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## The development of dissociation in maltreated preschool-aged children

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### Abstract

Dissociation reflects disruptions in the integration of memories, perception, and identity into a coherent sense of self, and may develop following childhood maltreatment. The preschool years were identified as an important period for the development of dissociation. However, prior research has not examined the development of dissociation during this time. In order to address this gap, evidence of dissociation in 45 maltreated children, assessed for sexual abuse, physical abuse, and neglect, was compared with dissociation in 33 nonmaltreated children. Rather than depend on adult observer reports of behavior, the study sought to gain an understanding of dissociation from the child's own point of view. Because self-reports have limitations with such young children, a measure of dissociation evidenced in children's narrative story-stem completions was utilized. Maltreated children, especially physically abused children and sexually abused children, demonstrated more dissociation than did nonmaltreated children. Moreover, during the preschool period maltreated and nonmaltreated children followed different trajectories such that dissociation increased for maltreated children but did not do so for nonmaltreated children. Findings suggest that although the self is normatively integrated during the preschool period, it becomes increasingly fragmented for some maltreated children. Results are discussed in terms of cascading effects of maltreatment throughout development, and the importance of developmentally sensitive interventions.

Ongoing frightening and overwhelming experiences may severely affect a child's developing self. A child's memories, perceptions, and

sense of personal identity normally coalesce to form an integrated self during the toddler and preschool periods (Cicchetti, 1991; Emde, Biringen, Clyman, & Oppenheim, 1991; Sander, 1975; Sroufe, 1990). However, a child's self does not cohere automatically. Rather, the self is a developmental achievement believed to arise from success with prior stage-salient issues such as the development of a secure pattern of attachment to caregivers in infancy, which leads to the development of corresponding coherent representational models of self in relationship to others (Sroufe & Fleeson, 1986). With the help of caregivers, and for a normal range of experiences, a child processes and assimilates experience to create a personal history, a view of the world, and a sense of who he or she is, separate but connected to others. How might sexual abuse, physical abuse, and neglect impact a child's ability to assimilate experience into a coherent sense of self?

One deviant pathway that self-develop-

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ment in maltreated children may take is the development of dissociation, which may be conceptualized as the opposite of an integrated self (Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997) and which refers to disruptions in the normal integration of memories, perception, and identity (American Psychiatric Association, 1994). Although development normally occurs within a framework of "unity and emerging complexity" (Sroufe, 1996, p. 39), dissociation may reflect emerging complexity, but without unity. Normative dissociation in young children includes fantasy play and the creation of imaginary companions (Fein, 1981; Putnam, 1995), and psychopathological dissociation includes dissociative identity disorder (formerly known as multiple personality disorder) at the other end of a continuum (Ogawa et al., 1997; Waller, Putnam, & Carlson, 1996; Waller & Ross, 1997). Dissociation is thought to develop more as a result of environmental impact than of genetic inheritance (Waller & Ross, 1997). Indeed, dissociation has been described from the perspective of developmental psychopathology as providing "potentially very rich models for understanding the ontogeny of environmentally produced psychiatric conditions" (Putnam, 1995, p. 582).

Dissociation is thought to represent a failure of information processing in the face of trauma (Bower & Sivers, 1998). Exceptionally large quantities of stress hormones and neurotransmitters may be released during the trauma, which lead to high levels of activation of the sympathetic nervous system. This may cause the brain to enter a very different biochemical state than is usually the case when ordinary experiences are encoded into memory (Bower & Sivers, 1998; Janet 1889). Thus, thoughts and perceptions of the trauma may not be fully assimilated and integrated into coherent memories.

Dissociation has also been conceptualized as a defensive process that enables a child to avoid ongoing trauma mentally that he or she cannot avoid physically (Ludwig, 1983; Terr, 1991; van der Kolk, van der Hart, & Marmar, 1996). Dissociation may in fact be a combination of both failed information processing and defensive processes (Liotti, 1999). Because

the brain develops in part in a use-dependent manner (Greenough, Black, & Wallace, 1987), dissociation may become an automatic and unconscious response, subsequently triggered by lesser stressors (Post, Weiss, Li, Smith, Zhang, Xing, Osuch, & McCann, 1998).

Dissociation in children is manifested in disruptions in three domains: memory, perception, and identity. First, disruptions in memory may include having no memory for traumas that are known to have happened, the memory of which may then be triggered in other situations reminiscent of the trauma (Bower & Sivers, 1998; Ludwig, 1983, van der Kolk et al., 1996). Disruptions in memory may also involve continuing to "lie" even when evidence to the contrary is obvious. This seems to be the effect of denying behavior that is not remembered, rather than of deliberately lying (Putnam, 1995; Putnam, Helmers, & Trickett, 1993). Second, disruptions in perception may include confusion between fantasy and reality (Bernstein & Putnam, 1986), which is perhaps an immaturity carried forward into later development (Harris, Brown, Marriott, Whitall, & Harmer, 1991; Scarlett & Wolf, 1979), fantasy proneness (Rhue & Lynn, 1987), and spontaneous trance states, or "spacing out" (Putnam et al., 1993). Third, disruptions in identity may encompass a child's demonstrating varying and inconsistent attributes and skills and having arguments with himself or herself out loud (Putnam et al., 1993). The latter may be represented as an increased number of instances of verbal conflict, competition, or taunting between characters in his or her play enactments. Disruptions in identity also may subsume the blurring of boundaries between a child's self and fantasy characters (Macfie, Toth, Rogosch, Robinson, Emde, & Cicchetti, 1999), and grandiose self-representations (Vondra, Barnett, & Cicchetti, 1989, 1990), both of which are found to be more prevalent in maltreated than in nonmaltreated preschool-aged children.

Moreover, the etiology of dissociation in children has been linked to the experience of parents as inconsistent (Mann & Sanders, 1994) and to difficulty in coping with loss and

separations (Irwin, 1994; Malinosky-Rummell & Hoier, 1991). Controllingness in relationships may be a sequela of dissociating from feelings of loss in the absence of comfort or security from caregivers. Although controllingness has not been linked directly to dissociation, it has been linked to difficulty in coping with separation at age 6 years and to disorganized attachment in infancy (Main, Kaplan, & Cassidy, 1985), which in turn predicts dissociation (Ogawa et al., 1997). Because behavioral symptoms may change across development and yet still reflect underlying continuities (Pennington & Ozonoff, 1991), being controlling in relationships may also be linked to difficulty in coping with loss or separation and to dissociation. Indeed, whereas disruptions in memory, perception, and identity may reflect the dissociation of trauma (Ludwig, 1983), difficulty dealing with loss and resulting controllingness may reflect the dissociation of unmet relational needs (Sands, 1994).

### **The Development of Dissociation in the Preschool Period**

Recent developmental achievements are more susceptible to being disrupted than are more established patterns (Sroufe & Rutter, 1984). Thus, early self-development in toddlerhood may become vulnerable to dissociation during the preschool period given adverse conditions, and it has been suggested that "the groundwork for severe dissociation is set in the preschool period" (Peterson, 1990, p. 3). Indeed, dissociative disorders, including dissociative identity disorder, are first formally diagnosed at age 3 years (Putnam, 1991), although no epidemiological studies have been conducted to assess how frequently such diagnoses are made. Moreover, adults with dissociative disorders report the onset to have occurred beginning in the preschool period, most before age 5 or 6 years, and all before age 8 years (Peterson, 1991; Putnam, 1993). Although the preschool period may be an important period for the development of dissociation, no prior research has addressed this. The current study thus examines the development of dissocia-

tion during the preschool period, in a group of maltreated versus nonmaltreated children.

### **Dissociation and Childhood Maltreatment**

Childhood maltreatment has been linked to the development of dissociation since the term "dissociation" was first conceived (Freud, 1896/1962; Janet, 1889). However, not all maltreated children develop dissociation, an example of multifinality (Cicchetti, 1993; Cicchetti & Rogosch, 1996), and more needs to be known about those who do. In adults, sexual and physical abuse have been implicated in dissociation in normative (Irwin, 1996; Sanders & Becker-Lausen, 1995), general psychiatric (Lipschitz, Kaplan, Sorkenn, Chorney, & Asnis, 1996), and dissociative disordered (Putnam, Guroff, Silberman, Barban, & Post, 1986; Ross, Miller, Bjornson, Reagor, Fraser, & Anderson, 1991) samples. A meta-analysis found effect sizes (Cohen's *d*) of .42 for sexual abuse and .42 for physical abuse (van Ijzendoorn & Schuengel, 1996). However, these studies depended on retrospective memories of childhood maltreatment that may not be entirely accurate, and neglect was not assessed. Concurrent studies of children—or, better, prospective longitudinal studies—are necessary to explore the link between childhood maltreatment and dissociation.

Studies of dissociation in children became feasible only recently, with the development of a valid and reliable observer report measure (Putnam et al., 1993), which has in turn been used to develop other observer report measures. These studies find that maltreated children demonstrate more dissociation than do nonmaltreated children. In a large sample, maltreated children ages 6–16 years scored higher on a measure of dissociation than did nonmaltreated children, although, in a preliminary report (Putnam, 1996), subtypes of maltreatment experienced were not noted. Furthermore, in two studies, sexually abused girls ages 7–14 years demonstrated more dissociation than did nonmaltreated children (Malinosky-Rummell & Hoier, 1991; Putnam et al., 1993). However, neither study assessed other subtypes of maltreatment that these girls

might have experienced in addition to sexual abuse, such as physical abuse and neglect, so it is difficult to know whether it was sexual abuse per se that was associated with increased dissociation when compared with nonmaltreated children.

Several concurrent studies of dissociation in children examined not only sexual abuse but other subtypes of maltreatment. In samples of boys and girls ranging from preschool age to adolescence diagnosed with a dissociative disorder, dissociation was associated approximately equally with sexual abuse and with physical abuse, but neglect was not assessed (Coons, 1996). In a psychiatric sample of girls and boys ages 13–17 years, sexual abuse correlated less highly with dissociation than did physical abuse and neglect (Sanders & Giolas, 1991). On the other hand, in samples of children between preschool age and adolescence with dissociative disorders, one study found dissociation to be associated approximately equally with sexual abuse, physical abuse, and neglect (Hornstein & Putnam, 1992), and one study found neglect to be less highly correlated with dissociation than was sexual abuse and physical abuse (Yeager & Lewis, 1996). Thus, the relative salience of each subtype of maltreatment for dissociation is not clear.

Prospective longitudinal studies are the ideal method with which to study the development of dissociation. One such study of at-risk children spanning the whole continuum of dissociation from normative to psychopathological assessed children during five developmental periods between infancy and young adulthood (Ogawa et al., 1997). The trauma group (defined to include maltreatment in addition to death of a family member, life-threatening hospitalization, at least 1 month separation of child from mother, and witnessing interparental violence) displayed more dissociation than did the nontrauma group at each time period following infancy. Moreover, neglect in infancy and concurrent sexual abuse predicted dissociation in a combined group of toddlers and preschool-aged children (Ogawa et al., 1997). There is thus evidence that sexual abuse, physical abuse, and neglect are associated with dissociation.

The current study sought to clarify the contribution of each.

### Change in Dissociation Over Time

Little research has examined the development of dissociation over time. Cross-sectional studies suggest that dissociation may normatively decrease during the school-age years, as older children demonstrate less dissociation than do younger children (Putnam, 1996; Putnam et al., 1993). However, in order to assess development, the same children ideally need to be followed over time. In the prospective longitudinal study mentioned above, relative trajectories of the trauma group and of the nontrauma group over time, assessed at four different time points, were not the focal point of inquiry (Ogawa et al., 1997). Thus, no longitudinal research thus far has examined the development of dissociation during the preschool period.

Children may be particularly vulnerable to dissociation during the preschool years as they succeed or fail to develop an integrated self. Failure to develop an integrated self may have lasting consequences for development if, in the absence of effective intervention, the self remains dissociated. It is likely that dissociation will decrease for nonmaltreated preschool-aged children as an extension of the downward pathway suggested by the cross-sectional studies of school-aged children, as with maturation children are increasingly better able to process and assimilate their experience into a coherent sense of self. On the other hand, dissociation may increase for maltreated preschool-aged children, for whom failures of information processing and the need for defenses are salient, as they are unable to integrate their overwhelming experience into a coherent sense of self. The present study sought to examine this possibility.

### Assessment of Dissociation in Young Children

Prior to the current study, observer report measures were the only method of tapping dissociation in young children (Carlson, 1998; Malinosky-Rummell & Hoier, 1991; Ogawa

et al., 1997; Putnam et al., 1993; Wherry, Jolly, Feldman, Balkozar, & Nanjantha, 1994). Observer report measures have greatly increased our understanding of dissociation in children. However, a problem with observer report when assessing samples of maltreated children is that maltreating parents are of dubious value as informants. Teachers, conversely, are more reliable, but most children of preschool age, both maltreated and nonmaltreated, do not have a teacher. Furthermore, an observer measure is limited to assessing children's behavior which may not yield as much information as a self-report measure because it cannot tap the child's perspective, and dissociation is entirely internal to the child (Ogawa et al., 1997). Prior to a child's being old enough to complete a self-report measure, another window on his or her point of view is desirable.

The present study thus employed a paradigm for eliciting symbolic representations of children's inner worlds. The information derived from children's affect, behaviors, and language is coded to capture dissociative themes. Validity and reliability were established for the paradigm. Narratives were elicited by presenting standard story stems that the child completed. The narratives were then coded to reflect the presence or absence of dissociation. The narrative dissociation coding system was designed to reflect what is currently known about dissociation, including disruptions in memory, perception, identity, inconsistent parents, difficulty in coping with loss, and concomitant controllingness. Convergent validity for the narrative dissociation coding system was assessed utilizing the Child Dissociative Checklist (CDC; Putnam et al., 1993), and the Ogawa et al. (1997) dissociation scale, and discriminant validity was assessed utilizing a measure of behavioral symptomatology, the Child Behavior Checklist/Teacher Report Form (CBCL/TRF; Achenbach, 1991; Edelbrock & Achenbach, 1984), and a measure of receptive language, the Peabody Picture Vocabulary Test (PPVT-R; Dunn & Dunn, 1981).

Validity for the narrative story-stem completion paradigm has been provided in both middle- and low-SES samples of preschool-

aged children. Research with middle-SES preschool-aged children demonstrated that children's narrative representations of parents accurately reflected the children's experience: children's representations of parents corresponded to the children's parents' self-reported depressive symptomatology (Oppenheim, Emde, & Warren, 1997). Furthermore, in low-SES samples, representations of positive and of negative parents (Toth, Cicchetti, Macfie, & Emde, 1997), and representations of parental responses to distress (Macfie et al., 1999), distinguished between maltreated and nonmaltreated preschool-aged children. Children's narrative representations also reflect their behavioral symptoms. For example, narrative representations of conflictual and prosocial themes correlated significantly with preschool-age children's externalizing and internalizing symptomatology, in normative middle-SES samples (Oppenheim, Nir, Warren, & Emde, 1997; Warren, Oppenheim, & Emde, 1996; Zahn-Waxler, Schmitz, Fulker, Robinson, & Emde, 1996), and in a low-SES sample of maltreated versus nonmaltreated children (Toth, Cicchetti, Macfie, Rogosch, & Maughan, 2000).

Studies utilizing the narrative completion paradigm also have shown that narrative representations accurately mirror relationship organization. The narrative completion paradigm has successfully been used to assess attachment patterns in middle-SES samples of preschool-aged children (Bretherton, Ridgeway & Cassidy, 1990; Solomon, George, & De Jong, 1995). Because of the connection between disorganized attachment and dissociation (Carlson, 1998; Ogawa et al., 1997), narratives about attachment issues (Bretherton, Ridgeway, & Cassidy, 1990) were utilized in the present study. Each of the stories was designed to heighten anxiety about the availability of attachment figures in different ways and thus make a dissociative response more likely.

### Current Hypotheses

In the current study, based on the literature reviewed above, it was hypothesized that (a) maltreated preschool-aged children would

demonstrate more dissociation than would nonmaltreated children; (b) during the preschool period dissociation would increase for maltreated children, and decrease for nonmaltreated children; and (c) sexual abuse, physical abuse, and neglect, would each be associated with more dissociation than would the absence of maltreatment.

## Method

### *Participants*

At Time 1, the sample consisted of 111 preschool-aged children, 76 maltreated children and 35 nonmaltreated comparisons. At Time 2, 1 year later, the sample consisted of 78 children, 45 maltreated children, and 33 nonmaltreated children. In the comparison sample, two of the children (6%) from Time 1 could not be assessed a year later. In the maltreated sample, 31 out of 76 children (40%) were not available to be assessed again at Time 2. Possible differential attrition within the maltreated sample was therefore evaluated. There were no differences in terms of independent variables (demographic variables, receptive language ability, subtype of maltreatment), or of dependent variables (dissociation scores), between the maltreated children who were assessed at Time 1 only, and those who were assessed at both Time 1 and at Time 2. It was thus decided to limit analyses to those children who were assessed at both time points ( $N = 78$ ).

At Time 1 ( $N = 78$ ), the average age of the children was 3 years 11 months ( $SD = 6$  months; range 3 years 1 month to 5 years 3 months). Sixty-three percent of the children were of minority status (46% African American, 4% Hispanic, and 13% of mixed ethnic background). At Time 2 ( $N = 78$ ), the average age of the children was 4 years 11 months ( $SD = 5$  months, range 4 years 1 month to 6 years).

A subsample of children from Time 2 comprised a validity sample for the narrative dissociation coding system. Teacher report measures were utilized for validation. (See Procedures and Measures sections for details.) Teachers rather than parents were enlisted as

informants because many of the parents in the maltreated sample were perpetrators and considered unreliable sources of information on their children. Teacher reports were collected for (a) children who were already in preschool and thus had a teacher and (b) for children whom narrative story stems had been completed within 6 months ( $n = 55$ ). Time 2 was chosen in order to maximize the number of nonmaltreated children who had started school. The validity subsample consisted of 34 maltreated children and 21 comparison children; the average age of the children was 4 years 10 months ( $SD = 6$  months; range 4 years 1 month to 6 years). Fifty-eight percent were of minority status (38% African American, 5% Hispanic, and 15% of mixed ethnic background). There were no differences between children at Time 2 in the validity subsample and those not in the validity subsample, on independent variables (age, gender, minority status, maltreatment status, subtype of maltreatment), or on the dependent variable (narrative dissociation coding).

Maltreated children were recruited from a center serving low-SES maltreated families referred from the Department of Social Services (DSS) for intervention that included the provision of a standard preschool curriculum. Subtypes of maltreatment (sexual abuse, physical abuse, and neglect) were assessed through the coding of records (including DSS, preschool, and medical, following written consent by parents), utilizing a modified Barnett, Manly, and Cicchetti (1993) maltreatment nosology. Coding of records was completed by researchers who had not had contact with the children or with their families, and who were unaware of the study's hypotheses. Consistent with prior findings (Manly, Cicchetti, & Barnett, 1994), 64% of the maltreated children had experienced more than one subtype of maltreatment (31% were sexually abused, 67% were physically abused, and 91% were neglected).

Although three distinct groups of sexually abused, physically abused, and neglected children were thus not able to be identified, an effort was made to establish groups that were nonoverlapping in order to make distinct between-group comparisons. A hierarchy of

maltreatment subtypes based on the degree of departure from social norms was utilized (Manly et al., 1994). All sexually abused children (some of whom had also experienced physical abuse, neglect, or both), were placed in the sexually abused group ( $n = 14$ ). Next, of the remaining children, those who had suffered physical abuse (some of whom had also suffered neglect) made up the physically abused group ( $n = 19$ ). Finally, the children who were victims of neglect alone comprised the neglected group ( $n = 12$ ). Thus, each maltreated child was placed in just one of these three groups.

Because most low-SES maltreating families receive Aid to Families with Dependent Children (AFDC), children from families collecting AFDC were recruited as comparisons. With written parental consent, the comparison group's nonmaltreatment status was verified through the state child abuse registry. Nonmaltreatment status was checked before measures were obtained for the first time, and 6 months after the completion of the study, in order to ensure that all the relevant DSS records were accessible. Any comparison children who were found to have been maltreated were retrospectively dropped from the study. Both maltreated and nonmaltreated children's parents gave written, informed consent prior to participating in the study. The maltreated group was equivalent to the nonmaltreated group on receptive language ability (Dunn & Dunn, 1981), age, and demographic variables. (See Table 1 for PPVT-R scores and demographic information.)

#### *Procedures*

*Narrative story-stem completions.* At Time 1 and at Time 2, a year later, each child was individually told the beginning of five stories, one at a time, with the examiner moving dolls and props around as though in a play and presenting each challenging family situation with dramatic inflections (Bretherton, Ridgeway, & Cassidy, 1990). The dolls represented family members, and props included household items such as a table and dinnerware, large rock, bed, and car. (See the Measures section for story stems utilized.) The child

was then asked to complete the stories in the same way. An initial story about a birthday party, not included in coding or analyses, was used to familiarize the child with the procedure. The race of the doll family, and the gender of the child dolls, were matched to the race and gender of each participant. The narrative stems were always administered in the same order (beginning with the least stressful and ending with the most stressful story stem), by one of three female examiners, in a session lasting approximately 25 min. All sessions were videotaped through a one-way mirror.

*Teacher reports.* Teacher reports were utilized at Time 2 to provide a source of validity for the narrative dissociation coding system. Teachers were interviewed at the end of the school year in order to maximize the length of time they had known the children prior to reporting on their behavior.

#### *Measures*

*Attachment Story Completion Task (ASCT; Bretherton, Ridgeway, & Cassidy, 1990).* The ASCT partially overlaps a larger set of story stems, the MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, Buchsbaum, Emde, and the MacArthur Narrative Group, 1990). The ASCT was designed to elicit responses reflecting the attachment relationship between child and parent in increasingly stressful situations: (a) parent as authority figure (Spilled Juice), in which a child spills his or her juice at dinner and mother disciplines him or her; (b) parent as comforter (Hurt Knee), in which a child falls off rock and hurts his or her knee; (c) parent as protector (Monster in the Bedroom), in which child calls for his or her parents at night thinking he or she has seen a monster; (d) separation of the child from his or her parents as the parents leave for a trip, leaving the children with their grandmother (Departure); and (e) the reuniting of the child with parents the next day (Reunion).

*CDC (Putnam et al., 1993).* The CDC is an adult observer 20-item behavioral checklist of

**Table 1.** Sample demographics and PPVT-R standard scores

Variables	Maltreated ( <i>n</i> = 45)		Nonmaltreated ( <i>n</i> = 33)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Child's age T1	3.85	0.46	4.06	0.55	1.82
Child's age T2	4.81	0.37	4.99	0.54	1.75
Time between T1 & T2 (years)	0.95	0.21	0.93	0.09	0.54
Mother's age	27.85	6.66	27.22	5.33	0.42
Children in home	3.13	1.92	2.78	1.24	0.89
Adults in home	1.51	0.69	1.47	0.48	0.30
Family Hollingshead	19.00	7.09	22.61	10.38	1.77
PPVT-R standard score	84.11	12.17	81.19	20.13	0.72
		%		%	$\chi^2$
Gender (female)	31		33		0.43
Minority race	56		73		2.40
Mother working	29		39		0.97
Mother single	68		64		0.18
Receiving AFDC	69		76		0.38

dissociative symptoms (Version 3.0, 2/90) for which both reliability and validity have been established (Malinosky-Rummell & Hoier, 1991; Putnam et al., 1993; Putnam & Peterson, 1994; Wherry et al., 1994). Each CDC item is rated on a scale ranging from 0 (*not true*) to 2 (*very true*). When summed and totaled across all 20 items, the CDC has been found to be a good indicator of dissociative pathology: 96% of children ages 4–13 years who had been diagnosed with a dissociative disorder scored in the range of 12 or higher on the CDC; a mean score of 16.8 was found in children with dissociative disorder not otherwise specified; a mean score of 24.5 was found in children with multiple personality disorder; and a mean score of 2.3 was found in comparison children (Putnam et al., 1993). The summed total of CDC items will hereafter be referred to as CDC\_TOT. Internal consistency of CDC\_TOT in the current sample, as measured by Cronbach's alpha (Cronbach, 1951; Cronbach & Meehl, 1955), was  $\alpha = .89$ .

*CBCL/TRF* (Achenbach, 1991; Edelbrock & Achenbach, 1984). The CBCL/TRF is a well-validated, well-normed inventory of child behavior consisting of 113 individual items, rated on a scale ranging from 0 (*not true*) to 2 (*very or often true*), which yield a range of

standardized profiles of behavior including adaptive functioning, internalizing problems, externalizing problems, total number of problems, withdrawal, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, aggressive behavior, and delinquent behavior. The CBCL/TRF consists of almost entirely the same items as the original Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) but is designed for use by teachers rather than by parents.

*PPVT-R* (Dunn & Dunn, 1981). Verbal abilities were assessed at Time 1 in the form of receptive vocabulary, utilizing the PPVT-R (Dunn & Dunn, 1981). Standard scores were calculated for each child.

#### *Narrative dissociation coding*

A total of 15 codes were utilized in order to capture dissociation in children's narrative story-stem completions: codes thought to reflect disruptions in memory, perception and identity, inconsistent parenting, difficulty coping with loss, and accompanying controllingness, as discussed above. It was thought that some of these codes would be found normatively in children's stories, but that children with more dissociation would utilize them



more often, and that some of these codes would be rare and only found in connection with dissociation. The codes were taken from two coding systems, *The Narrative Coding Manual, Rochester Version* (Robinson, Mantz-Simmons, Macfie, & the MacArthur Narrative Group, 1996) and *Narrative Emotion Coding* (Warren, Mantz-Simmons, & Emde, 1993). Frequencies (*n*) of instances of each code across Times 1 and 2 are provided. The number of children who displayed each code follows in parentheses.

*Disruptions in memory.* Disruptions in memory were thought to be reflected in two codes from the narrative coding manual:

1. *Intrusion of traumatic material, n = 26 (20).* Extraneous, traumatic material intrudes in a striking, incoherent manner, apparently triggered by the presentation of a story stem with a traumatic theme (e.g., parents fighting over losing car keys, turns into parents losing kids as a robber takes them).
2. *Dishonesty, n = 15 (13).* Character lies, steals, or sneaks (e.g., child says he didn't steal the cookies when he actually did).

*Disruptions in perception.* Disruptions in perception were believed to be represented by three codes from the narrative coding manual:

1. *Reality/fantasy confusion, n = 7 (5).* Child struggles to distinguish, or confuses, reality and fantasy (e.g., child fears that she has killed her parents in reality by killing them in the story).
2. *Fantasy proneness, n = 8 (7).* Child's story relates a segment of strange fantasy, which is unrelated to the story stem (e.g., the whole family floats up to the sky to God).
3. *Spacing out, n = 12 (10).* Child apparently daydreams or goes into a trancelike state, which may take effort by both the child and the examiner to pull him or her out of (e.g., child, with difficulty, brings himself back after repeated calls from the examiner, turns his head towards the examiner, rolls his eyes upwards, and says, "Huh?").

*Disruptions in identity.* Disruptions in identity were understood to be mirrored in five codes from the narrative coding manual, including three examples of different voices arguing with each other (verbal conflict, taunting, and competition):

1. *Incongruent child, n = 3 (3).* A child character engages in behaviors that are both positive and negative toward to same character or object (e.g., child hugs Mom and kicks Mom).
2. *Verbal conflict, n = 13 (11).* Highly inflected, angry, verbal remarks, such as name calling or yelling, between characters (e.g., Mom asks child to clean room, child yells back, "I'm not going to clean my room!" and Mom screams, "Yes you are!").
3. *Taunting, n = 6 (5).* Derisive, teasing remarks (e.g., Mom laughs at child with burnt finger, and goes, "Na, na, na-na-na!").
4. *Competition, n = 3 (3).* Characters strive for the same object or activity (e.g., "Bet I can ride it better than you!").
5. *Self/fantasy boundary dissolution, n = 5 (5).* Child confuses himself or herself with the fantasy characters in his or her story (e.g., participant insists that he get a Band-Aid for the child doll, rather than have one of the story characters get it).

A sixth code thought to reflect disruptions in identity was taken from narrative emotion coding:

6. *Grandiose child, n = 48 (36).* Child demonstrates extraordinary power (e.g., child drives the car, or beats up a parent).

*Inconsistent parents.* Inconsistent parents were included with two codes from the narrative coding manual:

1. *Inconsistent father, n = 5 (5).* Father deals inconsistently with the child (e.g., in the Monster in the Bedroom story, Dad puts the light on so child won't be afraid, but then he comes in and turns it off).

2. *Inconsistent mother*,  $n = 6$  (6). Comparable to inconsistent father above.

*Difficulty coping with loss.* Difficulty coping with loss was thought to be evident in one code from narrative emotion coding:

1. *Immediate resolution of loss*,  $n = 83$  (80).

A loss is resolved, or attempt is made to resolve a loss, immediately rather than attempts being made to face and cope with it (e.g., in the Departure story, the child attempts to bring the parents back immediately after the examiner has announced that they have left on their trip).

A second code thought to be related to difficulty coping with loss was taken from the narrative coding manual:

2. *Controllingness*,  $n = 97$  (32). Attempt by the participant to control either the situation or the examiner (e.g., child refuses to relinquish control of a doll or prop).

*Scoring.* Presence or absence of each of the above codes (except controllingness) was scored once for each narrative and then summed across the five narratives, giving a maximum score of 5 for each code for each child. Controllingness was scored three times for each narrative—during the story-stem presentation, the story-stem completion, and the transition phase between stories—and then summed across the five narratives, giving a maximum score of 15 for each child. Codings were completed by two postbaccalaureate research assistants who were unaware of maltreatment status and of experimental hypotheses to be tested. Each coder scored 60% of the sample. Reliabilities for each code were assessed on 20% of the sample using kappas to correct for chance agreement (Cohen, 1960). Kappas ranged from .65 to 1.00, with a mean kappa of .86.

## Results

### *The narrative dissociation coding system*

Convergent and discriminant validity for the narrative dissociation coding system were as-

essed with the validity subsample ( $n = 55$ ), a subset of children at Time 2.

*Convergent validity.* The CDC (Putnam et al., 1993) was utilized in the validity subsample to provide convergent validity for narrative dissociation coding. Average CDC\_TOT scores for the nonmaltreated children were  $M = 2.14$ ,  $SD = 3.00$ , range 0–9; for the maltreated children,  $M = 9.76$ ,  $SD = 6.52$ , range 1–25. Twenty-nine percent of the maltreated children scored in the range of 12 or above, the range in which 96% of children with dissociative disorders score. Children scoring in the psychopathological range were all maltreated ( $n = 10$ ). A  $t$  test,  $t(53) = 10.16$ ,  $p < .0001$ , revealed that these children scored significantly higher on CDC\_TOT ( $M = 18.10$ ,  $SD = 4.77$ ) than did the other children in the validity subsample ( $n = 45$ ,  $M = 4.36$ ,  $SD = 3.66$ ). The validity subsample thus included the entire range of dissociation from normative to psychopathological, with only maltreated children scoring in the psychopathological range.

Two-tailed correlations were conducted in the validity subsample, which revealed significant individual correlations with the summed total of CDC items (CDC\_TOT) for 12 out of the 15 putative narrative dissociation codes: incongruent father, grandiose child, incongruent child, dishonesty, verbal conflict, taunting, competition, reality/fantasy confusion, self/fantasy boundary dissolution, intrusion of traumatic material, immediate resolution of loss, and controllingness. However, incongruent mother, fantasy proneness, and spacing out were not significantly correlated with CDC\_TOT, and thus were not included in narrative dissociation coding. (See Table 2 for correlation coefficients between each putative dissociation code and CDC\_TOT.)

The 12 significant codes were then standardized in order to equalize scores across the different coding intervals, and summed to create a narrative dissociation coding total score (NARR\_DIS) in the validity subsample ( $M = -0.09$ ,  $SD = 6.57$ , range  $-4.28$ – $31.93$ ). (See Table 3 for intercorrelations among narrative dissociation codes.) NARR\_DIS was highly correlated with CDC\_TOT ( $r = .68$ ,  $p <$

**Table 2.** Correlations between the narrative dissociation codes and the Child Dissociative Checklist (CDC\_TOT) in the validity subsample ( $n = 55$ )

Narrative Codes	CDC_TOT
Incongruent mother	.17
Incongruent father	.30*
Grandiose child	.44***
Incongruent child	.26*
Dishonesty	.35**
Verbal conflict	.27*
Taunting	.38**
Competition	.47***
Reality/fantasy confusion	.36**
Self/fantasy boundary confusion	.39**
Fantasy proneness	.13
Spacing out	-.11
Intrusion of traumatic material	.49***
Immediate resolution of loss	.46***
Controllingness	.32

\* $p \leq .05$ . \*\* $p < .01$ . \*\*\* $p \leq .001$ , two-tailed.

.0001) and with the Ogawa et al. (1997) dissociation scale developed from CBCL/TRF items that had similarity to some CDC items ( $r = .46$ ,  $p < .001$ ). The internal consistency of NARR\_DIS, utilizing Cronbach's alpha (Cronbach, 1951; Cronbach & Meehl, 1955), was  $\alpha = .79$ . As expected, many codes reflecting dissociation had low base rates. (See Table 4 for means, standard deviations, and ranges of narrative dissociation codes for the maltreated and nonmaltreated groups in the validity subsample.)

*Discriminant validity.* Discriminant validity for narrative dissociation coding was assessed in two ways: children's verbal ability and their behavioral symptomatology were compared with their dissociation scores in the validity subsample. Although greater verbal ability might be related to longer and more elaborate narratives, longer and more complex narratives should not be linked to greater amounts of dissociation, and thus the narrative dissociation scale should not be significantly related to verbal skills. A correlation was conducted between NARR\_DIS and PPVT-R standard scores to assess whether language ability was related to dissociation.

NARR\_DIS was not significantly correlated with PPVT-R standard scores ( $r = .01$ ,  $p > .10$ ).

Furthermore, although dissociation has been found to be comorbid with a wide range of behavioral problems (Wherry et al., 1994), the narrative dissociation coding system should not constitute a measure of general behavioral disturbance. Consequently, the degree of the relationship between NARR\_DIS and CDC\_TOT should be stronger than that between NARR\_DIS and CBCL/TRF symptomatology scales. Because a dissociation scale has been constructed utilizing CBCL/TRF items (Ogawa et al., 1997), those items were subtracted from raw scores for respective CBCL/TRF problem scales to reduce dissociation content in these scales. Fisher  $r$  to  $Z$  transformations were carried out to test the significance of the difference between the correlation between NARR\_DIS and CDC\_TOT, and between NARR\_DIS and CBCL/TRF problem scales. (See Table 5 for a comparison of correlations between NARR\_DIS and CDC\_TOT, PPVT-R scores, and CBCL/TRF adjusted scale scores of behavior problems.)  $Z$  scores for the correlation between NARR\_DIS and adaptive functioning, withdrawal, somatic complaints, anxiety/depression, social problems, attention problems, delinquent behavior, total number of problems, and internalizing problems were significantly lower than the  $Z$  score for the correlation between NARR\_DIS and CDC\_TOT. The narrative dissociation scale thus discriminates between dissociation and these behavior problems. However,  $Z$  scores for the correlation between NARR\_DIS and thought problems, aggressive behavior, and externalizing problems were not significantly lower than the  $Z$  score for the correlation between NARR\_DIS and CDC\_TOT.

Thus, the narrative coding system did distinguish significantly between dissociation and most of the CBCL/TRF scales, and thus clearly does not solely reflect behavior problems. However, the narrative dissociation coding system did not discriminate significantly between dissociation and thought problems, aggressive behavior, and externalizing problems. Because aggression is included as a domain of dissociation in the CDC (Putnam

Table 3. Intercorrelations among raw score narrative dissociation codes in the validity subsample (n = 55)

Narrative Dissociation Codes	1	2	3	4	5	6	7	8	9	10	11	12
1. Incongruent father	1.00	.14	-.05	-.06	.15	-.03	-.05	-.03	.38**	.14	.14	.18
2. Grandiose child		1.00	.24	.42**	.30*	.25	.11	.42**	.24	.62**	.31*	.50**
3. Incongruent child			1.00	.23	-.06	.70**	.48**	-.03	.48**	.20	.39**	.16
4. Dishonesty				1.00	.50**	.36**	.23	.36**	.23	.64**	.18	.03
5. Verbal conflict					1.00	-.04	-.06	-.04	-.06	.31*	.22	.28*
6. Taunting						1.00	.70**	-.02	.70**	.33*	.40**	-.02
7. Competition							1.00	-.03	.48**	.20	.39**	-.09
8. Reality/fantasy confusion								1.00	-.03	.71**	-.11	.25
9. Self/fantasy boundary dissolution									1.00	.34*	.39**	.23
10. Intrusion of traumatic material										1.00	.04	.32*
11. Immediate resolution of loss											1.00	.31*
12. Controllingness												1.00

\*p < .05. \*\*p < .01, two-tailed.

**Table 4.** Means, standard deviations and ranges for raw scores or codes comprising narrative dissociation coding in the validity subsample ( $n = 55$ )

Narrative Dissociation Codes	Maltreated ( $n = 34$ )			Nonmaltreated ( $n = 21$ )		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Incongruent father	0.09	0.29	0-1	0	0	—
Grandiose child	0.76	0.92	0-3	0.14	0.36	0-1
Incongruent child	0.06	0.24	0-1	0	0	—
Dishonesty	0.12	0.41	0-2	0.05	0.22	0-1
Verbal conflict	0.18	0.46	0-2	0	0	—
Taunting	0.06	0.34	0-2	0	0	—
Competition	0.06	0.24	0-1	0	0	—
Reality/fantasy confusion	0.03	0.17	0-1	0	0	—
Self/fantasy boundary dissolution	0.06	0.24	0-1	0	0	—
Intrusion of traumatic material	0.41	0.89	0-4	0	0	—
Immediate resolution of loss	0.53	0.56	0-2	0.29	0.46	0-1
Controllingness	1.79	1.67	0-6	0.29	0.56	0-2

**Table 5.** Discriminant validity for narrative dissociation coding in the validity subsample ( $n = 55$ )

	NARR_DIS	Fisher Z
CDC_TOT	.68***	
Ogawa et al. dissociation scale	.46***	
PPVT-R	.01	
CBCL/TRF scales		
Adaptive functioning	-.28*	2.77
Withdrawal	.31*	2.61
Somatic complaints	.21	3.17
Anxiety/depression	.29*	2.71
Social problems	.31*	2.61
Thought problems	.48***	1.56( <i>ns</i> )
Attention problems	.40*	2.10
Delinquent behavior	.27*	2.82
Aggressive behavior	.56***	1.02( <i>ns</i> )
Externalizing problems	.57***	0.92( <i>ns</i> )
Internalizing problems	.32*	2.55
Total problems	.28*	2.77

Note: Z scores compare the correlation between NARR\_DIS and CDC\_TOT to correlations between NARR\_DIS and CBCL/TRF scales.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ , two-tailed.

et al., 1993), utilizing the CDC to validate the narrative coding system may have lead to the inclusion of aggression, whereas aggression may be better characterized as comorbid with, rather than actually reflect, dissociation. Fur-

ther work is needed to tease these distinctions apart.

#### Overview of analyses to test hypotheses

In the sample as a whole, individual dissociation codes were standardized across Times 1 and 2, before being summed within Time 1 and Time 2 to yield a composite dissociation score (NARR\_DIS). Examination of frequencies of NARR\_DIS revealed that five children scored in the range greater than 1.5 standard deviations from the mean at Time 2. A *t* test,  $t(53) = 4.71, p < .001$ , showed that those high scorers who were in the validity subsample ( $n = 4$ ) scored significantly higher on CDC\_TOT ( $M = 19.50, SD = 5.80$ ) than did the rest of the children in the validity subsample ( $M = 5.86, SD = 5.56$ ). The narrative dissociation coding system, like the CDC, thus reflected both continuous and taxon qualities of dissociation.

No gender differences have previously been found in the preschool period for dissociation (Putnam, Hornstein, & Peterson, 1996), no hypotheses concerning gender were posited, and there were no significant effects for gender. However, because there were more boys than girls in the sample, gender was entered as a covariate in all analyses to

test hypotheses. The effect of maltreatment, subtype group of maltreatment, and time on dissociation during the preschool period was assessed by conducting two repeated measures analyses of covariance (ANCOVAs), controlling for gender.

#### *Maltreatment and subtype of maltreatment differences in dissociation across time*

In order to test the first two hypotheses, that maltreated preschool-aged children would evidence more dissociation than would nonmaltreated preschool-aged children, and that during the preschool period, dissociation would increase for maltreated children and decrease for nonmaltreated children, a repeated measures ANCOVA, controlling for gender, was conducted. Maltreatment status (maltreated, nonmaltreated) was the between-subjects variable, the difference in dissociation between Time 1 and Time 2 was the within-subjects variable, and gender was the covariate.

There was no effect of time on dissociation, Wilks's  $F(1, 75) = 1.54, p > .10$ , but there was, as predicted, an overall effect for maltreatment status across Times 1 and 2,  $F(1, 75) = 12.32, p = .001$ , such that maltreated children ( $M = 1.38, SE = 0.61$ ) demonstrated more dissociation than did nonmaltreated children ( $M = -1.89, SE = 0.71$ ). Furthermore, as predicted, there was a significant interaction between time and maltreatment status, Wilks's  $F(1, 75) = 5.02, p < .05$ .

Follow-up planned pairwise comparisons, controlling for gender, were then performed on the interaction to test the second hypothesis, that dissociation would increase for maltreated children and decrease for nonmaltreated children between Times 1 and 2. As predicted, there was a significant increase in dissociation for maltreated children,  $F(1, 75) = 4.10, p < .05$  (Time 1  $M = 0.32, SE = 0.65$ ; Time 2  $M = 2.45, SE = 0.93$ ). However, the decrease in dissociation for nonmaltreated children,  $F(1, 75) = 1.48, p > .10$  (Time 1  $M = -1.14, SE = 0.76$ ; Time 2  $M = -2.63, SD = 1.09$ ), was not significant. (See Figure 1 for a graph of the interaction between time and

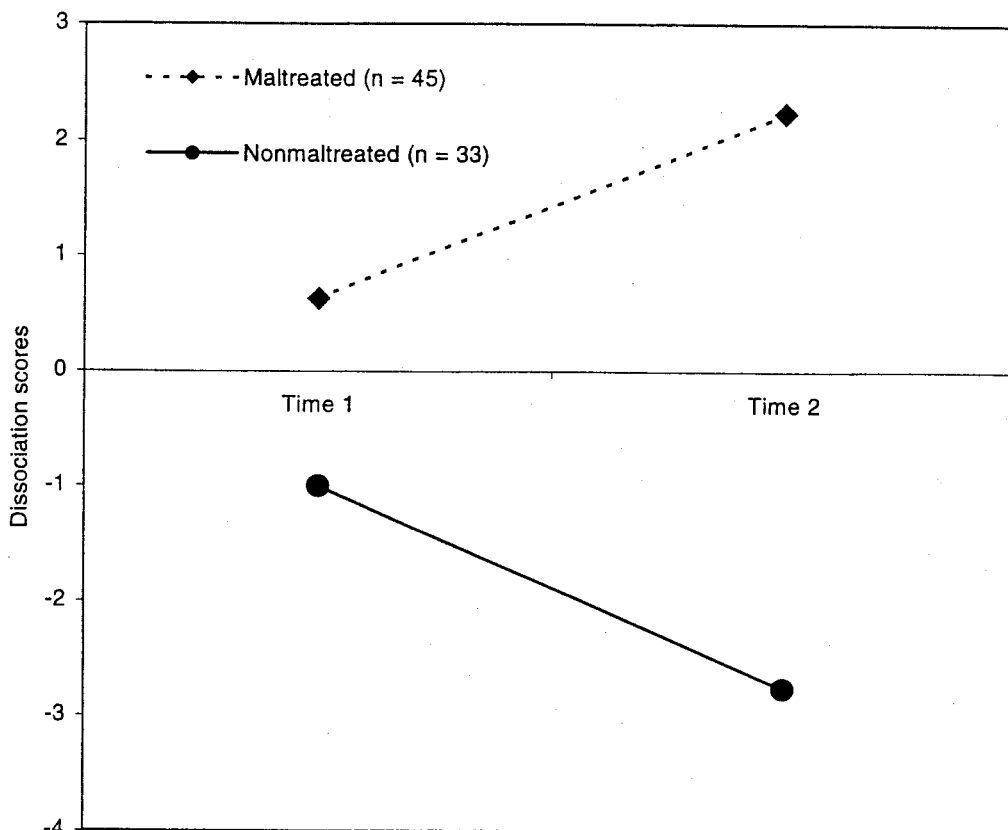
maltreatment status for dissociation.) There was thus an effect of time such that dissociation increased significantly for maltreated children but did not decrease significantly for nonmaltreated children.

A second repeated measures ANCOVA with planned contrasts, controlling for gender, was then performed to test the third hypothesis, that each subtype group of maltreated children would evidence more dissociation than would the nonmaltreated group. Subtype group (the sexually abused group, the physically abused group, the neglected group, the nonmaltreated group) was the between-subjects variable, and the difference in dissociation between Time 1 and Time 2 was the within-subjects variable. There was no effect of time on dissociation, Wilks's  $F(1, 73) = 3.45, p > .05$ , but there was an overall effect for subtype group across time,  $F(3, 73) = 6.73, p < .001$ . The interaction between time and subtype group was not significant,  $F(1, 73) = 1.84, p > .10$ .

Planned contrasts revealed that, as hypothesized, across Times 1 and 2, the sexually abused group,  $t(73) = 1.97, p = .05$  ( $M = 0.63, SE = 1.08$ ), and the physically abused group,  $t(73) = 4.41, p < .001$  ( $M = 3.14, SE = 0.91$ ), demonstrated more dissociation than did the nonmaltreated group ( $M = -1.89, SE = 0.69$ ). However, contrary to prediction, the neglected group,  $t(73) = 1.03, p > .10$  ( $M = -0.51, SE = 1.15$ ), did not.

#### *Further examination of the effect of subtype of maltreatment on dissociation*

Subtype analyses reported above found an effect on dissociation both for physical abuse and for sexual abuse, but not for neglect. The sexual abuse group and the physical abuse group were therefore combined into one group, the abused group, and a further repeated measures ANCOVA, controlling for gender, was conducted to assess change over time. Subgroups were made up of the abused (sexually, physically, or both) group ( $n = 33$ ), the neglected (solely) group ( $n = 12$ ), and the nonmaltreated group ( $n = 33$ ). In addition to



Note. Estimated marginal means, controlling for gender.

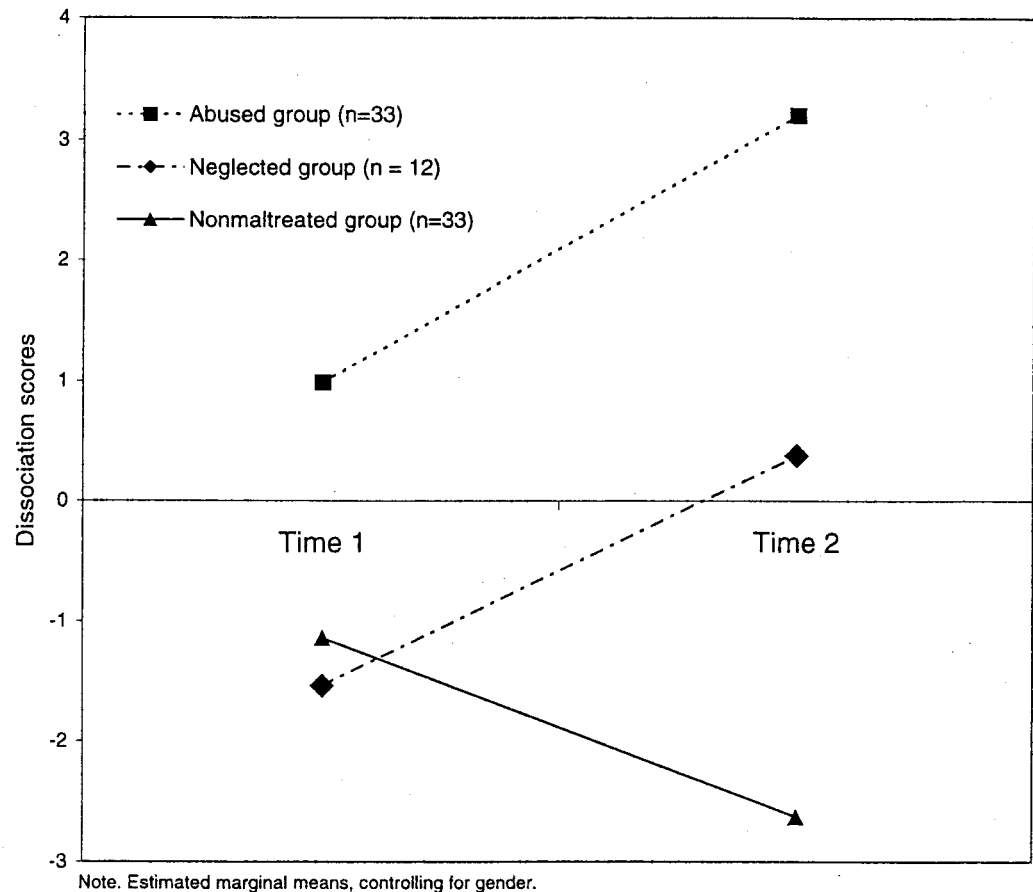
Figure 1. The interaction between time and maltreatment status for dissociation scores.

a main effect for subgroup,  $F(2, 74) = 8.33$ ,  $p = .001$ , there was a marginally significant interaction between subgroup and time,  $F(2, 74) = 2.48$ ,  $p < .10$ .

Follow-up pairwise comparisons revealed that it was the abused group that increased marginally over time,  $F(1, 74) = 3.17$ ,  $p < .10$  (Time 1  $M = 0.99$ ,  $SE = 0.75$ ; Time 2  $M = 3.20$ ,  $SE = 1.08$ ), whereas there was no significant change over time for the neglected group,  $F(1, 74) = 0.86$ ,  $p > .10$  (Time 1  $M = -1.54$ ,  $SE = 1.26$ ; Time 2  $M = 0.38$ ,  $SE = 1.81$ ), or the nonmaltreated group,  $F(1, 74) = 1.46$ ,  $p > .10$  (Time 1  $M = -1.14$ ,  $SE = 0.75$ ; Time 2  $M = -2.63$ ,  $SE = 1.08$ ). (See Figure 2 for a graph of the interaction between time, and the abused, neglected and nonmaltreated groups.)

## Discussion

The current study extended our understanding of the development of dissociation within a developmental psychopathology perspective in three important ways. First, the preschool years were identified as an important period for the development of the self and of dissociation, but one that had not been the focus of study in prior research. Utilizing a high-risk sample of maltreated versus nonmaltreated preschool-aged children from lower SES backgrounds, the effect of maltreatment and of subtype of maltreatment on dissociation was assessed. Second, strikingly different trajectories for dissociation in maltreated versus nonmaltreated children were found during the preschool years, supporting the hypothesis



**Figure 2.** The interaction between time and abused/neglected/nonmaltreated subgroups for dissociation scores.

that during the preschool period a coherent self is normative for nonmaltreated children but that the self is becoming increasingly fragmented and dissociated in maltreated children. Third, the study confirmed the utility of the narrative story-stem completion paradigm in providing a window on the inner world of dissociation in preschool-aged children.

Maltreated preschool-aged children evidenced more dissociation than did nonmaltreated children. Subtype of maltreatment was examined by creating distinct groups: the sexually abused group, the physically abused group, and the neglected group. The sexually abused group and the physically abused group evidenced more dissociation than did the nonmaltreated group, but the neglected group did not. Thus, maltreatment that reflects the commission of abuse was more likely to be associ-

ated with dissociation than was maltreatment that reflects deficiencies of care. This is consistent with both the overwhelmed information-processing theory of dissociation, and with the need for defensive strategies. However, future research on the salience of neglect is warranted given that neglect in infancy has previously been found to predict later dissociation (Ogawa et al., 1997).

In a notable finding, dissociation trajectories during the preschool period differed for maltreated and nonmaltreated children. Maltreated children, especially the sexually or physically abused children, showed increasingly more dissociation over time, whereas, contrary to prediction, the decrease for nonmaltreated children was not significant. There was no evidence, therefore, for the self normatively becoming more coherent during the



preschool period. However, nonmaltreated children did maintain a more coherent self than did the maltreated children. The normative decrease in dissociation found in school-age children (Putnam, 1996) may be more gradual than is the increase in dissociation for maltreated children during the preschool period. Thus, nonmaltreated children were better able to integrate experience into a coherent sense of self than were maltreated children, especially sexually or physically abused children, who increasingly dissociate during the preschool years. Sensitive periods for development are important to identify (Bornstein, 1989; Cicchetti & Tucker, 1994; Thelen & Smith, 1998), and refer to times when development is likely to occur and also to windows outside of which such development cannot occur. The preschool period may be a sensitive period for dissociation in both senses. Future research, designed to investigate this possibility, is needed.

Developmental antecedents for this widening gap between dissociation in maltreated and nonmaltreated children during the preschool years may be found in early attachment organization and in self-development. Most maltreated infants are categorized as failing to develop an organized pattern of attachment to their caregivers, demonstrating instead disorganization (Barnett, Ganiban, & Cicchetti, 1999; Carlson, Cicchetti, Barnett, & Braunwald, 1989; Cicchetti & Barnett, 1991), with corresponding multiple incompatible representational models of self in relationship to others (Liotti, 1992; Main, 1991). This failure to negotiate a stage-salient issue of development successfully may lead to disturbances throughout the life cycle (Sroufe, Egeland, & Kreutzer, 1990), as success or failure at each stage-salient issue is seen to have cascading implications for future development (Cicchetti, 1989a, 1989b). Indeed, disorganized attachment in infancy predicts the subsequent development of dissociation (Carlson, 1998; Ogawa et al., 1997).

Furthermore, following atypical attachment organization, early self-development in maltreated children suggests that the integration of the self is not proceeding normally (Fischer & Ayoub, 1994). For example, mal-

treated toddlers talk less about their physiological needs and express less negative affect than do nonmaltreated toddlers (Beeghly & Cicchetti, 1994; Cicchetti & Beeghly, 1987). Moreover, maltreated toddlers tend to be compulsively compliant and show insincere positive affect with their caregivers, focusing on their caregivers' needs rather than on their own (Crittenden, 1988; Crittenden & DiLalla, 1988). These atypical developments in the toddler period may follow largely disorganized attachment in infancy, affect the normal integration of self in the preschool period, and, for some maltreated children, presage the development of dissociation found in the current study.

Consistent with a developmental psychopathology perspective, much can be learned about normal development from studying atypical development (Cicchetti, 1984, 1989a, 1989b). Furthermore, the study is consistent with an organizational view of development, such that success at each stage is built on successful competence at prior stages. Nonmaltreated children, who are more likely to have organized attachment patterns to their caregivers in infancy, and adequate self-development in toddlerhood, have a more coherent self in the preschool period compared with maltreated children. Maltreated children, who are more likely to have disorganized patterns of attachment to their caregivers in infancy, and deviant self-development, develop an increasingly incoherent dissociated self during the preschool period. Moreover, this study challenges the view that the integration of self is sufficiently canalized to take place regardless, and reinforces the idea that self-development is not simply the result of maturation or caregiving history but a complex transaction between both (Cicchetti, 1991).

The current study suggests that maltreatment is a risk factor for the development of dissociation in the preschool years. Interventions should therefore begin as early as possible after the identification of maltreatment in order to deflect this pathway. Developmental psychopathology emphasizes the benefits of a mutually informative relationship between academic psychology and clinical practice (Cicchetti & Toth, 1991, 1992, 1998). Devel-

opmentally appropriate interventions for children may be enhanced by a greater understanding of the origins of dissociation. "Traumatically induced dissociative disturbances of self may provide a unique opportunity to observe the deviation or disruption of self-development and to test developmentally restorative interventions" (Putnam, 1995, p. 588). Given that the development of dissociative disorders is the result of a transaction between environmental trauma, specifically maltreatment, and self-development, interventions with young children need to be made in tandem with interventions with parents. The primary goal, of course, should be an end to the perpetration of maltreatment, and the working through of the child's trauma.

Furthermore, when intervening with children, it is important to assess developmental age rather than chronological age. Early stage-salient issues, such as the achievement of a secure or at least an organized pattern of attachment with caregivers, and the development of a coherent integrated self, may need to be reworked. Given that a disorganized attachment is linked to the development of dissociation, infant-parent psychotherapy could be utilized in order to help parent-child dyads move from a disorganized attachment to more secure patterns (Lieberman, 1992). For children who already have developed dissociative disorders, early therapeutic interventions are needed. It has been suggested that psychotherapy with dissociative children can be achieved more quickly and successfully than with adults who dissociate, due to greater plasticity in children's self-development (Hornstein & Tyson, 1991; Kluff, 1985). Lower levels of dissociation in the children would make the intergenerational transmission of maltreatment, once the children become parents, less likely to occur (Egeland & Susman-Stillman, 1996; Narang & Contreras, 2000).

Limitations of the present study include the relatively short longitudinal segment of 1 year. Extending the number of developmental periods during which assessments are conducted—as, for example, in the Ogawa et al. (1997) study—would help to clarify the antecedents and sequelae of these findings. In addition, although the narrative dissociation

coding system performed well in the current study, further validation is desirable. For example, comparison of children diagnosed with dissociative disorders and children without dissociative disorders utilizing the narrative dissociation coding system would be valuable: cutoff points could be established for dissociative identity disorder (multiple personality disorder) and for dissociative disorder not otherwise specified, the two dissociative disorders diagnosed in children. Additional validation for the narrative dissociation system with younger preschool-aged children is also warranted. The narrative dissociation coding system is a newly developed measure. Replication of the results with a larger sample would increase confidence in the current findings. Other dimensions of maltreatment, in addition to subtype of maltreatment, such as severity, identity of perpetrator, and chronicity, might shed further light on which subgroups of maltreated children are most at risk of developing dissociation.

The current research provides an exciting new departure for the narrative story-stem completion paradigm into the assessment of psychopathology. Future research might profitably examine which other disorders might be examined using narrative data in children too young for self-report measures. Narrative representations of parents, symptoms, and relationship organization might further illuminate other disorders (e.g., childhood depression, anxiety, and conduct disorder), augmenting what is known from adult observer measures with a measure of the child's own point of view. Our understanding of childhood disorders in preschool may be deepened by having a window on the child's representational world, rather than depending solely on observer report measures of behavioral symptoms.

Prior research has examined dissociation in young children utilizing observer report measures at the level of behavior. The current study explores dissociation in preschool-aged children at the level of representation. In the future, dissociation might profitably also be examined at the level of neurodevelopment. Reciprocal interactions whereby each level of developmental organization influences the

other (Gottlieb, 1992) might be examined in relation to dissociation. Moreover, in addition to the coactive effects of nature and nurture on development, a child's brain is thought to play an active role in its own organization in order to maintain the integrity of ever more complex neural development (Cicchetti & Tucker, 1994; Thelen & Smith, 1998). In the natural culling of initial synaptic connections, the effect of trauma on the brain may be to favor the maintenance of connections that are responsive to stress. Furthermore, the remaining synaptic connections may become highly

sensitized to being activated, leading to a lack of flexibility in coping in ways other than, for example, by dissociating. "Whether or not they cohere to form an integrated self, the homeostatic, self-regulatory structures of the mind are the major stabilities in the chaotic dynamics of psychological and neural development" (Cicchetti & Tucker, 1994, p. 547). Situations in which the self-regulatory structures of the mind do not cohere to form an integrated self might shed further light on the development of dissociation.

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