Articles

Predicting social adjustment in middle childhood: the role of preschool attachment security and maternal style

Cathryn L. Booth, University of Washington, Linda Rose-Krasnor, Brock University, Jo-Anne McKinnon and Kenneth H. Rubin, University of Waterloo

Abstract

Children's social and emotional adjustment at age 8 were examined in relation to attachment security, parenting style, setting conditions, and social and emotional adjustment at age 4. Seventy-nine children participated in videotaped interaction sessions with their mothers and with unfamiliar peers at the two ages. Data were derived from videotape coding, mother questionnaires, and child sociometric ratings. Results indicted that internalizing problems, externalizing problems, and social engagement were related at the two ages. After removing the variance due to the relationship between child behaviors at the two ages, a comparison of mother-child relationship predictors indicated that attachment security at age 4 was the strongest predictor of internalizing problems and social engagement/acceptance at age 8, while maternal style was the strongest predictor of externalizing difficulties. Results point to the importance of both aspects of the mother-child relationship, and indicate that the nature of family and peer links may vary depending upon the specific social domain assessed.

Keywords: Attachment; peers; parenting.

How children learn to initiate and maintain positive relationships with others are critical questions in the study of child development. The significance of the children's relationships in the peer group, for example, is highlighted by research indicating that peer rejection and social isolation are associated contemporaneously and predictively with indices of psychological maladjustment (see Parker & Asher, 1987).

Although the proximal causes of poor peer relationships have received a good deal of attention there are fewer data that address the *origins* and maintenance of

The research reported herein was supported by grant #NR01635 from the National Center for Nursing Research, and grant #HD27806 from the National Institute of Child Health and Human Development. We gratefully acknowledge the contributions of Patricia Taylor, Donna Dwyer-O'Connor, Marilyn Dryden, Sheila Meagher, Shannon Gird, Susan Coates, and Sybil Evans (University of Washington) and Cherami Wichmann, Loretta Lapa, Kerri Hogg, and Robert Coplan (University of Waterloo) for their help in data collection, coding, and analysis. We thank the mothers and children who made this project possible. Requests for reprints should be sent to Cathryn L. Booth, Child Development and Mental Retardation Center, Mail Stop WJ-10, University of Washington, Seattle, WA, 98195.

positive and negative relationships in the peer group. For example, children who are aggressive or anxious/withdrawn appear to be rejected by their peers, while children who display competent social behaviors are generally accepted by their peer group. But the origins of these behavior profiles are relatively unknown. One significant factor is undoubtedly the nature of the parent-child relationship (e.g. Sroufe & Waters, 1977; Putallaz, 1987; Parke, MacDonald, Beitel & Bhavnagri, 1988; Dodge, Bates & Pettit, 1990; Ladd, 1991; Booth, Rose-Krasnor & Rubin, 1991).

The mother-child relationship and the mother's parenting behaviors are complex phenomena that can be studied from a variety of perspectives, only some of which may be relevant to the child's developing and maintaining positive relationships outside the family unit. One such perspective stresses the importance of the mother-child attachment relationship. We have shown (Booth *et al.*, 1991), as have others (e.g., Lieberman, 1977; Pastor, 1981; Sroufe, 1983; Youngblade & Belsky, 1992), that a history of insecure attachment to the mother in infancy is predictive of social maladaptation with peers in the preschool years. It has also been demonstrated that insecurity of attachment during the preschool period is concurrently and predictively associated with lack of social competence and maladaptive peer relationships (e.g., Lewis, Feiring, McGuffog & Jaskir, 1984; Park & Waters, 1989; Turner, 1991).

The connection between the quality of the mother-child attachment relationship and the child's social competence has been conceptualized in terms of the child developing, through the primary attachment relationship, an internal working model of the self in relation to others (Bowlby, 1973; Bretherton, 1985; Main, Kaplan & Cassidy, 1985). That is, through continuing transactions with the attachment figure, the child develops complex mental representations, or internal working models, of the attachment figure and of the relationship between self and other. These models then help guide the child's behavior with the attachment figure and with others.

Viewing internal working models from an emotional, rather than a cognitive perspective, the child who believes that his/her parent is available and responsive to his/her needs will feel secure, confident, worthy of love, and self-assured when introduced to novel settings. Felt security is thought to result in active exploration of the social environment. In turn, exploration of the social environment leads to peer play; these play experiences, noted above, are likely to result in the development of social competencies. On the other hand, the child who believes that his or her parent is unavailable and unresponsive will feel insecure, unworthy of love, and wary in novel situations. These feelings of insecurity would be expected to hinder exploration of the social environment, diminishing the opportunities for peer play and perhaps hindering the consequent development of social competencies with peers.

Ultimately, the chain of events described above leads to the child interacting in adaptive or maladaptive ways with others. Consistently maladaptive interactions with peers are likely to have the following consequences: (a) the child will recognize his/her social failure in the peer group and thus develop negative internal working models of the self in relation to peers; (b) the child will have difficulty developing intimate relationships with age-mates (i.e., friendships) because of feelings of insecurity, distrust, and self-perceptions of social incompetence; (c) the child will solidify her/his negative peer reputation by isolating her/himself from the peer group (social withdrawal) or by reacting in anger to the peer group

(aggression). These consequences do not auger well for a prognosis of well-being.

In addition to the influence of the mother-child attachment relationship on children's well-being, parenting behaviors or styles appear to wield significant influence. The means by which parents manage and discipline their children, and the affective context within which parenting behaviors are emitted, have long been thought to play a crucial role in the development of psychological well-being and maladjustment.

For example, parents who are relatively cold and rejecting, physically punitive, and who discipline their children in an inconsistent manner are more likely to have aggressive, psychologically undercontrolled children than are those parents who are relatively warm, supportive, and authoritative (see Pepler & Rubin, 1991). Parents who are overcontrolling and restrictive, and who actively encourage child dependency, are thought to have children whose emotions and behaviors are psychologically overcontrolled (see Mills & Rubin, 1993). Finally, parents who have reasonable expectations for mature behavior, who use control and demands appropriately when their children are disobedient or display deviant behavior, and whose parenting behaviors are emitted in an affectively warm and nurturant environment are thought to have psychologically well-adjusted children (Maccoby & Martin, 1983).

Much of the research on parenting styles has not focused specifically on the effects of different styles on children's peer relationships. However, it is clear that the adaptive or maladaptive child behaviors that are related to differences in parenting would be expected to affect the child's relationships both within and outside the family context.

To summarize, from the perspective of attachment theory, the child is viewed as developing a cognitive representation of relationships that guides him/her in subsequent interactions with peers. These representations develop over time, on the basis of the quality of early maternal care. From the perspective of parenting style, the child is viewed as developing patterns of behavior in response to parental behavior, and these adaptive or maladaptive behavior patterns affect the development and quality of peer relationships.

On the surface, the separation of attachment and parenting influences might appear to be an artificial one: We would expect children's attachment security to be related to parenting styles, in the sense that most mothers who provide a sensitive responsive early environment that is conducive to the development of the child's attachment security, would be expected to provide a warm nurturing environment and use appropriate control techniques when the child is older. However, some mothers may not be as consistent over time in the care that they provide, due to changes in their own lives, or their lack of skills or motivation to change their parenting behaviors in response to changes in the child. For example, some mothers may be adept at nurturing a young infant, but may react inappropriately to the child's later need for autonomy.

Attachment theory, strictly interpreted, would emphasize the child's early mothering as the source of internal working models of relationships, which are viewed as self-reinforcing and decreasingly malleable with development. The parenting styles approach would emphasize the continuing influence of the parent's behavior on the child. Thus, we might expect a statistical relationship between attachment security and parenting styles, but attachment theory would predict that the child's security would be more closely related to social and emotional outcomes.

More distal aspects of the family environment can also affect the child. Such setting conditions may be indexed by demographic marker variables, or preferably, factors linked more directly (albeit still distally) to the quality of the mother-child relationship, namely, variables such as maternal stress, depression, and the availability of social support (see Rubin & Lollis, 1988). For example, a number of studies have found that maternal stress is negatively related to the quality of mother-child interaction and attachment security (e.g., Crnic & Greenberg, 1990; McKinnon, Rubin, Booth & Rose-Krasnor, 1993; Teti, Nakagawa, Das & Wirth, 1991). Maternal mental health has been linked to the quality of the mother-child attachment relationship (e.g., Spieker & Booth, 1988; Radke-Yarrow, Cummings, Kuczynski & Chapman, 1985). Finally, the availability of social support is negatively related to maternal restrictiveness and punitiveness and positively related to maternal responsivity and sensitivity and the quality of the mother-child relationship (e.g., Rose-Krasnor, Rubin & Booth, 1993; Weinraub & Wolf, 1987; Crockenberg, 1981). Taken together, we would expect that setting conditions would most likely affect the mother's ability to interact with her child in positive ways, thus having a direct effect on parenting style, but an indirect effect on the child's social and emotional adjustment.

In the ongoing longitudinal study that is the subject of this report, we found that children's social competence with peers at age 4 was related to concurrent measures of parenting style and to the children's attachment security to mother (Rose-Krasnor, Rubin, Booth & Coplan, 1994). The main purpose of the current report was to (a) evaluate the continuities in social and emotional adjustment between ages 4 and 8, and (b) to compare setting conditions, attachment security and maternal style at age 4 in terms of their prediction of social and emotional adjustment at age 8. Although other studies of family and peer links have focused on attachment quality, or maternal style, or other aspects of the mother-child relationship, the present study is relatively unique in its emphasis on a *comparison* of mother-child relationship influences on child social and emotional adjustment.

We hypothesized that there would be continuity in social-emotional adjustment from age 4 to 8. Additionally, we hypothesized that age-4 attachment security (as a measure of the child's internal working model of the self in relation to mother) would be a better predictor than setting conditions or maternal style of age-8 social and emotional outcomes. This hypothesis is derived directly from attachment theory, in the sense that family and peer relationships are viewed as being linked via the process of the child developing an internal working model of relationships, rather than the child exhibiting specific social behaviors based on maternal modeling, or based on the general climate of stress and support in the home environment.

Methods

Overview

During the first phase of this longitudinal research project, mothers and their four-year-old children participated in a mother-child-peer interaction session. Unfamiliar, same-sex, same-age (± 3 mos) children were assigned to dyads on the basis of attachment classifications at age 20 months or at age 4 years (assessed prior to the mother-child-peer session). The dyads consisted of a "control' child

who was securely attached, and a "focal" child who was either securely- or insecurely-attached to his/her mother. The focal child's mother also participated. Measures were obtained of setting conditions, maternal interactive style, child attachment security, and child social and emotional adjustment in the areas of social competence with peers and behavior problems.

At age 8, each focal child returned to the laboratory for a peer-quartet session. Children were placed in quartets with same age (± 6 mos), same-sex playmates who were recruited via posters placed in schools, community centers, etc. All playmate children met the criterion of behavior problem scores below the clinical cut-off on the Child Behavior Checklist (Achenbach, 1991). As before, measures were obtained of child social and emotional adjustment in the areas of social competence and behavior problems.

Subjects

The subjects were 79 children and their mothers. As of the 8-year assessment, the mothers' mean age was 35.67 (± 5.0) years; 13% had competed high school, 38% had completed some college, 30% were college graduates, and 19% had an advanced degree. Social status, as measured by the Hollingshead (1975) Four-Factor Index, averaged 44.2 (± 12.0). Most of the mothers (81%) were married.

The children were Caucasian primarily (87%); 54% were male and 61% were first-born. The children were assessed at 4.3 (± .1) years and again at 8.0 (± .15) years.

Procedures

Age 4. The focal and control children and their mothers were videotaped interacting in a laboratory playroom, in a wide variety of structured and unstructured situations, as follows (a) *Mother-Child Free Play*: Focal child and mother interacted in the playroom with toys (10 mins); (b) *Free-Play Quartet*: Focal and control children and mothers interacted (10 mins); (c) *Block-Building*: Control child, and focal child and mother built a house out of Duplo blocks (10 mins); (d) *Free-Play Triad*: Control child, and focal child and mother interacted in the playroom with toys (10 mins); (e) *Separation/Novel Toy*: Focal mother left the room; one novel action figure was introduced (10 minutes); (f) *Cookie Sharing*: The children were given one large cookie to share (5 mins); (g) *Reunion*: Focal mother returned (5 mins).

Mothers also completed questionnaires about demographics, social support, depression, stress, and child behavior problems prior to the lab visit.

Age 8. At age 8, the focal children returned to a larger laboratory playroom for quartet interaction with a new set of unfamiliar peers. The observational paradigm comprised several segments including a free-play session (20 mins); a session during which each child was required to sort tickets cooperatively (10 mins); and a session during which a single remote controlled car was introduced to the playroom (20 mins). The playroom contained a variety of age-appropriate toys and games: Barbie dolls and Barbie "equipment"; Teenage Mutant Ninja Turtles and "equipment," board games ("Sorry" and "Trouble"), large cardboard building blocks, drawing paper, markers, and books.

At the end of the session, each child was interviewed separately, and confiden-

tially, to obtain sociometric information about the other members of the quartet. Each child was asked the following set of five questions about the other quartet members individually, using photographs taken at the beginning of the laboratory session: (a) "How much did you like to play with (child's name)?", (b) "How much did you like to work with (child's name)?", (c) "How much did (child's name) cooperate or help?", (d) "How much did (child's name) argue or fight?", and (e) "How shy was (child's name)?". A five-point rating scale (from "not at all" to "a lot") was used for each question. The scores for a, b, & c were highly intercorrelated and therefore were averaged to produce a "likeability" index.

Observational Coding

Four observational coding schemes were used to code the videotaped data: Maternal Warmth and Control Rating Scales (Rubin & McKinnon, 1993) to code control and warmth during block-building, triad free play and mother-child free play at age 4; the Reunion Rating Scale (Booth & Perman, 1989) to evaluate the child's security of attachment to mother at age 4; the Play Observation Scale (Rubin, 1989), to code the child's behavior during the novel toy segment at age 4, and during free play at age 8; and the Ticket-Sorting Coding Scheme (Coplan, Rubin, Fox, Calkins & Stewart, 1994), to assess the child's disruptive behavior during this task at age 8. Data were coded independently for each coding scheme, by separate sets of blind observers.

Maternal Warmth and Control Rating Scales. These scales (Rubin & McKinnon, 1993) consisted of a series of 3-point ratings in the areas of proximity, positive affect, responsivity, positive control/guidance, hostile affect, negative affect, and negative control. Ratings of the videotaped interactions were completed after every minute of interaction during the Mother-Child Free Play, Block-Building, and Free-Play Triad segments, and averaged across minutes. For the observation segments that included both children, only interactions between the mother and her own child were rated. Interobserver agreement on the scales ranged from .86 to .97, calculated on 10% of the cases.

Reunion Rating Scale. The Reunion Rating Scale (RRS; Booth & Perman, 1989) was used to evaluate each focal child's security of attachment to mother at age 4. This 5-point scale rated the child's security as demonstrated upon reunion with the mother (following the cookie-sharing segment). The scale was developed to provide a quantitative measure of degree of security, which was of greater interest in this context than were the typical A-B-C-D classifications. Additionally, the scale provided contemporaneous assessment of attachment security for all subjects (Recall that half of the subjects had 20-month classifications from the Strange Situation and half had 4-year classifications from a mother-child laboratory visit prior to the peer session).

The RRS was based on the preschool attachment classification and rating system developed by Cassidy and Marvin with the MacArthur Working Group (1989). Coders who rated security in the present study also participated in the MacArthur Working Group and were trained and certified on the Cassidy and Marvin classification and rating system. The RRS is similar to the Cassidy and Marvin security rating scale that is used to assist the observer in making a classification. Interrater reliability on the RRS, computed for 12% of the subjects, yielded an intraclass correlation coefficient of .74.

To evaluate the validity of the RRS, scores were compared for children classified as secure or insecure by other means. Specifically, 4-year attachment classifications (using the Cassidy, Marvin, *et al.*, 1989 system) had been obtained independently on the nonlongitudinal subjects from a separation-reunion procedure approximately 1 month prior to the peer session; and 20-month attachment classifications (using the Ainsworth *et al.*, 1978 system) had been obtained independently on the longitudinal subjects in the Strange Situation. The average RRS score of children previously classified as secure at 4 years was 3.58, compared with 2.10 for the insecures, F (1,53) = 8.62, $p < .01$. Similarly, the average RRS score of 20-month secures was 3.85, compared with 2.81 for the insecures, F (1,51) = 7.88, $p < .01$.

Play Observation Scale. The Play Observation Scale coding taxonomy (POS; Rubin, 1989) was used to assess the child's social and nonsocial behavior during videotaped interaction with peers at ages 4 and 8. Data were coded every 10 seconds into one of the following social participation categories: onlooker behavior; unoccupied activity; and solitary, parallel, or group play. Nested within the latter three categories were the cognitive play categories of functional-sensorimotor, constructive or dramatic play, and games-with-rules. Also, exploratory activity, and conversations in the absence of play were coded. Data were converted to proportions of total time intervals, and subjected to arcsine transformation. Cohen's kappa, on 20% of the videotapes, ranged from .70-.83 for social and cognitive play categories.

Ticket-Sorting Coding Scheme. This coding scheme (Coplan *et al.*, 1994) was used to assess the proportion of time spent in on- and off-task behavior during the 10-minute segment in which the children were asked to sort tickets cooperatively. Behaviors were considered "off-task" if they did not include such actions as picking up and placing the tickets in various piles or talking about the task at hand. Off-task behavior was divided further into Unoccupied and Disruptive categories (i.e., goofing off or disrupting others from the task at hand).

Measures

Setting conditions. Setting conditions were assessed via measures of maternal stress, social support, and depression. One stress measure was the Life Experiences Survey (LES; Sarason, Johnson & Siegel, 1978), a 61-item questionnaire that yields a weighted score for maternal perceptions of the impact of negative life changes. The second stress measure was the Parenting Daily Hassles scale (PDH: Crnic & Greenberg, 1990), which is a 20-item questionnaire that assesses the frequency and intensity of daily hassles due to typical everyday parenting situations.

Social support was assessed with the Personal Resources Questionnaire (PRQ; Brandt & Weinert, 1981), a 25-item Likert-type scale that is based on Weiss's (1974) conceptualization of the functions of social relationships. The Beck Depression Inventory (BDI; Beck, 1970), a 21-item scale, was used to measure the severity of depression. The total score reflects both the number and severity of symptoms.

A principal components analysis with varimax rotation on the summary scores from the LES, PDH, PRQ, and BDI revealed that the LES, PDH, and BDI had high positive loadings, and the PRQ had a high negative loading on one factor.

Consequently, the factor score was used in all subsequent analyses to represent negative setting conditions.

Maternal style. Two aggregated scores were derived from the observational data – *maternal warmth* and *maternal negativity*. For maternal warmth, the summary score consisted of summed z-scores for ratings of proximity, positive affect, responsiveness, and positive control. Internal consistency of the composite was .71. The maternal negativity score (alpha=.73) consisted of summed z-scores for ratings of negative control, hostile affect, and negative affect.

Attachment security. The Reunion Rating Scale score was used as the measure of security of attachment to mother at age 4.

Child social and emotional adjustment – age 4. Measures of child social and emotional adjustment at age 4 were in the areas of (a) internalizing problems, (b) externalizing problems, (c) social engagement, and (d) reticence.

Internalizing and externalizing behavior problems were assessed by means of the Child Behavior Checklist (Achenbach, 1991), a 118-item parent-completed checklist designed to assess behavior- and social-competence problems in children. The internalizing and externalizing summary T-scores were used in the analyses.

The aggregated social engagement measure from the POS consisted of summed, arcsine-transformed proportions from the POS of positive or neutral conversation with the peer, and positive or neutral play with the peer. This social engagement measure is construed as an important component of social competence. The reticence measure was the sum of arcsine-transformed proportions from the POS for onlooker- and unoccupied behavior.

Child social and emotional adjustment – age 8. As at age 4, the assessments at age 8 were designed to evaluate internalizing problems, externalizing problems, social engagement, and reticence. However, unlike the age-4 data, multiple assessments of each construct were completed at age 8. Consequently, factor scores were used for these variables at age 8. The advantage of using factor scores instead of single indicators is that the factors comprised measures obtained from several informants, using a variety of methods.

Four factor scores were used as dependent variables. These scores were identified on the basis of a series of principal-components analyses with varimax rotation. In all cases, factor loadings exceeded a minimum inclusion criterion of .40, and the factors were readily interpretable.

The internalizing- and reticence factor scores were orthogonal factors in one analysis. For the *internalizing* factor score, the variables with high loadings were the POS proportions for solitary passive play (solitary-constructive + solitary-exploratory), and solitary active play (solitary-functional + solitary-dramatic);[1] and the internalizing T-score from the CBCL. For the *reticence* factor score, the variables with high loadings were the proportion for observed reticence from the POS (onlooker- and unoccupied behavior), and the shyness score from the sociometric ratings.

The *externalizing* factor consisted of the proportion of disruptive behavior observed during the ticket-sorting task, the sociometric rating for aggression, and the externalizing T-score from the CBCL. Finally, the *social engagement and acceptance* factor consisted of the relevant proportions from the POS coding (positive or neutral conversation with the peer, and positive or neutral play with the peer), and the likeability score from the sociometric ratings by the quartet-peers.

Results

Descriptive statistics for all variables are shown in Table 1 and intercorrelations among them, in Table 2. The bivariate correlations indicated that age-4 measures of child social and emotional adjustment were significantly related to the comparable age-8 measures, with the exception of reticence. The correlations also revealed that setting conditions, maternal warmth and negativity, and attachment security at age 4 were related both concurrently and predictively to measures of social and emotional adjustment.

A series of multiple regression analyses was conducted to evaluate the relationship between age-4 predictors and age-8 social and emotional outcomes (i.e., internalizing problems, externalizing problems, social engagement, reticence). On the first step of each analysis, the age-4 "matching" child variable was entered. For example, the CBCL internalizing score at age 4 was entered for the prediction of the internalizing factor score at age 8. On the second step, age-4 setting conditions, maternal warmth, maternal negativity, and attachment security were entered as a block.

The results of the regression analyses are shown in Table 3. In the first analysis, internalizing problems at age 4 predicted internalizing problems at age 8. In the second block of variables, attachment security was the only one that added significant variance to the prediction of internalizing problems (in a negative direction).

The pattern was different for externalizing problems. The significant predictors in the externalizing analysis were externalizing problems and maternal warmth (in a negative direction) at age 4. None of the other predictors was significant.

For social engagement/acceptance at age 8, attachment security was the only significant predictor following the entry of social engagement at age 4. Finally, none of the variables predicted reticence.

Discussion

The results supported the hypothesized continuities in the children's social and emotional adjustment from age 4 to age 8. The cross-age correlations were significant for internalizing problems, externalizing problems, and social engagement. Thus, despite differences in types of assessments, observation contexts, and play partners at the two ages, indices of social and emotional adjustment were relatively stable.

Unlike the other variables, reticence was not related at the two ages. It is unclear why this would be the case, although the differences in observation contexts at age 4 and age 8 might account for the lack of stability. That is, onlooker and unoccupied behavior in a dyad (at age 4) might be qualitatively different from these same behaviors in a quartet (at age 8). Additionally, recent evidence suggests that the various forms of nonsocial activity in the presence of peers may change in their meaning and consequences with development (see Rubin & Asendorpf, 1993; Coplan *et al.*, 1994).

We had hypothesized that attachment security at age 4 would be a better predictor than setting conditions or maternal style, of social and emotional adjustment at age 8. This hypothesis was supported in part. The multiple-regression analyses indicated that attachment security (but neither setting conditions, nor maternal warmth or negativity) contributed significantly to the prediction of

Table 1. Descriptive Statistics for Variables Prior to Aggregation

	N	Mean	SD
	Age 4		
Setting Conditions			
LES – Negative	79	5.66	6.14
Parenting Daily Hassles	79	40.56	7.12
Beck Depression Inventory	79	5.58	5.69
Personal Resources Quest.	79	147.58	17.23
Maternal Warmth			
Proximity	73	2.47	.26
Positive Affect	73	1.60	.24
Responsiveness	73	2.90	.22
Positive Control	73	1.44	.16
Maternal Negativity			
Negative Control	73	1.18	.19
Hostile Affect	73	1.06	.09
Negative Affect	73	1.04	.05
Security	74	3.54	1.44
CBCL – Internalizing	79	50.60	9.52
CBCL – Externalizing	79	51.66	9.41
Reticence	72	.17	.15
Social Engagement	72	.56	.20
	Age 8		
Internalizing Factor			
CBCL – Internalizing	79	50.54	9.26
Solitary Active	79	.06	.13
Solitary Passive	79	.01	.03
Externalizing Factor			
CBCL – Externalizing	79	49.38	9.95
Disruptive	79	.01	.04
Aggression Rating	79	1.14	.29
Reticence Factor			
Reticence	79	.12	.11
Shyness Rating	79	1.50	.54
Social Engagement/Acceptance Factor			
Social Engagement	79	.34	.25
Helpfulness Rating	79	3.98	.74
Work Rating	79	3.85	.64
Play Rating	79	3.93	.63

internalizing problems and social engagement/acceptance at age 8, beyond what was predicted by, respectively, internalizing problems and social engagement at age 4.

These data correspond well with a growing body of research linking the parent-child attachment relationship to the development of social competence in children

Table 2. Intercorrelations Among Variables

	Age 4 Setting	Warmth	Negativity	Security	CBCL – In t	CBCL – Ex t	Reticence	Soc Eng	Intern	Extern	Age 8 Reticence	Soc Eng/Acc
Age 4												
Setting	–											
Warmth	–.16	–										
Negativity	.28**	–.47***	–									
Security	–.12	.47***	–.28**	–								
CBCL – Int.	.40***	.14	.04	.03	–							
CBCL – Ext.	.40***	–.01	.11	–.08	.69***	–						
Reticence	.22*	–.09	–.01	–.32**	.13	.08	–					
Soc. Engage.	–.41***	.27**	–.17	.32**	–.16	–.25*	–.50***	–				
Age 8												
Internalizing	.28**	–.18	.18	–.33**	.41***	.37***	.16	–.36***	–			
Externalizing	.22*	–.26**	.20*	.01	.25**	.46***	.12	–.25*	.27**	–		
Reticence	.06	.01	.14	–.04	–.01	–.08	–.09	–.05	.00	–.13	–	
Soc. Engage./ Accept.	–.22*	.23*	–.19*	.37***	–.12	–.23*	–.10	.29**	–.37***	–.13	–.32**	–

Note. $N = 69–79$
* $p < .05$; ** $p \leq .01$; *** $p < .001$.

Table 3. Regression Analyses Predicting Child Social and Emotional Outcomes at Age 8 from Age 4 Variables

Step	Variable	Beta	R	R^2	F-to-Enter
		Internalizing Problems			
1	CBCL-Int.	.39	.41	.17	14.35***
2	Security	−.30	.51	.26	8.32**
		Externalizing Problems			
1	CBCL-Ext.	.47	.46	.21	21.82***
2	Warmth	−.28	.54	.30	7.95**
		Social Engagement/Acceptance			
1	Social Engage.	.20	.29	.08	3.21+
2	Security	.31	.42	.17	7.43**

Note. None of the variables predicted reticence.
+ $p < .10$; ** $p < .01$; *** $p < .001$.

(e.g., Cohn, 1990; Park & Waters, 1989; Turner, 1991). Our findings are consistent with the notion that a child who is secure in his or her relationship with the primary attachment figure has the confidence to explore unfamiliar social environments and has positive expectations for interactions with others. The secure child, therefore, should show high levels of positive social play; the insecure child should lack social confidence, hold negative expectations for social outcomes, and thus, be less likely to engage in interactions with unfamiliar peers. Our data support these theoretically-based associations.

The prediction of externalizing problems at age 8 yielded different results: Maternal warmth, but not attachment security, was a significant (negative) predictor of externalizing problems at age 8. Although maternal warmth was the strongest predictor, the bivariate correlations between maternal negativity and externalizing problems, and between setting conditions and externalizing problems also were significant, in a positive direction. Attachment security was not related to externalizing problems.

These results suggest that externalizing behavior may be influenced more directly by the mother's interactive style, than by the child's internal working models of relationships. That is, when interacting with peers, the child with externalizing difficulties may be exhibiting a general reaction to the mother's relatively negative behavior toward him/her, or the child may be imitating more specific social behavior modeled by the mother. This interpretation assumes a chain of causation from mother to child. Alternatively, it is possible that the mother's behavior may be a *response* to the child's externalizing tendencies, rather than a cause.

The setting conditions variable at age 4 was not a significant predictor in any of the multiple regression analyses. However, the bivariate correlations indicated that this variable was positively related to internalizing and externalizing problems and negatively related to social engagement/acceptance at age 8. These results are consistent with previous research indicating the negative effects on the

child of maternal stress, depression, and poor social support. Yet, it is also the case that setting conditions are relatively distal factors that probably affect the child indirectly by means of their more direct effects on the mother's ability to interact with her child in positive ways, and to develop a relationship that is optimal for the child. In the present study, the relative strength of the more proximal predictors (i.e., attachment security and maternal style), in comparison with setting conditions, lends support to this interpretation.

It is noteworthy that security of attachment was positively correlated with maternal warmth, and negatively correlated with maternal negativity at age 4. These results suggest relative continuity in maternal behavior, if we assume that the development of a secure child-mother attachment relationship is a consequence of maternal sensitivity and responsivity in infancy. Yet, attachment security was a better predictor of internalizing problems and social engagement/acceptance than was maternal style, and maternal style was a better predictor of externalizing problems. These results indicate that in investigating the origins of child social behavior, it is important to examine the separate contributions of various aspects of the parent-child relationship, despite the statistical connectedness of these variables. Recent evidence from other studies (Greenberg, Speltz & DyKlyen, 1993; Waters, Posada, Crowell & Lay, 1993) lends support to this view.

Others have argued that different types of attachment insecurity (avoidance, resistance, disorganization) should relate to varying forms of maladaptive behavior with peers (Sroufe, 1983; Erickson, Sroufe & Egelund, 1985; Cohn, 1990). In the present study, we did not have sufficient representation among the various types of insecurity to perform such analyses. Further, we chose to measure security on an ordinal scale rather than to use the A-B-C-D classification system, because the *amount* of security or insecurity, rather than the *type* was more important in the present context. Nonetheless, it is possible that analysis by type would yield different results.

Also, it should be noted that these results were obtained by observing children's initial (i.e., one-occasion) interactions with unacquainted peers. If we had observed children with their best friends, or with an established peer group, the results might differ. However, we would expect somewhat comparable results in these other contexts, given that the behavior we observed in the novel-peer situation was consistent with parental reports of behavior problems, and these reports presumably reflect the children's behavior in a variety of relationships and contexts. The advantage of the unacquainted-peer method is that it allowed us to evaluate each child's social competence and adaptive or maladaptive behavior outside the context of established behavior patterns among acquainted peers. It is these social competencies, or lack thereof, that play an important role in the development of positive or negative relationships with others, and, if negative, place the child at risk for subsequent psychological maladjustment.

It has been suggested that security of attachment to mother should be most strongly linked to the quality of children's close relationships with friends (Park & Waters, 1989; Youngblade & Belsky, 1992). However, we have found that studying children's behavior with unacquainted peers allows us to tap a more primary element in the process of developing good-quality friendships – i.e., the social competencies that form the basis for the development of intimate relationships.

The results of the present study add to, and support the growing literature on the links between mother-child and peer relationships. Yet, this study is relatively

unique in its emphasis on *comparison* of mother-child relationship influences on *multiple* aspects of child social and emotional adjustment. Additionally, this study is one of the few longitudinal investigations in the area to employ comparable measures of social and emotional adjustment during preschool and middle childhood; as such, the design of the study allowed us to evaluate the stability of children's social competencies and adjustment difficulties across these ages, and to separate out the variance due to stability in child behavior from the variance due to earlier mother-child relationship influences.

The purpose of this report was to compare the relative value of age-4 variables in predicting age-8 outcomes. Thus, we did not address the question of concurrent links among variables at age 8. Although we would expect relative stability in setting conditions and mother-child relationship factors between ages 4 and 8, it is clear that generalizing the present results to hypothesized concurrent links among family- and peer domains at age 8 would be speculative.

To summarize, we began this study with the idea that attachment security would be more important than setting conditions or maternal interactive style in predicting children's social and emotional adjustment. The results of this study point to the importance of both aspects of the mother-child relationship, but also indicate that the nature of family and peer links may vary depending upon the specific social behaviors and contexts within which these behaviors are assessed. As a field, it is time to move beyond the simple demonstration of family and peer links, and to work toward an elucidation of the processes linking the quality of family and peer relationships.

Note

1. Note that solitary active and solitary passive behaviors were not included in the age-4 data, because their meaning is less clear in the dyadic context at this age than in the quartet at age 8.

References

Achenbach, T.M. (1991). *Manual for the Child Behavior Checklist/4–18.*

Ainsworth, M. Blehar, M., Waters, E. & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation.* Hillsdale, N.J.: Erlbaum.

Beck, A.T. (1970). *Depression: Causes and treatment.* Philadelphia: Univ. of Pennsylvania Press.

Booth, C. & Perman, K. (1989). *Attachment Rating Scales.* Unpublished manual.

Booth, C., Rose-Krasnor, L. & Rubin, K. (1991). Relating preschoolers' social competence and their mothers' parenting behaviors to early attachment security and high risk status. *Journal of Social and Personal Relationships, 8,* 363–382.

Bowlby, J. (1973). *Attachment and loss, Vol. 2: Separation.* New York: Basic Books.

Brandt, P.A. & Weinert, C. (1981). The PRQ – a social support measure. *Nursing Research, 30,* 277–280.

Bretherton, I. (1985). Attachment theory: Retrospect and prospect. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research. *Monographs of the Society for Research in Child Development, 50* (1–2), Serial No. 209.

Cassidy, J., Marvin, R. & MacArthur Working Group. (1989). *Attachment organization in three and four year olds: Coding guidelines.* Unpublished paper, University of Virginia, Charlottesville, VA.

Cohn, D. (1990). Child–mother attachment of six-year-olds and social competence at school. *Child Development, 61,* 152–162.

Coplan, R., Rubin, K.H., Fox, N., Calkins, S. & Stewart, S. (1994). Being alone, playing alone and acting alone: Distinguishing among reticence and passive- and active-solitude in young children. *Child Development, 65,* 129–137.

Crnic, K. & Greenberg, M. (1990). Minor parenting stresses with young children. *Child Development, 61*, 1628–1637.

Crockenberg, S. (1981). Infant irritability, mother responsiveness and social support influences on the security of infant-mother attachment. *Child Development, 51*, 857–865.

Dodge, K.A., Bates, J.E. & Pettit, G.S. (1990). Mechanisms in the cycle of violence. *Science, 25*, 1678–1683.

Erickson, M.F., Sroufe, L.A. & Egeland, B. (1985). The relationship between quality of attachment and behavior problems in preschool in a high risk sample. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research, *Monographs of the Society for Research in Child Development, 50* (1–2), Serial No., 209.

Greenberg, M., Speltz, M. & DeKlyen, M. (1993). The role of attachment in the early development of disruptive behavior patterns. *Development and Psychopathology, 5*, 191–214.

Hollingshead, A.B. (1975). *Four Factor Index of Social Status.* Unpublished manual.

Ladd, G.W. (1991). Family-peer relations during childhood: Pathways to competence and pathology? *Journal of Social and Personal Relationships, 8*, 307–314.

Lewis, M., Feiring, C., McGuffog, C. & Jaskir, J. (1984). Predicting psychopathology in six-year-olds from early social relations. *Child Development, 55*, 123–136.

Lieberman, A. (1977). Preschoolers' competence with a peer: Relations with attachment and peer experience. *Child Development, 48*, 1277–1287.

Maccoby, E. & Martin, J. (1983). Socialization in the context of the family. In E. Hetherington (Ed.), *Handbook of child psychology, Vol. 4: Socialization, personality and social development*, pp. 1–101. New York: Wiley.

Main, M., Kaplan, N. & Cassidy, J. (1985). Security in infancy, childhood and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research. *Monographs of the Society for Research in Child Development, 50* (1–2), Serial No. 209.

McKinnon, J., Rubin, K., Booth, C. & Rose-Krasnor, L. (1993, March). *The influence of socioecological and personal support factors on maternal warmth: Mediating effects on attachment security in the preschool years.* Poster presented at the Biennial Meeting of the Society for Research in Child Development, New Orleans.

Mills, R. & Rubin, K.H. (1993). Socialization factors in the development of social withdrawal. In K. Rubin & J. Asendorpf (Eds.), *Social withdrawal, inhibition, and shyness*, pp. 117–150. Hillsdale, NJ: LEA.

Park, K.A. & Waters, E. (1989). Security of attachment and preschool friendships. *Child Development, 60*, 1076–1081.

Parke, R.D., MacDonald, K.B., Beitel, A. & Bhavnagri, N. (1988). The role of the family in the development of peer relationships. In R.D. Peters & R.J. McMahan (eds.), *Marriages and families: Behavioral treatments and processes*, pp. 17–44. New York: Brunner-Mazel.

Parker, J. & Asher, S. (1987). Peer acceptance and later personal adjustment: Are low-accepted children "at risk"? *Psychological Bulletin, 102*, 357–389.

Pastor, D.L. (1981). The quality of mother-infant attachment and its relationship to toddler's initial sociability with peers. *Developmental Psychology, 17*, 326–335.

Pepler, D. & Rubin, K.H. (Eds.). (1991). *The development and treatment of childhood aggression.* Hillsdale, NJ: LEA.

Putallaz, M. (1987). Maternal behavior and children's sociometric status. *Child Development, 58*, 324–340.

Radke-Yarrow, M., Cummings, E., Kuczynski, L. & Chapman, M. (1985). Patterns of attachment in two- and three-year-olds in normal families and families with parental depression. *Child Development, 56*, 884–893.

Rose-Krasnor, L., Rubin, K. & Booth, C. (1993, March). *Maternal control, mother-child attachment and preschoolers' nonsocial play.* Paper presented at the Biennial Meeting of the Society for Research in Child Development, New Orleans, (1993).

Rose-Krasnor, L., Rubin, K.H., Booth, C.L. & Coplan, R. (1994). *Maternal directiveness and child attachment security as predictors of social competence in preschoolers.* Manuscript submitted for publication.

Rubin, K.H. (1989). *The Play Observation Scale* (POS). Unpublished manual.

Rubin, K.H. & Asendorpf, J. (1993). Social withdrawal, inhibition and shyness in childhood: Conceptual and definitional issues. In K.H. Rubin, & J. Asendorpf (Eds.) *Social withdrawal, inhibition, and shyness in childhood*, pp. 3–18. Hillsdale, NJ: LEA.

Rubin, K.H. & McKinnon, J.E. (1993). *Maternal Warmth and Control Rating Scales.* Unpublished manual.

Sarason, I., Johnson, H. & Siegel, M (1978). Assessing the impact of life changes: Development of the life experiences survey. *Journal of Consulting and Clinical Psychology, 46*, 932–946.

Spieker, S. & Booth, C. (1988). Maternal antecedents of attachment quality. In J. Belsky & T. Nezworski (Eds.), *Clinical applications of attachment*, pp. 95–136. Hillsdale, NJ: LEA.

Sroufe, A. (1983). Infant-caregiver attachment and patterns of adaptation in preschool: The roots of maladaption and competence. In M. Perlmutter (Ed.), *Minnesota Symposium on Child Psychology*, Vol. 16, pp. 41–91. Hillsdale, NJ: LEA.

Sroufe, A. & Waters, E (1977). Attachment as an organizational construct. *Child Development, 48*, 1184–1119.

Teti, D.M., Nakagawa, M., Das, R. & Wirth, O. (1991). Security of attachment between preschoolers and their mothers: Relations among social interaction, parenting stress, and mothers' sorts of the Attachment Q-set. *Developmental Psychology, 27*, 440–447.

Turner, P.J. (1991). Relations between attachment, gender, and behavior with peers in preschool. *Child Development, 62*, 1475–1488.

Waters, E., Posada, G., Crowell, J. & Lay, K. (1993). Is attachment theory ready to contribute to our understanding of disruptive behavior problems? *Development and Psychopathology, 5*, 215–224.

Weinraub, M. & Wolf, B. (1987). Stressful life events, social supports and parent-child interaction: Similarities and differences in single and two parent families. In Z. Boukydis (Ed.), *Research on support for parents and infants in the post natal period*, pp. 114–133. Norwood, NJ: Ablex.

Weiss, R. (1974). The provision of social relationships. In Z. Rubin (Ed.), *Doing unto others*, pp. 17–26. Englewood Cliffs, NJ: Prentice-Hall.

Youngblade, L.M. & Belsky, J. (1992). Parent-child antecedents of 5-year-olds' close friendships: A longitudinal analysis. *Developmental Psychology, 28*, 700–713.