no forms of Unresolved status (U_{loss/tr}, U_{loss}, U_{tr}) were significantly associated with traditional PTSD symptoms.

The Childhood Trauma Questionnaire correlated significantly with a number of scales assessing complex trauma symptoms: Impaired Self-Reference ($r = .26, p < .05$), affective
instability \((r = .29, p < .05)\), and relationship difficulties \((r = .47, p < .01)\); however, these correlations likely were inflated due to shared method variance. The CTQ was also correlated with response inconsistency on the TSI \((r = .39, p < .01)\). With respect to traditional PTSD symptoms, the CTQ score was associated with Intrusive Experiences \((r = .41, p < .01)\) but not with Defensive Avoidance \((r = .18, \text{n.s.})\).

**Mediational analyses: Unresolved status as a mediating variable**

Mediational models were conducted to evaluate whether Unresolved status, assessed 4 years prior to symptomatology, mediated the link between maltreatment history and complex trauma symptoms. Sexual abuse history and Unresolved status with respect to loss or abuse \((U_{loss/tr})\) were chosen as the independent and mediating variables, respectively, because they were most strongly associated with trauma symptoms. Trauma symptoms associated with both sexual abuse history and \(U_{loss/tr}\) were selected as dependent variables. We employed the Goodman (I) test (c.f. Baron & Kenny, 1986; Preacher & Leonardelli, 2001) to determine whether mediation significantly reduced the strength of the relation between sexual abuse history and trauma symptoms.

The first set of regressions tested whether \(U_{loss/tr}\) mediated the association between sexual abuse history and dissociative symptoms. Results were as follows: (1) Sexual abuse history significantly predicted dissociative symptoms, \(\beta = 4.21 \, (SE = 1.21), t = 3.22, p < .01\); (2) Sexual abuse significantly predicted \(U_{loss/tr}\), \(\beta = 0.52 \, (SE = 0.11), t = 4.58, p < .001\); and (3) with the two predictors entered together, dissociative symptoms were significantly predicted by sexual abuse, \(\beta = 3.72 \, (SE = 1.53), t = 2.43, p < .05\), but not \(U_{loss/tr}\), \(\beta = 0.95 \, (SE = 1.50), t = 0.64, p > .10\). Although the association between sexual abuse and dissociative symptoms was marginally reduced in equation 3 (\(\beta = 3.72\)) compared to equation 1 (\(\beta = 4.21\)), the difference between beta weights was not significant (\(z = 0.64; p > .10\)), and the association between dissociative symptoms and \(U_{loss/tr}\) did not reach significance when entered together with sexual abuse history. Thus, the mediational model was not supported. The adjusted \(R^2\) was .12 for this model.

A parallel set of analyses was conducted to evaluate whether Unresolved\(_{loss/tr}\) status mediated the association between sexual abuse history and identity confusion. The Impaired Self-Reference scale was chosen as the primary measure of identity confusion due to its significant associations with both \(U_{loss/tr}\) and sexual abuse history. Analyses revealed: (1) Impaired Self-Reference on sexual abuse history, \(\beta = 3.00 \, (SE = 1.04), t = 2.89, p < .01\) and (3) Impaired Self-Reference on both sexual abuse, \(\beta = 2.07 \, (SE = 1.20), t = 1.74, p < .10\), and \(U_{loss/tr}\), \(\beta = 1.79 \, (SE = 1.17), t = 1.53, p > .10\). Again, although the effect of sexual abuse history on Unresolved\(_{loss/tr}\) status was reduced in the third equation, the Goodman (I) Test of mediation did not achieve significance (\(z = 1.49; p > .10\)) and the association between Impaired Self-Reference and Unresolved\(_{loss/tr}\) was not significant when entered together with sexual abuse history. Again, the mediational model was not supported. The adjusted \(R^2\) for this mediational model was .13.

Finally, we assessed whether Unresolved status mediated the link between sexual abuse history and relationship problems, using the Negative Relationships scale. Analyses revealed: (1) Negative relationship scores on sexual abuse history, \(\beta = 3.03 \, (SE = .89), t = 3.39, p < .001\); and (3) Negative relationship scores on both sexual abuse history, \(\beta = 1.52 \, (SE = .92), t = 1.66, p > .10\), and \(U_{loss/tr}\), \(\beta = 3.20 \, (SE = .89), t = 3.59, p < .001\), respectively. All associations held in the expected direction and the association between sexual abuse and Negative Relationships scores was significantly reduced in equation 3 (\(\beta = 1.52\)) compared to equation 1 (\(\beta = 3.03; z = 2.90, p < .01\)), and no longer significant.
with the inclusion of $U_{\text{loss/tr}}$. Thus, Unresolved$_{\text{loss/tr}}$ status significantly mediated the association between sexual abuse history and relationship problems. The adjusted $R^2$ was .30 for this model.

**Discussion**

In this study we explored the associations between a history of childhood maltreatment, Unresolved attachment, and complex trauma symptoms in a sample of women at high social risk. Taken together, our findings complement and extend existing empirical support for the theorized association between cognitive dissociative processes and observable signs of mental disorganization or disorientation when discussing experiences of loss or abuse. The associations between maltreatment, complex trauma symptoms, and Unresolved attachment suggest that early traumatic events can have an enduring impact on integrative functioning. These associations may be particularly apparent in at-risk populations such as our sample which comprised of women who gave birth in adolescence.

**Unresolved attachment and childhood abuse history**

It has been postulated that early experiences of childhood abuse compromise one’s capacity to integrate traumatic events, resulting in an increased likelihood that one will display Unresolved lapses while discussing experiences of trauma or loss (Lyons-Ruth, 2003; Lyons-Ruth et al., 2003; Main & Hesse, 1990). The investigation of this hypothesis has been disadvantaged by the methodological constraint that trauma or loss experiences must be reported in order for an individual to be classified as Unresolved and by the recent suggestion that traumatic experiences may not be consistently reported on the AAI (Crowell et al., 2002). As a first step around these obstacles, we conducted an independent assessment of abuse history. We found that the AAI elicited more reports of physical abuse than did the trauma interview. Like the independent trauma interview, the AAI contains a specific behaviorally phrased question about physical abuse. Furthermore, the AAI uniquely situates questions about abuse within the broader context of childhood familial experiences, perhaps facilitating their recall and increasing response rates.

In contrast, possibly due to the absence of a behaviorally phrased question about sexual abuse, the AAI elicited considerably fewer reports of sexual abuse than the trauma interview. This finding supports the concern of Crowell et al. (2002) that individuals do not necessarily report abuse experiences on the AAI. Because sexual abuse tends to occur in a more secretive fashion than physical abuse, people may choose not to report it unless asked about it directly. Although the primary goal of the AAI is to determine people’s strategies for representing attachment relationships, not to elicit accurate reports of childhood abuse, increased reports of sexual abuse would provide the opportunity for respondents to display signs of mental disorientation while discussing this abuse, perhaps resulting in greater stability and validity of the Unresolved classification.

Despite less frequent reports of sexual abuse on the AAI, fully 71% of women with a history of sexual abuse, as reported on either the AAI or the trauma interview, were classified as Unresolved. This association may have been even stronger if a specific sexual abuse probe were included on the AAI. Our finding of a link between childhood abuse and Unresolved attachment in an at-risk sample complements similar findings in a normative (Riggs & Jacobvitz, 2002) and a clinical sample (Stalker & Davies, 1995). Reports of physical abuse history and the endorsement of broader indices of maltreatment (the Childhood Trauma Questionnaire) also were related to Unresolved attachment. The Childhood Trauma
Questionnaire accounted for unique predictive variance, suggesting that a number of different types of childhood maltreatment may impact the ability to integrate traumatic events. This interpretation is consistent with others’ conceptualization of pervasive dissociation and integrative impairment developing as a response not only to physical and sexual abuse but also to chronic relational trauma, including less easily observable trauma such as a chronic lack of caregiver availability (Lyons-Ruth et al., 2005; Ogawa et al., 1997).

To address the methodological confound between reports of abuse and opportunities to be classified as Unresolved, among participants reporting a loss experience we examined whether abuse history predicted signs of mental disorientation while discussing the loss. Childhood sexual abuse, but not physical abuse, predicted mental disorientation while discussing a loss experience. In addition, the total CTQ score, a broad measure of childhood maltreatment, was associated with disorientation when discussing loss. Our findings accord with the prediction that early, severe traumatic experiences may result in greater difficulty processing and integrating other significant emotional experiences, even if they are not directly related to the childhood abuse. In a similar set of analyses we selected participants who reported a history of physical or sexual abuse and examined whether a specific measure of abuse was associated with mental disorientation while discussing abuse. Our general maltreatment variable emerged as a strong independent predictor of mental disorientation while discussing the abuse. Again, this finding underscores the importance of considering the potentially disruptive effects of a wide range of adverse childhood experiences.

Our finding of a substantial overlap between childhood abuse and Unresolved status could lead to the deterministic assumption that the long-term effects of abuse simply were not surmountable; however, this strong association may be somewhat attenuated in populations at lower social risk. Individuals with greater familial, psychological, and economic resources would be in a better position to develop a more integrative approach to processing trauma-related information.

Unresolved attachment and trauma symptoms

A key finding in this study was the association between Unresolved attachment and a number of symptoms frequently associated with complex trauma: dissociation, an inconsistent sense of self, and relationship problems. The Unresolved_tr, but not the Unresolved_loss classification, was significantly associated with reports of complex trauma symptoms. Although this differential finding suggests that these two forms of mental disorientation may be associated with distinct features or processes, the strong associations between the combined Unresolved_loss/tr category and complex trauma symptoms also suggest some commonality.

Consistent with previous findings in a low-risk and a clinical sample (Schuengel et al., 1999; West et al., 2001), dissociative symptoms were related to Unresolved attachment in this at-risk sample. The dissociation scale on the Trauma Symptom Inventory assesses symptoms such as depersonalization and derealization which are associated with a number of trauma-related diagnoses including PTSD and complex trauma symptoms, in particular reactions to prolonged interpersonal maltreatment in childhood (Gershuny & Thayer, 1999; Herman et al., 1989). The associations between sexual abuse history, Unresolved status, and dissociative symptoms are consistent with the premise that a history of sexual abuse fosters the development of dissociative coping strategies which in turn give rise to both the subjective experience of dissociative symptoms and signs of mental disorientation when discussing early trauma.
Women classified as Unresolved reported higher levels of Impaired Self-Reference on the Trauma Symptom Inventory. This scale primarily assesses a subjective awareness of the incoherence of one’s self-representation, a construct that has discriminated well between individuals with and without BPD (Wilkinson-Ryan & Westen, 2000). Items on this scale included feelings of uncertainty regarding who they really were, confusion about their thoughts or beliefs, and difficulty distinguishing between their own and others’ feelings. Observed behavioral inconsistencies, of which a person may not be consciously aware, also have been found to distinguish between individuals with and without a diagnosis of BPD (Wilkinson-Ryan & Westen, 2000). Inconsistencies in self-awareness would be likely to inflate a validity scale measuring response inconsistency. It is possible, therefore, that respondents classified as Unresolved reported their subjective awareness of identity confusion on the Impaired Self-Reference scale, whereas higher scores obtained by women classified as Unresolved on the Inconsistent Response validity scale served as a demonstration of this identity confusion.

A strong association was found between Unresolved attachment and the Negative Relationships scale of the PAI-BOR: participants classified as Unresolved frequently reported fears of abandonment and difficulty establishing and maintaining warm, trusting interpersonal relationships. The effect size for this association was by far the strongest in the current study, possibly reflecting the subjective importance and salience of relationship problems compared to other trauma-related symptoms. The experience of intense, ambivalent, and unstable relationships has been identified as a predominant feature of both complex PTSD (Courtois, 2004; Roth et al., 1997) and BPD (American Psychiatric Association, 2000). Survivors of chronic childhood abuse often have developed a generalized representation of others as self-serving and potentially abusive (Roth et al., 1997). Individuals with BPD tend to develop unbalanced relationships with others patterned after the maladaptive relationships they experienced in childhood. Interpersonal dynamics often involve the adoption of victim–victimizer or dominant–submissive roles. Such unbalanced interactions are re-enacted as they interpret others’ actions with a hostile attributional bias and then behave in ways that elicit expected responses from others, including rescuing or persecutory reactions (Westen & Cohen, 1993). As a result of these interpersonal dynamics, individuals with BPD tend to experience short-lived, tumultuous relationships. The higher endorsement of relationship problems by women classified as Unresolved in the current study raises the possibility that they experience similar extreme and imbalanced relational dynamics.

Although past theoretical models have proposed a mediational role for traditional PTSD symptoms accounting for the link between abuse history and signs of mental disorientation (e.g., Main & Hesse, 1990), we speculated that among those with a history of complex childhood trauma, both complex trauma symptoms and observable signs of mental disorientation may result from the cumulative long-term impact of the dissociative compartmentalization of self- and other-relevant information. Due to the temporal delay in assessment of Unresolved status and trauma symptoms, however, we employed a mediational model to determine whether Unresolved status, assessed 4 years prior to complex trauma symptoms, mediated the association between abuse history and symptoms. The mediational model was not supported for dissociative symptoms or subjective identity confusion: rather, consistent with our conceptualization, strong associations were found between sexual abuse history and both outcome variables (Unresolved status; trauma symptoms). The mediational model did hold for reports of relationship problems, however, suggesting that mental disorientation regarding loss or abuse experiences may functionally mediate the association between sexual abuse history and the perceived severity of
subsequent relationship difficulties. Based on these findings we speculate that if individuals are better able to integrate positive and negative memories involving self and other, their representations of self and other might then be susceptible to influence by new, more positive interpersonal experiences.

The strong endorsement of relationship problems by Unresolved participants suggests that, particularly in at-risk samples, the association between Unresolved and Disorganized attachment could be mediated by a mother's difficulty in establishing a positive, functional relationship with her infant. Such difficulty may be apparent at both the representational and behavioral level. Lyons-Ruth and colleagues have proposed that a "hostile-helpless" internal representation of attachment is transmitted from Unresolved mothers to their infants through "unbalanced parent–infant relationships in which one partner's initiatives are elaborated at the expense of the other's" (Lyons-Ruth et al., 1999, p. 37; and see Lyons-Ruth et al., 2005). Unbalanced parent–infant relationships involving polarized and complementary roles such as victim, perpetrator, and rescuer, also have been theoretically linked to Disorganized mother–infant attachment relationships and the development of dissociative processes in infancy (Liotti, 1999). Such complex interpersonal dynamics would be disorganizing to an infant who lacks the cognitive capacity to interpret them.

Taken together, the associations between Unresolved status and complex trauma symptoms are consistent with and extend results of previous research showing a link between BPD and Unresolved attachment among psychiatric patients (Fonagy et al., 1995, 1996; Patrick et al., 1994). Although BPD has been conceptualized as a complex reaction to childhood trauma (Herman et al., 1989; Landecker, 1992; Zanarini et al., 1997), associations between trauma, Unresolved attachment, and such complex trauma symptoms had not been observed in populations that were not clinic-referred. The potential for substantial differences in such associations between clinical and nonclinical samples is well illustrated by research on childhood sexual abuse: among those seeking mental health services a strong association frequently has been observed between abuse history and mental health concerns, whereas only a moderate association has been reported in studies with non-clinical samples (Rind, Tromovitch, & Bauserman, 1998). We found, however, that Unresolved attachment was related to continuous measures of complex trauma symptoms for a group of women at high social risk.

Although the percentage of women in the current study who met criteria for BPD is unknown, the sample as a whole displayed substantially elevated scores on the Borderline Features scale, with 85% obtaining scores above the recommended clinical cut-off (Morey, 1991). Moderate elevations were expected because participants were young adults who tend to experience more emotional instability and changes in self-identity, difficulties that resemble Borderline characteristics (APA, 2000); however, the mean score in this sample substantially exceeded the average score of a sample of over 1500 undergraduates of comparable age (Trull, 1995). Elevated levels of Borderline characteristics were reported within a broader context of high rates of Unresolved attachment and severe childhood physical and sexual abuse. A recent population-level study suggests that this constellation of difficulties may be related to preexisting risk factors associated with adolescent pregnancy (Jaffee et al., 2001). From a purely methodological perspective, these high rates of abuse, Unresolved status, and complex PTSD symptoms facilitated the identification interrelations among these variables in our study. The extent to which such patterns are also present in lower risk samples is a subject for future research.

In contrast to the associations found between Unresolved attachment and complex PTSD symptoms, an association with traditional PTSD symptoms was not substantiated. As discussed earlier, empirical tests of the theoretical prediction that re-experiencing or
avoidance symptoms may be associated with behavioral indices of Unresolved attachment (Fearon & Mansell, 2001; Hesse & Main, 2000; Main & Hesse, 1990, 1992) have yielded mixed findings. Stovall-McClough and Cloitre (2006) reported a significant association between Unresolved status and PTSD diagnosis, and in particular, women classified as Unresolved reported greater avoidance symptoms. Women with a diagnosis of BPD were excluded, however, resulting in a population quite distinct from women who participated in the current study. In the present study, the relatively strong relations between complex trauma symptoms and Unresolved status may have obscured other associations that were less prominent in this high-risk sample. Methodological limitations also may explain our null findings, most notably the 4-year time delay between the assessment of Unresolved status and trauma symptoms. The time delay would be expected to weaken associations between Unresolved status and traditional PTSD symptoms which typically are less chronic and pervasive than complex trauma symptoms. In addition, the link between Unresolved attachment and the validity scale measuring response inconsistency suggested that women classified as Unresolved may have a relatively limited or inconsistent awareness of their own difficulties. Trauma-related symptoms typically are assessed using self-report measures, which can be used to obtain only information of which an individual is aware and chooses to report. Self-report measures may be particularly unreliable within populations in which dissociation is expected, because this dissociation would almost by definition segregate some self-relevant information from awareness.

In summary, we found that Unresolved attachment was related to childhood maltreatment and a range of trauma symptoms that tend to be associated with the development of dissociative processes that segregate state-dependent information from awareness. This finding provides support for Main and colleagues’ observation that many of the lapses displayed by individuals classified as Unresolved resemble behavioral manifestations of the interplay between multiple segregated memory systems or representations (Main & Hesse, 1990; Main & Morgan, 1996). In the future, the development of other creative methods of observing the impact of segregated information on behavior would provide additional, compelling convergent validity for the Unresolved classification.

Acknowledgements

This research was supported by research grants from the Social Sciences and Humanities Research Council, Health Canada, and the Ontario Mental Health Foundation. We gratefully acknowledge the mothers who participated in our study and we thank Sandi Bento for her assistance in coding.

Notes

1 Fifty participants were randomly assigned to an intervention group and received eight home visits when infants were between 7 and 12 months old. The focus of these visits was to affirm the mother’s positive parenting behaviours. The comparison group received one visit to collect supplementary data when infants were 9 months old. Twenty-eight (45%) of the 62 mothers were from the intervention group and 34 (55%) were from the control group. Group history (intervention versus control) was not related to any variables pertaining to the research questions in this study.

2 Seven participants fit the criteria for Cannot Classify because they clearly employed both Preoccupied and Dismissing attachment strategies (Hesse, 1996). Six of these displayed unresolved lapses substantial enough to be classified as Unresolved; however, the seventh also was included in the Unresolved category due to her demonstration of inconsistency at a global level. Six were assigned a secondary Preoccupied and one a secondary Dismissing classification.
References


