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## Presence and Quality of Kindergarten Children's Friendships: Concurrent and Longitudinal Associations with Child Adjustment in the Early School Years

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### Abstract

The presence and quality of friendships are posited to have developmental significance, yet little is known about the extent to which children without friends versus low-quality friendships compare on socioemotional adjustment. The current study utilized data from a subsample of 567 children (289 boys) participating in the NICHD Study of Early Child Care and Youth Development. Based on maternal reports at kindergarten, four friendship groups were formed: no friends, low quality, average quality, and high quality, and these groups were used to predict teacher-reported behavior problems and social skills concurrently (in kindergarten) and longitudinally (in first and third grade). Concurrently, low-quality friendships were associated with greater externalizing behavior, whereas high-quality friendships were associated with greater social skills. Longitudinally, having no friends in kindergarten was associated with higher levels of externalizing behavior for boys, but lower levels for girls. Children without friends also showed more internalizing problems at first grade. Lastly, having a high-quality friendship in kindergarten was associated with greater social skills in first and third grades, but only for boys. Results underscore high-quality friendship as a context for the development of social skills and indicate different trajectories of problem behavior for kindergarten children with no friends versus low-quality friendships.

### Keywords

friendship; kindergarten; internalizing; externalizing; social skills

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Children's relationships with friends provide a unique context for development. In contrast with parent-child and sibling relationships, which are more complementary in nature (i.e., dyad members behave in dissimilar ways that complement each other), friendships are more likely to be characterized by reciprocity (i.e., dyad members engage in similar behaviors) and are voluntary (Dunn, 1983; Ross, Cheyne, & Lollis, 1988). Furthermore, in contrast with sociometric measures such as peer rejection or popularity, which reflect the child's status in the larger peer group, friendships are dyadic relationships characterized by cooperation, sharing, and positive emotional exchange (Bukowski & Hoza, 1989, Furman & Robbins, 1985; Newcomb & Bagwell, 1995).

In delineating the developmental significance of children's friendships, Hartup (1996) identified three key aspects: whether the child has friends, the quality of the child's friendships, and the identity of the child's friends. In the current study, we consider, *together*, two of these friendship indices – presence and quality. Prior research has shown that children without friends (Bagwell, Newcomb, & Bukowski, 1998; Kingery & Erdley,

2007; Ladd & Troop-Gordon, 2003) or children with low-quality friendships (Erdley, Nangle, Newman, & Carpenter, 2001; Ladd, Kochenderfer, & Coleman, 1996; Sebanc, 2003) tend to exhibit poor adjustment. Yet, to date, no study has explicitly compared the adjustment of children without friends and children with low-quality friendships. Utilizing data from the large-scale longitudinal NICHD Study of Early Child Care and Youth Development (SECCYD), we adopted an “extreme” groups approach and compared kindergarten children with no friends, low-quality friendship, and high-quality friendship (along with an average-quality group) on problem behavior and social skills as reported by teachers at kindergarten, first, and third grades. We focus on kindergarten friendships because this year marks a normative transition to formal schooling, and one in which children’s peer relationships become more salient. During the transition to kindergarten, children are faced with several new demands such as meeting academic standards and negotiating relationships with teachers and peers (Belsky & MacKinnon, 1994). Children’s friendships, especially if they are high in quality, can serve as important sources of social support during this transition (Berndt & Perry, 1986; Ladd, 1990; Ladd et al., 1996). Below we review the separate literatures on friendlessness and friendship quality, and then outline how our joint consideration of friendship presence/absence *and* quality contributes to the literature on friendship and children’s adjustment.

### Presence versus Absence of Friendship

During interactions with friends, children have the opportunity to practice important socioemotional skills such as cooperation, conflict resolution, emotion regulation, and perspective-taking (Buhrmester & Furman, 1986; Newcomb & Bagwell, 1995; Rose & Asher, 2000). Furthermore, because children’s peer relationships tend to be more symmetrical than parent-child or sibling relationships, certain skills such as reciprocal exchange and mutual self-disclosure may be first learned primarily in the context of friendships (Buhrmester & Furman, 1986). Friendships also afford children with provisions, including emotional security and support, instrumental aid, companionship, and a sense of validation and self-worth (Buhrmester & Furman, 1986; Ladd & Kochenderfer, 1996; Ladd et al., 1996; Rose & Asher, 2000; Sullivan, 1953). Children without friends, therefore, would be expected to lack the socioemotional resources and opportunities for learning that friendships provide and, as a result, may show less optimal adjustment (Ladd & Troop-Gordon, 2003; Sullivan, 1953).

Consistent with the notion that participation in friendship is beneficial, having more friends in the classroom has been concurrently related to higher levels of prosocial behavior and less loneliness among younger school-aged children (Gest, Graham-Bermann, & Hartup, 2001; Parker & Asher, 1993a) and longitudinally related to higher levels of social competence for preschool-aged girls (Vaughn et al., 2000). In addition, having friends has been associated with better school adjustment, less loneliness, and less social dissatisfaction among younger school-aged children (Ladd, 1990; Ladd, Kochenderfer, & Coleman, 1997). Conversely, school-aged children without friends were more likely to report higher levels of loneliness (Kingery & Erdley, 2007; Parker & Asher, 1993a) and exhibit lower levels of school involvement and academic performance (Kingery & Erdley, 2007; Wentzel & Caldwell, 1997) compared with children who had one or more friends. Furthermore, chronically friendless children were more likely to exhibit high levels of internalizing (but not externalizing) behavior problems (Ladd & Troop-Gordon, 2003; Pedersen, Vitaro, Barker, & Borge, 2007) and low levels of social skills (Parker & Seal, 1996) compared with children who had friends. Together, these studies indicate that not having friends is associated both concurrently and longitudinally with children’s behavioral adjustment and social competence.

## Friendship Quality

The above research clearly suggests the benefits of having friends, yet as Hartup (1996) has underscored, it is not simply the presence of friendship that confers developmental benefits. Rather, for children who do have friends, the quality of those friendships may be equally, if not more, important in predicting developmental outcomes (Hartup & Stevens, 1997). Friendships vary greatly in quality, with some marked by high levels of positive affect, intimacy, and support and others marked by high levels of negative affect and conflict (Hartup, 1996; Parker & Asher, 1993b). Individual differences in children's friendship quality, in turn, have been associated with trajectories of positive adaptation and problem behavior (see Berndt, 2002; Campbell, 2002; Dunn, 1993). For example, friendships characterized by high levels of support, positive affective sharing, and coordinated interaction were related to higher self-esteem (Fordham & Stevenson-Hinde, 1999; Parker & Asher, 1993b), more prosocial behavior (Sebanc, 2003), and better school adjustment (Parker & Asher, 1993a) among preschool- and school-aged children. Higher quality friendships were also associated with less loneliness for third- through sixth-grade boys in one study (Erdley et al., 2001) and for third- through fifth-grade boys and girls in another (Parker & Asher, 1993a).

Friendships involving conflict and hostility, on the other hand, have been associated with adjustment problems. For instance, higher levels of conflict have been associated with more aggression and peer rejection for preschool-aged children (Sebanc, 2003) and with higher levels of loneliness and school avoidance for kindergarten boys (Ladd et al., 1996). In addition, low-quality friendships marked by negative, coercive interactions may provide a training ground for aggressive-disruptive behavior, especially among school-aged boys (Bagwell & Coie, 2004; Dishion, Andrews, & Crosby, 1995; Dishion, Spracklen, Andrews, & Patterson, 1996). For instance, Kupersmidt and colleagues (1995) found that as the level of conflict between older school-aged children and their friends increased, so did the likelihood of externalizing behavior problems. Additionally, younger school-aged boys who were aggressive and whose friendships were low-quality were more likely to encourage each other to engage in rule-breaking behavior compared with nonaggressive boys (Bagwell & Coie, 2004).

## Friendship Presence *and* Quality

As outlined in the previous sections, both friendship presence and quality are important predictors of children's adjustment. Yet, most studies have examined the contributions of either friendship presence *or* quality. The few studies, to date, that have considered both friendship presence and quality have focused on sociometric or academic outcomes or have not explicitly compared groups of children without friends to groups of children with varying friendship quality (e.g., Fox & Boulton, 2006; Hodges, Boivin, Vitaro, & Bukowski, 1999; Kingery & Erdley, 2007; Parker & Asher, 1993a). For example, in one study, both having friends and having high quality friendships was associated with lower levels of loneliness and depression for school-aged children (Parker & Asher, 1993a). In another study, Hodges and colleagues (1999) examined friendship presence and quality as moderators of the association between fourth- and fifth-grade children's peer victimization and later behavior problems, and found that having a best friend and having a high quality friendship protected children from victimization. Yet, in both of these studies, friendship presence and quality were examined in separate models and, therefore, did not allow for a direct comparison of the effects of friendship presence versus quality.

Considering friendship presence and quality together is critical to advancing our understanding of how friendship contributes to children's socioemotional adjustment. Such an examination may be particularly warranted as children begin formal schooling, given that

both having friends and having high quality friendships have been associated with better school adjustment during this transition (Ladd, 1990; Ladd et al., 1996). Having friends, however, did not predict adjustment for preschool-aged children when moving from one Head Start classroom to another within the same building (Vaughn et al., 2000), further suggesting that friendships may be particularly important in providing support during the potentially stressful transition to kindergarten. Friendship presence and quality during the transition to kindergarten also appear to foster academic and social adjustment at the end of the school year, indicating that early friendships can have lasting effects (Ladd, 1990; Ladd et al., 1996). In sum, previous studies indicate that having friends and having high quality friendships are each associated with children's positive adjustment. Yet, it remains unknown whether children without friends differ from children with low-quality friendships on adjustment. The current study addresses this gap.

### The Current Study

We utilized data from the NICHD SECCYD to compare three "extreme" friendship groups (no friends, low quality, and high quality), along with an average-quality group, on externalizing problems, internalizing problems, and social skills. As mentioned previously, it is unknown whether children who do not have friends compared with children who have low-quality friendships differ in their adjustment. Methodological and logistical challenges may hinder such comparisons. Because many children have at least one mutual friendship by 4 years of age (Hinde, Titmus, Easton, & Tamplin, 1985; Howes, 1983; Vaughn et al., 2000), examining a group of children with no friends requires large samples. Further, children with no friends would necessarily be missing from analyses that utilize a continuous measure of friendship quality (e.g., Erdley et al., 2001; Parker & Asher, 1993a), and the creation of friendship quality groups (e.g., high and low on friendship quality) is needed to remedy this problem. Again, this strategy requires large samples, especially if moderators such as child gender are to be considered. The data from the NICHD SECCYD allow for this type of comparison, given that the sample is sufficiently large to examine various friendship groups.

In the current study, mothers reported on friendship presence and quality in the fall of the kindergarten year, and teachers reported on children's behavior problems and social skills at kindergarten, first grade, and third grade. Examination of *mothers'* reports on friendship and *teachers'* reports on child adjustment permitted independent assessments of these constructs. Moreover, we relied on mothers' (versus teachers') reports of friendships because mothers have knowledge of the child's broader social network (i.e., friendships that occur outside the school setting). On the other hand, teachers (versus mothers) may be less biased reporters of children's behavior problems, given that they generally have more knowledge regarding the range of normative child behaviors (Campbell, 2002).

To address the main objective of this study, we examined the extent to which children in four kindergarten friendship groups – no friends, low quality, average quality, and high quality – differed on teacher-reported problem behaviors and social skills concurrently (kindergarten) and longitudinally (first and third grades). Further, to assess whether the kindergarten friendship groups were associated with *change* in later adjustment, we controlled for levels of kindergarten adjustment in the longitudinal analyses. For both the concurrent and longitudinal associations, we tested the following hypotheses. First, because having at least one friend may provide children with unique opportunities for learning and with socioemotional resources such as companionship, support, and validation (Buhrmester & Furman, 1986; Rose & Asher, 2000; Sullivan, 1953), we hypothesized that children with no friends would show the highest levels of internalizing problems (e.g., Kingery & Erdley, 2007; Ladd et al., 1997; Parker & Asher, 1993a). Prior research has also suggested that lower friendship quality is associated with loneliness and depressive symptoms (Erdley et

al., 2001; Parker & Asher, 1993a), and we expected that children with low-quality versus high-quality friendships would exhibit higher levels of internalizing problems, but not as high as those found among friendless children. Second, because low-quality friendships may provide a “training ground” for aggressive-disruptive behavior (Bagwell & Coie, 2004; Dishion et al., 1995, 1996), we expected children with low-quality friendships to show higher levels of externalizing behavior, especially in contrast to children with high-quality friendships. Third, based on previous research (e.g., Parker & Seal, 1996; Sebanc, 2003; Vaughn et al., 2000), we hypothesized that children with no friends and children with low-quality friendships would exhibit lower levels of social skills than children with high-quality friendships. Although we do not offer specific hypotheses regarding the “average-quality” friendship group, we note the importance of including this group. Namely, differences that emerge between children with high-quality friendships versus those with no friends or low-quality friendships may be due to the “at risk” status of the latter groups or the “special benefits” of the former group. Inclusion of an average group offers further insight into the meaning of such differences.

We also considered whether effects of the kindergarten friendship groups on child adjustment were moderated by child gender. The quality and presence of friendship have been linked to loneliness and depression for boys (but not girls) in some samples (Erdley et al., 2001; Ladd et al., 1996), whereas friendlessness has been related to anxious and withdrawn behavior and lower levels of social skills for girls (but not boys) in other samples (Parker & Seal, 1996; Vaughn et al., 2000). Given the mixed findings for child gender as a moderator of friendship-adjustment associations in prior studies, our examination of child gender was exploratory.

Finally, because friendship participation (Berndt & Hoyle, 1985; Howes, Rubin, Ross, & French, 1988) and quality (Berndt & Perry, 1986; Howes, Hamilton, & Philipsen, 1998) each tend to be only moderately stable across the early school years, we conducted follow-up analyses to assess whether children’s subsequent friendship status (i.e., mother-reported absence of friends at first grade and quality of friendships at first and third grades) accounted for longitudinal associations between the friendship groups at kindergarten and child adjustment at first and third grades.

## Method

### Participants

Participants were a subsample of 567 families drawn from the larger sample of 1364 families participating in the NICHD SECCYD. Families were recruited from hospitals located in or near 10 sites across the United States (see NICHD ECCRN, 1997, 1999, for further details). The subsample examined in the current report met criteria for one of four friendship groups (see below) and had available data on at least one measure of teacher-reported child adjustment. Demographic characteristics for the subsample of 567 are shown in Table 1. Mothers averaged 14.51 years of education, as reported by mothers when study children were one month of age. The average income-to-needs ratio (combined across data collected at 6, 15, 24, 36, and 54 months) was 3.90. In computing a family’s income-to-needs ratio, family income (exclusive of welfare payments) was divided by the poverty threshold, which was based on total family size. Mothers were asked at 6, 15, 24, 36, and 54 months whether they were currently living with a partner or husband. For 77% of the families, a partner or spouse lived in the home at all time points. Fifty-one percent ( $n = 289$ ) of the study children were male. With respect to child ethnicity, 79% were European American non-Hispanic, 11% were African American non-Hispanic, 6% were Hispanic, and 4% were another race or more than one race.



## Procedure

Maternal reports of the presence/absence and quality of children's friendships collected during the fall of the kindergarten year were utilized to create the kindergarten friendship groups (see below). Maternal reports of children's friendships were also collected at the first and third grade time points. Teachers reported on children's internalizing behavior, externalizing behavior, and social skills at kindergarten, first grade, and third grade.

## Kindergarten Friendship Groups

At the kindergarten time point, mothers completed a 2-part Playmate Questionnaire. In Part 1, mothers selected from one of the following choices that best described her child's peer relationships: (a) My child has no regular playmates, (b) My child has occasional regular playmate(s), (c) My child has one close friend, (d) My child has several playmates, but no close friend, and (e) My child has several playmates and a close friend. In answering the above question, mothers were instructed to consider only non-relative playmates or friends. If the child had regular playmates and/or friends (i.e., mothers selected option b, c, d, or e), mothers proceeded to Part 2 of the Playmate Questionnaire, which was adapted from the Quality of Classroom Friends Questionnaire (Clark & Ladd, 2000).

For those who proceeded to Part 2 of the Playmate Questionnaire, mothers were asked to choose one playmate or friend for whom they felt best able to provide information regarding the child-playmate relationship. Mothers chose the descriptor that best fit this child-playmate relationship: (a) best friends, (b) like each other a lot, (c) neutral, or (d) just tolerate each other. Additionally, mothers rated 19 items on a 4-point scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Two subscales were computed by averaging across items that tapped positive (11 items,  $\alpha = .79$ ) and negative (8 items,  $\alpha = .80$ ) relationship quality. The subscales showed a significant, negative correlation ( $r = -.51, p < .001$ ), and we created a composite of *total playmate relationship quality* (positive subscale minus negative subscale). In computing this composite of total relationship quality, we reasoned that friendships characterized by high levels of positive interaction *and* high levels of negative interaction (e.g., conflict) would be lower in quality than friendships characterized by high levels of positive interaction and low levels of negative interaction. Although previous research among older school-aged children indicates that positive and negative dimensions of friendship quality may be distinct (Berndt, 1996, 2002), this may be less so among younger children (as evidenced by the above correlation) who tend to view conflict as incompatible with, and/or more disruptive to, positive interactions with friends (e.g., Berndt & Perry, 1986).

Using data from the 2-part Playmate Questionnaire, we created four friendship groups. Children whose mother reported that their child had no regular playmates (choice a, Part 1) were placed in the "no friends" group.<sup>1</sup> Next, to limit our examination to children's interactions with *friends*, we selected cases in which the mother described the playmate relationship in Part 2 as either "best friends" or "like each other a lot" ( $n = 887$  out of 962 responses). For these cases, we used the *total playmate relationship quality* score to create high-quality (1 *SD* above the Mean), average-quality (0.5 *SD* above or below the Mean) and

<sup>1</sup>We focused on this group because mothers did not receive instructions regarding the difference between friends and playmates and because regularity of play interactions has been used as a criterion to identify friends among young children (e.g., Hinde et al., 1985; Howes, 1983). It is also important to note that the most frequently used method for identifying the presence or number of friends is mutual nominations in the classroom. While a stringent method for identifying classroom friendships, mutual nominations may overestimate the number of children who do not have friends because in-class friends do not have parental consent to participate and/or children are not asked to identify friends in other contexts. In contrast, in light of the premise here that children learn important social skills during interactions with friends, we aimed for a more stringent measure of "no friends" (i.e., the mother reported that her child had no regular playmates or friends across various contexts).

low-quality (1 *SD* below the Mean) friendship groups. Following these criteria, children were placed in one of four friendship groups: “no friends” ( $n = 80$ ), “low quality friendship” ( $n = 108$ ), “average quality friendship” ( $n = 271$ ), and “high quality friendship” ( $n = 108$ ). Note that the proportion of playmate relationships described by mothers as “best friends” versus “like each other a lot” did not differ significantly across the low-, average-, and high-quality groups.

### Child Adjustment Outcomes

At kindergarten, first grade, and third grade, teachers completed the Teacher Report Form (TRF; Achenbach, 1991). The TRF consists of 118 items describing problem behaviors, and teachers rated each item on a 3-point scale, ranging from 0 (*not true*) to 2 (*very true*). *T*-scores for the *externalizing* (34 items,  $\alpha$  ranged from .94 to .95) and *internalizing* (35 items;  $\alpha$  ranged from .85 to .87) broadband scales were examined. The TRF has well-established reliability and validity (see Achenbach, 1991).

Teachers also completed the Social Skills Rating System (SSRS; Gresham & Elliot, 1990) at each time point. Thirty items assessed a range of socially competent behaviors (e.g., cooperation, assertion, responsibility, self-control) and were rated on a 3-point scale, ranging from 0 (*never*) to 2 (*very often*). Teacher composites of *total social skills* were computed by summing across items ( $\alpha$  ranged from .87 to .94), and standardized scores were examined. The SSRS has a standard mean score of 100 and a standard deviation of 15, and a student’s standardized score indicated the degree to which his/her raw score exceeded or fell below the mean score of similar students with whom the instrument was standardized. Gresham and Elliot (1990) have extensively documented the content, criterion, and construct validity of the SSRS.

### Children’s Friendships at Grades 1 and 3

Mothers also completed the 2-part Playmate Questionnaire (see above) at first grade. A binary friendship presence/absence score was created using responses from Part 1 ( $n = 507$ ). Specifically, children whose mothers selected option a (“My child has no regular playmates”) were coded as having no friends (7%,  $n = 35$ ), and children whose mothers selected option b, c, d, or e were coded as having at least one friend (93%,  $n = 472$ ) at the first grade time point. For the latter group, mothers proceeded to Part 2 and rated the quality of their child’s relationship with a playmate or friend on a 4-point scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*), and two subscales were computed by averaging across items that tapped positive (11 items,  $\alpha = .81$ ) and negative (8 items,  $\alpha = .82$ ) relationship quality. At the third grade time point, mothers completed the Quality of Child’s Friendship Questionnaire, which was nearly identical to the Playmate Questionnaire completed at kindergarten and first grade, with the exception of 5 items that were changed to be age-appropriate for older children.<sup>2</sup> Mothers rated 20 items on a 4-point scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*), and two subscales were computed by averaging across items capturing positive (12 items,  $\alpha = .78$ ) and negative (8 items,  $\alpha = .85$ ) relationship quality. At each time point, we created a composite of *total relationship quality* (positive subscale minus negative subscale). Among the current subsample of 567, friendship quality data were available for 432 cases at first grade and 509 cases at third grade.

<sup>2</sup>We did not examine third-grade friendship presence/absence because very few children did not have a friend at this time point.

## Results

### Preliminary Analyses

Prior to conducting the main analyses, we compared the 567 cases included in this report to the 797 cases excluded. We note that cases were excluded because some or all data were missing on the maternal playmate questionnaire at kindergarten ( $n = 494$ ) or because the playmate questionnaire data were available but (a) did not meet the criteria used in creating the friendships groups ( $n = 289$ ) or (b) data on teacher-reported outcomes were all missing ( $n = 14$ ). Compared with cases excluded, included cases were characterized, on average, by higher levels of maternal education (14.51 vs. 14.04,  $t[1361] = 3.43$ ,  $p < .001$ ) and family income-to-needs ratio (3.90 vs. 3.37,  $t[1300] = 3.34$ ,  $p < .001$ ). Included cases were also more likely to have a maternal partner in the home at all time points (77% vs. 72%,  $\chi^2 [1, N = 1305] = 4.62$ ,  $p < .05$ ), but did not differ from excluded cases on child gender or child ethnicity (European American, non-Hispanic vs. other groups combined). Of the nine child adjustment outcomes examined (3 outcomes  $\times$  3 time points), included versus excluded cases differed significantly on one: children included in this report were, on average, lower on teacher-reported externalizing behavior in third grade than were children excluded ( $M_s = 50.56$  vs. 52.51,  $t[980] = -3.28$ ,  $p = .001$ ).

Next, we examined the demographic measures as a function of the kindergarten friendship groups. One-way ANOVAs revealed significant main effects of friendship groups on maternal education,  $F(3, 566) = 11.29$ ,  $p < .001$ , and family income-to-needs ratio,  $F(3, 565) = 6.82$ ,  $p < .001$ . Post-hoc comparisons indicated that maternal education and family income was significantly higher, on average, for the high-quality friendship group versus the no-friends and low-quality groups. Children in the average-quality group were also characterized by more years of maternal education and higher family income compared with children in the no-friends group (see Table 1 for Means). Moreover, the friendship groups differed as a function of child gender,  $\chi^2 (3, N = 567) = 16.55$ ,  $p < .001$ , child ethnicity (European-American, non-Hispanic vs. other groups combined),  $\chi^2 (3, N = 567) = 35.04$ ,  $p < .001$ , and the presence of a maternal partner in the home,  $\chi^2 (3, N = 567) = 41.16$ ,  $p < .001$  (see Table 1). Thus, these demographic characteristics were included as covariates in the main analyses.

Correlations and descriptive statistics for the child adjustment outcomes are shown in Table 2. For a given outcome, correlations across time were weak to moderate, and ranged from .46 to .55 for externalizing behavior, .11 to .20 for internalizing behavior, and .35 to .42 for social skills. At a given time point, correlations across child outcomes were moderate to strong, and ranged from .31 (externalizing-internalizing associations at kindergarten and grade 1) to -.60 (externalizing-social skills association at grade 1). Due to missing data on the child outcome measures,  $N_s$  for the main analyses ranged from 535 to 450.

### Kindergarten Friendship Groups and Adjustment in Kindergarten

To assess the extent to which child adjustment in kindergarten varied as a function of the kindergarten friendship groups, a series of 4 (friendship group: NF, LQ, AQ, HQ)  $\times$  2 (child gender) univariate ANCOVAs (controlling for maternal education, family income-to-needs ratio, presence of partner in the home, and child ethnicity) were conducted, with friendship groups and child gender as the between-subjects factors, and teacher-reported externalizing behavior, internalizing behavior, and social skills as the dependent variables, respectively. The friendship group  $\times$  child gender interaction was also tested for each model and was non-significant in all cases. Adjusted means and standard errors for the child outcome measures as a function of friendship group are shown in Table 3.  $F$ -statistics for all main effects and unstandardized parameter estimates for the covariates are also shown in Table 3. When the



friendship group main effect was significant, planned contrasts were conducted. Effect sizes (Cohen's  $d$ ) were also computed for significant friendship-group comparisons by calculating the difference in the adjusted means (i.e., adjusted for covariates in the ANCOVA) and dividing by the root-mean-square error from the ANCOVA (see NICHD ECCRN, 2006). Cohen (1992) indicated  $d$  values of .20, .50, and .80 as representing small, medium, and large effects, respectively.

Of the three models predicting child adjustment in kindergarten, significant main effects of friendship group emerged for externalizing behavior and social skills. The friendship group main effect was non-significant for the model predicting internalizing behavior (see Table 3). For the model predicting externalizing behavior, planned contrasts ( $ps < .01$ ) revealed that children in the low-quality friendship group were perceived by kindergarten teachers to be higher on externalizing behavior than were children in the average or high-quality friendship groups ( $ds = .33$  and  $.41$ , respectively; see Table 3 for Means). Children in the no-friends group fell in between and were not significantly different on externalizing behavior than children in the other three groups. For the model predicting social skills, planned contrasts revealed that children in the high-quality friendship group were perceived by kindergarten teachers to be higher on social skills than were children in the no-friends ( $p < .001$ ), low-quality ( $p < .001$ ), or average-quality ( $p < .05$ ) groups ( $ds = .46, .37, .25$ ; see Table 3 for Means). Contrasts among the latter groups were all non-significant.

### Kindergarten Friendship Groups and Adjustment in Grades 1 and 3

Next, to assess whether child adjustment in first and third grades varied as a function of the kindergarten friendship groups, a series of 4 (friendship group: NF, LQ, AQ, HQ)  $\times$  2 (child gender)  $\times$  2 (time point: grade 1, grade 3) repeated measures ANCOVAs were conducted with friendship groups and child gender as the between-subjects factors and time point as the repeated factor. Teacher-reported externalizing behavior, internalizing behavior, and social skills were the dependent variables, respectively. In addition to controlling for the demographic measures, we also included the relevant measure of kindergarten adjustment as a covariate in each model. For instance, for the model predicting externalizing behavior in grades 1 and 3, we controlled for teacher-reported externalizing behavior in kindergarten. Adjusted means and standard errors for the child outcomes by friendship group and time point are shown in Table 4.  $F$ -statistics for all main effects and unstandardized parameter estimates for the covariates are also shown in Table 4. Each model included a test of the friendship group  $\times$  gender interaction, and significant 2-way interactions between friendship group and gender or time point are reported in the text below. All 3-way friendship group  $\times$  gender  $\times$  time interactions were non-significant.

For each model tested, the main effect of friendship group on children's later adjustment was non-significant (see Table 4). The friendship group  $\times$  gender interaction, however, was significant for the model predicting externalizing behavior,  $F(3, 446) = 4.15, p < .01$ . In probing this interaction, we examined the main effect of friendship group for boys and girls separately. These follow-up analyses revealed that boys in the no-friends group ( $M = 52.35$ ) were perceived by first- and third-grade teachers to be higher ( $p < .10$ ) on externalizing behavior than were boys in the high-quality ( $M = 49.81$ ) group ( $d = .29$ ). Levels of externalizing behavior among boys in the low-quality ( $M = 51.49$ ) and average-quality ( $M = 50.46$ ) groups fell in between. Girls in the no-friends group ( $M = 46.93$ ), on the other hand, were perceived by first- and third-grade teachers to be significantly lower ( $p < .05$ ) on externalizing behavior than were girls in the average-quality ( $M = 50.24$ ) or high-quality ( $M = 49.99$ ) groups ( $ds = .41$  and  $.38$ , respectively). Levels of externalizing behavior for girls in the low-quality group fell in between ( $M = 48.93$ ). Because the pattern that emerged for girls was unexpected, we further probed by friendship group and found that for the no-friends group, externalizing behavior was significantly higher ( $p < .05$ ) for boys versus girls ( $Ms =$

52.35 vs. 46.93), whereas externalizing behavior did not differ significantly by gender for the average-quality ( $M_s = 50.46$  vs.  $50.24$ ) or high-quality ( $M_s = 49.81$  vs.  $49.99$ ) groups.

For the model predicting internalizing behavior, a significant friendship group  $\times$  time interaction emerged,  $F(3, 446) = 2.57, p = .05$ . Follow-up analyses indicated that at first grade, children in the no-friends group were significantly higher ( $p_s < .05$ ) on teacher-reported internalizing behavior than were children in the low-quality, average-quality, or high-quality groups ( $d_s = .39, .38, .42$ ; see Table 4 for Means). In contrast, internalizing behavior at third grade did not differ as a function of the friendship groups.

Finally, for the model predicting social skills, the friendship group  $\times$  gender interaction approached significance,  $F(3, 437) = 2.49, p = .06$ . Probes of this interaction revealed that boys in the high-quality group ( $M = 105.82$ ) were perceived by teachers to be significantly higher on social skills ( $p_s < .05$ ) than were boys in the no-friends ( $M = 100.03$ ) or low-quality ( $M = 100.65$ ) groups ( $d_s = .41$  and  $.37$ , respectively); levels of social skills among boys in the average-quality group ( $M = 103.24$ ) fell in between. Levels of girls' social skills, in contrast, did not differ by friendship group ( $M_s = 103.26, 105.08, 103.01, 103.82$ ; NF, LQ, AQ, and HQ groups, respectively).

### Follow-up analyses

We conducted two sets of follow-up analyses utilizing mother-reported friendship presence/absence at first grade and mother-reported friendship quality at first and third grades. First, we assessed associations between the kindergarten friendship groups and the later measures of friendship. For mother-reported friendship presence/absence in first grade, a significant association emerged with the kindergarten friendship groups,  $\chi^2(3, N = 507) = 55.05, p < .001$ , such that children in the no-friends group at kindergarten were more likely to be friendless at first grade (27.5%) compared with children in the other three groups (6.4% to 1%). Further, univariate ANCOVAs (controlling for the demographic measures) indicated that the kindergarten friendship groups differed significantly on mother-reported friendship quality at first grade,  $F(3, 422) = 50.62, p < .001$ , and third grade,  $F(3, 499) = 33.06, p < .001$ . At each time point, planned contrasts among the kindergarten friendship groups revealed that the low-quality group was significantly lower ( $p_s < .001$ ) on later friendship quality ( $M_s = .49$  and  $.91$ , first and third grades, respectively) than the other three groups ( $d_s \geq .47$ ). Moreover, the no-friends ( $M_s = .99$  and  $1.21$ ) and average-quality ( $M_s = 1.13$  and  $1.26$ ) groups were significantly lower ( $p_s < .001$ ) on later friendship quality than the high-quality ( $M_s = 1.73$  and  $1.87$ ) group ( $d_s \geq .89$ ). The no-friends and average-quality groups did not significantly differ from each other at either time point.

Next, in light of the associations that emerged between the kindergarten friendship groups and the later measures of friendship, we assessed whether subsequent friendship participation or quality accounted for the longitudinal associations between the kindergarten friendship groups and child adjustment. To this end, we entered (a) mother-reported friendship presence/absence in first grade and (b) mother-reported friendship quality in first and third grades (averaged across time), respectively, as an additional covariate in the above repeated measures ANCOVAs (controlling for demographic factors and kindergarten adjustment) predicting the first- and third-grade teacher reports of child adjustment. Results were largely identical to those reported above. Namely, the significant friendship group  $\times$  child gender interaction that emerged for the model predicting externalizing behavior remained significant when later friendship presence/absence,  $F(3, 405) = 4.58, p < .01$ , and friendship quality,  $F(3, 436) = 3.68, p < .05$ , were each included as an additional covariate. Moreover, the marginally significant friendship group  $\times$  child gender interaction that emerged for the model predicting social skills was also marginally significant controlling for later friendship presence/absence,  $F(3, 396) = 2.40, p < .10$ , and friendship quality,  $F(3,$

427) = 2.12,  $p < .10$ . Finally, the significant friendship group  $\times$  time interaction that emerged for internalizing behavior became marginally significant when controlling for later friendship presence/absence,  $F(3, 405) = 2.36$ ,  $p < .10$ , and remained significant when controlling for later friendship quality,  $F(3, 436) = 3.04$ ,  $p < .05$ .

## Discussion

Hartup (1996, Hartup & Stevens, 1997) has highlighted the developmental significance of multiple friendship dimensions, including presence and quality, yet few studies have considered together the contributions of these two friendship indices to children's adjustment. Utilizing data from the large-scale NICHD SECCYD, we compared groups of kindergarten children with no friends, low-quality friendships, average-quality friendships, and high-quality friendships on teacher-reported problem behavior and social skills. Our "extreme groups" approach permitted an opportunity to assess whether children with no friends versus low-quality friendships exhibited different patterns of adjustment. In addition, children with high-quality friendships were examined to assess whether friendlessness and/or low-quality friendships place children at risk for adjustment problems, or alternatively, whether high-quality friendships provide children with special benefits. An average-quality friendship group was also included to provide further insight into the meaning of differences among the extreme groups. An investigation of this type has been less feasible among prior studies because of the large samples needed to extract reasonably-sized extreme groups. In the current study, friendship groups were created based on maternal reports of the presence and quality of their child's friendships in kindergarten, and these groups were used to predict children's teacher-reported outcomes both concurrently and longitudinally.

### Concurrent Associations with Kindergarten Friendship Groups

In our first set of analyses, we examined concurrent associations between the kindergarten friendship groups and kindergarten teachers' reports of problem behavior and social skills. Controlling for family demographic characteristics (i.e., maternal education, family income, maternal partner status, and child ethnicity), we found significant main effects of the friendship groups on teacher-reported externalizing behavior and social skills. Namely, children characterized by low friendship quality (more than one standard deviation below the Mean) were perceived by kindergarten teachers to be higher on externalizing behavior than were children characterized by average (within half a standard deviation of the Mean) or high (more than one standard deviation above the Mean) friendship quality. Moreover, children characterized by high friendship quality were perceived by kindergarten teachers to be higher on social skills than were children in the no-friends, low-quality, or average-quality groups.

The concurrent associations summarized above were consistent with our hypotheses that (a) low-quality friendships would be associated with higher levels of externalizing problems because such friendships provide a training ground for aggressive, disruptive behavior (Bagwell & Coie, 2004; Dishion et al., 1995, 1996) and (b) high-quality friendships would be associated with higher levels of social skills because positive interactions with friends provide important opportunities to learn and practice social skills (Buhrmester & Furman, 1986; Howes et al., 1988; Rose & Asher, 2000; Sullivan, 1953). Furthermore, in interpreting our results, we emphasize the findings for the average-quality group in these analyses. Namely, the high- and average-quality groups differed from the low-quality group on externalizing problems, whereas children in the no-friends, low-quality, and average-quality groups differed from the high-quality group on social skills. Thus, the above differences that emerged for children with average-quality friendships provide further evidence for our interpretation that low-quality friendships may place children at increased risk for externalizing behavior problems (versus the alternative interpretation that high-quality

friendships protect children from externalizing problems), whereas high-quality friendships may especially promote social skills (versus the alternative interpretation that friendlessness or low-quality friendships result in social skills “deficits”).

Notably, no concurrent association was found between the friendship groups and internalizing behavior at the kindergarten time point. The child outcome measures were administered during the fall of the kindergarten year, and teachers may have been less able to detect persistent versus transient internalizing problems during this initial adjustment period. In accordance with this interpretation, we note that compared with the moderate cross-time stability that emerged for teacher-reported externalizing behavior and social skills (see Table 2), teacher-reported internalizing behavior showed weak cross-time stability, especially between the kindergarten and first-grade time points ( $r = .11$ ). Furthermore, Ladd (1990) reported no association between number of friends and children’s anxious behavior (assessed via teacher reports and classroom observations) during the first two months of kindergarten, whereas a significant association emerged between friendship conflict and loneliness (assessed via child report), but only when assessed later in the kindergarten year (Ladd et al., 1996). These prior findings dovetail with the current null finding and suggest that regardless of assessment type, internalizing behaviors assessed early in the kindergarten year may be less likely to capture stable and meaningful individual differences in children’s adjustment.

### Longitudinal Associations with Kindergarten Friendship Groups

Clearly, our concurrent friendship group analyses do not speak to directions of effect, and it is also likely that higher levels of social skills result in friendships of higher quality, and more externalizing problems result in friendships of lower quality. Given this limitation of the concurrent analyses, we examined in a second set of analyses the degree to which the kindergarten friendship groups differed on the child adjustment outcomes at first and third grades. Importantly, when examining associations longitudinally, we controlled for the relevant measure of kindergarten adjustment and thereby tested the kindergarten friendship groups as a predictor of *change* in child adjustment. Results showed associations between the kindergarten friendship groups and later adjustment, but such associations depended on child gender or the time point (first or third grade) at which child adjustment was assessed.

First, controlling for the demographic factors and teacher-reported externalizing behavior at kindergarten, a significant kindergarten friendship group  $\times$  child gender interaction emerged for teacher-reported externalizing behavior across first and third grades. Intriguingly, the no-friends group was associated with marginally *higher* levels of externalizing behavior (compared with the high-quality group) for *boys*, but significantly *lower* levels of externalizing behavior (compared with the average- and high-quality groups) for *girls*. Because this latter pattern was unexpected, we also examined whether externalizing behavior differed by gender for each of the friendship groups and found that for the no-friends group, boys were significantly higher than were girls on externalizing behavior; boys and girls in the average- and high-quality groups did not differ on levels of externalizing behavior. Thus, girls with average- or high-quality friendships were not particularly high on externalizing problems. Rather, girls in the no-friends groups were particularly low.

This pattern of results suggests that, at least with respect to externalizing behavior, the no-friends group is heterogeneous and being friendless during the transition to kindergarten may have quite different implications for boys and girls. Regarding the results for friendless boys, it could be that these boys eventually developed friendships, but with deviant peers, which led to increases in externalizing problems (e.g., Bagwell & Coie, 2004; Kupersmidt et al., 1995). For the friendless girls in the current sample, it may be that the particularly low levels of externalizing problems were indicative of high levels of social withdrawal. In

support of this interpretation, Parker and Seal (1996) found that 8- to 15-year-old girls (but not boys) who remained friendless during a four-week summer camp had higher levels of counselor-reported withdrawn and anxious behavior. Our interpretation of this finding is tentative, especially given that child gender did *not* moderate associations between the friendship groups and later internalizing behavior (perhaps because the broadband internalizing scale examined here was less sensitive to individual differences in social withdrawal). In general, previous research on friendlessness and child externalizing behavior problems, specifically, has been limited, and even less is known about how the relation between friendlessness and externalizing behavior may differ for boys versus girls. These issues warrant further inquiry.

Similar to the above findings for externalizing problems, the associations between the friendship groups and teacher-reported social skills in first and third grades (controlling for family demographic measures and social skills in kindergarten) depended on child gender. Namely, boys in the high-quality friendship group were perceived by teachers to be more socially skilled than were boys in the no-friends and low-quality friendship groups; boys in the average-quality friendship group fell in between and did not significantly differ from boys in the other three groups. Past studies have also shown effects of friendship presence and quality on social skills for preschool-aged and older school-aged children (e.g., Parker & Seal, 1996; Sebanc, 2003; Vaughn et al., 2000), and the friendship-related differences in social skills that emerged here (but for boys only) were concordant with our expectation that children with high-quality friendships, compared with those with no friends or low-quality friendships, would have enhanced opportunities to learn social skills. These longitudinal associations may have emerged for boys only because, as discussed by Ladd et al. (1996), boys versus girls tend to have fewer friendships, and thus, a single friendship may have greater implications for boys' adjustment. On the other hand, teachers perceived first- and third-grade girls to be relatively high on social skills, *regardless* of the kindergarten friendship groups. The lack of friendship-related differences for girls' social skills was somewhat surprising. Perhaps adults' strong expectations for girls to behave prosocially result in biased reporting (see Eisenberg, Fabes, & Spinrad, 2006), or alternatively, girls may become increasingly adept at self-presentation skills that promote positive perceptions by teachers and other adults. In sum, it is noteworthy that children's social skills and externalizing behavior varied as a function of the friendship groups concurrently and longitudinally, but were moderated by child gender only in the longitudinal analyses. Thus, with development, the meaning of earlier friendship status for later adjustment may vary by gender.

Finally, controlling for the demographic factors and internalizing behavior at kindergarten, the main effect of the kindergarten friendship groups on later internalizing behavior varied by time point. Specifically, children in the no-friends group were perceived by first-grade teachers to be higher on internalizing behavior compared with children in the low-, average- or high-quality friendship groups. In contrast, no differences among the friendship groups emerged for teacher-reported internalizing behavior at third grade. This finding is consistent with previous studies indicating more teacher-reported internalizing problems among friendless children (e.g., Ladd & Troop-Gordon, 2003) and provides support for our hypothesis that friendlessness would be associated with internalizing problems because these children lack the self-validation, mutual affection, and companionship that friendship brings (e.g., Buhrmester & Furman, 1986; Sullivan, 1953). Yet, that this difference on internalizing problems emerged only at the first-grade time point suggests that the effect of kindergarten friendlessness on internalizing problems may dissipate as children move through elementary school.



Importantly, follow-up analyses indicated that the above longitudinal findings remained largely unchanged when mother-reported friendship presence/absence in first grade or mother-reported friendship quality in first and third grades were considered. Thus, the degree to which the kindergarten friendship groups were related to differences in later teacher-reported problem behavior or social skills was not accounted for by later friendship participation or quality. Furthermore, although not a main aim of the current study, the follow-up analyses indicated moderate stability of friendships across time. That is, children without friends in kindergarten had a higher likelihood of being without friends in first grade (although the large majority of these children had developed at least one friendship by this time point) compared with children in the other three groups. Moreover, children in the low-quality and high-quality groups in kindergarten had especially low and high quality friendships, respectively, in first and third grades. These results are in line with previous research that indicates moderate stability in friendship presence and quality for preschool and younger school-aged children (Berndt & Hoyle, 1985; Howes et al., 1998; Howes, Rubin, Ross, & French, 1988; Vaughn et al., 2000).

Brief mention of the demographic covariates is also warranted. Preliminary analyses revealed that the kindergarten friendship groups differed on several demographic measures, including maternal education, family income-to-needs ratio, the presence of a maternal partner in the home, and child ethnicity. Thus, we controlled for these variables in our main analyses to rule out the possibility that these demographic factors acted as “third variables.” Of the four demographic measures examined, maternal education and the presence of a partner in the home showed significant associations with child adjustment (see Dearing, McCartney & Taylor, 2001 for similar findings). Perhaps more importantly, effects of the kindergarten friendship groups emerged above and beyond these demographic variables and, thus, we gain confidence that the friendship-group effects reported here are robust to differences in socioeconomic status.

### Limitations and Future Directions

Several limitations of the current study should be noted. First, the identity of one’s friends – a friendship dimension not assessed here – is likely to also have important implications for child adjustment (Hartup, 1996). For instance, high levels of engagement and cooperation with an antisocial versus prosocial friend is likely to result in distinct behavioral outcomes (e.g., Dishion et al., 1995). Considering the characteristics of the friend in combination with the quality of the friendship merits investigation. Second, only friendship presence and friendship quality (for *one* relationship) were examined. Although friendships may serve as unique and important contexts for social development, it is probable that the developmental significance of having friends or the quality of a specific friendship will depend on other close relationships in the child’s social network (e.g., Gauze, Bukowski, Aqan-Assee, & Sippola, 1996; McElwain & Volling, 2005). Similarly, effect sizes for associations between the friendship groups and child adjustment outcomes were relatively small, ranging from .25 to .42. Yet, given that multiple factors (e.g., family experiences, child temperament) are likely to contribute to children’s behavior problems or social skills, the small effects sizes found here were not surprising. Third, preliminary analyses indicated that the current subsample, although relatively diverse, may be at lower demographic risk compared with cases not included. It is worth noting, however, that children included versus excluded in our subsample differed on only one of nine child adjustment outcomes.

Finally, by relying solely on maternal reports of children’s friendships, we were unable to assess the reciprocity of the friendships (e.g., do both children in the friendship dyad nominate each other as friends?) or capture the child’s perspective on the quality of these relationships. Moreover, mothers may have limited awareness of friendships that occur in the school context only. Nonetheless, given the developmental level of the children in the

current study and the time point at which friendships were assessed (fall of kindergarten year), maternal reports of friendship presence and quality may be preferred. That is, children at this young age may be less able to report accurately on their friendships compared with older children, and teachers may be less attuned to children's friendships at the beginning of the school year versus later in the year.

Despite the above limitations, strengths of the current study include (a) independent assessments of the friendship groups and child adjustment outcomes, (b) examination of longitudinal associations between the kindergarten friendship groups and later adjustment, controlling for levels of kindergarten adjustment, and (c) follow-up analyses to rule out the possibility that longitudinal associations were accounted for by later friendship status. Most importantly, this investigation is the first to explicitly compare children without friends, low-quality friendships, and high-quality friendships on adjustment across the early school years, and thus, fills an important gap in the literature. The results not only emphasize the positive adjustment of children with high-quality friendships, but also suggest that children with no friends and low-quality friendships may differ on trajectories of problem behavior. Whereas children with low-quality friendships showed high levels of externalizing problem behavior in the kindergarten year, friendless children may be especially at risk for increased internalizing and externalizing problems later on.

## References

- Achenbach, TM. Manual for the Teacher Report Form and Profile. Burlington, VT: University of Vermont, Department of Psychiatry; 1991.
- Bagwell CL, Coie JD. The best of friendships of aggressive boys: Relationship quality, conflict management, and rule-breaking behavior. *Journal of Experimental Child Psychology*. 2004; 88:5–24. [PubMed: 15093723]
- Bagwell CL, Newcomb AF, Bukowski WM. Preadolescent friendship and peer rejection as predictors of adult adjustment. *Child Development*. 1998; 69:140–153. [PubMed: 9499563]
- Belsky J, MacKinnon C. Transition to school: Developmental trajectories and school experiences. *Early Education and Development*. 1994; 5:106–119.
- Berndt, TJ. Exploring the effects of friendship quality on social development. In: Bukowski, WM.; Newcomb, AF.; Hartup, WW., editors. *The company they keep: Friendship in childhood and adolescence*. Cambridge: Cambridge University Press; 1996. p. 346-365.
- Berndt TJ. Friendship quality and social development. *Current Directions in Psychological Science*. 2002; 11:7–10.
- Berndt TJ, Hoyle SG. Stability and change in childhood and adolescent friendships. *Developmental Psychology*. 1985; 21:1007–1015.
- Berndt TJ, Perry TB. Children's perceptions of friendships as supportive relationships. *Developmental Psychology*. 1986; 22:640–648.
- Buhrmester, D.; Furman, W. The changing functions of friends in childhood: A neo- Sullivanian perspective. In: Derlega, VJ.; Winstead, BA., editors. *Friendship and social interaction*. New York: Springer-Verlag; 1986. p. 41-62.
- Bukowski, WM.; Hoza, B. Popularity and friendship: Issues in theory, measurement, and outcome. In: Berndt, TJ.; Ladd, GW., editors. *Peer relationships in child development*. New York: Wiley; 1989. p. 15-45.
- Campbell, SB. Behavior problems in preschool children: Clinical and developmental issues. New York: Guilford; 2002.
- Clark KE, Ladd GW. Connectedness and autonomy support in parent-child relationships: Links to children's socioemotional orientation and peer relationships. *Developmental Psychology*. 2000; 36:485–498. [PubMed: 10902700]
- Cohen J. A power primer. *Psychological Bulletin*. 1992; 112:155–159. [PubMed: 19565683]

- Dearing E, McCartney K, Taylor BA. Change in family income-to-needs matters more for children with less. *Child Development*. 2001; 72:1779–1793. [PubMed: 11768145]
- Dishion TJ, Andrews DW, Crosby L. Antisocial boys and their friends in early adolescence: Relationship characteristics, quality, and interactional processes. *Child Development*. 1995; 66:139–151. [PubMed: 7497821]
- Dishion TJ, Spracklen KM, Andrews DW, Patterson GR. Deviancy training in male adolescent friendships. *Behavior Therapy*. 1996; 27:373–390.
- Dunn J. Sibling relationships in early childhood. *Child Development*. 1983; 54:787–811.
- Dunn, J. *Young children's close relationships: Beyond attachment*. Newbury Park, CA: Sage; 1993.
- Eisenberg, N.; Fabes, RA.; Sprinrad, TL. Prosocial development. In: Eisenberg, N.; Damon, W.; Lerner, RM., editors. *Handbook of child psychology: Vol. 3, social, emotional, and personality development*. 6. Hoboken, NJ: Wiley; 2006. p. 646-718.
- Erdley, CA.; Nangle, DW.; Newman, JE.; Carpenter, EM. Children's friendship experiences and psychological adjustment: Theory and research. In: Nangle, DW.; Erdley, CA., editors. *The role of friendship in psychological adjustment: Vol. 91. New directions for child and adolescent development*. San Francisco: Jossey-Bass; 2001. p. 5-23.
- Fordham K, Stevenson-Hinde J. Shyness, friendship quality, and adjustment during middle childhood. *Journal of Child Psychology and Psychiatry*. 1999; 40:757–768. [PubMed: 10433409]
- Fox CL, Boulton MJ. Friendship as a moderator of the relationship between social skills problems and peer victimisation. *Aggressive Behavior*. 2006; 32:110–121.
- Furman, W.; Robbins, P. What's the point? Issues in the selection of treatment objectives. In: Schneider, BH.; Rubin, KH.; Ledingham, JE., editors. *Children's peer relations: Issues in assessment and intervention*. New York: Springer-Verlag; 1985. p. 41-54.
- Gauze C, Bukowski WM, Aquan-Assee J, Sippola LK. Interactions between family environment and friendship and associations with self-perceived well-being during early adolescence. *Child Development*. 1996; 67:2201–2216. [PubMed: 9022238]
- Gest SD, Graham-Bermann SA, Hartup WW. Peer experience: Common and unique features of number of friendships, social network centrality, and sociometric status. *Social Development*. 2001; 10:23–40.
- Gresham, FM.; Elliot, SN. *The social skills rating system*. Circle Pines, MN: American Guidance Service; 1990.
- Hartup WW. The company they keep: Friendships and Their Developmental Significance. *Child Development*. 1996; 67:1–13. [PubMed: 8605821]
- Hartup WW, Stevens N. Friendships and adaptation in the life course. *Psychological Bulletin*. 1997; 121:355–370.
- Hinde RA, Titmus G, Easton D, Tamplin A. Incidence of "friendship" and behavior toward strong associates versus nonassociates in preschoolers. *Child Development*. 1985; 56:234–245.
- Hodges EVE, Boivin M, Vitaro F, Bukowski WM. The power of friendship: Protection against an escalating cycle of peer victimization. *Developmental Psychology*. 1999; 35:94–101. [PubMed: 9923467]
- Howes C. Patterns of friendship. *Child Development*. 1983; 54:1041–1053.
- Howes C, Hamilton CE, Philipsen LC. Stability and continuity of child-caregiver and child-peer relationships. *Child Development*. 1998; 69:418–426. [PubMed: 9586216]
- Howes C, Rubin KH, Ross HS, French DC. Peer interaction of young children. *Monographs of the Society for Research in Child Development*. 1988; 53(1, Serial No. 217)
- Kingery JN, Erdley CA. Peer experiences as predictors of adjustment across the middle school transition. *Education and Treatment of Children*. 2007; 30:73–88.
- Kupersmidt JB, Burchinal M, Patterson CJ. Developmental patterns of childhood peer relations as predictors of externalizing behavior problems. *Development and Psychopathology*. 1995; 7:825–843.
- Ladd GW. Having friends, keeping friends, making friends, and being liked by peers in the classroom: Predictors of children's early school adjustment? *Child Development*. 1990; 61:1081–1100. [PubMed: 2209179]

- Ladd, GW.; Kochenderfer, BJ. Linkages between friendship and adjustment during early school transitions. In: Bukowski, WM.; Newcomb, AF.; Hartup, WW., editors. *The company they keep: Friendship in childhood and adolescence*. New York: Cambridge University Press; 1996.
- Ladd GW, Kochenderfer BJ, Coleman CC. Friendship quality as a predictor of young children's early school adjustment. *Child Development*. 1996; 67:1103–1118. [PubMed: 8706512]
- Ladd GW, Kochenderfer BJ, Coleman CC. Classroom peer acceptance, friendship, and victimization: Distinct relational systems that contribute uniquely to children's school adjustment. *Child Development*. 1997; 68:1181–1197. [PubMed: 9418233]
- Ladd GW, Troop-Gordon W. The role of chronic peer difficulties in the development of children's psychological adjustment problems. *Child Development*. 2003; 74:1344–1367. [PubMed: 14552402]
- McElwain NL, Volling BL. Preschool children's interactions with friends and older siblings: Relationship specificity and joint contributions to problem behavior. *Journal of Family Psychology*. 2005; 19:486–496. [PubMed: 16402863]
- Newcomb AF, Bagwell CL. Children's friendship relations: A meta-analytic review. *Psychological Bulletin*. 1995; 117:306–347.
- NICHD Early Child Care Research Network. The effects of infant child care on infant-mother attachment security: Results of the NICHD Study of Early Child Care. *Child Development*. 1997; 68:860–879.
- NICHD Early Child Care Research Network. Child care and mother-child interaction in the first 3 years of life. *Developmental Psychology*. 1999; 35:1399–1413. [PubMed: 10563730]
- NICHD Early Child Care Research Network. Child-care effect sizes for the NICHD Study of Early Child Care and Youth Development. *American Psychologist*. 2006; 61:99–116. [PubMed: 16478355]
- Parker JG, Asher SR. Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*. 1993a; 29:611–621.
- Parker, JG.; Asher, SR. Beyond group acceptance: Friendship and friendship quality as distinct dimensions of children's peer adjustment. In: Perlman, D.; Jones, W., editors. *Advances in personal relationships*. Vol. 4. London: Kingsley; 1993b.
- Parker JG, Seal J. Forming, losing, renewing, and replacing friendships: Applying temporal parameters to the assessment of children's friendship experiences. *Child Development*. 1996; 67:2248–2268.
- Pedersen S, Vitaro F, Barker ED, Borge AIH. The timing of middle-childhood peer rejection and friendship: Linking early behavior to early-adolescent adjustment. *Child Development*. 2007; 78:1037–1051. [PubMed: 17650124]
- Rose, AJ.; Asher, SR. Children's friendships. In: Hendrick, C.; Hendrick, SS., editors. *Close relationships: A sourcebook*. Thousand Oaks, CA: Sage; 2000. p. 47-57.
- Ross, HS.; Cheyne, A.; Lollis, S. Defining and studying reciprocity in young children. In: Duck, SW., editor. *Handbook of personal relationships*. Chichester, England: Wiley; 1988. p. 143-160.
- Seban AM. The friendship features of preschool children: Links with prosocial behavior and aggression. *Social Development*. 2003; 12:249–268.
- Sullivan, HS. *The interpersonal theory of psychiatry*. New York: Norton; 1953.
- Vaughn BE, Azria MR, Caya LR, Newell W, Krzysik L, Bost KK, Kazura KL. Friendship and social competence in a sample of preschool children attending Head Start. *Developmental Psychology*. 2000; 36:326–338. [PubMed: 10830977]
- Wentzel KR, Caldwell K. Friendships, peer acceptance, and group membership: Relations to academic achievement in middle school. *Child Development*. 1997; 68:1198–1209. [PubMed: 9418234]

**Table 1**  
Demographic Measures for the Total Subsample and as a Function of Kindergarten Friendship Groups

Demographic measures	Kindergarten Friendship Groups					
	Total (N=567)	No Friends (n=80)	Low Quality (n=108)	Average Quality (n = 271)	High Quality (n=108)	
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	
Maternal education	14.51 (2.49)	13.33 (2.19)	14.14 (2.66)	14.71 (2.39)	15.26 (2.41)	
Income-to-needs ratio	3.90 (3.08)	2.80 (2.22)	3.50 (3.02)	4.08 (3.11)	4.67 (3.34)	
	% (n)	% (n)	% (n)	% (n)	% (n)	
Partner in home (yes)	77% (437)	63% (50)	60% (65)	84% (227)	88% (95)	
Child gender (male)	51% (289)	69% (55)	56% (60)	48% (130)	41% (44)	
Child ethnicity (EA)	79% (448)	61% (49)	69% (74)	84% (227)	91% (98)	

*Note.* Maternal years of education were collected when children were one month of age. Family income-to-needs ratio were collected at 6, 15, 24, 36, and 54 months and combined across time points. Presence of a partner in the home was collected at 6, 15, 24, 36, and 54 months and combined across time points to assess whether a partner or spouse was in the home at all time points. EA = European-American, non-Hispanic.



**Table 2**  
Intercorrelations and Descriptive Statistics for Kindergarten (K), Grade 1 (G1) and Grade 3 (G3) Measures of Child Adjustment

Measure	Externalizing behavior (EXT)			Internalizing behavior (INT)			Social skills (SOC)		
	K	G1	G3	K	G1	G3	K	G1	G3
Ext (K)	--	.48***	.46***	.31***	.06	.13**	-.55***	-.31***	-.32***
Ext (G1)	--	--	.55***	-.01	.31***	.11*	-.30***	-.60***	-.40***
Ext (G3)	--	--	--	-.01	.05	.33***	-.27***	-.32***	-.59***
Int (K)	--	--	--	--	.11*	.16***	-.46***	-.07	-.07
Int (G1)	--	--	--	--	--	.20***	-.15***	-.43***	-.18***
Int (G3)	--	--	--	--	--	--	-.21***	-.22***	-.45***
Soc (K)	--	--	--	--	--	--	--	.39***	.35***
Soc (G1)	--	--	--	--	--	--	--	--	.42***
Soc (G3)	--	--	--	--	--	--	--	--	--
<i>n</i>	536	535	502	536	535	502	532	534	496
Mean	49.62	50.31	50.56	47.15	48.86	51.10	103.62	102.95	103.11
<i>SD</i>	8.93	8.49	8.90	9.19	9.42	9.36	14.02	13.72	14.15

\*  $p < .05$ ,

\*\*  $p < .01$ ,

\*\*\*  $p \leq .001$

**Table 3**  
Teacher-Reported Adjustment in Kindergarten as a Function of the Kindergarten Friendship Groups

Predictors	Externalizing behavior		Internalizing behavior		Social skills	
	F-statistic	B (SE)	F-statistic	B (SE)	F-statistic	B (SE)
Maternal education	.74	-.16 (.19)	.56	.13 (.20)	10.76***	.98 (.30)
Family income-to-needs	.14	.06 (.15)	1.47	-.18 (.16)	.39	-.15 (.23)
Partner in home (yes)	12.76***	-3.77 (1.01)	.50	-.91 (1.07)	4.90*	3.59 (1.58)
Child ethnicity (EA)	.06	.28 (1.02)	.07	.40 (1.08)	1.62	2.04 (1.60)
Child gender (male)	.74	.49 (.76)	.01	-.68 (.81)	.85	1.34 (1.19)
Kindergarten friendship groups	3.48*	LQ > AQ, HQ	1.19		3.16*	HQ > NF, LQ, AQ
	<i>n</i>	<i>M<sub>adj</sub></i> (SE)	<i>n</i>	<i>M<sub>adj</sub></i> (SE)	<i>n</i>	<i>M<sub>adj</sub></i> (SE)
No friends (NF)	76	50.61 (1.11)	76	48.82 (1.17)	75	100.91 (1.75)
Low quality (LQ)	101	51.78 (.89)	101	47.96 (.94)	100	102.00 (1.39)
Average quality (AQ)	256	48.91 (.55)	256	46.71 (.58)	254	103.72 (.85)
High quality (HQ)	102	48.20 (.89)	102	46.55 (.94)	102	107.07 (1.38)

Note. EA = European-American, non-Hispanic. Means reported above for the Kindergarten friendship groups are adjusted for the following covariates: maternal education, family income-to-needs ratio, presence of maternal partner in the home, and child ethnicity.

\*  $p < .05$ ,

\*\*\*  $p < .001$

**Table 4**  
Teacher-Reported Child Adjustment in First and Third Grades as a Function of the Kindergarten Friendship Groups

Predictors	Externalizing behavior			Internalizing behavior			Social skills		
	F-statistic	B (SE)	M <sub>adj</sub> (SE)	F-statistic	B (SE)	M <sub>adj</sub> (SE)	F-statistic	B (SE)	M <sub>adj</sub> (SE)
Maternal education	6.40*	-.30 (.17)	-.41 (.17)	3.64	-.20 (.22)	-.43 (.21)	3.38	.42 (.30)	.46 (.30)
Family income-to-needs	.85	.06 (.13)	.13 (.13)	.05	-.03 (.17)	.08 (.16)	.92	.13 (.22)	.21 (.23)
Partner in home (yes)	15.88***	-2.21 (.94)	-4.04 (.96)	3.75	-1.29 (1.21)	-2.27 (1.19)	10.35***	3.52 (1.62)	4.86 (1.65)
Child ethnicity (EA)	.32	-.19 (.95)	-.71 (.97)	1.41	-1.03 (1.23)	-1.19 (1.21)	.19	.29 (1.64)	.87 (1.67)
Kindergarten adjustment	157.92***	.44 (.04)	.38 (.04)	12.05***	.10 (.05)	.16 (.05)	73.28***	.33 (.04)	.28 (.04)
Child gender (male)	5.13*	-1.14 (1.54)	-.84 (1.57)	.66	-.16 (2.02)	-.92 (1.97)	.61	5.15 (2.67)	.91 (2.72)
Kindergarten friendship groups	.19			.71			1.10		
	n	M <sub>adj</sub> (SE)	M <sub>adj</sub> (SE)	n	M <sub>adj</sub> (SE)	M <sub>adj</sub> (SE)	n	M <sub>adj</sub> (SE)	M <sub>adj</sub> (SE)
No friends (NF)	63	50.03 (.99)	49.33 (1.01)	63	52.23 (1.29)	50.14 (1.26)	61	100.88 (1.75)	102.54 (1.78)
Low quality (LQ)	83	49.36 (.80)	51.02 (.82)	83	48.57 (1.04)	52.02 (1.02)	81	103.25 (1.39)	102.64 (1.42)
Average quality (AQ)	222	50.62 (.48)	49.98 (.49)	222	48.73 (.63)	51.10 (.61)	218	102.34 (.84)	103.94 (.85)
High quality (HQ)	91	49.54 (.78)	50.32 (.80)	91	48.33 (1.01)	50.49 (.99)	90	105.15 (1.36)	104.56 (1.38)

Note. EA = European-American, non-Hispanic. Adjusted means and standard errors controlled for maternal education, family income-to-needs ratio, presence of maternal partner in the home, child ethnicity, and the relevant measure of kindergarten adjustment (e.g., externalizing behavior as reported by kindergarten teachers predicting teacher-reported externalizing behavior in grades 1 and 3).

\*  $p < .05$ ,

\*\*\*  $p \leq .001$