Published in final edited form as:

Int J Behav Dev. 2005 ; 29(2): 156–164.

Adolescent perceptions of friendship and their associations with individual adjustment

William J. Burk and Brett Laursen

Florida Atlantic University, Fort Lauderdale, FL, USA

Abstract

This study of 282 dyads examines early- and mid-adolescents' perceptions of friendship quality and their association with daily disagreements, self- and mother reports of behaviour problems, and school grades. Actor and partner analyses identify unique associations between perceptions of friendship quality and perceptions of daily conflict. Actor effects reveal links between friendship negativity and self-perceptions of conflict affective intensity, relationship impact, post-conflict interaction, and post-conflict separation, and between friendship positivity and self-perceptions of relationship impact. Partner effects reveal links between friendship negativity and partner perceptions of conflict outcomes. Perceptions of relationship quality were also associated with self- and mother reports of behaviour problems and with school grades, such that individual and dyadic views of friendship negativity were linked to detrimental outcomes. The worst outcomes tended to be reserved for dyads in which one or both friends reported high levels of relationship negativity.

Friendship quality is a key indicator of adolescent psychosocial adjustment. Participant perceptions are a strong predictor of individual well-being, but friends may have differing views about positive and negative features of their relationship (Rubin, Bukowski, & Parker, 1998). Most previous research concerning perceptions of friendship has exclusively focused on the individual, despite the dyadic nature of the relationship. Partner perceptions presumably contribute to the overall quality of a relationship, but ascertaining the unique contribution of each partner is difficult because friends' perceptions are not independent (Furman, 1996). As a consequence, little is known about distinctions between shared and unique perceptions of friendship quality and their links to interpersonal competence and individual adjustment. The present investigation will address some of the limitations of traditional parametric approaches by applying data analytic techniques designed for interdependent relationship reports (Griffin, Murray, & Gonzalez, 1999; Kashy & Kenny, 2000). Adolescent friends completed identical questionnaires concerning negativity and positivity in order to identify shared and unique relationship perceptions associated with conflict, behaviour problems, and school grades.

Most conceptual models that address the provisions of friendship include separate dimensions that describe negative and positive features of the relationship (Furman, 1989). Negative friendship qualities encompass rivalry, betrayal, hostility, antagonism, and competition. Positive friendship qualities encompass companionship, intimacy, assistance, loyalty, caring, warmth, closeness, and trust. There is considerable overlap in friends' perceptions of these relationship qualities. Children report the greatest congruence in perceptions of positive friendship qualities, whereas adolescents report the most congruence in perceptions of negative friendship qualities (Furman, 1996; Parker & Asher, 1993). Dyadic-level variation in shared relationship views has received less attention. Some have suggested that incongruent perceptions of a friendship reflect poor relationship skills and, as such, may be an indicator of

maladjustment (Buhrmester, 1990; Parker, Rubin, Price, & DeRosier, 1995). Thus, independent and shared perceptions of friendship should be linked to social competence and individual well-being. Indirect support for this assertion comes from a study indicating that perceptions of friendship quality differ as a function of sociometric status (Brendgen, Little, & Krappmann, 2000). Low levels of agreement about perceptions of closeness were more characteristic of low accepted children and their friends than of average and high accepted children and their friends.

The present study examines adolescent views of friendship for links with dyadic perceptions of conflict management. Conflict behaviours are a microcosm of functioning in close relationships (Laursen & Collins, 1994). Although the frequency of conflict has received the most attention, the manner in which conflicts are managed may be a better marker of friendship quality (Laursen, Hartup, & Koplas, 1996). Most conflicts between adolescent friends are settled amicably. Friends tend to avoid coercion in favour of mitigation strategies that minimise negative affect and unequal outcomes (Adams & Laursen, 2001; Laursen, Finkelstein, & Betts, 2001). Here too, dyadic differences are poorly articulated. Research on the topic has been limited to studies of hypothetical conflict management in samples of middle childhood friends and to laboratory observations of conflict between married couples. In each case, reports of conflict goals and strategies were linked to negative relationship qualities, but not to positive relationship qualities (Gottman, 1979; Rose & Asher, 1999). This suggests that perceptions of relationship negativity may be a better marker of relationship conflict than perceptions of relationship positivity.

The present study also examined views of friendship quality for links with adolescent adjustment. There is evidence that positive friendship qualities are associated with adolescent school involvement and academic achievement, and that negative friendship qualities are associated with adolescent behaviour problems (Berndt & Keefe, 1992; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998). These findings have focused exclusively on self-reports of predictor and outcome variables, raising concerns that shared reporter variance may inflate the magnitude of associations between friendship quality and adolescent adjustment. Although there is general agreement that shared perceptions of friendship should promote individual adjustment (Buhrmester & Prager, 1995), outcomes associated with positive and negative views of adolescent friendship have yet to be identified.

To summarise, standard parametric statistics cannot easily accommodate interdependent assessments of friendship, so scholars have tended to rely on self-reports of relationship quality that omit shared views of the affiliation and inflate estimates of association with self-report measures of adjustment. To address these concerns, the present investigation employs two complementary statistical methods designed for interdependent data. The first method, the Actor-Partner Interdependence Model (APIM; Kashy & Kenny, 2000), uses regression-based procedures involving pooled estimates of between-dyad and within-dyad variance. APIM analyses examine whether self-perceptions of friendship negativity and positivity are linked to self-perceptions of conflict (actor effects) and to friend perceptions of conflict (partner effects). The second method, a trichotomised variable approach (Griffin et al., 1999), uses absolute difference score correlations and ANOVA-based procedures to determine whether individual and dyadic reports of friendship negativity and positivity are associated with school grades and self- and mother reports of behaviour problems.

Three questions will be addressed. (1) Do participants and friends have interdependent perceptions of friendship negativity and friendship positivity? Interdependence is a prerequisite for statistical models that address dyadic views of relationships. We anticipated a moderate degree of interdependence between the reports of adolescent friends, consistent with previous studies of adolescent perceptions of relationship qualities (Buhrmester, 1990). (2) Are

perceptions of friendship negativity and friendship positivity linked to self-perceptions and partner perceptions of daily conflict? Hypothetical reports from preadolescents suggest that perceptions of friendship negativity should be more strongly linked to reports of conflict management than perceptions of friendship positivity (Rose & Asher, 1999). (3) Are perceptions of friendship positivity and friendship negativity linked to adolescent adjustment? Consistent with previous studies (Berndt & Keefe, 1992; Loeber et al., 1998), negative friendship qualities were expected to be linked to behaviour problems and positive friendship qualities were expected to be linked to school grades. Reports from preadolescents suggest that shared views of friendship are linked to social adjustment (Brendgen et al., 2000), which gives rise to the prediction that discrepant perceptions of negativity and positivity may be associated with behaviour problems and difficulties with school.

Method

Participants

A total of 282 adolescents and their same-sex friends participated in this investigation. Adolescents were recruited from 18 public schools in the greater Miami and Fort Lauderdale metropolitan area. The final sample consisted of 171 early-adolescents (11 to 13 years of age, $M = 11.53$) and 111 mid-adolescents (14 to 16 years of age, $M = 14.71$). In each ethnic group there were 21 to 27 early-adolescent males, 30 to 37 early-adolescent females, 10 to 21 mid-adolescent males, and 18 to 34 mid-adolescent females. Mothers of 103 adolescents also participated, including mothers of 61 early-adolescents (22 male and 39 female) and mothers of 42 mid-adolescents (16 male and 26 female).

All adolescent participants were United States citizens, born in the USA, and fluent in English. Participation was restricted to adolescents in three ethnic groups: (1) non-Hispanic African Americans, (2) non-Hispanic Anglo Americans, and (3) Hispanic Americans. Hispanic American participants were of Cuban (50%), South American (17.4%), Central American (16.3%), and Caribbean (16.3%) ancestry. English was the primary language spoken in African American and Anglo American households; Spanish was the primary language spoken in Hispanic American homes. Of the 550 adolescents who returned parental consent forms, 100 were not selected because they did not meet one or more of these qualifying criteria.

Socioeconomic status (SES) was assessed with the Hollings-head (1974) four-factor index, which potentially ranges from 8 to 66. In the present study, Hollingshead scores ranged from 11 to 66 ($M = 37.77$, $SD = 10.0$). A 2 (age group) $\times$ 3 (ethnicity) $\times$ 2 (gender) ANOVA revealed ethnic group differences on SES, $F(2, 265) = 5.50$, $p < .01$. Tukey HSD comparisons indicated that Anglo Americans reported higher SES ($M = 40.52$, $SD = 9.4$) than Hispanic Americans ($M = 35.72$, $SD = 9.2$) and African Americans ($M = 35.72$, $SD = 11.1$). There were no statistically significant main effects or interactions involving age group or gender.

Instruments

Participants and friends completed two instruments. The first, the Network of Relationships Inventory (Furman & Buhrmester, 1985), describes negative and positive provisions of relationships. The second, the Interpersonal Conflict Questionnaire (Laursen 1993), assays characteristics of disagreements from the previous weekday. Participants also completed the Youth Self-Report (Achenbach, 1991a) and mothers completed the Child Behavior Checklist (Achenbach, 1991b), both of which provide an assessment of behaviour problems. School grades were obtained from academic records.

Network of Relationships Inventory—Participants and friends separately completed a 33-item instrument describing 11 characteristics of their relationship. Each subscale

consisted of three items measured on a 5-point scale ranging from 1 (*little or none*) to 5 (*the most*). Three factors emerged from separate principal components factor analyses of the participant and friend subscales, replicating the results of previous studies (Furman, 1996): negativity, positivity, and relative power. The present study focuses on two of these factors. *Friendship negativity* had eigenvalues of 1.86 and 1.82, and accounted for 17% of the variance in participant and friend reports. Two subscales loaded above .88 on this factor: annoying behaviours and conflict. Internal reliabilities were high for participant ($\alpha = .86$) and friend ($\alpha = .88$) reports. *Friendship positivity* had eigenvalues of 5.25 and 5.48, and accounted for approximately 50% of the variance in participant and friend reports. Eight subscales loaded above .72 on this factor: admiration, affection, companionship, instrumental aid, intimacy, nurturance, reliable alliance, and satisfaction. Internal reliabilities were high for participant ($\alpha = .94$) and friend ($\alpha = .95$) reports. For each factor, item scores were summed averaged.

Interpersonal Conflict Questionnaire—Participants and friends described characteristics of daily conflict in their relationship. From a list of 33 conflict issues, adolescents were asked to identify all disagreements with this friend that arose during the previous weekday. Adolescents then described several distinct components of each disagreement. *Affective intensity* describes the emotional tenor: How did you feel after the disagreement? Participants rated each disagreement on a 5-point scale ranging from 1 (*friendly*) to 5 (*angry*). *Relationship impact* describes the interpersonal consequences: How did this disagreement affect your relationship? Participants rated each disagreement on a 5-point scale ranging from 1 (*made it better*) to 5 (*made it worse*). A final question addressed the conflict aftermath: What happened immediately after the disagreement? Participants selected one of three alternatives: (1) we stayed together and continued talking; (2) we stayed together but stopped talking; and (3) we were not together. Two variables were drawn from this question. *Post-conflict social interaction* describes the proportion of disagreements in which friends stayed together and continued talking after the conflict. *Post-conflict separation* describes the proportion of disagreements in which friends were no longer together after the conflict. Previous studies with this measure have yielded moderately stable reports of conflict over a 2-week interval (Laursen & Koplas, 1995).

Youth Self-Report and Child Behavior Checklist—Participants completed the Youth Self-Report and mothers completed the Child Behavior Checklist. Each describes participant behavior problems on eight narrowband indices of adjustment, from which two broadband indices were derived. Self- and mother reports of *externalising problems* each included 30 items concerning delinquency and aggression. Self- and mother reports of *internalising problems* each included 30 items concerning withdrawal, somatic complaints, and anxiety/depression. Items were rated on a 3-point scale ranging from 0 (*never*) to 2 (*often*). These subscales have demonstrated high levels of internal consistency (Achenbach, 1991a, 1991b). Raw scores were used for all statistical analyses; percentile scores are presented in tables.

School grades—School officials provided the grade point average for each participant. School grades represent the mean of all grades received during the semester in which the data were collected. The potential range of school grades is from F (0.00) to A (4.00).

Procedure

Participants were recruited from classrooms selected by school personnel as representative of the entire school population. Research teams that included at least one Hispanic American research assistant described the project to students in predominantly Hispanic American schools. Research teams that consisted of at least one African American and one Anglo American research assistant described the project to students in other schools. Research teams

answered questions and distributed parental consent forms and demographic surveys (in English and Spanish).

Participant assent forms were accompanied by a questionnaire requesting the names and contact information of three same-sex best friends, listed in rank order of preference. Friends were contacted by telephone, in rank order, to confirm friendship with the participant. The first to acknowledge a friendship with the target adolescent was solicited for involvement in the study. In no case was the same best friend nominated by more than one participant. Friend participation was limited to those who returned signed assent and parental consent forms. Of the 450 qualifying adolescents who returned parental consent forms, 168 completed surveys but were omitted from this investigation because reports were not available from their friends. Chi-squares and *t*-tests compared the 282 adolescents with friend reports to the 168 adolescents without friend reports in terms of demographic characteristics, participant reports of friendship qualities and conflict, participant reports of externalising and internalising problems, and school grades. Differences between adolescents with friend reports and those without friend reports did not occur at levels greater than chance. Similar analyses failed to reveal differences between the 103 adolescents with mother reports and the 347 adolescents without mother reports. Of the friends participating in this study, 249 (88.3%) were ranked first, 25 (8.9%) were ranked second, and 8 (2.8%) were ranked third. *T*-tests failed to reveal differences between adolescents paired with first-choice friends and those paired with other friends on reports of relationship quality, conflict, behaviour problems, and school grades.

Participants and friends completed the surveys separately. All but 19 friends attended the same schools as the participant. Of this total, 9 completed the surveys at home and returned them by mail and 10 completed the surveys during telephone interviews. For the remainder, surveys were administered in a quiet school setting in small group sessions that lasted approximately one hour for participants and 30 minutes for friends. Every effort was made to ensure that the ethnic background of at least one research assistant matched that of the adolescent. The name of the target friend was listed on each survey; participants and friends were instructed to describe their relationship with this target individual. Friends in 36 dyads completed their surveys on the same day, friends in 200 dyads completed their surveys within 2 weeks of each other, and friends in 46 dyads completed their surveys from 2 weeks to 3 months apart (*Mdn* = 7.50 days, *M* = 17.37, *SD* = 21.3). One-way ANOVAs failed to reveal statistically significant differences between friendship quality and conflict reports collected on the same day, reports collected within 2 weeks, and reports collected more than 2 weeks apart.

Plan of analysis

The analyses address three questions. Do participants and friends have interdependent perceptions of friendship negativity and friendship positivity? Dyadic similarity is assessed with intraclass correlations that partition between-dyad and within-dyad variance in a three-step procedure (Kashy & Kenny, 2000). First, two composite scores are calculated for negativity and positivity. The first composite is a between-dyad score (participant and friend reports are averaged and summed) and the second composite is a within-dyad score (friend reports are subtracted from participant reports and summed). Second, intraclass correlations are separately calculated for each variable, dividing the between-dyad scores by the within-dyad scores. Finally, statistical significance is tested with a standard *F*-ratio. Additional analyses determine whether patterns of interdependence are unique to friendships. To this end, participant scores of relationship quality are randomly paired with friend scores from different dyads. Intraclass correlations for random sets of pairings are followed by modified *z*-score contrasts (Meng, Rosenthal, & Rubin, 1992) to identify differences between friends and randomly selected peers in patterns of association. The number of contrasts for these analyses

is arbitrary; 100 were conducted to minimise chance findings. Similar analyses were also conducted on reports of conflict management.

Are perceptions of friendship negativity and positivity linked to self-perceptions and partner perceptions of conflict? Actor effects describe two sets of associations: (1) self-perceptions of friendship negativity with self-perceptions of conflict, and (2) self-perceptions of friendship positivity with self-perceptions of conflict. Partner effects also describe two sets of associations: (1) self-perceptions of friendship negativity with partner perceptions of conflict, and (2) self-perceptions of friendship positivity with partner perceptions of conflict. To calculate actor and partner effects, pairs of between-dyad and within-dyad regressions are independently conducted (Kashy & Kenny, 2000). Between-dyad regressions utilise between-dyad scores (averaged scores from each dyad); within-dyad regressions utilise within-dyad scores (difference scores from each dyad). Four between-dyad regressions are performed. Between-dyad regressions include age group, ethnicity, and gender on the first step as control variables. Between-dyad scores of friendship negativity and friendship positivity are included on the second step. Between-dyad scores for one of the four conflict variables (i.e., affective intensity, relationship impact, post-conflict social interaction, and post-conflict separation) are the outcome. Four within-dyad regressions are also conducted. Within-dyad scores of friendship negativity and friendship positivity are entered on the first step. Within-Dyad scores for one of the four conflict variables are the outcome. Unlike the between-dyad analyses, the within-dyad regressions do not include an intercept in the statistical model because of the arbitrary nature of the difference score sign (Kenny, 1996). Actor effects and partner effects are calculated by pooling the unstandardised between-dyad and within-dyad regression coefficients. Statistical significance is determined by a *t*-test, dividing the pooled coefficients by a pooled standard error (Kashy & Kenny, 2000).

To examine the moderating effects of age group, four regressions are performed. In each, the between-dyad scores of friendship negativity, friendship positivity, and age group are entered on the first step as control variables. Interaction terms are entered on the second step. One of the four between-dyad conflict scores is the outcome variable. Interaction terms are calculated by separately multiplying the between-dyad score of friendship negativity and the between-dyad score of friendship positivity by age group, which is dummy coded. Predictor variables are centred and interaction terms are computed from centred between-dyad scores (Aiken & West, 1991). Identical procedures examine the moderating effects of ethnicity and gender.

Are perceptions of friendship negativity and positivity linked to perceptions of behaviour problems and school grades? Three sets of analyses address this question. In the first set of analyses, participant and friend reports of relationship qualities are linked to measures of participant adjustment. Pearson correlations describe associations between friendship negativity and participant reports of externalising and internalising problems, mother reports of externalising and internalising problems, and school grades. Similar analyses were conducted for participant and friend reports of positivity. In the second set of analyses, within-dyad friendship quality scores (the absolute difference between friend and participant reports) are linked to measures of participant adjustment (Griffin et al., 1999). Pearson correlations describe associations between friendship negativity difference scores and participant reports of externalising and internalising problems, mother reports of externalising and internalising problems, and school grades. Similar analyses are conducted for friendship positivity difference scores. Partial correlations that include age group, ethnicity, and gender as covariates are also conducted.

The third set of analyses concern differences in adolescent adjustment as a function of discrepancies in participant and friend reports of friendship negativity and positivity. Dyads are classified into one of three groups on the basis of participant reports of negativity: low

negativity ($-0.5 SD$ and lower), medium negativity (between $+0.5 SD$ and $-0.5 SD$), and high negativity ($+0.5 SD$ and higher). Dyads are similarly classified on the basis of friend reports of negativity. This procedure yields nine friendship negativity groups. Three categories described friends with similar views of negativity: (1) consistent low negativity (both friends report low negativity, $n = 54$); (2) consistent medium negativity (both friends report medium negativity, $n = 46$); (3) consistent high negativity (both friends report high negativity, $n = 39$). Six categories described friends with disparate views of negativity. Because same-sex friends are considered exchangeable cases (Griffin & Gonzalez, 1995), redundant pairs of categories (e.g., self high, partner low and partner high, self low) were collapsed, leaving three categories of friends with dissimilar views of negativity: (1) low and medium negativity (one friend reports low negativity and the other friend reports medium negativity, $n = 61$); (2) medium and high negativity (one friend reports medium negativity and the other friend reports high negativity, $n = 48$); and (3) low and high negativity (one friend reports low negativity and the other friend reports high negativity, $n = 34$). Identical procedures yielded six friendship positivity groups: (1) consistent low positivity (both friends report low positivity, $n = 30$); (2) consistent medium positivity (both friends report medium positivity, $n = 41$); (3) consistent high positivity (both friends report high positivity, $n = 59$); (4) low and medium positivity (one friend reports low positivity and the other friend reports medium positivity, $n = 59$); (5) medium and high positivity (one friend reports medium positivity and the other friend reports high positivity, $n = 60$); and (6) low and high positivity (one friend reports low positivity and the other friend reports high positivity, $n = 33$). Chi-square analyses failed to reveal statistically significant differences in the distribution of negativity and positivity groups as a function of age group or ethnicity. Negativity groups also did not vary by gender, but differences emerged in the distribution of positivity groups, $\chi^2(5, N = 282) = 33.73, p < .001$. Post hoc binomial tests revealed more females ($n = 51$) than males ($n = 8$) in the consistent high positivity group.

Group differences in adjustment are determined by ANOVAs with 2 (age group) $\times$ 3 (ethnicity) $\times$ 2 (gender) $\times$ 6 (friendship quality group) independent variables. One of the five participant adjustment measures (self-reports of externalising problems, self-reports of internalising problems, mother reports of externalising problems, mother reports of internalising problems, and school grades) is the dependent variable. Limited statistical power precludes the examination of three-way and four-way interactions. Follow-up *t*-tests explore whether shared reporter variance contributes to statistically significant differences between friendship quality groups in adolescent adjustment. Specifically, analyses contrast outcomes of dyads with dissimilar views of the relationship to determine whether self-perceptions of adverse outcomes are a function of self-perceptions of poor friendship quality (e.g., the self low, partner high relationship negativity group with the self high, partner low relationship negativity group on self-reports of externalising problems).

Results

Participants reported a total of 653 disagreements ($M = 2.47, SD = 3.63$, range: 0 to 17 conflicts) and friends reported a total of 762 disagreements ($M = 3.24, SD = 4.04$, range: 0 to 19 conflicts) from the previous weekday. Many adolescents reported no disagreements, but 200 friends and 146 participants described at least one conflict. There were 112 dyads in which both the participant and the friend reported at least one disagreement during the previous weekday. Tables 1 and 2 provide means and standard deviations for all friendship quality, conflict, and adolescent adjustment variables.

Do participants and friends have interdependent perceptions of friendship negativity and positivity? Intraclass correlations (presented on the diagonal in italic in Table 1) provide an estimate of dyadic similarity. Similar analyses employing pairwise correlational procedures for exchangeable cases (Griffin & Gonzalez, 1995) revealed the same pattern of statistically

significant associations. Intraclass correlations represent the total amount of the variance (in contrast to interclass correlations, which represent the square root of the variance). This suggests considerable interdependence in participant and friend reports of friendship quality and daily conflict. One-way ANOVAs failed to reveal statistically significant differences between data from dyads collected on the same day, reports collected within 2 weeks, and reports collected more than 2 weeks apart.

To determine whether these interdependent patterns of association were unique to friends, 100 sets of intraclass correlations were calculated between samples of randomly paired participant and friend reports of friendship negativity (Mean $r = .01$, $SD = .08$, range = .19 to .18), friendship positivity (Mean $r = .01$, $SD = .07$, range = .18 to .16), affective intensity (Mean $r = .00$, $SD = .10$, range = -.24 to .25), relationship impact (Mean $r = .00$, $SD = .09$, range = -.22 to .16), post-conflict social interaction (Mean $r = -.02$, $SD = .09$, range = -.33 to .23), and post-conflict separation (Mean $r = .01$, $SD = .11$, range = -.17 to .30). Modified z -score contrasts (Meng et al., 1992) compared the results of these 100 sets of random pairings with the correlations presented in Table 2. Statistically significant differences between friends and random pairings of peers were found in 94 to 97 of the 100 contrasts for each friendship quality and conflict variable. In each case, intraclass correlations between friend reports explained more variance than those between randomly paired dyads, suggesting that friend reports reflect unique perceptions of a particular relationship rather than generic views of peer affiliations.

Are perceptions of friendship negativity and friendship positivity linked to self-perceptions and partner perceptions of conflict? Table 3 presents the results of actor analyses (links between a participant's or friend's perceptions of friendship qualities and his or her own perceptions of conflict) and partner analyses (links between a participant's or friend's perceptions of friendship qualities and his or her partner's perceptions of conflict). Demographic variables entered on step 1 of these analyses revealed only one association between participant characteristics and conflict: Males reported that conflicts were more apt to have a detrimental impact on the relationship than females. Step 2 of these analyses included negativity and positivity as predictor variables. Actor effects indicated that friendship negativity was linked to higher affective intensity, detrimental relationship impact, less post-conflict social interaction, and more post-conflict separation. Actor effects also indicated that friendship positivity was linked to improved relationship impact. Partner effects indicated that friendship negativity was linked to less post-conflict social interaction and more post-conflict separation. No statistically significant partner effects emerged for friendship positivity. Additional actor and partner analyses controlling for the number of days between participant and friend reports of conflict revealed a similar pattern of statistically significant results. A final set of analyses, to determine whether associations between friendship qualities and conflict are moderated by demographic variables, failed to identify any statistically significant two-way interactions involving age group, ethnicity, or gender.

Are perceptions of friendship negativity and friendship positivity linked to participant behaviour problems and school grades? Interclass correlations (see Table 2) indicated associations between participant reports of negativity and participant reports of externalising and internalising problems, mother reports of internalising problems, and school grades. Additional associations emerged between friend reports of positivity and participant reports of internalising problems, and between friend reports of negativity and school grades. Table 2 also includes interclass correlations of associations between friendship quality difference scores and adolescent adjustment. Friendship negativity difference scores were associated with participant reports of externalising problems and school grades. Partial correlations controlling for age group, ethnicity, gender, and number of days between reports revealed a similar pattern of statistically significant results.

To identify group differences in individual adjustment, a series of 2 (age group) $\times$ 3 (ethnicity) $\times$ 2 (gender) $\times$ 6 (negativity group) ANOVAs were conducted (see Table 4). In the first ANOVA, participant reports of externalising problems were the dependent variable. Main effects emerged for age group $F(1, 247) = 5.77, p < .01$, and negativity group $F(5, 247) = 3.61, p < .01$. Adolescents in the consistent low negativity group reported fewer externalising problems than those in the consistent high negativity group and in the low and high negativity group. Mid-adolescents ($M = 52.72, SD = 9.5$) reported more externalising problems than early-adolescents ($M = 48.21, SD = 10.6$). In the second ANOVA, participant reports of internalising problems were the dependent variable. A main effect emerged for gender $F(1, 247) = 8.67, p < .01$. Females ($M = 51.46, SD = 9.5$) reported more internalising problems than males ($M = 46.74, SD = 11.2$). In the third ANOVA, mother reports of externalising problems were the dependent variable. A main effect emerged for negativity group, $F(5, 70) = 4.38, p < .01$. Adolescents in the consistent high negativity group reported more externalising problems than adolescents in the consistent low negativity group, in the consistent medium negativity group, and in the low and medium negativity group. In the fourth ANOVA, mother reports of internalising problems were the dependent variable. A main effect emerged for negativity group, $F(5, 70) = 2.85, p < .05$, qualified by a two-way interaction between age and negativity group, $F(5, 70) = 2.47, p < .05$. Follow-up analyses conducted separately by age group indicated that mothers of mid-adolescents in the consistent medium negativity group reported fewer externalising problems than mothers of mid-adolescents in the consistent high negativity group and mothers in the low and high negativity group. In the fifth ANOVA, school grades were the dependent variable. Main effects emerged for ethnicity, $F(2, 247) = 5.62, p < .01$, and negativity group, $F(5, 247) = 6.21, p < .01$, qualified by a two-way interaction between age group and negativity group, $F(5, 247) = 3.06, p < .05$. Anglo Americans ($M = 2.89, SD = 0.8$) had higher school grades than African Americans ($M = 2.54, SD = 1.0$) and Hispanic Americans ($M = 2.62, SD = 0.9$). Follow-up analyses conducted separately by age group indicated that early-adolescents in the low and high negativity group received lower school grades than those in all other negativity groups. Mid-adolescents in the consistent low negativity group received better school grades than those in the consistent high negativity group, the medium and high negativity group, and the low and high negativity group.

Five 2 (age group) $\times$ 3 (ethnicity) $\times$ 2 (gender) $\times$ 6 (positivity group) ANOVAs were also conducted. There were no statistically significant main effects or interactions involving positivity group for participant and mother reports of externalising and internalising problems. Analyses of school grades revealed a main effect for ethnicity, $F(2, 247) = 3.77, p < .05$, qualified by a two-way interaction between ethnicity and positivity group, $F(10, 247) = 2.29, p < .05$. Follow-up Tukey HSD comparisons failed to reveal statistically significant differences between positivity groups among Anglo Americans and Hispanic Americans. Among African Americans, adolescents in the consistent high positivity group ($M = 3.17, SD = 0.7$) and in the consistent medium positivity group ($M = 3.03, SD = 0.6$) received better school grades than those in the low and medium positivity group ($M = 2.21, SD = 0.9$) and in the medium and high positivity group ($M = 2.29, SD = 0.9$).

For each statistically significant group effect, three sets of follow-up tests contrasted groups with dissimilar relationship views: (1) the self low negativity, friend high negativity group with the self high negativity, friend low negativity group; (2) the self low negativity, friend medium negativity group with the self medium negativity, friend low negativity group; and (3) the self medium negativity, friend high negativity group with the self high negativity, friend medium negativity group. No statistically significant differences emerged, indicating that outcomes in dyads with discrepant views of their relationship should not be attributed to shared reporter variance.

Discussion

Shared and unique views of friendship were associated with self- and partner perceptions of interpersonal conflict and with self- and mother perceptions of individual adjustment. Negative perceptions of relationship quality were more apt to be linked to outcomes than positive perceptions. Specifically, negativity was associated with self- and friend perceptions of conflict management, school grades, and self- and mother reports of behaviour problems. Individual differences emerged in adolescent adjustment such that the worst outcomes tended to be reserved for dyads in which either (1) both friends reported high levels of negativity or (2) friends reported discrepant levels of negativity.

As expected, friends' perceptions of relationship qualities were interdependent. Simply put, friends tended to share views concerning negative and positive relationship features. The results extend prior findings of similarity in adolescent perceptions of friendship in two noteworthy directions. First, there was considerable convergence in friends' perceptions of daily conflict, even though most participants did not report on events from the same day. Previous studies have documented interdependence in perceptions of global properties of friendship (Buhrmester, 1990; Furman, 1996); the present study suggests that shared views extend to daily interactions. Second, interdependent perceptions were found to be a distinctive feature of friend relationships. Comparisons with randomly paired peers indicated that shared perceptions are unique to friendships and are not a product of cognitive schemes that describe views toward peer relationships in general.

Perceptions of friendship negativity were more apt to be associated with conflict management, behaviour problems, and school grades than perceptions of friendship positivity. These findings are consistent with a growing body of evidence indicating that negative interactions are especially salient to friends. Negativity has previously been linked to a preference for coercive strategies in hypothetical disagreements (Rose & Asher, 1999), but to our knowledge this is the first study to tie friendship negativity to reports of actual conflict behaviour. Friendship negativity has also been linked to adolescent maladjustment (Loeber et al., 1998), a pattern of findings replicated in the present study. In contrast, friendship positivity demonstrated few reliable ties to either conflict management or individual adjustment. Although prior studies have implicated friendship positivity in improved academic performance (Berndt & Keefe, 1992), efforts to link perceived support from friends to adolescent behaviour problems have proven largely unsuccessful (Barrera, Chassin, & Rogosch, 1993; Hussong, 2000). Of course, null findings must be interpreted with caution, but it should be noted that evidence does not support the widely held view that positive friendship qualities buffer against adolescent maladjustment.

Unique to this study was the use of data analytic strategies that incorporated the views of both participants. Similar techniques have been applied to study peer relationships (Kenny & Kashy, 1999; Simpkins & Parke, 2002), but this is one of the first investigations to address perceptions of adolescent friends and to link these views to interpersonal and individual outcomes. The findings suggest that interdependent reports and shared reporter biases may have inflated some estimates of association described in previous studies of adolescent friendship quality. Two sets of results from the present study illustrate the problem. First, simple correlations indicated that friend reports of positivity and negativity were linked with friend reports of conflict management, but APIM analyses revised these estimates of association downward. Actor effects described associations between self-reports of friendship quality and self-reports of conflict management. After adjusting for bias due to interdependent self- and partner reports, these analyses indicated that negativity was linked to conflict management but, for the most part, positivity was not. Partner effects described associations between self-reports of friendship quality and partner reports of conflict management. After adjusting for shared

reporter bias, negativity was linked only to post-conflict interaction and separation; positivity was unrelated to any feature of conflict management. Second, simple correlations indicated that self-reports of negativity were linked with self-reports of externalising and internalising, but these associations were not reliably corroborated by other reporters. Friend reports of negativity did not correlate with self- or mother reports of behaviour problems, and self-reports of negativity were correlated with mother reports of internalising but not externalising. In each example, analyses relying on reports from a single participant yielded stronger associations than those incorporating reports from different participants. These findings illustrate why developmental scholars must take to heart warnings about the limitations of applying traditional parametric statistics to the study of close relationships (Kashy & Kenny, 2000).

Of particular note are analyses examining dyadic views of friendship. In contrast to actor and partner analyses, which focus on the unique contributions of each participant, dyadic analyses reflect the extent to which friends agree about qualities of their relationship. The analyses revealed that discrepant views of friendship negativity were associated with lower levels of individual adjustment. Consistent with the assertion that disparate friendship perceptions are a marker of social maladjustment (Parker et al., 1995), difference score correlations indicated that as discrepancies between reports of negativity increased, behaviour problems and school grades worsened. The magnitude of these associations was modest, however, and findings were not consistent across outcome variables. More compelling results emerged in analyses contrasting friends grouped according to dyadic perceptions of friendship negativity. The best school grades and the fewest externalising problems were found among friends who agreed that their relationship was low in negativity. The worst school grades and the most externalising and internalising problems were found among friends who agreed their relationship was high in negativity and among friends with discrepant views of friendship negativity. Such results do not appear to be driven by shared reporter biases; outcomes in groups with dissimilar views did not differ as a function of whether the participant or the friend considered the relationship to be of lower quality. The risks associated with participation in poor-quality friendships are well documented (Rubin et al., 1998), but this is one of the first studies to demonstrate that these risks may extend to friendships in which participants disagree about the quality of their relationship. Taken together, the findings underscore the importance of gathering data from both participants in a relationship because discrepant views of negativity may provide a clue to identifying children who are insensitive to their friends and children who cannot distinguish better-from lesser-quality relationships.

A few caveats should be noted. First, the omission of participants who lacked data from friends and mothers reduced the sample size and limited our ability to consider higher-order interactions. Although we found no mean-level differences between adolescents whose friends and mothers participated in the study and those who did not, systematic differences in patterns of association may limit generalisations from this sample. Second, reports from most friends were not collected on the same day. There was no evidence that differences in the timing of data collection had a systematic influence on the results; if anything, reports from different days increased measurement error and reduced the magnitude of the effects. Nevertheless, future scholars should strive to minimise this potential source of error. Third, grouping dyads on the basis of continuous scores minimised differences between groups and reporters. A general linear model approach may be preferable for identifying interactions between self and friend perspectives, especially where effects are as small as they were for positivity. Finally, the concurrent nature of the data limits conclusions about influence processes. Longitudinal evidence suggests that friendship quality predicts subsequent individual adjustment (Berndt, 1996), but there is a good reason to suspect that friendship quality may be a product of participant characteristics that exert transactional influences over time.

We conclude that dyadic views of relationship quality hold the potential to extend our understanding of adolescent friendships in important directions. The findings illustrate the need to distinguish perceptions of negative relationship qualities from perceptions of positive relationship qualities. Conflict management and individual adjustment demonstrated more reliable links to negative views of friendship than to positive views. The findings also illustrate the importance of identifying discrepant perceptions of relationship quality. Adverse outcomes were found among friends who disagreed about the quality of their relationship as well as among those who agreed that it was of poor quality.

Acknowledgements

This research was supported by a grant to Brett Laursen from the US National Institute of Child Health and Human Development (HD 33006).

We would like to acknowledge the cooperation of the students, parents, faculty, and staff of the Broward and Miami/Dade county public schools.

Special thanks to Ryan Adams, Angela Friedli, Rosamond Parker, and Carly Sacher for their assistance with this project and to David Bjorklund, Steven Hecht, and Louise Perry for comments on an earlier draft of this manuscript.

References

- Achenbach, TM. Manual for the Youth Self-Report and 1991 Profile. University of Vermont, Department of Psychiatry; Burlington, VT: 1991a.
- Achenbach, TM. Manual for the Child Behavior Checklist/4-18 and 1991 Profile. University of Vermont, Department of Psychiatry; Burlington, VT: 1991b.
- Adams R, Laursen B. The organization and dynamics of adolescent conflict with parents and friends. *Journal of Marriage and Family* 2001;63:97–110.
- Aiken, LS.; West, SG. Multiple regression: Testing and interpreting interactions. Sage; Newbury Park, CA: 1991.
- Barrera M Jr, Chassin L, Rogosch F. Effects of social support and conflict on adolescent children of alcoholic and nonalcoholic fathers. *Journal of Personality and Social Psychology* 1993;64:602–612. [PubMed: 8473977]
- Berndt, TJ. Friendship quality affects adolescents' self-esteem and social behavior. In: Bukowski, WM.; Newcomb, AF.; Hartup, WW., editors. *The company they keep: Friendship during childhood and adolescence*. Cambridge University Press; New York: 1996. p. 346-365.
- Berndt, TJ.; Keefe, K. Friends' influence on adolescents' perceptions of themselves at school. In: Schunk, DH.; Meece, JL., editors. *Student perceptions in the classroom*. Lawrence Erlbaum Associates Inc.; Hillsdale, NJ: 1992. p. 51-73.
- Brendgen M, Little TD, Krappmann L. Rejected children and their friends: A shared evaluation of friendship quality? *Merrill-Palmer Quarterly* 2000;46:45–70.
- Buhrmester D. Intimacy of friendship, interpersonal competence, and adjustment during preadolescence and adolescence. *Child Development* 1990;61:1101–1111. [PubMed: 2209180]
- Buhrmester, D.; Prager, K. Patterns of functions of self-disclosure during childhood and adolescence. In: Rotenberg, KJ., editor. *Disclosure processes in children and adolescents*. Cambridge University Press; New York: 1995. p. 10-56.
- Furman, W. The development of children's social networks. In: Belle, D., editor. *Children's social networks and social supports*. Wiley; New York: 1989.
- Furman, W. The measurement of friendship perceptions: Conceptual and methodological issues. In: Bukowski, WM.; Newcomb, AF.; Hartup, WW., editors. *The company they keep: Friendship in childhood and adolescence*. Cambridge University Press; New York: 1996. p. 41-65.
- Furman W, Buhrmester D. Children's perceptions of the personal relationships in their social networks. *Developmental Psychology* 1985;21:1016–1024.
- Gottman, JM. *Marital interaction: Experimental investigations*. Academic Press; New York: 1979.

- Griffin D, Gonzalez R. The correlational analysis of dyad-level data: Models for the exchangeable case. *Psychological Bulletin* 1995;118:430–439.
- Griffin D, Murray S, Gonzalez R. Difference score correlations in relationship research: A conceptual primer. *Personal Relationships* 1999;6:505–518.
- Hollingshead, AB. Four Factor Index of Social Status. Yale University; 1975. Unpublished manuscript
- Hussong AM. Perceived peer context and adolescent adjustment. *Journal of Research on Adolescence* 2000;10:391–415.
- Kashy, DA.; Kenny, DA. The analysis of data from dyads and groups. In: Reis, H.; Judd, CM., editors. *Handbook of research methods in social and personality psychology*. Cambridge University Press; New York: 2000. p. 451–477.
- Kenny DA. Models of independence in dyadic research. *Journal of Social and Personal Relationships* 1996;13:279–294.
- Kenny DA, Kashy DA. Enhanced co-orientation in the perceptions of friends: A social relations analysis. *Journal of Personality and Social Psychology* 1999;67:1024–1033. [PubMed: 7815299]
- Laursen B. The perceived impact of conflict on adolescent relationships. *Merrill-Palmer Quarterly* 1993;39:535–550.
- Laursen B, Collins WA. Interpersonal conflict during adolescence. *Psychological Bulletin* 1994;115:197–209. [PubMed: 8165270]
- Laursen B, Finkelstein BD, Betts NT. A developmental meta-analysis of peer conflict resolution. *Developmental Review* 2001;21:423–449.
- Laursen B, Hartup WW, Koplas AL. Towards understanding peer conflict. *Merrill-Palmer Quarterly* 1996;42:76–102.
- Laursen B, Koplas AL. What's important about important conflicts? Adolescents' perceptions of significant daily disagreements. *Merrill-Palmer Quarterly* 1995;41:536–553.
- Loeber, R.; Farrington, D.; Stouthamer-Loeber, M.; Van Kammen, W. *Antisocial behavior and mental health problems: Explanatory factors in childhood and adolescence*. Lawrence Erlbaum Associates Inc.; Mahwah, NJ: 1998.
- Meng X, Rosenthal R, Rubin DB. Comparing correlated correlation coefficients. *Psychological Bulletin* 1992;111:172–175.
- 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* 1993;29:611–621.
- Parker, JG.; Rubin, KH.; Price, J.; DeRosier, ME. Peer relationships, child development, and adjustment: A developmental psychopathology perspective. In: Cicchetti, D.; Cohen, D., editors. *Developmental psychopathology: Vol. 2. Risk, disorder, and adaptation*. Wiley; New York: 1995. p. 96–161.
- Rose AJ, Asher SA. Children's goals and strategies in response to conflicts within a friendship. *Developmental Psychology* 1999;35:69–79. [PubMed: 9923465]
- Rubin, KH.; Bukowski, W.; Parker, JG. Peer interactions, relationships, and groups. In: Damon, W.; Eisenberg, N., editors. *Handbook of child psychology: Vol. 3. Social, emotional, and personality development*. Wiley; New York: 1998. p. 619–700.
- Simpkins SD, Parke RD. Do friends and nonfriends behave differently? A social relations analysis of children's behavior. *Merrill-Palmer Quarterly* 2002;48:263–283.

Table 1
Interclass and intraclass correlations between participant reports and friend reports of friendship quality and conflict

	(1)	(2)	(3)	(4)	(5)	(6)	M	(SD)
Friendship quality								
(1) Negativity	.37**						2.11	(0.9)
(2) Positivity	-.13*	-.19**	.42**	.31**	-.39**	.23**	3.77	(0.8)
Friendship conflict								
(3) Affective intensity	.04	.05	.30**	.60**	-.47*	.15*	2.01	(0.9)
(4) Relationship impact	.14	-.07	.64**	.18*	-.32**	.19**	2.12	(0.8)
(5) Post-conflict interaction	.01	-.02	-.39**	-.37**	.24*	-.73**	0.81	(0.3)
(6) Post-conflict separation	.04	-.08	.36**	.29**	-.66**	.32**	0.07	(0.2)
M	2.21	3.90	2.21	2.16	0.70	0.14		
(SD)	(0.9)	(0.8)	(0.9)	(0.9)	(0.4)	(0.3)		

Participant scores are presented below the diagonal; friend scores are presented above the diagonal. Intraclass correlations ($N = 112$) are presented on the diagonal in *italic*. Interclass correlations ($N = 146$ for participant reports of conflict, $N = 200$ for friend reports of conflict, and $N = 282$ for participant and friend reports of friendship quality) are presented in normal typeface. Friendship negativity and friendship positivity scores range from 1 (*little or none*) to 5 (*the most*). Affective intensity scores range from 1 (*friendly*) to 5 (*angry*). Relationship impact scores range from 1 (*made it better*) to 5 (*made it worse*). Post-conflict interaction and post-conflict separation proportion scores range from 0 to 1.00.

*
 $p < .05$

**
 $p < .01$.

Table 2
Interclass correlations between participant and friend reports of friendship quality and indices of adolescent adjustment

Friendship quality	Self-reports		Mother reports		School grades
	Externalising problems	Internalising problems	Externalising problems	Internalising problems	
Self-reports					
Negativity	.23**	.14*	.14	.24**	-.20**
Positivity	.06	.05	.15	-.09	.04
Friend reports					
Negativity	.10	.04	.12	.01	-.15*
Positivity	.01	-.15*	.07	.07	.12
Difference scores					
Negativity	.13*	.10	-.10	.16	-.18**
Positivity	-.04	-.05	-.04	-.02	-.09
<i>M</i>	49.98	49.32	48.74	48.94	2.73
(<i>SD</i>)	(10.4)	(10.1)	(10.4)	(10.1)	(0.8)

N = 103 for interclass correlations involving mother reports, *N* = 282 for all other interclass correlations. Externalising problems and internalising problems percentile scores range from 25 to 100. School grades range from 0.00 (F) to 4.00 (A).

* *p* < .05

** *p* < .01.

Table 3
Actor effects, partner effects, and unstandardised regression coefficients for associations between friendship quality and conflict

Predictor variable	Actor effects	Partner effects	Between-dyad		Within-dyad	
			B	(SE)	B	(SE)
Affective intensity						
Step 1						
Age group			0.00	(.08)		
Ethnicity			0.02	(.10)		
Gender			0.03	(.08)		
Step 2						
Negativity	2.92**	0.44	0.24*	(.10)	0.18	(.10)
Positivity	0.22	-1.55	-0.12	(.12)	0.16	(.13)
Relationship impact						
Step 1						
Age group			0.00	(.07)		
Ethnicity			-0.04	(.08)		
Gender			0.15*	(.07)		
Step 2						
Negativity	1.91*	0.54	0.16	(.08)	0.09	(.10)
Positivity	-1.71*	-0.98	-0.22*	(.10)	-0.06	(.13)
Post-conflict interaction						
Step 1						
Age group			-0.08	(.28)		
Ethnicity			-0.12	(.33)		
Gender			-0.34	(.28)		
Step 2						
Negativity	-3.38**	-1.83*	-1.31*	(.33)	-0.39	(.38)
Positivity	1.48	0.26	0.54	(.40)	0.38	(.48)
Post-conflict separation						
Step 1						
Age group			0.04	(.19)		
Ethnicity			-0.37	(.23)		
Gender			0.04	(.19)		
Step 2						
Negativity	2.34**	2.08*	0.73*	(.23)	0.04	(.24)
Positivity	-1.93	-0.50	-0.51	(.27)	-0.29	(.31)

Actor effects and partner effects are presented as *t*-values. Degrees of freedom range from 204 for affective intensity to 211 for post-conflict social interaction.

* $p < .05$

** $p < .01$.

Table 4

Adolescent adjustment as a function of friendship negativity groups

Adjustment variable	Friendship negativity group									
	Consistent low		Consistent medium		Consistent high		Low and medium		Medium and high	
	M	(SD)	M	(SD)	M	(SD)	M	(SD)	M	(SD)
Self-reports										
Externalising problems	45.83 _a	(11.1)	49.24	(9.7)	53.21 _b	(10.6)	49.83	(10.2)	50.09	(10.0)
Internalising problems	48.13	(9.7)	47.78	(9.5)	50.13	(9.3)	47.87	(10.5)	51.06	(10.2)
Mother reports										
Externalising problems	47.12 _a	(10.2)	43.80 _a	(10.6)	56.70 _a	(8.9)	45.44 _a	(10.8)	50.27	(10.6)
Internalising problems	43.75	(10.8)	48.00	(13.8)	54.44	(12.6)	47.60	(8.5)	50.00	(12.0)
Early-adolescence	47.08	(4.8)	38.00 _a	(5.6)	52.33 _b	(13.1)	46.83	(10.1)	50.83	(5.8)
Mid-adolescence										
School grades	3.28 _a	(0.5)	2.77 _b	(0.7)	2.96 _b	(0.7)	2.84 _b	(1.0)	2.79 _b	(0.8)
Early-adolescence	3.16 _a	(0.6)	2.76	(0.7)	2.07 _b	(1.0)	2.67	(0.5)	2.46 _b	(0.9)
Mid-adolescence										

N = 103 for contrasts involving mother reports; *N* = 282 for all other contrasts. Across rows, means with different subscripts differ significantly at *p* < .05 in Tukey's HSD comparisons. Externalising problems and internalising problems percentile scores range from 25 to 100. School grades range from 0.00 (F) to 4.00 (A).