

Attachment, self-worth, and peer-group functioning in middle childhood

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Abstract

We evaluated links between peer-group functioning and indicators of attachment security in relation to both mother and father in middle childhood, among 73 10-year-olds (37 girls). Children's perceptions of security with both parents, coping styles with mother, and self-worth were assessed. Classmates, teachers, and mothers evaluated the participants' peer-related behavioral characteristics. Children's perceptions of security to both parents were related to others' appraisals of their social competence; perceptions of security to father were related to lower aggression. We did not find child gender effects, but children had higher security scores in relation to mother than to father. Self-worth perceptions mediated the relation between attachment and social competence.

Keywords: Attachment, self-worth, avoidant coping, preoccupied coping, social competence

Introduction

The nature and quality of children's functioning in the world of peers have been linked, both theoretically and empirically, with the quality of the child-parent attachment relationship. Attachment theory has provided a framework for understanding how early parent—child relationships may support or undermine the child's development of relationships beyond family boundaries, as well as the child's self-system. Specifically, the child who receives responsive and sensitive parenting from the primary caregiver is said to form an internal working model of that caregiver as trustworthy and dependable, as well as a model of the self as someone who is worthy of such care (Bowlby, 1973, 1982). Also, the securely attached child is able to use the caregiver as a secure base for exploration (Ainsworth, Blehar, Waters, & Wall, 1978), including the exploration of relationships with peers. Consequently, the child who has a supportive primary caregiver is able to form positive expectations regarding relationships and has opportunities to learn the necessary social skills for negotiating the social world (Sroufe, 1988). In short, a secure attachment with the primary caregiver is associated with, and predictive of, the display of socially competent behavior with peers (e.g., Booth, Rose-Krasnor, McKinnon, & Rubin, 1994; Booth, Rose-Krasnor, & Rubin, 1991).

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In contrast, children who are insecurely attached are thought to be at risk for the development of problematic relationships with peers. The "specific linkage hypothesis" (see Finnegan, Hodges, & Perry, 1996) indicates that children who are insecure-avoidant are more likely to have externalizing problems and those who are insecure-resistant (preoccupied) are more likely to have internalizing problems. A number of studies have supported the link between insecure-avoidance and aggressive/hostile behavior with peers (Kobak & Sceery, 1988; Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989; Sroufe, 1983; Troy & Sroufe, 1987); and between insecure-resistance and socially inept (Arend, Gove, & Sroufe, 1979; Sroufe, 1983), passive, victimized, and low-dominance behavior with peers (Erickson, Sroufe, & Egeland, 1985; Jacobson & Wille, 1986; Troy & Sroufe, 1987).

In general, the empirical evidence supporting the link between attachment security and peer relationships is copious, but not overwhelmingly strong. In a meta-analysis of 63 studies, Schneider, Atkinson, and Tardiff (2001) found a small-to-moderate effect size linking these two domains, although links between attachment security and friendship were somewhat stronger. The magnitude of the attachment-peer effect size increased with age, but there were very few studies of children beyond the age of 8 years.

The paucity of studies linking middle-childhood attachment security and peer-group functioning reflects a broader problem in the attachment literature: Even though attachment theory pertains to the entire lifespan (Bowlby, 1973, 1982), most of the empirical research arising from the theory has focused on the infant, preschool, and early childhood periods, or on adolescence and adulthood. The focus on attachment in middle childhood is a relatively recent phenomenon (see Kerns & Richardson, 2005). This is due, in part, to the inherent measurement difficulties associated with the changing manifestations of attachment behavior as the child develops. Specifically, attachment behavior can be observed in infants and young children as they physically and/or verbally seek proximity when distressed. However, as the attachment relationship becomes increasingly internalized and representational, it is the caregiver's psychological availability, rather than physical proximity, that becomes more central (Booth, Rubin, & Rose-Krasnor, 1998; Kerns, Tomich, Aspelmeier, & Contreras, 2000). Finding appropriate ways of assessing children's perceptions of a parent's psychological availability (or lack thereof) in the period of middle childhood is particularly challenging. Yet, the assessment of children's attachment security during this period may be especially important for understanding individual differences in children's social competence as they begin to spend increasing amounts of time in peer contexts.

The relatively recent development of a number of child-parent attachment security assessments designed for the middle childhood period (see Dwyer, 2005; Kerns, Schlegelmilch, Morgan, & Abraham, 2005) has expanded the opportunity to evaluate the links between attachment and peer-group functioning in this understudied period of development. One such measure is the Security Scale (Kerns, Klepac, & Cole, 1996), a questionnaire that assesses the child's perceptions of the availability and responsivity of the parent, reliance on the parent in times of stress, and ease and interest in communicating with the parent (Kerns et al., 2005). Another measure, the Coping Strategies Questionnaire (Finnegan et al., 1996), is designed to assess two dimensions of insecurity in relation to the parent: preoccupied (or resistant) coping and avoidant coping. Preoccupied coping items assess the child's excessive need for the mother under stressful or novel circumstances, anxiety about separation from the mother, inability to be comforted by the mother in stressful situations, and difficulties exploring or dealing with challenges. Avoidant coping items assess the child's denial of need for the mother when stressed, unwillingness to use the mother as an emotional or task-relevant resource, and denial of affection toward the mother.

Using these measures, as well as other attachment assessments, the evidence relating child-mother attachment security to functioning in the peer group in middle childhood is somewhat mixed. In a study using the Security Scale, Kerns et al. (1996) found that security with mother was related to peer acceptance, but Lieberman, Doyle, and Markiewicz (1999) did not find evidence of a link between child-mother security and peer popularity, nor did Verschueren and Marcoen (2002, 2005) find a link between child-mother security and peergroup status or peer acceptance. Granot and Mayseless (2001) found that lower scores for security with mother, as measured by both the Security Scale and a story-completion task, were related to negative peer nominations, and higher security scores were related to teacher-rated social adjustment. Finally, Easterbrooks and Abeles (2000) found that security, as measured by the Separation Anxiety Test, was not related to teacher-rated peer competence.

Fewer studies have provided evidence of the links between *types* of insecurity and peergroup functioning in middle childhood. Finnegan et al. (1996) and Hodges et al. (1999), studying the same participants at two time points, found that avoidant coping with mother was related to peer-nominated externalizing problems, and preoccupied coping with mother was related to peer-nominated internalizing problems in the peer group. However, when Granot and Mayseless (2001) classified children as secure, avoidant, ambivalent, or disorganized, based on a story-completion task, they only found differences (noted above) between children classified as secure and those who were not; that is, the three insecure groups did not differ in terms of peer nominations or teacher ratings of social adjustment.

Taken together, it is clear that there are a number of limitations inherent in these studies. First, most of the studies have included either a measure of security or a measure of types of insecurity, but not both (but see Kerns et al., 2000). The Security Scale yields a total score on a continuum from least to most secure but does not distinguish types of insecurity, which would be expected to relate to very different social outcomes if the specific-linkage hypothesis is correct. The Coping Styles Questionnaire was constructed to measure avoidant and preoccupied coping but not security, using the rationale that security is the absence of avoidant and preoccupied coping (Finnegan et al., 1996). However, it is important to measure security directly (e.g., with the Security Scale) to determine if this is the case, a conclusion also reached by Yunger, Corby, and Perry (2005).

Second, with very few exceptions, the studies cited above have focused on the child's attachment relationship with mother. Very few have also assessed the child's relationship with father in connection with peer-group functioning and relationships. This relative neglect of the child-father attachment relationship has been due, in part, to the "mother primacy hypothesis" (Suess, Grossmann, & Sroufe, 1992), that the child's attachment relationship with mother is more predictive of child social-emotional outcomes than is the child's attachment relationship with father. However, it is possible that the child - father attachment relationship becomes more salient and predictive of outcomes in middle childhood than at earlier ages (Cohn, Patterson, & Christopoulos, 1991). In support of this hypothesis, the very few studies in middle childhood that have included child-father attachment security have found attachment-peer links for the child-father relationship, but not the childmother relationship. Using the Security Scale, Lieberman et al. (1999) found that childfather security was related to lower conflict in best-friend relationships but not peer popularity. Verschueren and Marcoen (2002) found that popular children had higher child-father security scores than did rejected-nonaggressive children; and child-father security was related to peer acceptance at ages 8 and 11 (Verschueren & Marcoen, 2005). Additionally, Steele and Steele (2005) found that fathers' prenatal autonomous-secure classifications on the Adult Attachment Interview (AAI) predicted their 11-year-olds' positive approaches to dealing with peers.

Even fewer studies have considered the differential effects of child gender in relation to attachment quality with each parent. It has been suggested that girls' attachment to their mothers and boys' attachment to their fathers may be more salient than attachment to the opposite-sex parent in predicting outcomes (see Verschueren & Marcoen, 1999). Although there is evidence that fathers tend to be more involved with their sons than their daughters (Cox, Paley, Payne, & Burchinal, 1999), the notion of "same-sex linkage" (Cassidy, 1990) has not received much attention or validation in the middle-childhood attachment literature (see Hodges et al., 1999; Kerns et al., 2000; Verschueren & Marcoen, 1999). In fact, Lieberman et al. (1999), using part of the Security Scale, found that at ages 9–11 boys perceived their fathers to be *less* available than their mothers but this difference was not found for girls.

Another significant question concerns the *process* whereby attachment security is linked with social functioning. That is, what are the mediating variables linking these constructs? Very few studies have evaluated these processes, but they have provided evidence for significant mediation in the following areas: negative attributions about peer behavior (Cassidy, Kirsch, Scolton, & Parke, 1996; Suess et al., 1992; Wartner, Grossmann, Fremmer-Bombik, & Suess, 1994); emotion-regulation difficulties (Contreras & Kerns, 2000; Sroufe, 1983); and self-esteem (Simons, Paternite, & Shore, 2001; Verschueren & Marcoen, 2002, 2005). In the present report, we consider the child's perceptions of *self-worth* as a potential mediator.

A central tenet of attachment theory is that children develop an internal working model of the self as worthy and lovable, on the basis of their primary attachment relationships. This view of the self is carried into other relationships and thereby affects their nature and quality (see Bretherton, 1985; Cassidy, 1988, 1990; Ladd, 1992). Evidence for the link between attachment security and feelings of self-worth in middle childhood is relatively scarce. However, among kindergarten children, Verschueren and Marcoen (1999) and Verschueren, Marcoen, and Schoefs (1996) found that security of attachment to mother was related to self-esteem. Similar links were demonstrated in early adolescence (Engels, Finkenauer, Meeus, & Dekovic, 2001; Simons et al., 2001) and adolescent attachment to parents predicted adult self-esteem (Giordano, Cernkovich, Groat, Pugh, & Swinford, 1998).

Perceptions of self-worth also have been linked with psychosocial functioning in middle childhood. For example, among 8-year-olds, Easterbrooks and Abeles (2000) found that self-worth was related to peer competence, school adjustment, and (negatively) to behavior problems. Fordham and Stevenson-Hinde (1999) found that self-worth was positively related to perceptions of social acceptance and classmate support in a sample of shy children in middle childhood.

These relations between attachment and self-worth, and self-worth and psychosocial functioning suggest that self-worth may serve as a mediator linking attachment security with functioning in the peer group. Evidence for this assertion comes from Verschueren and Marcoen (2002), who found that the link between felt security with father and rejected-nonaggressive peer status at ages 8–10 was mediated by the children's perceptions of self-worth. Verschueren and Marcoen (2005) found a similar result among 8-year-olds: self-worth mediated the link between child-father security and peer acceptance. Finally, Simons et al. (2001) found that self-esteem at age 13 mediated the link between child-mother attachment security and aggressive behavior.

To summarize, the primary purpose of the present study was to evaluate the links between peer-group functioning and indicators of attachment security in relation to both mother and father in middle childhood and insecure attachment styles in relation to mother. Due to the fact that we did not collect data about insecure attachment styles in relation to fathers, we were able to address these questions more completely for mothers than for fathers. We

hypothesized that security with both parents would be related to indicators of social competence, that avoidant coping with mother would be related to aggression, and that preoccupied coping with mother would be related to social withdrawal. Further, we hypothesized that perceptions of self-worth would be a significant mediator of the relation between attachment and peer variables. Finally, we investigated the differential effects of parent gender and child gender, but we did not have specific directional hypotheses in this area.

Method

Participants

Participants were drawn from a larger sample of 557 Grade 5 students (286 boys, 271 girls) from 26 classrooms in eight public elementary schools in the Washington DC Metropolitan Area, for whom parental permission was received to participate in a peer-nomination procedure (consent rate = 84%). The mean age of the sample was 10.22 years (SD=.48). Approximately 61% of the children were European American, 8% African American, 12% Asian, 15% Hispanic, and 4% Other. The larger sample was participating in a study of the transition from elementary to middle school.

Of these children, only those who were invited to complete a battery of questionnaires relevant to the present study were included in our analysis. Selection was based on peernominated behavioral characteristics, complete data relevant to the present study, and a mutually nominated best friendship. The latter criterion excluded 12.5% of the children because they did not have a mutual friendship or they had a best friendship with a non-participating child. As a result, the current study comprised 73 participants (36 boys, 37 girls) whose mean age was 10.19 years (SD=.43). Approximately 78% of the children were European American, 11% African American, 3% Asian, 5% Hispanic, and 3% Other. Compared with the larger sample, these participants were more likely to be European American, but the groups did not differ in terms of child's age or gender.

Procedure

Research assistants administered the Extended Class Play (described below) peer nomination procedure in the classroom to all 557 Grade 5 children. Based on the children's peer-perceived characteristics, some were invited to the laboratory with their mutually nominated best friend (first visit) and with their mother (second visit). During these lab visits, the children completed a set of questionnaires about attachment and self-worth. Mothers and teachers also completed questionnaires about the children's behaviors.

Measures

Extended Class Play (ECP; Burgess, Wojslawowicz, Rubin, Oh, Booth-LaForce, & Rose-Krasnor, in press). Participants completed an extended and revised version of the Revised Class Play (RCP; Masten, Morison, & Pellegrini, 1985) in their classrooms. The children were instructed to pretend to be the directors of an imaginary class play and to nominate their classmates for various positive and negative roles. The children were provided with a list of their classmates who were participating in the study and were instructed to choose one boy and one girl for each role. The same person could be selected for more than one role. Ten items were added to the original RCP, including two aggression items, five items

descriptive of social reticence, shyness, and social disinterest and three items descriptive of victimization. All item scores were standardized within sex and within classroom to adjust for the number of nominations received and also the number of nominators. A principal components factor analysis with varimax rotation yielded five orthogonal factors: Aggression, Shyness/Withdrawal, Rejection/Victimization, Leadership/Prosocial, and Popularity/Sociability. The standardized item scores were summed to yield five different total scores for each participant. The children who visited the lab, compared with those who did not, had significantly higher scores on the ECP leadership/prosocial factor (described below; M=.17, SD=.81 vs. M=-.03, SD=.73), F(1, 551)=4.56, p<.03; and significantly higher scores on the popularity/sociability factor (M=.33, SD=1.03 vs. M=-.05, SD=.75), F(1, 551)=15.04, p<.000. The groups did not differ on the ECP aggression, shyness/social withdrawal, or rejection/victimization factors.

Security Scale (Kerns et al., 1996). The Security Scale is a 15-item measure designed to assess children's perceptions of attachment security in the parent—child relationship during middle childhood. The scale assesses the child's perceptions of the availability and responsivity of the parent, reliance on the parent in times of stress, and ease and interest in communicating with the parent (Kerns et al., 2005). Using Harter's (1982) "Some kids... other kids..." format, the children were asked to indicate which statement was most like them, and then to indicate whether it was "sort of true" or "really true." Previous research has demonstrated the validity of this measure (see Kerns et al., 1996, 2005). Children completed two 15-item forms, one assessing their perceptions of security in relation to mother (alpha = .76) and one in relation to father (alpha = .89). Of the 73 participants, 68 completed the Scale for both parents, and 5 completed the Scale for mother only. (Note that 11 of the 73 children lived in single-mother families, but 6 of these 11 completed the Scale for their non-resident fathers).

Coping Strategies Questionnaire (Finnegan et al., 1996). The Coping Strategies Questionnaire is designed to assess preoccupied and avoidant dimensions of insecurity in relation to mother in middle childhood. Eight of the 15 items from the original questionnaire were included for each subscale. The "Some kids... other kids..." format was used for each item. Internal consistency estimates for the preoccupied and avoidant subscales were .74 and .60, respectively. Coping strategies in relation to the father were not assessed in this study.

Self Perception Profile for Children (Harter, 1985). The Self-Perception Profile is a 36-item questionnaire designed to assess children's perceptions of self-competence and adequacy. The 4-point items yield 6 subscales assessing the child's perceptions of scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, and global self-worth. Previous research has demonstrated the reliability and validity of each of these subscales (e.g., Harter 1982, 1985). The three most relevant subscale scores (social acceptance, behavioral conduct, and global self-worth) were standardized and averaged to index self-worth (alpha = .87).

Teacher-Child Rating Scale (TCRS; Hightower et al., 1986). The TCRS is a 38-item Likert-type measure that assesses the teacher's perceptions of the child's adjustment in terms of behaviors and competencies in the school context. We used Hightower et al.'s (1986) factor analyses of the TCRS data, as well as a principal components analysis of the present data using a varimax rotation, to identify four relevant subscale scores: shy/anxious, acting out, assertive social skills, and peer sociability (with respective alphas of .87, .90, .92, and .95).

Parent—Child Rating Scale (PCRS; Hightower, 1994). The PCRS is the parent version of the TCRS, with the wording of some items changed to be more relevant for parents. Using the same procedure described above for the TCRS, we identified three relevant subscale scores from maternal ratings: shy/anxious, acting out, and peer sociability (with respective alphas of .72, .79, and .79).

Results

Descriptive statistics

Descriptive statistics for all variables are shown in Table I. We conducted preliminary *t*-tests by child gender and found that boys and girls did not differ significantly on any of the variables.

Aggregating peer variables

Rather than using data from a single informant, we aggregated data from three different sources to form composite measures of the children's peer-related behavioral characteristics: classmates (ECP), teacher (T-CRS), and mother (P-CRS). To form the composites, we subjected the relevant variables to a principal components factor analysis with varimax rotation. Three factors emerged that, together, accounted for 61% of the variance. Variables and factor loading are shown in Table II. The first factor, labeled Anxious-Rejected, accounted for 20.8% of the variance. The ECP rejected/victimized and shy/withdrawn scores had high loadings on this factor, as did the T-CRS and P-CRS shy/anxious scores.

Table I. Descriptive statistics for attachment perceptions, self-worth, and peer variables.

Variable	М	SD
Attachment: Mother $(n=73)$		
Security	3.39	.37
Avoidant coping	.17	.23
Preoccupied coping	.64	.45
Attachment: Father $(n = 68)$		* .
Security	3.23	.53
Self-worth $(n=73)$	3.45	57
Peer nominations $(n=73)$		
Aggressive	.12	.93
Leadership/prosocial	.17	.81
Popular/sociable	.33	1.03
Rejected/victimized	05	.70
Shy/withdrawn		.66
T-CRS $(n=73)$	en e	
Acting out	1.42	.60
Shy/anxious	1.43	.62
Socially assertive	3.73	.90
Peer sociability	4.03	.88.
P-CRS $(n=72)$		
Acting out	1.87	.64
Shy/anxious	1.71	.54
Peer sociability	4.21	.72

The second factor, labeled Aggressive, accounted for 20.5% of the variance. The ECP aggressive score and the T-CRS and P-CRS acting out scores had high loadings on this factor. Finally, the third factor, Socially Competent, accounted for 19.7% of the variance. ECP leadership/prosocial and popular/sociable scores, T-CRS socially assertive and peer sociability scores, and P-CRS peer sociability scores had high loadings on this factor.

On the basis of these factor results, we constructed three composite scores. Each score was the mean of the standardized scores for the variables that had high loadings on that particular factor, as shown in Table II (e.g., the Aggressive score was the mean of the standardized ECP aggression score, the standardized T-CRS acting out score, and the standardized P-CRS acting-out score). The internal consistency (Cronbach's alpha) of the Aggressive score was .69; the Anxious-Rejected score, .76; and the Socially Competent score, .68.

Intercorrelations among self-worth and attachment scores

Correlations among the self-worth and attachment scores are shown in Table III. We found that greater security in relation to mother was related to significantly less avoidant coping, but significantly more preoccupied coping. Further, greater security with mother was significantly related to higher self-worth and to greater security with father. Security with father was not significantly related to avoidant or preoccupied coping with mother, but it was

Table II. Factor loadings for variables comprising anxious-rejected, aggressive, and socially competent factors (n=72).

Variable	Anxious-rejected	Aggressive	Socially competent	
ECP Aggressive	03	.86	.17	
ECP Leadership/prosocial	.34	31	.68	
ECP Popular/sociable	17	.38	.76	
ECP Rejected/victimized	.71	.25	29	
ECP Shy/withdrawn	.87	24	04	
T-CRS Acting out	.11	.80	16	
T-CRS Shy/anxious	.65	.36	08	
T-CRS Socially assertive	16	08	.53	
T-CRS Peer sociability	34	50	.63 ¹	
P-CRS Acting out	.11	.57	34	
P-CRS Acting out P-CRS Shy/anxious	.67	.04	14	
P-CRS Sny/anxious P-CRS Peer sociability	22	0 8	.60	

Note: Loadings > .40 are shown in bold type.

Table III. Intercorrelations among attachment and self-worth variables.

Variable	Avoidant coping-Mother	Preoccupied coping-Mother	Security-Father	Self-worth
Security-Mother	38***	.23*	.49***	.43***
Avoidant coping-Mother	=	22 ⁺	- 16	22^{+}
Preoccupied coping-Mother		-	- 01	.06
Security-Father				.38***

Note: n = 73 for self-worth and attachment-mother variables; n = 68 for security with father. $^+p = .06$; $^+p < .05$; $^{***}p \le .001$.

¹T-CRS Peer Sociability was included in the Socially Competent factor.

related positively to self-worth. Higher scores on avoidant coping with mother were related to lower perceptions of self-worth and less preoccupied coping (trends at p = .06). When we computed these correlations separately for boys and girls, gender differences in these correlations were not significant.

Security in relation to parent and child gender

We performed a Child Gender × Parent Gender repeated-measures ANOVA on the Security Scale data, to evaluate whether the children had greater feelings of security in relation to mother or father, and to determine whether any differential effects would appear on the basis of the gender of the child. The ANOVA yielded a significant main effect of Parent Gender, F(1, 66) = 8.05, p = .006, but neither Child Gender, F(1, 66) = 1.94, p = .17, nor the Parent Gender × Child Gender interaction was significant, F(1, 66) = 1.18, p = .28. Comparison of the means by Parent Gender revealed that the children had higher security scores in relation to mother than in relation to father (M = 3.40, SD = .36) for mother; M = 3.23, SD = .52 for father).

Peer variables in relation to attachment and self-worth

We predicted that security with mother and father would be related to social competence; that preoccupied coping with mother would be related to anxiety/rejection; and that avoidant coping would be related to aggression. We also predicted that self-worth perceptions would be positively related to social competence and negatively related to anxiety/rejection and aggression. To test these hypotheses, we computed bivariate correlations, which appear in Table IV. The correlations indicated partial support for the study hypotheses. Security of attachment with both mother and father was related to social competence and avoidant coping with mother was related to aggression (at the trend level). However, preoccupied coping was not related to the anxiety/rejection score. In addition, higher aggression scores were related to lower security with father. Further, perceptions of self-worth were positively related to social competence and negatively related to anxiety/rejection, but not aggression. We tested whether these patterns of correlations varied by child gender and we found that none of the differences between correlations were significant.

Given that security with mother and father were significantly correlated (r=.49); see Table III) and given that security with both mother and father were significantly related to social competence, in a follow-up analysis we tested whether these latter effects were overlapping or independent by computing the correlation between security with father and social competence controlling for security with mother; and security with mother and social competence controlling for security with father. We found that the link between security

Table IV. Correlations between peer variables and attachment and self-worth scores.

Peer variables	Security-Mother ^a	Avoidant coping-Mother ^b	Preoccupied coping-Mother ^c	Security-Father	Self-worth
Aggressive	02	.22+	.05	28*	4.16
Anxious/rejected	13	.12	.16	15	- .41***
Socially competent	.33**	03	- 02	.25*	.55***

Note: n=73 for self-worth; n=71 for mother variables; n=68 for security with father. p < .10; p < .05; **p < .01; ***p < .01; ***p < .01.

with father and social competence was reduced from the significant bivariate correlation of r=.25 (see Table IV) to r (65) = .09, p=.48 when security with mother was controlled. However, the relation between security with mother and social competence was only slightly reduced from the significant r=.33 to r (65) = .29, p=.02 when security with father was controlled. Thus, the father data overlapped with the mother data in relation to social competence but the reverse was not true.

Self-worth as a mediating variable

In this set of analyses, we tested whether self-worth was a significant mediating variable linking attachment security with social competence. All of these variables were significantly interrelated (see Tables III and IV). We used two indicators of attachment security (security with mother and security with father), the three indictors of self-worth (see Measures section) and the five indicators of social competence (see Table II). As suggested by Mize, Pettit, and Meece (2000), Structural Equation Modeling (SEM) analyses were conducted to test the mediation effect using maximum likelihood estimation within EQS (Bentler, 1998). The following procedure, which parallels the strategy illustrated by Baron and Kenny (1986), Holmbeck (1997), and Mattanah, Hancock, and Brand (2004), was employed. First, the models were tested to evaluate whether each overall model provided an adequate fit; then, the indirect path coefficients were examined. We assessed the data model fit using Hu and Bentler's (1999) suggestion for satisfactory fit indices (e.g., a RMSEA value that is close to .06 and a SRMR value that is close to .08) and paid less attention to the sample-size sensitive chi-square test (e.g., Bentler, 1990). The initial model (Model 1) represents partial mediation in which paths were modeled from latent attachment security to self-worth and to social competence, as well as a path from self-worth to social competence. This partial mediation model, then, was compared with a total mediation model (Model 2) in which the direct path from attachment security to social competence was constrained to zero, testing only the indirect effect of self-worth as a mediator of the link between attachment security and social competence (see Table V). If the total mediation model fit significantly worse than the initial partial mediation model, this would suggest that self-worth did not fully mediate the effect of attachment security on social competence. Note that a partial mediation model and an additive model in which attachment security and self-worth serve as exogenous factors on social competence as outcome are structurally equivalent; thus these two models are indistinguishable on the bases of data model fit.

The residuals of security with mother and security with father were allowed to covary in the models, given that there is literature suggesting that child-mother and child-father attachment relationships are likely to be related (as evinced in the present study). The three self-worth indicators' residuals also were allowed to covary as well as the five social

Table V. Summary of data model fit statistics.

Model	χ² .	df	CFI	SRMR	RMSEA	90% CI for RMSEA
Model 1:						
Partial mediation	34.660	18	.91	.064	.113	(.053, .169)
Model 2: Total mediation	35.018	19	.91	.062	.108	(.048, .163)

Note: CFI = comparative fit index; SRMR = standardized root-mean-square residual; RMSEA = root-mean-square error of approximation; CI = confidence interval.

competence indicators' residuals, as we expected to have some overlap in self-perceptions of multi-dimensional self-worth as well as in peer-group functioning reported from multiple informants.

The partial mediation model (Model 1) included both the direct path and the indirect path. The total mediation model (Model 2) included only the indirect path, while constraining the direct path from attachment security to social competence to zero. A significance test between Model 1 and Model 2 was performed to determine the final model. If Model 2 was not significantly worse than the more-complex Model 1, then this would suggest that Model 2 (i.e., total mediation model) provides a more parsimonious account of the relations among these latent variables than does Model 1 (i.e., partial mediation model). The results indicated that the total mediation model was not statistically worse than the initial partial mediation model in which the direct path was included, χ^2_{diff} (1) = .003; p = .498.

Results from statistical testing of significance of path coefficients also showed evidence that supports the total mediation model over the partial mediation model. The indirect effect of the total mediation model was statistically significant, supporting the mediation hypothesis. Self-worth mediated the effect of attachment security on social competence z=2.33, p=.009 (see Figure 1), whereas the indirect path of the partial mediation model was not significant. The results suggests that greater security with mother and father leads to higher self-worth, and higher self-worth leads to greater social competence.

Discussion

× 16

The results of this study add to a small, but growing body of evidence linking security of attachment in middle childhood with children's functioning in the world of peers. We hypothesized that security would be related to social competence, avoidant coping would be related to aggression, and preoccupied coping would be related to social withdrawal. Our results partially support these hypotheses and are consistent with previous research (Finnegan et al., 1996; Granot & Mayseless, 2001; Hodges et al., 1999; Kerns et al., 1996; Lieberman et al., 1999; Verschueren & Marcoen, 1999, 2002, 2005). The social competence factor was significantly related to both child—mother and child—father security,

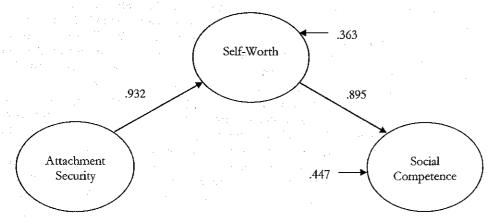


Figure 1. Structural model of total mediation model. Standardized paths are shown. All paths were significant at p < .01.

which is consistent with attachment theory. The aggression factor was significantly related to lower security with father and there was a trend for aggression to be related to avoidant coping with mother. These results partly support the "specific linkage" hypothesis (see Finnegan et al., 1996), which traces avoidant coping to underlying masked anger and emotional disconnectedness with others (Cassidy & Kobak, 1988). The evidence did not support hypothesized links with preoccupied coping, which may be related to measurement issues (discussed on page 321, lines 623-637).

Gender of parent and child

We had speculated that the children might differ in the extent to which their attachment security with the same-sex parent would predict peer-group functioning. We did not find any evidence of this "same-sex linkage" (Cassidy, 1990). Further, we did not find any child gender differences on any of the variables we used. In terms of gender of parent, we found that children's security of attachment (regardless of child gender) was greater in relation to mother than to father. This may be because children are generally more involved with their mothers than with their fathers. However, we were surprised to find that security in relation to mother was not uniformly the better predictor of outcomes. Given the "mother primacy hypothesis" (Suess et al., 1992) that attachment to mother carries more weight in terms of the child's social-emotional adaptation than does attachment to father, we had expected to find that the maternal attachment variables would be more predictive of outcomes. In fact, we found that security with mother predicted higher social competence but neither aggression nor anxiety/rejection; while security with father predicted lower aggression (and higher social competence, but this effect was likely a function of the overlap between security with father and mother). These results suggest the unique and differentiated roles of each parent in influencing their children's development, and support the findings of Verschueren and Marcoen (2002, 2005), Lieberman et al. (1999), and Steele and Steele (2005) in terms of the differing correlates of child-mother and child-father attachment security in middle childhood.

Our results linking children's security with father to lower aggression scores with peers are interesting in light of the predominant evidence in the literature that fathers tend to interact with their children in more playful ways, and mothers in more nurturing ways (see Lamb, 1997; Parke, 2002). In fact, recent evidence suggests that fathers foster secure attachment via "sensitive and challenging interactive play" and serve as supportive guides in the context of children's exploratory behavior (Grossmann, Grossman, Fremmer-Bombik, Kindler, Scheuerer-Englisch, & Zimmerman, 2002). Assuming that such exploratory behavior includes the world of peers, we may speculate that supportive fathers encourage more adaptive, less aggressive solutions to peer conflicts. The Steele and Steele (2005) finding, that fathers' AAI classifications predicted their children's reasoning and approaches to dealing with peer conflicts and issues, supports this point. It is also possible that within the context of play between fathers and their security attached children (especially early rough-and-tumble play), that these fathers may help their children learn the boundaries between play and aggression. Consequently, this process may contribute to the socialization of self-regulation, which is then evinced in other contexts. This is an area that needs more research attention. Additionally, it will be important in future research about child-father attachment in middle childhood to include indices of preoccupied and avoidant coping, which were not included in the present study.

Self-worth

Perceptions of self-worth were related to security with both mother and father, but were related (negatively) to avoidant coping only at the trend level and were not related to preoccupied coping. Self-worth also was related negatively to anxiety/rejection, and positively to social competence, but was not related to aggression. Given these relations, we were able to test whether links between attachment security and social competence were mediated by perceptions of self-worth and we did find evidence of significant mediation.

These results add to a small number of studies investigating the mediating processes linking child-parent attachment security with peer-group functioning and relationships, and provide supportive evidence for the specific role of self-esteem as a significant mediator (Simons et al., 2001; Verschueren & Marcoen, 2002, 2005). Within the context of attachment theory, perceptions of self-worth are said to arise from a history of the child experiencing appropriate caregiving when needed, and thereby developing an internal working model of the self as lovable and worthy (e.g., Bretherton, 1985). These self-perceptions and concomitant relationship expectations are presumed to carry forward into the world of peers, thereby affecting the nature and quality of peer interactions and developing relationships.

Although our results supported the mediation model, they should be interpreted with caution due to the fact that the inter-relations among the variables were evaluated at a single point in time. Additionally, we did not eliminate the possibility that perceptions of self-worth and social competence exhibit bi-directional effects that create causal loops (i.e., a nonrecursive model). Such models are best tested via a two-stage least-squares regression procedure (see James & Singh, 1978) in which the self-worth variable would be replaced by an "instrumental" variable that is highly correlated with self-worth but not "caused" by social competence and not correlated with the social competence error term. Such variables are difficult to find and were not available in our study.

Measurement of attachment

With respect to the measurement of attachment security in middle childhood, the results of the present study provide further support for the validity of the Security Scale, as indicated by the results presented thus far. Partial support was found for the validity of the Coping Strategies Questionnaire, although it is important to note that the full scales were not tested (i.e., we used a reduced number of items). Additionally, we did not control for preoccupied coping when testing relations between avoidance and other variables (or vice versa; as suggested by D. G. Perry, personal communication, September 15, 2003). Nonetheless, we did find that the Avoidant Coping scale was related in expected ways to the children's peergroup functioning and to attachment security but most of these results were trends. The Preoccupied Coping scale was not related to peer-group functioning. It was significantly related to security with mother, but in a positive direction, and negatively related to avoidant coping at the trend level. These results echo those of Kerns et al. (2000), who found that preoccupied coping was negatively related to avoidant coping, but was unrelated to other child security measures. As Kerns et al. have speculated, moderate scores on preoccupied coping may reflect a "healthy concern" rather than a maladaptive focus on the attachment figure. Whether this interpretation is accurate, or whether measurement issues are involved, it is clear that the meaning of preoccupied coping in middle childhood needs further investigation, particularly in light of the relative scarcity of the ambivalent attachment type in

infancy and early childhood, and the presumed continuity from ambivalent attachment to preoccupied coping. In this regard, it will be important to evaluate whether preoccupied coping decreases from early to late middle childhood, which would provide supporting evidence that the Preoccupied Coping scale partly reflects normative developmental changes in child—parent dependence and autonomy, rather than a stable personality feature.

Conclusions

In summary, this study adds to a growing body of literature linking children's attachment security in middle childhood to their functioning in the peer group. We found that children's perceptions of security and avoidant coping were related, in expected appraisals of these children's social competence and anxiety/rejection, and aggression. We also found differential effects of parent gender, but not child gender. Greater security with mother was related to higher social competence, but greater security with father was related to lower aggression. Finally, in support of attachment theory, we provided evidence of self-worth as a mediating variable between attachment and peer-group functioning. These results suggest a number of directions for future investigation of child-parent attachment in middle childhood, including the meaning of preoccupied coping, the differential attachment roles of mothers and fathers, and further investigation of mediating processes linking attachment security with peer-group functioning and relationships.

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