Early mother–child attachment: Longitudinal prediction to the quality of peer relationships in middle childhood

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Abstract

Although it is hypothesized that children with different insecure attachment patterns may experience a variety of peer difficulties, the question has been investigated almost exclusively for externalizing and internalizing behaviors with peers. The purpose of this study was to investigate how each of the insecure attachment patterns is related to other features of peer relationships using data from the NICHD SECC (N = 1,140 families). Secure children were rated by mothers and teachers as less excluded by peers than avoidant and disorganized children, although the latter was only significant for boys. No behaviors were uniquely associated with ambivalent children. Avoidant children were rated high by mothers and teachers on asocial behavior, and lowest by teachers on relational aggression. Disorganized children were rated low by mothers on prosocial behavior and high on peer victimization as reported by mothers and teachers. Teachers rated disorganized children as showing higher levels of relational aggression than securely- and ambivalently-attached children. The pattern of findings revealed mixed evidence for the specificity hypothesis.

Keywords

attachment, middle childhood, peer relationships

The experiences children have with peers influence many parts of their lives including their cognitive, social, and emotional functioning (Berndt, 1996; Hartup, 1996; Newcomb & Bagwell, 1996). Because of the impact peer relationships have on children's later adjustment, it is important to investigate pathways that lead to adaptive peer relationships. Many researchers have noted that children's experiences with peers are linked to family interactions and relationships (O'Neil & Parke, 2000; Parke & Ladd, 1992; Ross & Howe, 2009), including children's attachments to caregivers (Booth-Laforce & Kerns, 2009). It is well documented that securely-attached children are advantaged in their peer relationships (Schneider, Atkinson, & Tardif, 2001). Despite suggestions that the specific insecure-attachment patterns may be linked with specific peer difficulties (Sroufe, 1983), the question of specificity has not been investigated extensively. Research has focused almost exclusively on associations between specific insecure-attachment patterns and broad indices of externalizing behavior including aggression, oppositional problems, conduct problems, and hostility (see Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman, 2010) or internalizing behavior including depression, anxiety, or social withdrawal (Groh, Roisman, van IJzendoorn, Bakermans-Kranenburg, & Fearon, 2012; Madigan, Atkinson, Laurin, & Benoit, 2013). By contrast, studies of insecure attachment have neglected other important aspects of peer relationships. The goal of the present study was to, in a longitudinal study, examine how avoidant, ambivalent, and disorganized-attachment patterns forecast later qualities of peer relationships. Our focus was on peer interaction qualities (prosocial behavior, peer exclusion, asocial behavior with peers, peer victimization, relational aggression) rather than broader measures of externalizing and internalizing problems, as the latter are typically not assessed specifically in peer interactions.

The attachment relationship has been described as an enduring, emotional bond a child forms with a particular attachment figure (Ainsworth, 1989) whom the child uses as a secure base and as a safe haven. There is considerable variability in the degree to which an attachment figure functions as a secure base (Ainsworth, Blehar, Waters, & Wall, 1978), and a major tenet of attachment theory is that the quality of a child's attachment has implications for the child's later social interactions and relationships (Sroufe, Egeland, & Carlson, 1999; Sroufe & Fleeson, 1986). Several different explanations have been offered for why attachment and peer relationships would be related (Sroufe et al., 1999 & Sroufe & Fleeson, 1986). Children learn about the reciprocal nature of relationships through interactions with their attachment figures (Sroufe et al., 1999). In addition, children with a secure-attachment relationship will have experienced available and responsive caregiving, and will come to expect these positive relationship qualities in their other close, emotional relationships (Sroufe et al., 1999). Also, secure attachment gives children the confidence to explore new environments on their own, including peer relationships (Kerns, 1996), and it also ensures that securely-attached children will enter peer relationships with relationship skills that will make them more attractive to peers (Sroufe et al., 1999).

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There is already substantial evidence that children who are securely attached to their mothers are more socially competent with peers than are insecurely-attached children (Booth-LaForce & Kerns, 2009; Schneider et al., 2001). A meta-analysis by Schneider et al. (2001) confirmed an association between secure attachment and peer relationships, in that children who were more securely attached had higher quality friendships and were more socially competent with peers (less socially withdrawn and aggressive, and showing higher leadership and sociability with peers). For the most part, associations between secure attachment and peer relationships have been similar for boys and girls, although a few studies have found sex differences. Both Kerns and Barth (1995) and Cohn (1990) found that secure attachment was associated with peer popularity for boys but not girls. In addition, Cohn (1990) found that, in first grade, insecurely-attached boys were perceived as more aggressive by peers, and reported as less competent by teachers than securely-attached boys. Turner (1991) found that insecure boys showed more aggressive, assertive, controlling, and attention-seeking behaviors than did secure children. Insecure girls displayed more dependent and compliant behavior, but less assertive and controlling behavior, than secure children. In summary, there is substantial evidence that securely-attached children are more competent with peers than insecurely-attached children, and in some cases the findings have been stronger or different for boys than for girls.

It has also been speculated that the different insecure patterns are related to specific kinds of peer relational problems due to differences in the children's caregiving history (Sroufe, 1983). Evidence suggests that insecure avoidant children have experienced rejecting caregiving (Cassidy, 1994), and may come to expect others, including peers, to be rejecting. Due to this belief, they may preemptively act in an aggressive manner which leads them to be excluded by peers (Sroufe, 2005; Sroufe et al., 1999; Yunger, Corby, & Perry, 2005). Studies have found that insecure ambivalent children have experienced inconsistent caregiving yet also want to stay connected to others, thus, they may engage in a heightening strategy designed to elicit attention from caregivers (Cassidy, 1994). While young ambivalent children primarily do so by displaying negative emotion as a way to elicit attention and care, it has been proposed that by middle childhood, they may exhibit manipulative behaviors such as relational aggression as a way to elicit responses from social partners (Hans, Bernstein, & Sims, 2000; Yunger et al., 2005). Insecure ambivalent children may also be less competent and self-confident due to diminished exploration (Cassidy, 1994), which may place them at risk to be victimized by peers (Sroufe, 2005; Sroufe et al., 1999). Insecure disorganized children's caregivers tend to be psychologically unavailable (depressed, abusive or neglectful; Lyons-Ruth & Spielman, 2004). Because of this, disorganized children are unable to interact with others in coherent, organized ways which may lead them to withdraw from social situations or to act out aggressively (Jacobvitz & Hazen, 1999).

Few studies have investigated the unique peer correlates of insecure-attachment patterns. In the Minnesota study, preschool teachers were asked to write a description for each child and these were then used to classify children into categories. The categories represented the theoretical patterns expected as likely outcomes for children who were avoidant (e.g., hostile, isolated, etc.) or ambivalent (e.g., helpless, impulsive, etc.). Most of the avoidant children were placed in the avoidant categories (6 of 8), and most of the ambivalent children were placed in the ambivalent categories

(5 of 7; Sroufe, 1983). Troy and Sroufe (1987) found that 4- and 5-year-old avoidant children were likely to victimize peers, while ambivalent children were likely to be characterized by victimization. In a follow-up study of the Minnesota sample, Shulman, Elicker, and Sroufe (1994) found that avoidant preadolescents were less likely to be involved in friendships during summer camp, while ambivalent children tried to become involved with peers, but did so less effectively. Dykas, Ziv, and Cassidy (2008) compared insecure-dismissing and secure/autonomous adolescents, and found that the dismissing adolescents were less accepted by peers and less likely to be nominated as prosocial, and also were more likely than secure adolescents to be nominated as aggressive, shy/withdrawn, or victimized.

Later studies included assessment of the disorganized-attachment pattern. Lyons-Ruth, Alpern, and Repacholi (1993) found that the strongest single predictor of hostile behavior in the preschool classroom was disorganized attachment. Additionally, Jacobvitz and Hazen (1999) found that disorganized children actively avoided contact with peers and also showed defensively aggressive behavior. Granot and Mayseless (2001) found that during middle childhood, avoidant and disorganized children had the highest level of peer rejection. Ambivalently-attached children were rated by teachers as less socially adept than secure children, and also perceived themselves to be more rejected than they actually were.

In summary, the limited evidence suggests there may be some differences in the peer interactions and relationships of insecurely-attached children. Specifically, there is some evidence that avoidant children are hostile and aggressive and less prosocial, and ambivalent children are victimized, although the findings of Dykas et al. (2008) suggest that avoidant children may also become victimized by peers at older ages. Avoidant children are also less accepted by peers. Only three studies examined disorganized children (Granot & Mayseless, 2001; Jacobvitz & Hazen, 1999; Lyons-Ruth et al., 1993), and they suggest that disorganized children may show either social withdrawal or aggression with peers and are less well-liked by peers. Most samples were selected to be high risk (except for Garanot & Mayseless, 2001), and did not examine gender differences due to their modest sample size. In addition, prior studies have focused primarily on aggression or externalizing behavior problems (see Fearon et al., 2010) and have ignored other important aspects of peer relationships.

The purpose of this study was to extend our understanding of how each of the insecure attachment patterns is related to qualities of peer relationships. Specifically, we examined how the quality of mother–child attachment at age three predicted children's peer relationships at middle childhood, an age when peers are taking on greater significance (Parker & Gottman, 1989; Richardson, 2005; Sullivan, 1953). We included reports of peer relationships from mothers and teachers to assess peer relationships in different settings, and we employed a longitudinal design that allowed us to examine how early attachment predicts later peer relationships. This study was based on data collected in the NICHD Study of Early Child Care. Although there are several published studies from the data set looking at attachment and peer relationships during the preschool and early school years (Belsky & Fearon, 2002; McElwain, Booth-LaForce, & Wu, 2011; McElwain, Cox, Burchinal, & Macfie, 2003; NICHD Early Child Care Research Network, 2006; Raikes & Thompson, 2008), only a few studies examine early attachment as a predictor of peer relationships in middle childhood, and these studies focused on the peer

correlates of secure attachment. West, Mathews, and Kerns (2013) found that secure attachment in the first 3 years was associated with greater peer liking as reported by first grade teachers. McElwain, Booth-LaForce, Lansford, Wu, and Dyer (2008) found that attachment security at 36 months was related to friendship quality at third grade, and Lucas-Thompson and Clarke-Stewart (2007) found that attachment security at 24 months was related to friendship quality at fourth grade. In addition, Booth-Laforce and Oxford (2008) found that attachment security at 24 months predicted patterns of social withdrawal from Grades 1 to 6.

Our study extends earlier work with this sample by examining how all four attachment patterns, assessed in preschool, predict a broad set of peer relationship qualities in middle childhood. It also complements earlier work with this sample that has looked at early attachment and its prediction of friendship quality in middle childhood (McElwain et al., 2008; Lucas-Thompson & Clark-Stewart, 2007). The first hypothesis was that insecure-ambivalent children, who may have developed manipulative patterns of behavior as a way to maintain the attention of inconsistently available caregivers, would show the highest levels of relational aggression. We also hypothesized that ambivalent children would be the most victimized by their peers, as was found in an earlier study of preschoolers (Troy & Sroufe, 1987). The second hypothesis was that insecure-avoidant children and insecure-disorganized children would show the highest levels of asocial behavior and be lowest on prosocial behavior, based on prior research that shows both of these patterns are associated with isolated and hostile behavior (Jacobvitz & Hazen, 1999; Lyons-Ruth et al., 1993; Sroufe, 1983). Finally, based on previous research that has shown that securely-attached children are more well-liked by peers (Schneider et al., 2001), our third hypothesis was that securely-attached children would be less excluded by peers than the insecurely-attached children. Although we did not have any a priori hypotheses regarding possible gender differences, we included gender in our analyses so we could test whether the peer correlates of the four attachment patterns were similar for boys and girls.

Method

Participants

The sample included families ($N = 1364$) enrolled in the NICHD Study of Early Child Care. Details of study recruitment and data collection protocols are described on the study's website (https://secc.rti.org/). Data collection was approved by the institutional review boards for each of the 10 US study sites in the NICHD SECC, and written informed consent was received from each family. Of the 1,140 children used for this subsample (selected because they had 36-month attachment data), 51% were male, 83% were Caucasian, 85% came from intact families, and the overall family income was 2.95 times that of the poverty level.

Procedure

Children in the NICHD study have been followed from birth to age 15 years. The present study included some of the data collected during Phase I (birth through 3 years of age) and Phase III (second through sixth grades). Relevant to this study, research assistants made observational assessments of attachment in a laboratory playroom when children were 3 years of age. During third and fifth grade, mothers and teachers reported on children's peer competence.

Measures

Mother–child attachment. Attachment security at 36 months was assessed using a modified Strange Situation procedure (Cassidy & Marvin and the MacArthur Working Group on Attachment, 1992). The mother and child were given time to make themselves comfortable in a room which contained toys and chairs. After 3 minutes, the mother was signaled to leave the room. This first separation lasted 3 minutes, unless the child was distressed. The mother came back in the room for a 3-minute reunion. The mother then left again and this second separation lasted 5 minutes, unless the child was distressed. The assessment ended after the second 3-minute reunion.

The child's behavior during the procedure was classified according to the system developed by Cassidy & Marvin and the MacArthur Working Group on Attachment (1992). This system classifies preschoolers as secure (B) or insecure (A, C, and D). Secure (B) children are able to resolve the stress of the situation and resume calm, comfortable interaction with the mother. Insecure-avoidant (A) children remain neutral during the procedure, and even after a reunion they rarely express negative or positive emotion toward the mother. Insecure-ambivalent (C) children show fussy, whiny, or resistant behavior toward the mother. They seek contact, but the contact is not satisfactory. Insecure-controlling/other (referred to as "disorganized" in the present study) (D) children are either controlling or show a combination of strategies (such as both avoidance and ambivalence) during the reunions. Controlling children take charge of the reunion, by acting as a caretaker or in a punitive way. In total, 64% of the children were classified as secure, 4% were classified as insecure-avoidant, 15% were classified as insecure-ambivalent, and 17% were classified as insecure-controlling/other. Observer agreement for the attachment classifications was 75.6%. Although attachment data were available at earlier ages, attachment security at 36 months was used in the current study so we could use the child's most recent attachment classification to predict qualities of peer relationships.

Peer relationship qualities. We examined five aspects of peer relationships: prosocial behavior, exclusion by peers, asocial behavior, peer victimization, and relational aggression. These variables were chosen because of their relevance to both attachment and to the major developmental peer tasks of middle childhood, which include competent peer interaction and integration in the peer group.

Peer relationship qualities at third grade and fifth grade were assessed using the 43-item Child Behavior with Peers Questionnaire. Measurements from the two grades were included to assess peer relationship qualities across middle childhood. The Child Behavior with Peers Questionnaire includes 31 items, from Ladd's revision of the Child Behavior Scale (Ladd & Profilet, 1996), measuring overt aggressive behavior (e.g., "Argues with peers"), prosocial behavior (e.g., "Seems concerned when other children are distressed"), asocial behavior (e.g., "Likes to be alone"), and exclusion by peers (e.g., "Not chosen as playmate by peers"). The questionnaire also includes six items measuring peer victimization (e.g., "Is ridiculed by peers"), adapted from the Peer Victimization Scale (Kochenderfer & Ladd, 1996). Additionally, it includes six items measuring relational aggression (e.g., "Spreads rumors or

gossips about some peers"), from the Children's Social Behavior Scale – Teacher Form (Crick, 1996). The prosocial behavior, exclusion by peers, asocial behavior, peer victimization, and relational aggression scales were used in the current study.

Mothers and teachers rated the study child's behavior with peers on a 3-point scale, in which $0 = $ Not true, $1 = $ Sometimes true, and $2 = $ Often true. Cronbach's alphas for the scales ranged between .78 and .89 for Grade 3, and .74 and .91 for Grade 5.

Mother reports at Grades 3 and 5 were moderately to highly correlated (rs ranged from .47 to .60), and averaged to create one score for each of the five peer variables. Teacher reports from the third and fifth grades were moderately related (rs ranged from .32 to .41), and were also averaged. Although 1,140 children had attachment data, only 1,011 children had peer reports from mothers or teachers. Children were included in the analyses if they had at least one report from one source at either the third or the fifth grade. Correlations among the peer variables (for both mother and teacher ratings) are reported in Table 1. There was some evidence for the validity of the mother- and teacher-reports of peer relationship qualities in this sample, in that mother reports and teacher reports for the same behaviors were correlated, with rs ranging from .34 to .43. We decided not to aggregate mother and teacher reports because examining their reports separately allowed us to test whether peer correlates of attachment were similar in two different contexts (home and school).

Results

We conducted a series of 4 (attachment group) by 2 (gender) ANOVAs on our peer competence variables, separately for mother and teacher ratings. We conducted Tukey posthoc tests to clarify the nature of any significant main effects or interactions.

> **Hypothesis 1**: Do ambivalent children engage in more relational aggression and are they more victimized by peers? (See Tables 2 and 3.)

Although there were attachment differences for mother and teacher ratings of peer victimization and teacher ratings of relational aggression, the hypotheses regarding ambivalence were not confirmed. Mothers and teachers rated disorganized children significantly higher on peer victimization than secure and ambivalent children; avoidant children, whose scores were lower than disorganized children but higher than secure and ambivalent children, were not significantly different from the other groups. There was also a significant gender effect for peer victimization for mother and teacher ratings, as mothers and teachers rated boys ($M = .25$ and $M = .19$, respectively) as more victimized than girls ($M = .19$ and $M = .12$, respectively). The attachment by gender interactions for mother and teacher ratings of peer victimization were not significant.

Although there were no attachment differences in relational aggression based on mothers' ratings, there was a significant effect for teacher ratings. Teachers rated disorganized children significantly higher on relational aggression than avoidant and secure children. In addition, teachers rated avoidant children significantly lower on relational aggression than secure, ambivalent, and disorganized children. There were no gender differences or attachment by gender interaction for ratings of relational aggression.

> **Hypothesis 2**: Are avoidant and disorganized children the most asocial and least prosocial? (See Tables 2 and 3.)

This hypothesis was partially confirmed. There were significant attachment group differences for mother and teacher ratings of asocial behavior. Follow-up tests showed that mothers rated avoidant and disorganized children, and teachers rated avoidant children, significantly higher on asocial behavior than secure and ambivalent children. There was also a significant gender effect for mother ratings of asocial behavior. Mothers reported boys ($M = .29$) as more asocial than girls ($M = .25$). In addition, the gender by attachment interactions were significant for both mother and teacher ratings of asocial behavior. One-way ANOVAs were conducted separately for boys and girls to investigate the differences. For mother report of asocial behavior, there was a significant attachment effect for boys $F(3, 493) = 16.73$, $p < .001$ but not for girls $F(3, 492) = .28$, $p = .84$, thus the attachment group differences for asocial behavior held for boys but not for girls. Mothers rated avoidant ($M = .49$) and disorganized boys ($M = .49$) higher than secure ($M = .26$) and ambivalent boys ($M = .21$). For teacher report of asocial behavior, there were significant attachment effects for both boys $F(3, 480) = 4.22$, $p < .01$ and for girls $F(3, 478) = 4.80$, $p < .01$. Teachers rated avoidant ($M = .52$) and disorganized boys ($M = .56$) higher than secure ($M = .38$) and ambivalent boys ($M = .43$). Teachers also rated avoidant girls ($M = .66$) higher than secure, ambivalent and disorganized girls (Ms = .34, .36, and .32, respectively).

For prosocial behavior, there was a significant attachment effect. Mothers rated disorganized children significantly lower than secure children. Mothers' ratings for avoidant and ambivalent children were not significantly different from the other attachment groups. Although the attachment effect was significant for teacher prosocial ratings, and teachers rated disorganized children the lowest and securely-attached children the highest on prosocial behavior, none of the follow-up tests were significant. There was also a significant gender effect for prosocial behavior for both mother and teacher ratings. Mothers rated girls ($M = 1.73$) as more prosocial than boys ($M = 1.61$), and teachers rated girls ($M = 1.56$) as more prosocial than boys ($M = 1.36$). The gender by attachment interaction was not significant.

> **Hypothesis 3**: Are insecurely-attached children more excluded by peers than securely-attached children?

There was a significant attachment effect for peer exclusion for both mother and teacher ratings. Follow up tests revealed that mothers and teachers rated secure children significantly lower than avoidant and disorganized children, but not ambivalent children, on exclusion. There was also a significant gender effect for peer exclusion for teacher ratings. Follow-up tests revealed that teachers rated boys ($M = .40$) as more excluded than girls ($M = .31$). For both mother and teacher ratings, there was also a significant attachment by gender interaction. To interpret the attachment by gender interactions, one-way ANOVAs were calculated separately for boys and girls. For mother report of exclusion, there was a significant attachment effect for boys $F(3, 493) = 14.46$, $p < .001$ but not for girls $F(3, 491) = .38$, $p = .77$. Similar to asocial behavior, the attachment group differences for excluded behavior held for boys but not for girls, in that mothers rated avoidant ($M = .33$) and disorganized boys ($M = .39$) higher than secure boys ($M = .17$) and ambivalent boys ($M = .13$). For teacher report of exclusion, there was a

Table 1. Associations among peer variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Relational aggression – Mother		.40**	−.27**	.19**	.30**	.34**	.19**	−.20**	.05	.14**
2. Victimization – Mother			−.24**	.37**	.68**	.23**	.43**	−.26**	.21**	.39**
3. Prosocial – Mother				−.21**	−.22**	−.23**	−.22**	.36**	−.07*	−.19**
4. Asocial – Mother					.50**	.03	.20**	−.21**	.34**	.29**
5. Exclusion – Mother						.18**	.37**	−.22**	.23**	.42**
6. Relational aggression – Teacher							.40**	−.42**	.06	.29**
7. Victimization – Teacher								−.41**	.33**	.65**
8. Prosocial – Teacher									−.35**	−.46**
9. Asocial – Teacher										.66**
10. Exclusion – Teacher										

Note. *p < .05; **p < .01.

Table 2. Means (and Standard Deviations) for mother's report of peer relationship qualities.

	Secure N = 615	Ambivalent N = 167	Avoidant N = 46	Disorganized N = 164	Total N = 992	Attachment effect	Gender effect	Attachment by gender interaction
Relational Aggression	.27 (.26)	.29 (.29)	.23 (.27)	.32 (.31)		$F(3, 984) = 1.84$	$F(1, 984) = 1.50$	$F(3, 984) = .27$
Boys	.24 (.24)	.27 (.26)	.24 (.28)	.30 (.29)	.25 (.26)			
Girls	.30 (.28)	.31 (.32)	.23 (.27)	.34 (.32)	.30 (.29)			
Victimization	$.21_a$ (.30)	$.20_a$ (.29)	$.25_{a,b}$ (.35)	$.31_b$ (.33)		$F(3, 984) = 5.04^{**}$	$F(1, 984) = 4.96^*$	$F(3, 984) = 1.56$
Boys	.24 (.32)	.20 (.29)	.28 (.32)	.38 (.35)	.25 (.32)			
Girls	.18 (.28)	.20 (.30)	.23 (.40)	.23. (.30)	.19 (.29)			
Prosocial	1.69_a (.31)	$1.66_{a,b}$ (.35)	$1.64_{a,b}$ (.34)	1.57_b (.38)		$F(3, 984) = 6.35^{***}$	$F(1, 984) = 28.34^{***}$	$F(3, 984) = 1.20$
Boys	1.65 (.30)	1.58 (.39)	1.53 (.36)	1.48 (.40)	1.61 (.34)			
Girls	1.74 (.30)	1.73 (.29)	1.75 (.29)	1.66 (.35)	1.73 (.31)			
Asocial	$.26_a$ (.29)	$.23_a$ (.26)	$.39_b$ (.43)	$.36_b$ (.34)		$F(3, 984) = 8.68^{***}$	$F(1, 984) = 13.77^{***}$	$F(3, 984) = 10.48^{***}$
Boys	$.26_a$ (.28)	$.21_a$ (.23)	$.49_b$ (.46)	$.49_b$ (.41)	.29 (.32)			
Girls	.26 (.30)	.25 (.28)	.29 (.37)	.23 (.23)	.25 (.29)			
Exclusion	$.18_a$ (.28)	$.16_a$ (.25)	$.30_b$ (.45)	$.29_b$ (.33)		$F(3, 984) = 8.89^{***}$	$F(1, 984) = 2.51$	$F(3, 984) = 7.35^{***}$
Boys	$.17_a$ (.27)	$.13_a$ (.23)	$.33_b$ (.42)	$.39_b$ (.37)	.20 (.30)			
Girls	.20 (.29)	.19 (.26)	.26 (.50)	.20 (.28)	.20 (.29)			

Note. Means with different subscripts within a row are significantly different from one another.
*p < .05; **p < .01; ***p < .001. All peer relationship variables were rated on a 3-point scale. Possible scores range from 0–2 and higher scores indicate more of that quality.

significant attachment effect for boys $F(3, 478) = 9.89$, $p < .001$, and for girls $F(3, 478) = 3.37$, $p < .05$. Teachers rated avoidant ($M = .55$) and disorganized boys ($M = .66$) higher than secure ($M = .33$) and ambivalent boys ($M = .41$). Teachers also rated avoidant girls ($M = .59$) higher than secure, ambivalent and disorganized girls ($Ms = .29$, .33, and .30, respectively).

Discussion

The present study, based on a large sample followed longitudinally, provided an opportunity to evaluate whether specific insecure-attachment patterns are associated with specific peer relationship qualities. The results provided limited evidence for the specificity hypothesis, in that only some insecure-attachment patterns were related to peer relationship qualities, and some effects were found only for mother or teacher reports. Although we had predicted that ambivalent children would be the most victimized and would engage in the most relational aggression, it was instead the disorganized children who were rated the highest on these characteristics, and ambivalent children did not differ from securely-attached

children on any of the peer relationship measures. While we expected both avoidant and disorganized children to show low levels of prosocial behavior, only the disorganized children were less prosocial than the securely-attached children. As expected, mothers rated avoidant and disorganized children, and teachers rated avoidant children, as more asocial than secure and ambivalent children, although the differences for mothers' ratings were only significant for boys. Avoidant children were not distinguished on prosocial behavior or victimization, although they were rated (by teachers) as lowest on relational aggression and were more asocial and excluded by peers than were securely-attached children. Securely-attached children were more accepted by peers than were avoidant and disorganized children, but they did not differ from ambivalent children. The associations between secure attachment and peer exclusion were stronger for boys than for girls, a pattern consistent with earlier studies that found stronger associations between attachment and peer popularity for boys (Cohn, 1990; Kerns & Barth, 1995).

The results of this longitudinal study show that mothers and teachers of disorganized children viewed the peer relationships of disorganized children most negatively. Interestingly, it was found

Table 3. Means (and Standard Deviations) for teacher's report of peer relationship qualities.

	Secure $N = 594$	Ambivalent $N = 166$	Avoidant $N = 44$	Disorganized $N = 158$	Total $N = 962$	Attachment effect	Gender effect	Attachment by gender interaction
Relational aggression	.33$_a$ (.35)	.39$_{a,c}$ (.38)	.17$_b$ (.24)	.41$_c$ (.38)		$F(3, 954) = 6.74^{***}$	$F(1, 954) = 1.00$	$F(3, 954) = 2.40$
Boys	.30 (.32)	.31 (.31)	.24 (.28)	.39 (.38)	.31 (.33)			
Girls	.35 (.39)	.48 (.42)	.11 (.15)	.44 (.39)	.38 (.39)			
Victimization	.13$_a$ (.24)	.14$_a$ (.22)	.16$_{a,b}$ (.32)	.26$_b$ (.33)		$F(3, 954) = 9.58^{***}$	$F(1, 954) = 9.92^{**}$	$F(3, 954) = .46$
Boys	.17 (.28)	.16 (.25)	.21 (.40)	.31 (.34)	.19 (.29)			
Girls	.10 (.19)	.12 (.19)	.11 (.16)	.21 (.32)	.12 (.23)			
Prosocial	1.49 (.39)	1.43 (.41)	1.47 (.42)	1.37 (.42)		$F(3, 954) = 4.56^{**}$	$F(1, 954) = 38.61^{***}$	$F(3, 954) = 2.38$
Boys	1.39 (.41)	1.37 (.43)	1.33 (.41)	1.20 (.45)	1.36 (.42)			
Girls	1.59 (.34)	1.48 (.38)	1.61 (.39)	1.53 (.35)	1.56 (.35)			
Asocial	.36$_a$ (.39)	.39$_a$ (.39)	.59$_b$ (.50)	.44$_{a,b}$ (.41)		$F(3, 954) = 5.87^{**}$	$F(1, 954) = 1.84$	$F(3, 954) = 3.37^*$
Boys	.38$_a$ (.41)	.43$_a$ (.44)	.52$_b$ (.46)	.56$_b$ (.48)	.42 (.43)			
Girls	.34$_a$ (.37)	.36$_a$ (.33)	.66$_b$ (.55)	.32$_a$ (.33)	.35 (.37)			
Exclusion	.31$_a$ (.42)	.37$_{a,c}$ (.44)	.57$_{b,c}$ (.56)	.48$_c$ (.53)		$F(3, 954) = 9.47^{***}$	$F(1, 954) = 6.41^*$	$F(3, 954) = 5.68^{**}$
Boys	.33$_a$ (.45)	.41$_a$ (.50)	.55$_b$ (.62)	.66$_b$ (.56)	.40 (.49)			
Girls	.29$_a$ (.39)	.33$_a$ (.38)	.59$_b$ (.48)	.30$_a$ (.45)	.31 (.41)			

Note. Means with different subscripts within a row are significantly different from one another.

$^*p < .05$; $^{**}p < .01$; $^{***}p < .001$. All peer relationship variables were rated on a 3-point scale. Possible scores range from 0–2 and higher scores indicate more of that quality.

that disorganization (and not ambivalence as hypothesized) was related to higher levels of peer victimization and relational aggression. Specifically, disorganized children were rated by both mothers and teachers as more victimized by peers than secure and ambivalent children, and more relationally aggressive (based on teacher ratings) than avoidant and secure children. In addition, disorganized children were rated as less prosocial (by mothers) and more asocial than secure children, although the latter difference was only significant for boys. Mothers may see their children interact with a wider variety of peers (e.g., with siblings, children of family friends, cousins) in more settings than teachers do (e.g., more unstructured settings), and thus may have more opportunities to see their child engaging in prosocial behavior. Overall, the results indicate that disorganized children seem to have the most problematic interactions with peers, and thus disorganized attachment (rather than lack of a secure attachment) may place children at greatest risk for problematic peer relationships.

A next step would be to explore the reasons *why* disorganized children have difficulty in peer relationships. Several mechanisms may play a role. To successfully navigate the peer world, children need to be able to address conflicts that arise and to regulate their emotions (Parker & Gottman, 1989). It has been speculated that disorganized children are prone to experiencing overwhelming negative emotions and fail to develop effective emotion regulation capacities (DeOliveira, Bailey, Moran, & Pederson, 2004). For example, they catastrophize (always expecting the worst to happen) when things go wrong (Brumariu, Kerns, & Seibert, 2012). Children also need to develop social initiation skills which are often acquired in the context of parent–child interaction (Parke et al, 1989). Experiences with helpless or frightening caregivers may leave disorganized children feeling helpless (Lyons-Ruth and Jacobvitz, 2008; Moss, St-Laurent, Dubois-Comtois, & Cyr, 2005), and consequently they may withdraw or fail to assert themselves with peers, which could lead them to be victimized by others. Social cognitive biases may also play a role, in that the tendency for disorganized children to see the world as a threatening place may lead them to react aggressively to peers (Jacobvitz & Hazen,

1999). Finally, disorganized children often show freezing or other incoherent or atypical social behaviors under stress, which if manifested around peers may lead them to be ostracized or ridiculed.

Avoidant children, like disorganized children, were less likely than securely-attached children to be accepted by their peers. They were also rated as more asocial with peers, although for mothers' ratings the effects held only for boys. It appears that the difficulties avoidant children have with peers is due both to active efforts of peers to exclude them as well as to their own withdrawal from the peer group. What is not clear from this study is whether their social withdrawal contributes to or is a result of rejection by peers. Studies that examine changes in asocial behavior and peer rejection over time are needed to test whether asocial behavior and peer rejection emerge simultaneously or whether one leads to the other. Interestingly, avoidant children were less liked but were not less prosocial, and in fact were rated by teachers as lowest on relational aggression. It may be that they rarely demonstrate relational aggression in school because they have limited close relationships with peers.

Contrary to our hypotheses, ambivalent children were not found to show peer relationship difficulties. Although an earlier study (Sroufe, 1983; Troy & Sroufe, 1987) showed that ambivalent children were more likely to be victimized by peers and were less socially competent, those analyses were based on classifying children as secure, avoidant, or ambivalent, and did not separate out children who were disorganized. It is possible that a number of children classified as ambivalent in the earlier study would have been identified as disorganized. A study that included all four attachment patterns (Granot & Mayseless, 2001) found that ambivalent children were rated by teachers as less socially-adept than secure children, but that study was similar to the present study in showing that avoidant and disorganized children have the most difficulties in their peer relationships. It may be that ambivalent children are somewhat passive with peers but nevertheless are cooperative enough that they avoid rejection by the peer group.

The present study showed that children with disorganized attachment had the most problems in peer relationships, although avoidant children also had difficulties establishing interactions and being

accepted by peers. Disorganized and avoidant children may benefit from social skills training that will help them become engaged in the peer group. For instance, Berner, Fee, and Turner (2001) implemented a social skills training program in which several problem solving skills were taught (e.g., identifying the problem, generating and implementing solutions). After intervention, the treatment group participated in conversations, initiated interactions more often and spent less time alone than the control group. In addition, disorganized children may benefit from social skills training that targets peer victimization. For example, DeRosier and Marcus (2005) implemented a program that included role-playing and modeling to demonstrate effective communication, cooperation, compromise, and coping strategies for teasing and peer pressure. Children who participated in this intervention program showed improvement in social, emotional, and behavioral domains. Thus, the present study suggests ways to help disorganized children improve their peer interactions, which may make them more attractive to peers.

A strength of the study is that we focused on specific aspects of peer relationship qualities rather than broad indices of internalizing and externalizing behavior problems. Additionally, the present study is one of only a few from the NICHD data set that focuses on these relations during the middle childhood years, a time when peer relationships begin to take on greater significance, and examine all four attachment patterns. An additional strength of the current study is that multiple sources of data for peer competence were used. Each source may have both strengths and weaknesses, as different reporters may have the opportunity to watch children interact with peers in different contexts which could lead to different views of peer behavior for each reporter. For example, mothers may see their children interact with peers in more settings than do teachers (e.g., at home, at church, on sports teams), although their reports may be biased due to mothers wishing to portray their children in the best possible light (Schneider & Byrne, 1989). On the other hand, teachers may see children in only one context (as in the present study), but their reports tend to be more objective than mother reports, and teachers are familiar with norms of children's social behavior (Schneider & Byrne, 1989). For example, in this study only teacher reports of relational aggression were related to attachment. It is possible that relational aggression occurs more often at school or is more readily observed by an adult in that context.

A limitation to this study is that attachment was not assessed at a later time point. Previous research has found that attachment can and does change (Fraley, 2002; Weinfield, Whaley, & Egeland, 2004). It is possible that some of our findings may have been different if attachment had been assessed concurrently. Thus, this study tests whether early attachment has implications for later peer relationships. In addition, although we assessed several different aspects of peer relationships, future studies could focus on investigating other peer skills such as conflict resolution, peer leadership, or close peer relationships (i.e., friendships). Finally, future studies could extend this work by testing specific mechanisms that could explain why insecure-attachment patterns are associated with specific peer relationship qualities. For example, although both avoidant and disorganized attachment predicted lower peer acceptance in middle childhood, different factors might account for these associations; avoidant children might avoid peers, which leads them to be further excluded from the peer group, whereas disorganized children might be emotionally dysregulated or behave in manipulative ways that lead other children to avoid them or even victimize them.

In conclusion, this study adds to the literature by investigating whether attachment patterns differentially predict different peer relationship qualities. The overall pattern was that the disorganized children had the greatest difficulties in their peer relationships, in that they were more victimized, relationally aggressive, and excluded by peers and less prosocial than securely-attached children. Ambivalent children rarely differed from any of the other attachment groups, and avoidant children were distinguished primarily on measures of asocial behavior and peer exclusion. Future studies could extend these findings by investigating mechanisms such as emotion regulation (Contreras, Kerns, Weimer, Gentzler, & Tomich, 2000) or expectations about social partners (e.g., attributions of hostile intent; Cassidy, Kirsh, Scolton, & Parke, 1996) that may explain why there is a link between disorganized or avoidant attachment patterns and peer relationships.

Funding

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