

Child–Parent Attachment and Children’s Peer Relations: A Quantitative Review

Barry H. Schneider
University of Ottawa

Leslie Atkinson
Centre for Addiction and Mental Health

Christine Tardif
University of Toronto

The central premise of attachment theory is that the security of the early child–parent bond is reflected in the child’s interpersonal relationships across the life span. This meta-analysis was based on 63 studies that reported correlations between child–parent attachment and children’s peer relations. The overall effect size (ES) for child–mother attachment was in the small-to-moderate range and was quite homogeneous. ESs were similar in studies that featured the Strange Situation and Q-sort methods. The effects were larger for peer relations in middle childhood and adolescence than for peer relations in early childhood. ESs were also higher for studies that focused on children’s close friendships rather than on relations with other peers. Gender and cultural differences in ESs were minimal. The results for the few studies on father–child attachment were inconclusive.

Bowlby (1969) proposed that the infant constructs models of the world, significant persons within it, and the self. These *internal working models*, or states of mind that guide behavior, become more sophisticated with age and are applied to the child’s broadening social world. On the basis of these models, the child predicts the behavior of others and makes motivational attributions. Although internal working models are amenable to change with change in the environment, they cannot be modified easily. This is because they involve intrinsically conservative expectancies (later experience is interpreted in light of earlier experience) and because these expectancies influence behavior such that expectations are confirmed, or at least not disconfirmed (e.g., someone who expects a rebuff may invite it, thereby confirming expectations, or she or he may avoid interaction, thereby precluding disconfirmation of expectations). Models of others’ behavior are brought from the home and may resist change even when they do not accurately reflect the reality of new playmates.

However, several investigators have questioned the theory linking attachment security to subsequent child adjustment. Grusec

and Lytton (1988) queried the assumption that attachment acts causally. They speculated that attachment is an indicator of the child’s overall resilience and adjustment, which may have other sources. Hinde (1988) argued that the construct of internal working models has become a catchall explanation of stability within attachment theory. Hinde suggested that other, nonattachment constructs, such as temperament, might serve this purpose equally well (see also Kagan, 1995) and that no convincing evidence exists for the causal role, or even the existence, of internal working models. Remarking that the empirical support for attachment falls short of theory-based expectation, Lewis and Feiring (1989) argued that theorists fail to consider important socialization agents other than parents that influence children’s social relationships. Belsky and Cassidy (1995) concluded that “the notion of internal working models as the causal process explaining the associations between attachment security and the developmental sequelae remains a useful interpretive heuristic in need of empirical evaluation” (p. 383).

Basic data on the strength of the association between attachment security and peer relations are a prerequisite to the resolution of this controversy. Quantitative synthesis of research results facilitates the objective comparison of results across studies that have used a common metric. It is particularly useful in synthesizing results when there are a substantial number of studies but modest sample sizes in each, as in the case of the present meta-analysis. The provision of such an estimate was the first purpose of this meta-analysis. The derivation of an overall effect size (ES), however, represents only the starting point of this meta-analysis. To avoid the pitfalls of “combining multiple studies involving specific, exotic, and diverse procedures, participants, and hypotheses and then generalizing to people in general” (Lepper, Henderlong, & Gingras, 1999, p. 671), we discuss the specifics of particular studies in a narrative format when there are few studies addressing

Barry H. Schneider, School of Psychology, University of Ottawa, Ottawa, Ontario, Canada; Leslie Atkinson, Centre for Addiction and Mental Health, Toronto, Ontario, Canada; Christine Tardif, Department of Human Development and Applied Psychology, University of Toronto, Toronto, Ontario, Canada.

This study was funded by the Ontario Mental Health Foundation.

We acknowledge the assistance of Simon Williams and Drew Dane in the coding of the study features and the helpful suggestions of Ruth Sharabany, Avi Sagi, David Oppenheim, and Ofra Mayseless. The support of many colleagues in providing data to supplement those available in published sources is also gratefully acknowledged.

Correspondence concerning this article should be addressed to Barry H. Schneider, School of Psychology, University of Ottawa, Ottawa, Ontario, Canada K1N 6N5. Electronic mail may be sent to barry@uottawa.ca.

a particularly relevant hypothesis or population and especially when samples are small or procedures flawed.

Potential Moderating Factors

The second purpose of this meta-analysis was to identify variables that moderate the relation between attachment security and peer relations. Many possible moderating factors exist.

Assessment of Attachment

Most studies of attachment and peer relations have relied on Ainsworth and Wittig's (1969) Strange Situation to measure attachment security. Lamb and Nash (1989) argued that this laboratory task lacks ecological validity. Clarke-Stewart (1989) and Thompson (1988) argued that independent behavior in the Strange Situation has been mistakenly interpreted as (insecure) avoidance of the caregiver.

The second commonly used measure of attachment in this literature is the Attachment Q-set (Waters & Deane, 1985). Designed as an ecologically valid alternative to the Strange Situation, the Attachment Q-set involves observation of the caregiver-child dyad in and around the home. However, one might wonder whether the instrument truly measures attachment behavior (which is a response to stressful circumstances, such as are incorporated into the Strange Situation) or whether it measures some correlate(s) of that behavior. The Q-set provides a continuous metric representing the *degree* to which a relationship is secure. However, it has been argued that attachment theory pertains to quality of attachment, not quantity (Ainsworth, Blehar, Waters, & Wall, 1978). On the other hand, the continuous metric of the Attachment Q-set may provide more statistical power than the categorical metric of the Strange Situation. For whatever reasons, meta-analytic results indicate only modest convergence between the Attachment Q-set and the Strange Situation ($r = .26$; van IJzendoorn, Vereijken, & Ridsen-Walraven, in press).

Investigators have also developed a variety of other techniques to assess attachment security. Cassidy and Marvin (1992) and Crittenden (1988) developed separation-reunion systems for preschoolers, although Goldberg, Washington, et al. (1999) questioned the continuity of the former with respect to infant attachment classifications. Bretherton, Ridgeway, and Cassidy (1990) constructed a doll story play task for preschoolers, but the task may not be well suited to clinical samples (Greenberg, DeKlyen, Speltz, & Endriga, 1997). George, Kaplan, and Main (1996) developed the Adult Attachment Interview, but it may have limitations where adolescents are concerned (Cobb, 1996). This proliferation of attachment instruments, many with putative shortcomings, suggests the need for a comparative and integrative approach to the literature.

Assessment of Peer Relations

Most of the major instruments for assessing children's peer relations have been used in attachment studies, including socio-metrics, direct observation, and reports from parents and teachers. In addition, some studies have included self-report measures of peer relations, which are of questionable validity as measures of actual social behavior, especially in the case of youngsters with

externalizing disorders (Kupersmidt & Patterson, 1991). The various assessment methods vary greatly in terms of validity and reliability; they often provide divergent pictures of the same child's peer relations (e.g., Bierman & Welsh, 1997).

Virtually every conceivable aspect of peer relations has been included in attachment research, but it is not clear that all are equally relevant. Admittedly, there are "broad" views of attachment (see discussion by Thompson, 1998) according to which child-parent attachment could be expected to predict many if not most aspects of children's cognitive and social development, in contrast to "narrow" views in which child-parent attachment is assumed to predict only close, intimate relationships. Nevertheless, even the broad views of attachment do not provide any basis for assuming that all aspects of social development will be affected to the same extent.

Accordingly, the most meaningful contrast that could emerge from a synthesis of the literature is between measures of friendship and measures of peer relations in larger groups. This contention is consistent with the relationship perspective (e.g., Belsky & Cassidy, 1995; Hinde, 1979; Sroufe & Fleeson, 1986; Waters & Sroufe, 1983) that advocates going beyond conceptualizations of social competence in terms of constructs that pertain mostly to large-group interaction, such as popularity/rejection (Belsky & Cassidy, 1995; Fox, 1995; Kerns, 1994; Shulman, 1995). These theorists argue that the intense, intimate experience of family life is more closely associated with the child's success in forming intense, intimate relationships with friends. On the basis of their qualitative review, for example, Belsky and Cassidy (1995) concluded, "In thinking about the sequelae of attachment security . . . there seems to be a clear need to distinguish intimacy or intimacy-like relations from mere sociability" (p. 394).

This argument implies that the influence of attachment on relationships must be summarized separately from its impact on social exchanges with peers who are not close friends, and that time-lagged correlations should be compared with concurrent correlations between attachment and social relations. Sroufe (1988) implored theorists to respect the boundaries of attachment theory in making predictions about children's functioning in later life. He argued for limiting predictions to such domains as inner confidence, self-worth, and intimacy and closeness in interpersonal relationships. There is a growing consensus that both acceptance in large groups and involvement in satisfying close relationships have implications for adjustment, though possibly in different ways (Asher, Parker, & Walker, 1996). Perhaps, as Sullivan (1953) theorized, interaction with intimate friends during childhood and adolescence provides the best foundation for satisfying, close relationships later on.

We are not suggesting that attachment security is unrelated to aspects of social competence other than intimacy in close friendship. Social competencies in large groups and in close relationships are conceptually and empirically related. First, acceptance in a large group expands the network of potential friends, thereby increasing the opportunity to form intimate friendships. Popularity affords friendship (Bukowski, Pizzamiglio, Newcomb, & Hoza, 1996). Second, success in social relations at the large-group level requires some of the same skills as are involved in forming and maintaining close friendships. Bukowski et al. discussed some of these common skills; they emphasized the ability to resolve conflict, to share positive affect, and to reciprocate liking. Some of

these elements, especially the exchange of positive affect and of sentiments of liking, are important elements of early parent-child bonds and thus may relate to early attachment security. However, there are important differences in addition to the commonalities between the constructs, especially with regard to the exchange of intimacy, which is central in friendship but not in popularity. Hence, the working model for relationships that is based on the first intimate relationship should be most (although not uniquely) relevant to later intimate relationships, such as close friendship.

Obstacles to global peer acceptance may also be impediments to intimacy in close relationships. Aggression and shyness/withdrawal are the major obstacles to peer acceptance. Attachment can be seen as an antecedent to both. As noted by Troy and Sroufe (1987), children with insecure "avoidant" parents may expect hostility from others and relate to peers on the basis of that expectation with preemptive displays of hostility. According to Rubin, LeMare, and Lollis (1990), such avoidant attachment patterns are more likely to arise under adverse "setting conditions," such as the child being of a difficult temperament or the mother being socially isolated and/or under financial stress. The interpersonal aggression that arises from expectations of hostility should logically affect both close and casual social relationships. However, it is logical to expect that the hostility is transferred most directly from the parent-child relationship to the peer relationship most similar to it—namely, the bond between close friends. Furthermore, aggressive behavior alienates peers (Asher & Coie, 1990), which restricts the network of potential friends. Aggressive children tend to form relationships with other aggressive children (Dishion, Andrews, & Crosby, 1995); these friendships between antisocial children and youth are often superficial ones lacking in intimacy (Selman & Schultz, 1990).

The same reasoning applies to social withdrawal. Infants who display insecure, ambivalent patterns of attachment expect to be rejected by others. They remain passive in peer contexts in order to avoid rejection (Rubin, Bukowski, & Parker, 1998). This ambivalent pattern is seen as more probable if the child is biologically predisposed to become less aroused in novel social situations and if the family system is already vulnerable because of external stresses (e.g., unemployment) and/or inadequate provision of social support (Rubin et al., 1990). From early adolescence on, shyness or withdrawal alienates peers (Hodgens & McCoy, 1989). This alienation restricts the pool of candidates for close friendships; signs of social withdrawal are evident in relationships with close friends as well as in large-group social interaction. For example, withdrawn children are less talkative and less competitive with their friends than are nonwithdrawn children (Schneider, 1999). Thus, there are reasons to believe that child-parent attachment may affect many aspects of children's social transactions with peers who are not close friends. Furthermore, acceptance or rejection in large groups and the behaviors (e.g., aggression and social withdrawal) that may lead to acceptance or rejection may function as regulators of access to close friendships. Although there may be reasons why attachment may differentially affect such variables as popularity, aggression, and social withdrawal, we focus herein on what we consider the most important distinction from a conceptual standpoint: the comparison of more and less intimate relationships.

The major tools of peer-relations research—namely, observation, sociometrics, and third-party ratings—can all be used to

measure both general peer acceptance and close friendships, but their content would differ dramatically. For example, direct observations of children's play during recess have been used to quantify frequency or duration of contacts with peers in comparison with frequency or duration of solitary play. It is also possible, although not always easy, to use direct observation to assess such aspects of intimate friendship as mutual affection, emotional support, and intimacy, even in young children (Howes, 1996). Unfortunately, such direct observation has not typically been used in studies of attachment and peer relations, perhaps because many of the critical moments in friendship occur out of range of observational technology.

There are developmental differences in the relative importance of many of the salient features of friendship. Harry Stack Sullivan, who emphasized the pivotal importance of intimate friendship for psychosocial development, argued for the importance of friendship at only one period of development: right before and during adolescence (Berndt, 1996; Sullivan, 1953). It is difficult, though possible, to assess affection and intimacy in the friendships of young children, but their friendships are not characterized by mutual emotional support, self-disclosure, or frequent expressions of acceptance (Howes, 1996). The exchange of intimacy is acknowledged in children's comments about their friendships from preadolescence on (Berndt, Hawkins, & Hoyle, 1986); it becomes the central feature of friendship only in adolescence (Aboud & Mendelson, 1996; Clark, Mills, & Corcoran, 1989). The differentiation between friendship and social interactions with nonfriends is the central distinction of this article. We also investigated several other variables that may serve to moderate the relation between attachment security and peer relations, as described in the following sections.

Gender of Parent and Child

Because of the mother's primary caregiving role in Western societies, one might expect that child-mother attachment is of greater consequence for future relationships (Belsky, 1996). Nevertheless, it is possible that the quality of father-child attachment is strongly related to children's social relations, especially for boys in the preschool and early school years, when same-sex friendships are the norm (e.g., Daniels-Beirness, 1989).

Age at Assessment

Age at assessment of both attachment and peer relations may be important. With respect to attachment, theorists have argued that internal working models become more stable with age (Bowlby, 1969). De Wolff and van IJzendoorn (1997) offered this argument as an explanation for their meta-analytic finding that the ES linking maternal sensitivity to attachment security is stronger in older than in younger samples (although the explanation has been questioned; see Atkinson et al., 2000). On the basis of such theory and data, one would expect that the later attachment is assessed, the more predictive of subsequent peer relations it would be. Further, as introduced earlier, the aspects of friendship that parallel most directly many of the central features of secure attachment—especially intimacy, security, and trust—do not emerge as major dimensions of children's peer relationships until preadolescence and adolescence.

Time Between Assessments of Attachment and Peer Relations

Given strong claims made about the long-term effects of attachment quality (e.g., Bowlby, 1973), it is important to consider the strength of associations between measures of attachment and peer relations as a function of the time lapse between them. Bowlby's theory implies that disturbances of early attachment are reflected in relationships over the entire life course, though it emphasizes that favorable experiences in later years may mitigate the negative effects of early attachment problems and vice versa (Main, Kaplan, & Cassidy, 1985; van IJzendoorn & Bakermans-Kranenburg, 1997). Accordingly, longitudinal data spanning several developmental stages provide more convincing support of the theory than do concurrent correlations between attachment and peer relations. Nevertheless, Youngblade, Park, and Belsky (1993) speculated that correlations might be higher in studies featuring concurrent assessment of attachment and peer relations, which represent the effects of the child-parent relationship at the time it was measured rather than the effects of the child-parent bond as it was years earlier.

Risk Status

Many longitudinal studies in attachment have been faulted for their use of nonrepresentative, middle-class samples (Lamb & Nash, 1989), although some studies of attachment and peer relations have been conducted with participants of lower socioeconomic status (SES; e.g., Troy & Sroufe, 1987). Many protective aspects of middle-class homes may attenuate the sequelae of early attachment insecurity (e.g., Bates, Maslin, & Frankel, 1985; Belsky, Rosenberger, & Crnic, 1995). Therefore, it would be useful to compare the effects of attachment on peer relations for samples differing in SES.

Beyond low SES, several studies involve samples at risk for psychiatric disorder and the children of parents who have psychiatric diagnoses. The question arises as to the comparative impact of attachment in vulnerable child populations versus low-risk populations. Furthermore, it would be heuristically useful to establish the relative contribution of underlying relationship disturbances to disorders that are diverse in phenomenology (Rutter, 1995). In addition to nonclinical populations, data are available regarding children referred for psychiatric services (Wright, Binney, & Smith, 1995) and for children with known risk factors such as a history of maltreatment (Lyons-Ruth, Alpern, & Repacholi, 1993) and low birth weight (Rose-Krasnor, Rubin, Booth, & Coplan, 1996).

Culture

Concepts of attachment-related secure-base behavior are applicable in diverse cultures (Waters, Vaughn, Posada, & Kondo-Ikemura, 1995), but it is not clear that attachment is equally crucial to children's peer relationships in all cultures. In many cultures, for example, siblings, extended family members, and neighbors are more active in child socialization than they are in North America (Stanton, 1995). Hence, one might expect that child-parent attachment might be more predictive of peer relations in North American

samples than in samples in which the child-rearing responsibility is shared more diversely.

Integrative Challenges

There has been little attempt to integrate findings in the literature that address attachment and peer relations. Quite apart from the disparate approaches outlined above, or perhaps because of this diversity, there are apparent contradictions in the literature that have never been addressed. For example, some investigators reported significant associations between attachment security and later interaction with unfamiliar age-mates (Pastor, 1981) and adults (Main & Weston, 1981; Plunkett, Klein, & Meisels, 1988). Other studies failed to show significant associations between attachment security and interaction with unfamiliar peers (Jacobson & Wille, 1986) and adults (Frodi, 1983; Lamb, Hwang, Frodi, & Frodi, 1982; Thompson & Lamb, 1984). No attempt has been made to reconcile these inconsistencies. This integrative failure also manifests in a lack of even basic strategies for organizing the literature. Belsky and Cassidy (1995) observed, for example, "In view of the fact that attachment theory is a theory about the characteristics, consequences, and determinants of close relationships, it is surprising that efforts to conduct or even review research linking attachment history and social development have not attended to distinctions among the partners (e.g., familiar vs. unfamiliar peers) whose interactions with children are being studied" (p. 393). Meta-analytic techniques are ideal for resolving such issues.

Our major hypotheses were (a) that the overall ES for studies on the link between child-parent attachment and children's peer relations would be significantly different from zero, (b) that the ESs would be significantly larger in studies of close friendships than in studies focusing on less intimate peer relationships, and (c) that the ESs would be larger in studies conducted with participants in middle childhood and adolescence than in studies conducted with preschoolers. In addition, we explored the other distinctions outlined above.

Method

Retrieval of Studies

We conducted computerized searches of PsycLIT, MedLine, and Dissertation Abstracts International to locate relevant studies that appeared between 1970 and 1998. We used the following keywords in different combinations: *attachment*, *child-mother interaction*, *child-parent relations*, *peer/social competence*, *interpersonal interaction*, *friendship*, and *peer relations*. We also scanned manually the abstracts of the Society for Research in Child Development and the International Conference of Infant Studies as well as the more recent issues of *Child Development*, *Developmental Psychology*, *Psychological Review*, and *Psychological Bulletin* to ensure the inclusion of studies that had not yet been included in the computerized databases. Finally, we searched the reference lists of each article that had been retrieved.

Inclusion and Exclusion Criteria

The search procedures generated approximately 200 studies. Given this substantial number, we imposed relatively stringent inclusion criteria. To be included, a study had to (a) describe original data; (b) include a measure of attachment to a parent, other than self-report, that was (c) collected

before the child reached age 18; (d) include a quantitative measure of children's peer relations that was other than self-report; (e) feature assessment of attachment security and children's peer relations before age 18; (f) include data on both securely and insecurely attached participants or a continuous measure of attachment; and (g) be written in English or another language understood by a member of our research team (French, Italian, or Spanish). If studies meeting these criteria did not include sufficient data for statistical analysis, we contacted the authors. Additional data were received from 19 of the 32 authors contacted.

In some cases, the same data were reported in more than one publication. To avoid duplication, we used the more recent publication and added any data from the earlier versions that were not included. In three other instances, more than one publication described the same longitudinal study, but the articles published after the first one contained reports of new follow-up data. Two of these studies featured two follow-up points each, for a total of four articles. Another longitudinal study by Sroufe and colleagues was reported in nine different publications covering nine different follow-up points. We felt it was important not to assign disproportionate weight to these three longitudinal studies in computing the overall ESs. Therefore, the data pertaining to all follow-up points were combined in those calculations. However, we considered it more meaningful when calculating ESs for specific age groups and for specific types of measures to separate the data pertaining to different follow-up points within these three longitudinal studies. Therefore, in those ancillary analyses, the number of effects exceeds the number of studies.

Sixty-three studies, with a combined sample of 3,510 children, met the inclusion criteria. An independent graduate research assistant, not involved in any other aspect of the coding or analyses, co-rated the articles in the original pool to establish interrater reliability regarding inclusion decisions. He agreed with 98% of the original raters' decisions. Disagreements were resolved by consensus.

Although studies were excluded for a variety of reasons, our criteria led to the systematic exclusion of one relatively coherent group of studies that were conducted with adolescents and that used self-reports of both attachment and peer relations. Despite their heuristic value, those studies are limited because the findings may be inflated by shared method variance.

Coding of Study Features

Each study was coded on (a) attachment measure (e.g., Strange Situation or Q-sort; this feature was also expanded to include a categorization of all studies as employing either dichotomous or continuous attachment measures); (b) source of information about children's peer relations (e.g., direct observation, peer report, teacher report); (c) dimension(s) of peer relations considered (e.g., peer-directed aggression, peer-directed withdrawal, quality of friendship); (d) familiarity of play partners to focal child participants (i.e., friends, unfamiliar peers, etc.); (e) information about close friendships (existence, stability, quality, whether information was available about the characteristics of the friend or his or her attachment with parents); (f) gender of child and parent participants; (g) mean age of participants when attachment and (h) peer relations were measured; (i) time between the measurement of attachment and peer relations; (j) risk status of the sample (e.g., low SES, parents with psychiatric disorder); (k) publication date; and (l) dissemination medium (i.e., journal article, thesis, conference presentation). A second coder independently classified half the studies. The kappa coefficient for interrater reliability exceeded .80 for each of the categories.

Calculation of Effect Sizes

Weighted ES correlations (r_s) were computed with Schwarzer's (1988) meta-analytic software. When necessary, we calculated estimates of r directly using means and standard deviations reported in the original articles or supplied by the authors. The ESs used in the analyses pertain to differences in peer relations between children classified as securely and insecurely attached.

Results reported as nonsignificant and unaccompanied by relevant test statistics accounted for 28% of the total number of ESs and came from 38% of the studies. In these cases, we substituted the mean ES of nonsignificant results that were reported within the data set, $r = .07$, based on 94 ESs from 38 studies. We believe this is preferable to Rosenthal's (1984) suggestion of substituting an estimate based on $p = .50$, which would also distort findings because of the inclusion of ESs that are considerably lower than those typically found in this literature for nonsignificant effects. Nevertheless, we report mean ESs based on both Rosenthal's practice and the method we propose.

To avoid assigning disproportionate influence to studies that included multiple measures of attachment and/or peer relations, we averaged ESs within each study to yield a single correlation for the assessment of overall strength of the relationship between attachment and peer relations. However, in many of the analyses performed to identify moderators of ESs, we allowed the number of ESs to exceed the number of studies. This was necessary, for example, to compare the ESs for the various aspects and measures of social competence because multiple measures of social competence were included in almost all of the studies.

Results

Attachment to Mothers

Overall Predictive Strength

The average global ES was .20 ($SE = .16$). This effect is significantly different from zero ($Z = 11.91, p < .001$). Rosenthal and Rubin's (1982) binomial ES display suggests that if secure attachment were a treatment and if peer relations had a dichotomous outcome (successful vs. unsuccessful), then 59% of securely attached children would have successful peer relations compared with 41% of those insecurely attached. The fail-safe n indicates that 165 additional studies (2.6 times the number of studies identified in this meta-analysis) with nonsignificant results would be needed to reduce the overall ES to the just-significant level. This figure (165) falls short of Rosenthal's (1991) critical value, $5k + 10$ (which equals, in this case, 325). Therefore, we cannot be reasonably sure that the significance of the effect under consideration will not be negated by as yet unpublished null findings. The mean ES would drop to .16 if calculated according to Rosenthal's convention of estimating the ESs for unspecified nonsignificant findings at $p = .50$; it would increase to .27 if undetailed nonsignificant effects were deleted.

Chi-square tests indicated that the ES distribution was homogeneous, $\chi^2(62, N = 63) = 68.8, ns$; this was confirmed by disjoint cluster analysis, which indicated that all ESs except for a single outlier chi-square (Troy & Sroufe, 1987, $r = .69$) were part of a single cluster ($p < .05$). This is best interpreted as indicating that the ESs can be treated as estimates of the same parameter, with sampling error the most likely explanation for differences among estimates (Cooper & Hedges, 1994, p. 432). Nevertheless, we followed the injunction of Johnson, Mullen, and Salas (1995) and Rosenthal (1995) to explore for potential moderators regardless of the results of tests of homogeneity. Skew (.688; $SE = .277$) and kurtosis (.484; $SE = .548$) statistics were well within acceptable limits. Therefore, parametric statistics were used in many of the comparisons reported below.

Analysis of variance (ANOVA) revealed no significant differences between concurrent and longitudinal studies. There were also no significant differences among the dissemination media

(journal, thesis, convention paper, book chapter). The descriptive statistics appear in Table 1.

Moderators of the Association Between Child–Mother Attachment and Children’s Peer Relations

Close friendship. Table 2 summarizes the data from the original studies of close friendships. The diversity of friendship measures used precluded meaningful quantitative comparison of the implications of these features for ES. To test our hypothesis that the ESs pertaining to friendship would be higher than the ESs for other types of peer relationships, we matched each of these studies on friendship with a randomly selected study conducted with unfamiliar peers, as described above. ESs pertaining to friendship ($n = 10$, $M = .24$, $SD = .14$) were significantly higher than those of the comparison group ($n = 10$, $M = .14$, $SD = .11$), $F(1, 18) = 4.33$, $p < .05$.

Assessment of attachment. ESs were not significantly different when Strange Situation and Q-sort findings were compared. Nor were findings significantly different when the analysis was extended to compare dichotomously scored and continuous variables (see Table 3).

Assessment of peer relations. We borrowed the dimensional structure of the Revised Class Play method (Masten, Morison, & Pellegrini, 1985) to distinguish among three types of peer-related behavior: aggression, withdrawal, and sociability/leadership. We added a fourth dimension, sociometric choice, which measures the extent to which peers accept a child as a potential companion. Mean ESs for these dimensions, and the different sources of information about them, are listed in Table 4. ANOVA revealed that the difference in ESs among the dimensions of peer relations was significant: $F(3, 94) = 3.51$, $p < .05$. Post hoc Tukey’s honestly significant difference (HSD) tests indicated that the ESs for sociability/leadership were higher ($p < .05$) than the ESs for the other dimensions.

ANOVA also revealed a significant difference among the sources of information, $F(3, 94) = 9.22$, $p < .01$. Post hoc Tukey tests indicated that the ESs for maternal ratings of children’s peer relations were significantly ($p < .05$) higher than the ESs for all the other sources, which did not differ from each other.

Child gender. Separate data for boys and girls were available for only 14 studies and are summarized in Table 5. The difference between the ESs for boys and girls was not significant.

Age at assessment. The correlation ($n = 63$) between the average age of participants at the time of the first attachment measure in each study and the overall ES was $.23$ ($p < .05$). The correlation between attachment security and the average age of participants at the time of the last peer-relations measure was also significant, $r(63) = .22$, $p < .05$.

Confirmation of our hypothesis that the ESs would be significantly larger for participants in middle childhood or adolescence than for younger children was complicated by the fact that a disproportionate number of the studies involved young children. A cutoff of 8 years represents the transition to middle childhood in a meaningful way. We also considered a cutoff of 10 years, but that would have left too few studies in the older block for meaningful analysis. ANOVA revealed that the ESs for the 16 studies conducted with participants 8 years old and older ($M = .26$, $SD = .16$) were significantly higher than the ESs of the 59 studies conducted with younger participants ($M = .17$, $SD = .16$), $F(1, 73) = 4.14$, $p < .05$.

Time between assessments of attachment and peer relations. There is no evidence that the time separating assessments influences the strength of association between attachment and peer relations, $r(63) = .04$.

Risk status. No significant differences emerged when at-risk samples were compared to samples with no known risk, and when samples at risk because of psychological disturbance were compared with low-SES samples (see Table 5). Disentangling the effects by type of risk is complicated because a disproportionate number of individuals with psychological disturbances are of low SES (Hollingshead & Redlich, 1958). Therefore, although we had no choice but to follow the original source in designating a sample as at risk because of either low SES or psychiatric disturbance, there may be considerable overlap not taken into consideration in the design. There was wide fluctuation among the ESs for studies conducted with samples identified only as low in SES; the ESs ranged from $.02$ through $.49$. Studies conducted with children experiencing psychological disturbances were few and very heterogeneous in terms of the nature and severity of the problems.

Culture. In addition to the 54 studies with North American samples, there were three studies from the highly collective societies (see Hofstede, 1984) of East Asia (Nakano, Usui, & Miyake, 1984–1985, conducted in Japan; Sull, 1995, conducted in Korea; and Wu, 1992, conducted in China), with ESs of $.15$, $.16$, and $.19$, respectively. There were four studies conducted with Western European samples, all from countries classified by Hofstede as individualistic. Two were from Germany (Freitag, Belsky, Grossmann, Grossmann, & Scheurer-Englisch, 1996, and Suess, Grossmann, & Sroufe, 1992), with ESs of $.43$ and $.47$, and two were from the United Kingdom (Turner, 1991, and Wright et al., 1995), with ESs of $.18$ and $.59$. Granot and Mayseless (1996) studied Israeli city children; the ES for that study was $.28$. Oppenheim, Lamb, and Sagi (1988) studied kibbutz children raised in communal sleeping arrangements; the ES for child–mother attachment was $.07$. The average ES for these nine studies was $.27$ ($SD = .16$), compared with a mean of $.18$ ($SD = .16$) for the 54 studies conducted in North America; the difference was not significant. This finding is qualified, however, by the small number of studies conducted outside of North America.

Table 1
Average Effect Size (r) by Source of Study

| Source | M | k | SD |
|--|------|-----|------|
| Studies featuring concurrent measurement of attachment and social competence | | | |
| Journal article | .223 | 27 | .147 |
| Thesis | .193 | 7 | .134 |
| Chapter | .210 | 2 | .038 |
| Convention paper | .167 | 3 | .165 |
| Studies featuring measurement of social competence at follow-up | | | |
| Journal article | .215 | 27 | .192 |
| Thesis | .181 | 2 | .156 |
| Chapter | .003 | 4 | .108 |

Table 2
Studies Pertaining to Children's Close Friendships

| Study | n | Age(s) in years | | Attachment measure(s) | Friendship measure(s) | Effect size for friendship (r) | Dyadic analysis of friendship |
|--|-----|-----------------|------------|--|--|---|-------------------------------|
| | | Attachment | Friendship | | | | |
| Booth, Rubin, & Rose-Krasnor (1998) | 58 | 4 | 8 | Reunion Rating Scale | Social support from best friend | .11 | No |
| Freitag et al. (1996) | 40 | 1-1.5 | 10 | Strange Situation | Parent interview regarding child's competence in friendship | .43 (mother attachment); .07 (father attachment) | No |
| Howes, Matheson, & Hamilton (1994) | 84 | 1 and 4 | 4 | Strange Situation | Friendship Quality Q-set | .07 | No |
| Kerns (1994) | 42 | 4 | 5 | Attachment Q-set | Observation of dyadic interaction | .20 | Yes |
| Kerns & Gruys (1995) | 86 | 4 | 4 | Attachment Q-set | Observation of "progress toward forming a friendship" | .09 | Yes |
| Kerns, Klepac, & Cole (1996) | 74 | 10 | 10 | Security Scale (parent self-report) | 1. Reciprocal friendship nominations 2. Ratings of relationship quality | .28 | Yes |
| Park (1992) | 41 | 4.5 | 4.5 | Attachment Q-set | Mothers' ratings of children's reaction to friend moving away | .31 | No |
| Park & Waters (1989) | 66 | 4 | 4 | Attachment Q-set | Observations of pairs of friends during free play | .27 | Yes |
| Pierrehumbert, Iannotti, & Cummings (1985) | 48 | 2 | 5 | Strange Situation | Mothers' reports of the number of child's friends and degree of friendship | .47 | No |
| Shulman, Elicker, & Sroufe (1994) | 32 | 4 | 11 | Strange Situation | 1. Observations of interactions of friends at summer camp 2. Camp counselors' ratings 3. Children's ratings of friendship quality 4. Sociometric nominations of friends | .18 | No |
| Youngblade, Park, & Belsky (1993) ^a | 164 | 1 | 5 | 1. Strange Situation 2. Attachment Q-sort | 1. Mothers' reports of children's friendships 2. Observation of dyadic interaction | .01 (mother attachment); .02 (father attachment) | No |

^a Some of the findings from this study were published in Youngblade and Belsky (1992).

Attachment to Fathers

Only seven studies involved attachment to fathers. In two of these (Kobak & Sceery, 1988; Moore, 1997), the data on mothers and fathers were combined and indiscriminable. The average ES for the remaining five studies was .10 and was homogeneous, $\chi^2(4, N = 5) = 5.15, ns$. The best comparison for these is with the data on child-mother attachment from the same studies. The average ES for those was .08; the difference between the data on mother

and father attachment in the same studies was not significant. Unfortunately, only one of the studies (Marcus & Mirle, 1990) provided separate data on father-son and father-daughter attachment. Marcus and Mirle found that attachment to fathers was correlated only with the social competence of boys. However, it is difficult to generalize the results of that study because of the idiosyncratic measure of attachment used, its specific focus on children seen for custody evaluation during parental divorce proceedings, and the limited peer-relations measures.

Table 3
Average Effect Sizes (r) by Attachment Measure

| Attachment measure | M | k | SD |
|--------------------|------|----|------|
| Strange Situation | .124 | 26 | .140 |
| Q-sort | .219 | 17 | .134 |
| Continuous | .205 | 28 | .166 |
| Categorical | .160 | 35 | .151 |

Discussion

Interpreting the Overall Effect Size

In this meta-analysis, we studied the relation between attachment security and peer relations. In terms of attachment to mothers, the ES was a significant .20. To put this ES in perspective, consider Cohen's (1988) proposal to regard correlations of .10,

Table 4
Average Effect Sizes (r) by Aspect of Social Competence and Source of Information

| Aspect and source | M | k | SD |
|------------------------|------|-----|------|
| Social withdrawal | | | |
| Observed | .147 | 14 | .164 |
| Teacher rated | .077 | 4 | .093 |
| Peer rated | .068 | 2 | .308 |
| Parent rated | .070 | 1 | |
| Aggression | | | |
| Observed | .137 | 17 | .167 |
| Teacher rated | .110 | 7 | .093 |
| Peer rated | .170 | 3 | .145 |
| Parent rated | .194 | 2 | .405 |
| Sociability/leadership | | | |
| Observed | .147 | 35 | .166 |
| Teacher rated | .129 | 8 | .133 |
| Peer rated | .120 | 4 | .066 |
| Parent rated | .313 | 3 | .260 |
| Sociometric choice | .133 | 13 | .087 |
| All aspects | | | |
| Observed | .144 | 66 | .158 |
| Teacher rated | .111 | 19 | .102 |
| Peer rated | .129 | 22 | .066 |
| Parent rated | .233 | 6 | .314 |

Note. The mean of the effect sizes in the table is not the same as the mean effect size for the data set because the latter was calculated on the basis of one effect size per study. Ratings of friendship quality are not included in the peer-rated totals.

.30, and .50 as small, medium, and large ESs, respectively. Cohen acknowledged, however, that these figures are arbitrary. It would be helpful to compare the ESs found here with ESs characterizing other predictors of peer relations, for example, parental regulation of autonomy or child temperament. In that way, we could derive a sense of the *relative* contribution of attachment security to peer relations. However, the requisite meta-analyses have not been published, a fact that limits the interpretability of ESs found here and that also represents a profound lacuna in the study of peer relations in general. Here we discuss the implication of the overall .20 ES before scrutinizing the implications of the limited heterogeneity within the data set.

The focus on relative ESs is all the more important because the file drawer statistic suggested that the number of identified studies precludes confident acceptance of the significance of the link between attachment security and peer relations. That is, 165 studies averaging null results would render the .20 ES just significant. This falls short of the fail-safe 325 studies required by Rosenthal's (1991) criteria. Given that much new research is needed in the area, it is imperative that we identify the strongest methodologies at this juncture. This will permit accurate estimation of the ES linking attachment and peer relations. Furthermore, if this ES is actually larger than the overall .20 identified here, use of stronger methods will reduce the critical fail-safe n , the number of studies requisite for confident acceptance of the hypothesis in question.

The .20 ES provides some evidence for the predictive power of attachment theory. However, the size of the effect seems incongruous with strong causal claims made in the literature. Whatever their magnitude, correlation-based ES estimates do not indicate causation (Cooper, 1984). However, the absence of a significant

correlation would preclude a causal link. Current knowledge does not provide a basis for reconciling causal reasoning with findings that reach statistical significance but explain little variance. The low correlation is, at best, consistent with a modest influential role of attachment security on peer relations.

This possible incongruity between theory and data may indicate that the theory is faulty. This possibility is almost never acknowledged among the original articles, many of which claim support for the theory on the basis of data that pertain to a subset of measures or samples. At best, the small ES is consistent with the notion that attachment is only one among many influences on peer relations. As mentioned above, other parental influences may include affective bonds, disciplinary practices, modeling, and regulation of the child's autonomy and contact with peers. Genetics may also play a role. Needed at this point is a multivariate approach exploring the relative, cumulative, and interactive impact of multiple influences on peer relations.

Measurement Problems as Possible Constraints on Effect Size

Explanations other than erroneous theory involve poor methodology or weaknesses in operationalizing one or both of the constructs in question. Although we mentioned some possible shortcomings of the various measures of attachment in the introduction, our meta-analysis did not reveal significant differences between the Strange Situation and Attachment Q-set measures nor between classificatory and continuous measures. Nevertheless, the fact that the Strange Situation and the observer-rated Attachment Q-set show modest convergent validity ($r = .26$, as mentioned earlier) implies the possibility that these and other attachment instruments assess different constructs or different aspects of the same construct. If this is the case, then it is possible that many or most of the

Table 5
Average Effect Sizes (r) by Participant Characteristics

| Characteristic | M | k | SD |
|---|------|-----|------|
| Gender | | | |
| Boys—concurrent | .295 | 8 | .139 |
| Boys—follow-up | .162 | 6 | .096 |
| Girls—concurrent | .163 | 8 | .259 |
| Girls—follow-up | .238 | 6 | .322 |
| Age (in months) at time of attachment measurement | | | |
| <13 | .137 | 11 | .130 |
| 13–24 | .126 | 20 | .145 |
| 25–36 | .167 | 7 | .175 |
| 37–48 | .252 | 10 | .173 |
| >48 | .227 | 18 | .126 |
| Age (in years) at time of social-competence measurement | | | |
| 3 or <3 | .155 | 19 | .175 |
| 4–5 | .185 | 32 | .142 |
| 6–9 | .201 | 9 | .140 |
| >9 | .297 | 9 | .142 |
| Risk status | | | |
| No known risk | .166 | 45 | .154 |
| Low SES | .201 | 8 | .101 |
| At risk for disorder | .234 | 8 | .168 |

Note. SES = socioeconomic status.

attachment measures used in studies of peer relations do not, in fact, reflect those attachment processes that are most relevant to the study of peer relationships.

It should also be mentioned, with respect to the possible constraining influence of attachment measurement, that early attachment measures may be unstable. Belsky, Campbell, Cohn, and Moore (1996), for example, found no reliable stability in Strange Situation classifications among three samples of infants assessed twice within 6 or 7 months. Similarly, Goldberg, Washington, et al.'s (1999) prediction of attachment security from 1 to 4 years did not exceed chance (based on the Strange Situation and a preschool separation procedure, respectively). In a qualitative review, Thompson (1998) pointed out that the stability of attachment security depends on numerous contextual factors (as yet insufficiently explored) such as family SES, changing life circumstances (e.g., mothers' return to work, nonmaternal care), and maternal personality variables of particular relevance here. Instability of attachment, whether explained by known environmental change or merely attributable to measurement error, may attenuate the link between attachment and other social relations, especially in longitudinal studies.

Similarly, issues with respect to the assessment of peer relations may also attenuate the association between attachment and other relationships. Some peer-relations measures may assess aspects of peer relationships that are more strongly associated with attachment than are other aspects. Our inclusion criteria excluded what may be the least valid source of information on children's peer relations, at least in terms of convergent validity: their self-reports (Bierman & Welsh, 1997). Nevertheless, this exclusion downplays the child's own perspective, which some regard as distinct from that of external sources but not necessarily inaccurate (e.g., Hymel & Franke, 1985). The decision to eliminate these self-report studies reflected a desire to base our inferences on the best data. Nevertheless, it may be of heuristic value to consider those studies briefly because they complement the database of this meta-analysis with a large number of adolescent studies. Although we did not calculate meta-analytic statistics for the discarded studies, our impression is that the ESs probably vary as much as those of the studies that qualified for inclusion and may not be excessively inflated by shared method variance. Some of the samples did yield significant correlations between self-reports of peer relations and self-reports of attachment to parents (Kobak & Sceery, 1988; Soble, 1987). However, Lapsley, Rice, and FitzGerald (1990) did not find a significant association between parent-adolescent attachment and social adjustment in the first year of college. Rice, Cunningham, and Young (1997) found that attachment to fathers was associated with social competence at college but that attachment to mothers was not. Schneider and Younger (1996) found that self-reported attachment to both fathers and mothers was inconsistently correlated with self-report and parent-report measures of peer relations in high school.

Similar mixed results characterize the relatively few studies conducted in which self-reports were used with children rather than adolescents. For example, Toth and Cicchetti (1996), working with child victims of abuse by parents, found that self-reports of relatedness with parents correlated with self-perceptions of social competence. However, in following into elementary school a sample of children who had participated in intensive observational research during preschool, Howes, Hamilton, and Philipsen (1998)

found that early attachment bonds with teachers correlated with children's perceptions of the quality of their friendships but that earlier mother-child attachment was unrelated.

Many researchers chose peer and teacher reports, which are valid measures of peer relations but perhaps not optimal for the purpose of assessing the implications of early child-parent attachment bonds. Peer and teacher reports on children's peer relations do provide information that is useful, for example, in identifying children who are rejected by their peers or who are aggressive and disruptive in their classrooms. However, both peer and teacher reports are subject to positive and negative halo effects, which might lead to the designation as socially competent of children who are physically attractive, proficient at sports, excellent at academics, and compliant with school routines. There is little reason to believe that the more distal predictors of peer acceptance or teacher-rated social competence are linked closely to child-parent attachment.

Child-Parent Attachment as a Predictor of Children's Friendship

We predicted a stronger ES for friendship studies because the bonds of family life are more similar to the trust and intimacy of close friendships than to the social skills involved in negotiating peer relations with other classmates and acquaintances. This proved to be the case ($r_s = .24$ and $.14$ for studies of friendship and of relations with nonfriends, respectively), confirming the conclusions of an earlier qualitative review (Belsky & Cassidy, 1995). Therefore, we posit that the subset of friendship studies provides the best estimate available of the ES between attachment and peer relations, although we acknowledge that there are few such studies in the literature ($n = 10$). Hence, the $.24$ ES must be interpreted with caution pending further research. It should also be noted that the comprehensive measurement of friendship that has been advocated recently (e.g., Furman, 1996) is rarely evident in the 10-study data set. Most of the many facets of friendship are absent from the original data (see Table 2). Friendships are almost always measured at a single time point, often from the perspective of only one of the two friends. Information about the attachment status of both friends was gathered in only four studies (Kerns, 1994; Kerns & Gruys, 1995; Kerns, Klepac, & Cole, 1996; Park & Waters, 1989). No investigator assessed the prosociality of the friend, although an antisocial friend can do more harm than good to a child's overall social competence. These issues both limit the generalizability of extant studies and suggest a direction for future work.

Two other findings are consistent with the finding that attachment is more strongly related to friendship than to relations with peers who are not close friends. The first involves the fact that the link between attachment and peer relations strengthens with the age at which peer relations are measured. This may account for the higher ESs for samples older than 8 years, because the processes inherent in forming and maintaining friendships—such as intimacy, conflict resolution, and reliable alliance—are related more closely to the overall social competence of children from the middle elementary-school years onward (Aboud & Mendelson, 1996; Berndt et al., 1986). It is important to note that the critical studies in which follow-up continued into the early adolescent years, when close friendships crystallize and affect overall psy-

chosocial adjustment (e.g., Sullivan, 1953), are not numerous. The promise of this direction is indicated by the relatively large ESs in the studies conducted on friendship with children in preadolescence and adolescence (see Table 2: Freitag et al., 1996, ES = .43; Kerns et al., 1996, ES = .28; and Pierrehumbert, Iannotti, & Cummings, 1985, ES = .18). Furthermore, the effects of attachment for adolescents may have been underrepresented in the present calculations because we consolidated the multiple articles from Alan Sroufe's laboratory to avoid assigning weight to multiple studies from the same laboratory. Nevertheless, those articles describe the data that are probably the most comprehensive, the longest, and the most relevant to the purposes of the present review. Thus, despite many drawbacks, there are some patterns in the present findings that are perfectly consistent with attachment theory.

Consistent with the comparatively large ES linking attachment and friendship is the significant difference between ESs based on parent-rated social interaction and those based on information obtained from peers or teachers or by direct observation. One explanation for this finding is that mothers have a more extensive and relevant perspective on their children's social interaction: They see their children with friends during more informal interactions that portray the children's relationship styles. However, it is also possible that the mothers' own attachment representations and their own relationships with their children may color their perception of their children's peer relationships. This issue exemplifies the need for multiple assessment approaches within any given study of peer relationships.

Age and Cultural Differences

Another finding of interest in the present meta-analysis was the significant correlation ($r = .23$) showing that the older the sample is when assessed for attachment security, the stronger the ES linking attachment and peer relations. Bowlby (1969) argued that internal working models become more stable with age. The broad range of ages incorporated here may render this meta-analysis particularly sensitive to the development of stable working models through infancy, childhood, and adolescence. The increasing stability of these models may account for the increasing power of prediction. The upper limit of validity is constrained by reliability; hence, a more stable predictor potentially has greater power than a less stable predictor. Another possibility is that as children age, child-parent and peer-peer relations become more similar.

However, we cannot rule out the possibility that the ES discrepancy between older and younger participants is attributable to methodological differences. Unfortunately, our ability to detect such artifacts is limited by the small number of studies conducted with children older than 8 years. We did find a significant ($p < .05$) cultural difference: More studies in the older block were conducted outside of North America (42% vs. 12%). Several other differences between the studies conducted with older and younger children were marginal ($.10 > p > .05$): More studies in the older block involved children at risk (25% vs. 10%); in studies featuring follow-up components, the interval was longer ($M = 5.0$ years [$SD = 4.5$] vs. 2.9 years [$SD = 1.9$]), $F(1, 33) = 3.56$, $p = .068$. However, these differences (i.e., culture, risk status, and follow-up interval) were not significant predictors of ES in the full data set. Furthermore, there were no significant differences in the propor-

tions of studies featuring follow-up, the use of Strange Situation or Q-sort methods as the original measure of attachment, or the relative frequency of direct observations and peer, parent, and teacher reports to assess peer relations. It is true that Q-sort measures tend to be used with older participants ($M = 48$ months, compared with 17 months for the Strange Situation in the current sample). This fact may account for some of the age differences because, as reported above, the ESs for Q-sort findings were somewhat higher than those for Strange Situation findings, although the difference was not significant. However, many of the highest ESs were in follow-up studies by Sroufe and his colleagues, in which early adolescents were followed for many years after the initial attachment measurement, which was based on the Strange Situation technique. Furthermore, although ESs for studies using Q-sort methods were somewhat larger than those for studies using the Strange Situation, the difference was not significant. Hopefully, the reasons for the correlations between age and ES will become clearer as more studies are conducted with older children and adolescents.

With respect to cross-cultural issues, the number of studies conducted outside of North America is limited, but within-culture variation in ESs appears as great as cross-cultural variation. These data provide no reason to doubt the cross-cultural replicability of the hypothesis that attachment is linked to peer relations. However, many of the studies were conducted in societies similar to the United States in terms of the major dimensions of cultural variation: The United States, Germany, the United Kingdom, and the urban Jewish population in Israel are all classified as relatively individualistic within the spectrum of societies (Hofstede, 1984). The mostly collectivistic societies of Latin America and Africa are not represented at all in the literature. Comparisons between Northern and Southern Europe could also be revealing because of the greater orientation toward extended family in the Mediterranean European countries (Georgas et al., 1997). Thus, although there is evidence for the applicability of attachment theory across cultures, its pertinence to much of the world's population has yet to be explored.

Examination of the individual studies provides clues as to why the ESs within cultures vary as widely as ESs across cultures. In Europe, the most probable explanation for the ES in the Suess et al. (1992) study, which is much higher than the ESs in the other two German studies, is that Suess et al. measured the friendships of early adolescents, whereas the other studies focused on the less intimate relations of younger children. The three studies conducted in East Asia do represent collectivistic countries in which the extended family assumes a predominant role in children's upbringing. One of these, however, was conducted in China after the implementation of the one-child policy. Its ES, higher than those of the studies from Japan and Korea, may reflect the external constraints on child-parent bonds that result from the one-child policy, because only children may receive particularly high levels of responsiveness and attention from their parents (Wu, 1992). The one study conducted with kibbutz children (Oppenheim et al., 1988) had a lower ES for child-parent attachment than the Israeli study by Granot and Mayseless (1996), which was conducted with city children. This finding may reflect the compensatory effect of attachment to the kibbutz *metapelet*. Thus, although the discrepant findings among studies conducted in Europe and Asia can be

reconciled to some extent, corroboration of the utility of attachment theory in non-Western countries depends on new research.

Possible Moderators Requiring Additional Investigation

There was no significant difference between groups according to risk status, and there was as much variability within low-risk and high-risk groups as there was between them. These findings may be attributable to the failure to differentiate varied forms of disturbance when studying clinical populations (e.g., Wright et al., 1995) and may render it impossible to respond to Rutter's (1995) plea for clarification of the implications of attachment theory for atypical child development. Nevertheless, there were very high ESs in the few studies conducted with atypical child samples, such as Troy and Sroufe's (1987) study on bully victims, which emerged as an outlier, as well as the Wright et al. (1995) study of a mixed clinical sample, which had the second highest ES in the data set (.59). These high ESs may or may not be coincidental. Further research with atypical populations will determine whether attachment bonds are particularly crucial for the peer relations of children experiencing psychological distress.

Although the diversity of the child-mother attachment literature lends itself to rich speculation, little can be established about the implications of child-father attachment for children's peer relations. The ES is small but is similar to the ES found in comparable data on maternal attachment and peer relations. Beyond this, we can say little. The ES is based on only five studies. Moreover, all but one of these studies (Freitag et al., 1996) focused on children's large-group interactions to the neglect of close interpersonal relationships and did not distinguish between the effects of paternal attachment on the peer relations of sons and daughters. Thus, we conclude that the implications of paternal attachment for children's peer relations remain largely unexplored.

About 25% of the studies in the current data pool considered other family or child variables in addition to parent-child attachment as predictors of children's peer relations. Unfortunately, the calculation of meta-analytic estimates of these additional contributions was precluded by the heterogeneity of the variables. In none of these studies was attachment the sole significant predictor of children's peer relations. In most studies, variables other than attachment accounted for substantial additional variance: child temperament (Bates et al., 1985; Sull, 1995), child-rearing practices (Fagot, 1997; Youngblade & Belsky, 1992), attitudes toward parenting (Adams, 1994; Kavesh, 1991), maternal depression (Rubin, Both, Zahn-Waxler, Cummings, & Wilkinson, 1991), maternal psychosocial adjustment (Lyons-Ruth et al., 1993), child's attachment to teachers (Howes & Wu, 1990), child's prior day-care experience (Howes, 1991), and observed maternal warmth (Christopoulou, 1988). In two studies of preschoolers, Lieberman (1977) found that attachment and other variables predicted different aspects of child social competence: Attachment correlated with nonverbal indicators of social competence, such as sharing, whereas the children's previous experience with peers better predicted verbal interactions. In a few cases (e.g., Silverman, 1990, on child-rearing styles and Denham, 1987, on mothers' display of emotion), both attachment and other variables were found to be linked to children's peer relations, but the analyses were not designed to compare their relative contributions.

In closing, we suggest that relatively little will be gained with new correlational studies linking mother-child attachment with the mainstays of peer-relations assessment (i.e., observations and sociometrics) during early childhood. More comprehensive studies exploring multiple dimensions of mothering and fathering as predictors of children's close interpersonal relationships across the life span would complement the existing data meaningfully. Although the data presented in this article do illustrate that child-parent attachment is correlated with children's peer relations, none of the studies provides a suitable rejoinder to Hinde's (1988) contention that there is no evidence for the existence or causal role of internal working models. It is very conceivable that the attachment bond facilitates children's peer relations in other ways. For example, mothers of securely attached children have been found to encourage reciprocity and cooperativeness in child-mother interactions (see Russell, Pettit, & Mize, 1998), which may transfer to peer relations. Secure attachment may lead to positive, authoritative child-rearing, which may account for its effects on peer relations (Goldberg, Grusec, & Jenkins, 1999). Hopefully, the next generation of research on child-parent attachment and children's peer relations will improve more substantially on the hypothesis that "all good things go together" (Youngblade & Belsky, 1992).

References

References marked with an asterisk indicate studies included in the meta-analysis.

- Aboud, F. E., & Mendelson, M. J. (1996). Determinants of friendship selection and quality: Developmental perspectives. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 87-136). New York: Cambridge University Press.
- *Adams, B. L. (1994). *An investigation of the interrelationships among security of attachment, parenting attitudes, and the development of competence*. Unpublished doctoral dissertation, Virginia Consortium for Professional Psychology, Virginia Beach, VA.
- *Adamson, L. (1990). *The relationship between attachment and social competence in peer relations in early childhood*. Unpublished doctoral dissertation, Boston University, School of Education.
- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.
- Ainsworth, M. D. S., & Wittig, B. A. (1969). Attachment and exploratory behavior of one-year-olds in a strange situation. In B. M. Foss (Ed.), *Determinants of infant behavior IV* (pp. 111-136). London: Methuen.
- *Allen, J. P., Moore, C., Kuperminc, G., & Bell, K. (1998). Attachment and adolescent social functioning. *Child Development*, 69, 1406-1419.
- Asher, S. R., & Coie, J. D. (1990). *Peer rejection in childhood*. New York: Cambridge University Press.
- Asher, S. R., Parker, J. G., & Walker, D. L. (1996). Distinguishing friendship from acceptance: Implications for intervention and assessment. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 366-405). New York: Cambridge University Press.
- Atkinson, L., Niccols, G. A., Paglia, A., Coolbear, J., Parker, K. C. H., Poulton, L., Guger, S., & Sitareneos, G. (2000). A meta-analysis of time between maternal sensitivity and attachment assessments: Implications for internal working models in infancy/toddlerhood. *Journal of Social and Personal Relationships*, 17, 791-810.
- *Bates, J. E., Maslin, C. A., & Frankel, K. A. (1985). Attachment insecurity, child-mother interaction, and temperament as predictors of behavior-problem ratings at age three years. In I. Bretherton & E. Waters

- (Eds.), *Monographs of the Society for Research in Child Development*, 50, 167–193.
- Belsky, J. (1996). Parent, infant, and social-contextual antecedents of father–son attachment security. *Developmental Psychology*, 32, 905–913.
- Belsky, J., Campbell, S. B., Cohn, J. F., & Moore, G. (1996). Instability of infant–parent attachment security. *Developmental Psychology*, 32, 921–924.
- Belsky, J., & Cassidy, J. (1995). Attachment theory and evidence. In M. Rutter & D. Hay (Eds.), *Development through life* (pp. 373–402). London: Blackwell.
- Belsky, J., Rosenberger, K., & Crnic, K. (1995). Maternal personality, marital quality, social support and infant temperament: Their significance for infant–mother attachment in human families. In C. R. Pryce, R. D. Martin, & D. Skuse (Eds.), *Motherhood in human and nonhuman primates* (3rd Schultz-Biegert Symposium, Kartause Ittingen, 1994; pp. 115–124). Basel, Switzerland: Karger.
- Berndt, T. J. (1996). Exploring the effects of friendship quality on social development. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 346–365). New York: Cambridge University Press.
- Berndt, T. J., Hawkins, J. A., & Hoyle, S. G. (1986). Changes in friendship during a school year: Effects on children's and adolescents' impressions of friendship and sharing with friends. *Child Development*, 57, 1284–1297.
- Bierman, K. L., & Welsh, J. A. (1997). Social relationship deficits. In E. J. Mash & L. G. Terdal (Eds.), *Assessment of childhood disorders* (pp. 328–365). New York: Guilford Press.
- *Booth, C. L., Rose-Krasnor, L., McKinnon, J., & Rubin, K. H. (1994). Predicting social adjustment in middle childhood: The role of preschool attachment security and maternal style. *Social Development*, 3, 189–204.
- *Booth, C. L., Rose-Krasnor, L., & Rubin, K. H. (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.
- *Booth, C. L., Rubin, K. H., & Rose-Krasnor, L. (1998). Perceptions of emotional support from mother and friend in middle childhood: Links with social-emotional adaptation and preschool attachment security. *Child Development*, 69, 427–442.
- *Bost, K. K., Vaughn, B. E., Washington, W. N., Cielinski, K. L., & Bradbard, M. R. (1998). Social competence, social support, and attachment: Demarcation of construct domains, measurement, and paths of influence for preschool children attending Head Start. *Child Development*, 69, 192–218.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1: Attachment*. Harmondsworth, Middlesex, England: Penguin.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2: Separation*. New York: Basic Books.
- Bretherton, I., Ridgeway, D., & Cassidy, J. (1990). Assessing internal working models of the attachment relationship. In M. T. Greenberg, D. Cicchetti, & M. Cummings (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 273–308). Chicago: University of Chicago Press.
- Bukowski, W. M., Pizzamiglio, M. R., Newcomb, A. F., & Hoza, B. (1996). Popularity as an affordance for friendship: The link between group and dyadic experience. *Social Development*, 5, 189–202.
- Cassidy, J., & Marvin, R. (1992). *Attachment organization in preschool children: Procedures and coding manual*. Unpublished manuscript, Pennsylvania State University and University of Virginia.
- Christopoulou, C. (1988). *Familial antecedents of peer social competence in second graders*. Unpublished doctoral dissertation, University of Virginia.
- Clark, M. S., Mills, J. R., & Corcoran, D. M. (1989). Keeping track of needs and inputs of friends and strangers. *Personality and Social Psychology Bulletin*, 15, 533–542.
- Clarke-Stewart, K. (1989). Infant day care: Maligned or malignant? *American Psychologist*, 44, 266–273.
- Cobb, C. L. H. (1996). Adolescent-parent attachments and family problem-solving styles. *Family Process*, 35, 57–82.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- *Cohn, D. A. (1990). Child–mother attachment of six-year-olds and social competence at school. *Child Development*, 61, 152–162.
- Cooper, H. M. (1984). *The integrative research review: A social science approach*. Beverly Hills, CA: Sage.
- Cooper, H. M., & Hedges, L. V. (1994). *The handbook of research synthesis*. New York: Russell Sage Foundation.
- *Copeland-Mitchell, J., Denham, S. A., & DeMulder, E. K. (1997). Q-sort assessment of child–teacher attachment relationships and social competence in the preschool. *Early Education and Development*, 8, 27–36.
- Crittenden, P. M. (1988). Relationships at risk. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment theory* (pp. 136–174). Hillsdale, NJ: Erlbaum.
- Daniels-Beirness, T. (1989). Measuring peer status in boys and girls: A problem of apples and oranges. In B. H. Schneider, G. Attili, J. Nadel, & R. P. Weissberg (Eds.), *Social competence in developmental perspective* (pp. 107–120). Dordrecht, The Netherlands: Kluwer.
- *Denham, S. A. (1987, August). *Child competence and maternal emotion socialization correlates of attachment Q-Sort variables*. Poster presented at the 95th Annual Convention of the American Psychological Association, New York, NY.
- De Wolff, M. S., & van IJzendoorn, M. H. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development*, 68, 571–591.
- Dishion, T. J., Andrews, D. W., & Crosby, L. (1995). Antisocial boys and their friends in early adolescence: Relationship characteristics, quality, and interactional process. *Child Development*, 65, 139–151.
- *Elicker, J., Englund, M., & Sroufe, L. A. (1992). Predicting peer competence and peer relationships in childhood from early child–parent relationships. In R. D. Parke & G. W. Ladd (Eds.), *Family-peer relationships: Models of linkage* (pp. 77–106). Hillsdale, NJ: Erlbaum.
- *Erez, T. (1995). Predicting preschoolers' social coping from early attachment history. In S. Shulman (Ed.), *Close relationships and socioemotional development: Human development* (pp. 1–34). Norwood, NJ: Ablex.
- *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. *Monographs of the Society for Research in Child Development*, 50(1–2, Serial No. 209).
- *Fagot, B. I. (1997). Attachment, parenting, and peer interactions of toddler children. *Developmental Psychology*, 33, 489–499.
- *Fagot, B. I., & Kavanagh, K. (1990). The prediction of antisocial behavior from avoidant attachment classification. *Child Development*, 61, 864–873.
- *Fagot, B. I., & Pears, K. C. (1996). Changes in attachment during the third year: Consequences and predictions. *Development and Psychopathology*, 8, 325–344.
- Fox, N. A. (1995). Of the way we were: Adult memories about attachment experiences and their role in determining infant–parent relationships: A commentary on van IJzendoorn. *Psychological Bulletin*, 117, 404–410.
- *Freitag, M. K., Belsky, J., Grossmann, K., Grossmann, K. E., & Scheurer-Englisch, H. (1996). Continuity in child–parent relationships from infancy to middle childhood and relations with friendship competence. *Child Development*, 67, 1437–1454.
- Frodi, A. (1983). Attachment behavior and sociability with strangers in premature and full-term infants. *Infant Mental Health Journal*, 4, 14–22.
- Furman, W. (1996). The measurement of friendship perceptions: Concep-

- tual and methodological issues. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 41–65). New York: Cambridge University Press.
- *Galluzzo, D. C., Matheson, C. C., Moore, J. A., & Howes, C. (1990). Social orientation to adults and peers in infant child care. In N. Fox & G. Fein (Eds.), *Infant day care: The current debate* (Vol. 4, pp. 183–192). Norwood, NJ: Ablex.
- Georgas, J., Chirstakopoulou, S., Poortinga, Y. H., Angleitner, A., Goodwin, R., & Charalambous, N. (1997). The relationship of family bonds to family structure and function across cultures. *Journal of Cross-Cultural Psychology*, 28, 303–320.
- George, C., Kaplan, N., & Main, M. (1996). *Adult Attachment Interview* (3rd ed.). Unpublished manuscript, University of California, Berkeley, Department of Psychology.
- Goldberg, S., Grusec, J. E., & Jenkins, J. M. (1999). Confidence in protection: Arguments for a narrow definition of attachment. *Journal of Family Psychology*, 13, 475–483.
- Goldberg, S., Washington, J., Myhal, N., Janus, M., Simmons, R. J., MacLusky, I., & Fowler, R. S. (1999). *Stability and change in attachment from infancy to preschool*. Manuscript submitted for publication.
- *Granot, D., & Maysel, O. (1996, July). *The relation between attachment patterns and adaptive functioning in the school environment amongst children in middle childhood*. Paper presented at the meeting of the International Society for the Study of Behavioral Development, Quebec City, Quebec, Canada.
- Greenberg, M. T., DeKlyen, M., Speltz, M. L., & Endriga, M. C. (1997). The role of attachment processes in externalizing psychopathology in young children. In L. Atkinson & K. Zucker (Eds.), *Attachment and psychopathology* (pp. 196–222). New York: Guilford Press.
- Grusec, J., & Lytton, H. (1988). *Social development*. New York: Springer-Verlag.
- *Hellstrom, L. A. (1994). *The relationship between preschoolers' attachment, social competence, and parenting stress in two types of child care arrangements*. Unpublished master's thesis, Concordia University, Montreal, Quebec, Canada.
- Hinde, R. A. (1979). *Towards understanding relationships*. London: Academic Press.
- Hinde, R. A. (1988). Continuities and discontinuities: Conceptual issues and methodological considerations. In M. Rutter (Ed.), *Studies of psychosocial risk: The power of longitudinal data* (pp. 95–122). Cambridge, England: Cambridge University Press.
- Hodgens, J. B., & McCoy, J. F. (1989). Distinctions among rejected children on the basis of peer-nominated aggression. *Journal of Clinical Child Psychology*, 18, 121–128.
- Hofstede, G. (1984). Hofstede's culture dimensions: An independent validation using Rokeach's Value Survey. *Journal of Cross-Cultural Psychology*, 15, 417–433.
- Hollingshead, A. B., & Redlich, F. C. (1958). *Social class and mental illness*. New York: Wiley.
- *Howes, C. (1991). A comparison of preschool behaviors with peers when children enroll in child-care as infants or older children. *Journal of Reproductive and Infant Psychology*, 9, 105–115.
- Howes, C. (1996). The earliest friendships. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 66–86). New York: Cambridge University Press.
- Howes, C., Hamilton, C. E., & Philipsen, L. C. (1998). Stability and continuity of child-caregiver and child-peer relationships. *Child Development*, 69, 418–426.
- *Howes, C., Matheson, C. C., & Hamilton, C. E. (1994). Maternal, teacher, and child care history correlates of children's relationships with peers. *Child Development*, 65, 264–273.
- *Howes, C., Rodning, C., Galluzzo, D. C., & Myers, L. (1990). Attachment and child care: Relationships with mother and caregiver. In N. Fox & G. Fein (Eds.), *Infant day care: The current debate* (pp. 169–181). Norwood, NJ: Ablex.
- Howes, C., & Wu, F. (1990). Peer interactions and friendships in an ethnically diverse school setting. *Child Development*, 61, 537–541.
- Hymel, S., & Franke, S. (1985). Children's peer relations: Assessing self-perceptions. In B. H. Schneider, K. H. Rubin, & J. E. Ledingham (Eds.), *Children's peer relations: Issues in assessment and intervention* (pp. 75–92). New York: Springer-Verlag.
- *Jacobson, J. L., Tianen, R. L., Wille, D. E., & Aytch, D. M. (1986). Infant-mother attachment and early peer relations: The assessment of behavior in an interactive context. In E. C. Mueller & C. R. Cooper (Eds.), *Process and outcome in peer relationships* (pp. 57–78). Orlando, FL: Academic Press.
- *Jacobson, J. L., & Wille, D. E. (1986). The influence of attachment pattern on developmental changes in peer interaction from the toddler to the preschool period. *Child Development*, 57, 338–347.
- Johnson, B. T., Mullen, B., & Salas, E. (1995). Comparison of three meta-analytic approaches. *Journal of Applied Psychology*, 80, 94–106.
- Kagan, J. (1995). On attachment. *Harvard Review of Psychiatry*, 3, 104–106.
- *Kavesh, L. B. (1991). *Antecedents of peer competence in childhood*. Unpublished doctoral dissertation, University of Illinois at Chicago.
- *Kerns, K. A. (1994). A longitudinal examination of links between child-mother attachment and children's friendships in early childhood. In S. Shulman (Ed.), *Close relationships and socioemotional development: Human development* (Vol. 7, pp. 379–381). Norwood, NJ: Ablex.
- *Kerns, K. A., & Barth, J. M. (1995). Attachment and play: Convergence across components of child-parent relationships and their relations to peer competence. *Journal of Social and Personal Relationships*, 12, 243–260.
- *Kerns, K. A., & Gruys, A. (1995, April). *Child-mother attachment and friendship formation in preschoolers*. Paper presented at the meeting of the Society for Research in Child Development, Indianapolis, IN.
- *Kerns, K. A., Klepac, L., & Cole, A. (1996). Peer relationships and preadolescents' perceptions of security in the child-mother relationship. *Developmental Psychology*, 32, 457–466.
- *Klein, R. P., & Durfee, J. T. (1979). Prediction of preschool social behavior from social-emotional development at one year. *Child Psychiatry and Human Development*, 9, 145–151.
- *Kobak, R. R., & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development*, 59, 135–146.
- Kupersmidt, J., & Patterson, C. J. (1991). Childhood peer rejection, aggression, withdrawal, and perceived competence as predictors of self-reported behavior problems in adolescence. *Journal of Abnormal Child Psychology*, 19, 427–449.
- *LaFreniere, P. J., & Sroufe, L. A. (1985). Profiles of peer competence in the preschool: Interrelations between measures, influence of social ecology, and relation to attachment history. *Developmental Psychology*, 21, 56–69.
- Lamb, M. E., Hwang, G. P., Frodi, A., & Frodi, M. (1982). Security of the mother- and father-infant attachment and its relation to sociability with strangers in traditional and non-traditional Swedish families. *Infant Behavior and Development*, 5, 355–367.
- Lamb, M. E., & Nash, A. (1989). Infant-mother attachment, sociability, and peer competence. In T. J. Berndt & G. W. Ladd (Eds.), *Peer relationships in child development* (pp. 219–246). New York: Wiley.
- Lapsley, D. K., Rice, K. G., & FitzGerald, D. P. (1990). Adolescent attachment, identity, and adjustment to college: Implications for the continuity of adaptation hypothesis. *Journal of Counseling and Development*, 68, 561–565.
- Lepper, M. R., Henderlong, J., & Gingras, I. (1999). Understanding the effects of extrinsic rewards on intrinsic motivation—Uses and abuses of

- meta-analysis; Comment on Deci, Koestner, and Ryan. *Psychological Bulletin*, 125, 669–676.
- Lewis, M., & Feiring, C. (1989). Infant, mother and mother–infant interaction behavior and subsequent attachment. *Child Development*, 60, 831–837.
- *Lieberman, A. F. (1977). Preschoolers' competence with a peer: Relations with attachment and peer experience. *Child Development*, 48, 1277–1287.
- *Lyons-Ruth, K., Alpern, L., & Repacholi, B. (1993). Disorganized infant attachment classification and maternal psychosocial problems as predictors of hostile-aggressive behavior in the preschool classroom. *Child Development*, 64, 572–585.
- Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, 50(1–2, Serial No. 209).
- Main, M., & Weston, D. (1981). The quality of toddler's relationship to mother and father: Related to conflict behavior and readiness to establish new relationships. *Child Development*, 52, 923–940.
- *Malatesta-Magai, C., Leak, S., Tesman, J., Shepard, B., Culver, C., & Smaggia, B. (1994). Profiles of emotional development: Individual differences in facial and vocal expression of emotion during the second and third years of life. *International Journal of Behavioral Development*, 17, 239–269.
- *Marcus, R. F., & Mirlle, J. (1990). Validity of a child interview measure of attachment as used in child custody evaluations. *Perceptual and Motor Skills*, 70, 1043–1054.
- Masten, A. S., Morison, P., & Pellegrini, A. (1985). A revised class play method of peer assessment. *Developmental Psychology*, 21, 523–533.
- *Moore, C. W. (1997). *Models of attachment, relationships with parents, and sexual behavior in at-risk adolescents*. Unpublished doctoral dissertation, University of Virginia, Department of Psychology.
- *Moss, E., Parent, S., Gosselin, C., Rousseau, D., & St-Laurent, D. (1996). Attachment and teacher-reported behavior problems during the preschool and early school-age period. *Development and Psychopathology*, 8, 511–525.
- *Nakano, S., Usui, H., & Miyake, K. (1984–1985). Individual differences in responses to unfamiliar objects at twenty-three months of age. *Research and Clinical Center for Child Development*, 8(Annual Report), 43–55.
- *Oppenheim, D., Lamb, M. E., & Sagi, A. (1988). Infant–adult attachments on the kibbutz and their relation to socioemotional development 4 years later. *Developmental Psychology*, 24, 427–433.
- *Park, K. A. (1992). Preschoolers' reactions to loss of a best friend: Developmental trends and individual differences. *Child Study Journal*, 22, 233–252.
- *Park, K. A., & Waters, E. (1989). Security of attachment and preschool friendships. *Child Development*, 60, 1076–1081.
- *Pastor, D. L. (1981). The quality of mother–infant attachment and its relationship to toddlers' initial sociability with peers. *Developmental Psychology*, 17, 326–335.
- *Pierrehumbert, B., Iannotti, R. J., & Cummings, E. M. (1985). Mother–infant attachment, development of social competencies and beliefs of self-responsibility. *Archives de Psychologie*, 53, 365–374.
- *Pierrehumbert, B., Iannotti, R. J., Cummings, E. M., & Zahn-Waxler, C. (1986). Attachment maternel et dependance. Quelques apports de la psychologie experimentale [Maternal attachment and dependency: Some contributions of experimental psychology]. *Neuropsychiatrie de l'Enfance*, 34, 409–420.
- *Pierrehumbert, B., Iannotti, R. J., Cummings, E. M., & Zahn-Waxler, C. (1989). Social functioning with mother and peers at 2 and 5 years: The influence of attachment. *International Journal of Behavioral Development*, 12, 85–100.
- Plunkett, J. W., Klein, T., & Meisels, S. J. (1988). The relationship of preterm infant–mother to stranger sociability at 3 years. *Infant Behavior and Development*, 11, 83–96.
- Rice, K. G., Cunningham, T. J., & Young, M. B. (1997). Attachment to parents, social competence, and emotional well-being: A comparison of Black and White late adolescents. *Journal of Counseling Psychology*, 44, 89–101.
- *Rose-Krasnor, L., Rubin, K. H., Booth, C. L., & Coplan, R. (1996). The relation of maternal directiveness and child attachment security to social competence in preschoolers. *International Journal of Behavioral Development*, 19, 309–325.
- Rosenthal, R. (1984). Interpersonal expectancy effects and psi: Some commonalities and differences. *New Ideas in Psychology*, 2, 47–50.
- Rosenthal, R. (1991). *Meta-analytic procedures for social research*. London: Sage.
- Rosenthal, R. (1995). Writing meta-analytic reviews. *Psychological Bulletin*, 118, 183–192.
- Rosenthal, R., & Rubin, D. B. (1982). A simple, general-purpose display of magnitude of experimental effect. *Journal of Educational Psychology*, 74, 166–169.
- *Rubin, K. H., Both, L., Zahn-Waxler, C., Cummings, E. M., & Wilkinson, M. (1991). Dyadic play behaviors of children of well and depressed mothers. *Development and Psychopathology*, 3, 243–251.
- Rubin, K. H., Bukowski, W., & Parker, J. E. (1998). Peer interactions, relationships, and groups. In W. Damon (Series Ed.) & R. N. Eisenberg (Vol. Ed.), *Handbook of child development: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 619–700). New York: Wiley.
- Rubin, K. H., LeMare, L., & Lollis, S. (1990). Social withdrawal in childhood. In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 217–249). New York: Cambridge University Press.
- Russell, A., Pettit, G. S., & Mize, J. (1998). Horizontal qualities in parent–child relationships: Parallels with and possible consequences for children's peer relationships. *Developmental Review*, 18, 313–352.
- Rutter, M. (1995). Clinical implications of attachment concepts: Retrospect and prospect. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 36, 549–571.
- Schneider, B. H. (1999). A multi-method exploration of the friendships of children considered socially withdrawn by their school peers. *Journal of Abnormal Child Psychology*, 27, 115–123.
- Schneider, B. H., & Younger, A. J. (1996). Adolescent–parent attachment and adolescents' relations with their peers: A closer look. *Youth & Society*, 28, 95–108.
- Schwarzer, R. (1988). Meta-analysis programs. *Behavior Research Methods, Instruments & Computers*, 20, 338.
- Selman, R. L., & Schultz, L. H. (1990). *Making a friend in youth*. Chicago: University of Chicago Press.
- Shulman, S. (1995). *Close relationships and socioemotional development*. Norwood, NJ: Ablex.
- *Shulman, S., Elicker, J., & Sroufe, L. A. (1994). Stages of friendship growth in preadolescence as related to attachment history. *Journal of Social and Personal Relationships*, 11, 341–361.
- *Silverman, N. (1990). *Attachment, maternal behavior and preschool competence at age three*. Unpublished doctoral dissertation, Boston University.
- Soble, J. E. (1987). *The relationship between past and current attachment and current emotional functioning during late adolescence* (Doctoral dissertation, California School of Professional Psychology, Los Angeles, 1987). *Dissertation Abstracts International*, 48, 1821-B (Order No. DA8713198).
- *Sroufe, L. A. (1983). Infant–caregiver attachment and patterns of adaptation in preschool: The roots of maladaptation and competence. In M. Perlmutter (Ed.), *Minnesota Symposium on Child Psychology* (Vol. 16, pp. 41–81). Hillsdale, NJ: Erlbaum.
- Sroufe, L. A. (1988). The role of infant–caregiver attachments in devel-

- opment. In J. Belsky & L. Nezworski (Eds.), *Clinical implications of attachment* (pp. 18–38). Hillsdale, NJ: Erlbaum.
- *Sroufe, L. A., Carlson, E., & Shulman, S. (1993). Individuals in relationships: Development from infancy through adolescence. In D. C. Funder, R. D. Parke, C. Tomlinson-Keasey, & K. Widaman (Eds.), *Studying lives through time: Personality and development* (pp. 315–342). Washington, DC: American Psychological Association.
- Sroufe, L. A., & Fleeson, J. (1986). Attachment and the construction of relationships. In W. Hartup & Z. Rubin (Eds.), *Relationships and development* (pp. 51–71). Hillsdale, NJ: Erlbaum.
- *Sroufe, L. A., Schork, E., Motti, E., Lawroski, N., & LaFreniere, P. (1984). The role of affect in social competence. In C. Izard, J. Kagan, & R. Zajonc (Eds.), *Emotion, cognition and behavior* (pp. 289–319). New York: Plenum Press.
- Stanton, M. E. (1995). Patterns of kinship and residence. In B. B. Ingoldsby & S. Smith (Eds.), *Families in multicultural perspective: Perspectives on marriage and the family* (pp. 97–116). New York: Guilford Press.
- *Suess, G. J., Grossmann, K. E., & Sroufe, L. A. (1992). Effects of infant attachment to mother and father on quality of adaptation in preschool: From dyadic to individual organisation of self. *International Journal of Behavioral Development*, *15*, 43–65.
- *Sull, I. (1995). *Temperament, child–mother attachment, and peer relationships in Korean preschool children*. Unpublished doctoral dissertation, Temple University.
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York: Norton.
- Thompson, R. A. (1988). The effects of infant day care through the prism of attachment theory: A critical appraisal. *Early Childhood Research Quarterly*, *3*, 273–282.
- Thompson, R. A. (1998). Early sociopersonality development. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology* (5th ed., pp. 25–104). New York: Wiley.
- Thompson, R. A., & Lamb, M. E. (1984). Infants, mothers, families, and strangers. In M. Lewis (Ed.), *Beyond the dyad* (pp. 195–222). New York: Plenum Press.
- Toth, S. L., & Cicchetti, D. (1996). Patterns of relatedness, depressive symptomatology, and perceived competence in maltreated children. *Journal of Consulting and Clinical Psychology*, *64*, 32–41.
- *Troy, M., & Sroufe, L. A. (1987). Victimization of pre-schoolers: Role of attachment relationship history. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 166–172.
- *Turner, P. J. (1991). Relations between attachment, gender, and behavior with peers in preschool. *Child Development*, *62*, 1475–1488.
- *Urban, J., Carlson, E., Egeland, B., & Sroufe, A. (1991). Patterns of individual adaptation across childhood. *Development and Psychopathology*, *3*, 445–460.
- *Vandell, D. L., Owen, M. T., Wilson, K. S., & Henderson, V. K. (1988). Social development in infant twins: Peer and child–mother relationships. *Child Development*, *59*, 168–177.
- van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (1997). Intergenerational transmission of attachment: State of the art in psychometric, psychological and clinical research. In L. Atkinson & K. Zucker (Eds.), *Attachment and psychopathology* (pp. 135–170). New York: Guilford Press.
- van IJzendoorn, M. H., Vereijken, C. M. J. L., & Ridsen-Walraven, J. M. A. (in press). Is the Attachment Q-sort a valid measure of attachment security in young children? In B. E. Vaughn & E. Waters (Eds.), *Patterns of secure base behavior: Q-sort perspectives on attachment and caregiving*. Mahwah, NJ: Erlbaum.
- *Wartner, U. G., Grossmann, K., Fremmer-Bombik, E., & Suess, G. (1994). Attachment patterns at age six in south Germany: Predictability from infancy and implications for preschool behavior. *Child Development*, *65*, 1014–1027.
- Waters, E., & Deane, K. E. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. *Monographs of the Society for Research in Child Development*, *50*(1–2, Serial No. 209).
- Waters, F., & Sroufe, L. A. (1983). Social competence as a developmental construct. *Developmental Review*, *3*, 79–97.
- Waters, E., Vaughn, B. E., Posada, G., & Kondo-Ikemura, K. (Eds.). (1995). Caregiving, cultural and cognitive perspectives on secure-base behavior and working models: New growing points of attachment theory and research. *Monographs of the Society for Research in Child Development*, *60*(2–3, Serial No. 244).
- *Waters, E., Wippman, J., & Sroufe, L. A. (1979). Attachment, positive affect, and competence in the peer group: Two studies in construct validation. *Child Development*, *50*, 821–829.
- *Weinfield, N. S., Ogawa, J. R., & Sroufe, L. A. (1997). Early attachment as a pathway to adolescent peer competence. *Journal of Research on Adolescence*, *7*, 241–265.
- *Wright, J. C., Binney, V., & Smith, P. K. (1995). Security of attachment in 8–12-year-olds: A revised version of the Separation Anxiety Test, its psychometric properties and clinical interpretation. *Journal of Child Psychology and Psychiatry*, *36*, 757–774.
- *Wu, F. (1992). *Social competency of only-children in China: Associations among maternal attachment, teacher attachment, and peer relationships*. Unpublished doctoral dissertation, University of California, Los Angeles.
- *Youngblade, L. M., & Belsky, J. (1992). Child–parent antecedents of 5-year-olds' close friendships: A longitudinal analysis. *Developmental Psychology*, *28*, 700–713.
- *Youngblade, L. M., Park, K. A., & Belsky, J. (1993). Measurement of young children's close friendship: A comparison of two independent assessment systems and their associations with attachment security. *International Journal of Behavioral Development*, *16*, 563–587.

Received December 8, 1999

Revision received August 22, 2000

Accepted August 23, 2000 ■