Ψ Psychology Press
Taylor & Francis Group

Predictors of dyadic friendship quality in adolescence

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Five dimensions of friendship quality (conflict, closeness, companionship, helping, and security) were predicted from self-reports and peer reports of physical aggression, relational aggression, and prosocial behaviour, using the Actor-Partner Interdependence Model (Kenny & Acitelli, 2001). Participants were 224 adolescents aged 15–17 years (142 girls, 82 boys) who formed 112 unique same-sex best friend dyads. Significant actor and partner effects were found for both self-ratings and peer nominations of social behaviour and the five friendship qualities. Aggression was associated with self and partner perceptions of friendship conflict and low positive friendship qualities. Prosocial behaviour was associated with self and partner perceptions of positive friendship qualities and low conflict. The findings of this study were mostly consistent between male and female dyads. The importance of examining dependence due to dyads in peer relations research was discussed.

Researchers traditionally distinguish three levels of analysis in the study of peer relations in development: individual, dyad, and group (Rubin, Bukowski, & Parker, 1998). Important substantive phenomena have been investigated at each of these levels, resulting in a large body of knowledge on the developmental significance of peer relations. Methodologically and statistically, the study of dyads and groups must be considered separately from the study of individuals. In the past, however, peer relations researchers have often ignored the statistical dependence due to dyads and groups when analysing peer relations data. For example, in the majority of observational studies of peer group behaviour from the 1980s (see Rubin et al., 1998, for a review), the individual child was typically treated as the unit of analysis, and the effects of groups were not examined.

For data collected in dyads, similar dependencies exist. For example, in marital relations research, individuals are nested within couples that differ in their average levels of relationship satisfaction or conflict (Kashy & Kenny, 2000). While statistical solutions for group research have existed for some time (Kashy & Kenny, 2000), similar solutions for dyadic research are relatively new. The study of adolescent friendships is an area that may benefit from these new approaches. In the current study, we used the Actor-Partner Interdependence Model (APIM, Kashy & Kenny, 2000; Kenny & Acitelli, 2001; Kenny, Mannetti, Pierro, Livi, & Kashy, 2002) to study the predictors of dyadic friendship quality in adolescence.

Dyadic relationships such as friendships and enmities make unique contributions to social development over and beyond the effects of group status (Hartup & Abecassis, 2002). Hartup (1996) distinguished three aspects to the developmental significance of friendships: having friends, the identity of one's friends, and the quality of the friendships. Berndt (2002)

argued that friendship quality is particularly important and that high-quality friendships contribute positively to developmental processes and outcomes even after individual characteristics are controlled. High-quality friendships may enhance self-esteem, adjustment, and the ability to cope with stress (Hartup & Stevens, 1999). The quality of a friendship may also moderate the influence of the friend, with positive or negative results. For example, a high-quality friendship with a delinquent peer may increase a child's own delinquency (Berndt, 2002).

Much is known about the predictors of having friends and the identity of one's friends. Previous research has shown that measures of social competence, prosocial behaviour, and liking predict having friends (Berndt, 2002), although this does not mean that individuals who score low on these characteristics are necessarily friendless (Hartup, 1996). Behavioural similarity is also an important predictor of the identity of one's friends. For example, Haselager, Hartup, Van Lieshout, and Riksen-Walraven (1998) have shown that friends are likely to be similar to one another in traits and behaviours. Although researchers have argued for the importance and consequences of friendship quality, less is known about the predictors of friendship quality. The goal of the current paper is to make a contribution to the friendship literature by examining how individual social behaviours may contribute to the quality of adolescent friendships.

How may individual social behaviours influence friendship quality? Research on interpersonal perception in nonoverlapping groups suggests that individuals behave similarly with different others (Malloy, Albright, Kenny, Agatstein, & Winquist, 1997). Based on the consistency of behaviour across contexts, we expected that adolescents who are prosocial and cooperative with peers in general behave similarly with their

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friends and therefore have high-quality friendships. Conversely, adolescents who are generally aggressive with others may also be aggressive with their friends, and therefore have friendships that are qualitatively more negative. We expect that prosocial adolescents have friendships that are rated high in quality by themselves and by their partners. We expect that aggressive adolescents have friendships that are rated low in quality by themselves and their friends (Dishion, Andrews, & Crosby, 1995).

When examining the association between friendship quality and aggression, forms of aggression should be considered, in particular physical and relational aggression (see, e.g., Crick & Grotpeter, 1995). While physical aggression consists of direct physical attacks against another person, relational aggression is defined as deliberate attempts to harm or hurt someone else through relationship manipulation (e.g., deliberately excluding someone from a group).

Different hypotheses are possible for the effects of physical and relational aggression on friendship quality. Physically aggressive adolescents may have poor relationships with everyone, including their friends. However, relational aggression is associated with certain positive outcomes such as perceived popularity and social prominence in adolescence (Cillessen & Mayeux, 2004). One way in which relational aggression may increase social prominence is through its effect on dyadic relationships. If two friends are relationally aggressive against a third person, their coalition may be strengthened (Grotpeter & Crick, 1996).

Thus, in contrast to the hypothesis for physical aggression, relationally aggressive friends may perceive their friendships as higher in quality rather than lower. This effect may not apply equally to all friendship qualities. For example, while relational aggression may strengthen the coalition between two friends, it may not necessarily increase their level of closeness or intimacy, if the partners believe that they themselves may also become the target of the other person's aggression. In this case, the relationship may actually suffer on the dimension of trust.

Positive associations between relational aggression and dyadic friendship qualities may explain why relational aggression is sometimes associated with high social prominence (Cillessen & Mayeux, 2004). Perhaps relationally aggressive adolescents build strong dyadic relationships and alliances with each other. Those alliances may then become the building blocks for high status in the peer group at large. Thus, high-quality dyadic relationships may mediate the empirically demonstrated connection between relational aggression and social prominence.

Several measures exist that assess overlapping as well as unique domains of friendship quality and that vary in the age group for which they are intended (Berndt & Perry, 1986; Bukowski, Hoza, & Boivin, 1994; Furman & Adler, 1982; Furman & Buhrmester, 1985; Parker & Asher, 1993; Sharabany, Gershoni, & Hofman, 1981). In the present study, we used the Friendship Qualities Scale (Bukowski et al., 1994) which assesses five dimensions of friendship considered important in adolescence (Bukowski et al., 1994): conflict, closeness, companionship, security, and helping.

The goal of this study, then, was to predict adolescents' friendship quality in terms of these five dimensions from measures of physical aggression, relational aggression, and prosocial behaviour. By examining the association between individual behaviours and dyadic friendship qualities, this study may make a contribution to our understanding of the predictors of friendship quality, which has been examined only infrequently in the peer relations literature. We used the analytic framework of the APIM to address this research question.

Kenny and colleagues (Kashy & Kenny, 2000; Kenny et al., 2002) designed the Actor Partner Interdependence Model (APIM) for the analysis of dyadic data. APIM models can be estimated with SEM programs or with mixed-level models in SAS or SPSS. The APIM estimates two types of effects: the effect of each individual's behaviour on their own rating of the relationship ("actor coefficient"), and the effect of the individual's behaviour on their partner's rating of the relationship ("partner coefficient"). The model simultaneously estimates four paths: each member of the dyad has an actor path and a partner path. In Figure 1, the two actor paths are the horizontal paths labelled a, and the two partner paths are the diagonal paths labelled p.

The actor effect is the effect of an actor's behaviour on the actor's view of the relationship. For example, aggressive adolescents may rate their friendships as high in conflict, perhaps reflecting hostile attribution biases. The partner effect refers to the effect of an actor's behaviour on the partner's view of the relationship. For example, aggressive adolescents may have friends who rate their friendship as high in conflict, which may accurately reflect the actor's general aggressive tendencies. It does not matter in this context whether the actors' behaviour is assessed via self-, teacher, peer, or observer reports. The logic is identical in each case.

Thus, the goal of this study was to predict friendship quality (closeness, companionship, conflict, helping, and security) from social behaviour (physical aggression, relational aggression, and prosocial behaviour) using the analytic framework of the APIM. Data were collected in adolescence, during which friendships and friendship quality are particularly important (Bukowski et al., 1994). The data were derived from an ongoing study in which adolescents named their best friends and rated the quality of their relationship. Both self- and peer-report measures of the predictors were available. Since gender
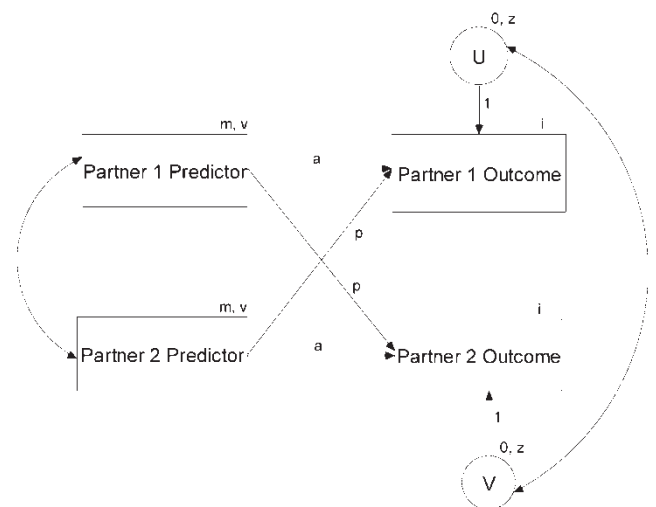

Figure 1. The Actor-Partner Interdependence Model (Kenny & Acitelli, 2001): a = actor effect; p = partner effect; m = predictor mean; v = predictor variance; i = outcome intercept (mean); U and V = outcome disturbances; z = disturbance variance.

may play a role in the associations of interest in this study, gender differences were explored in all analyses.

Method

Participants and design

Participants were 224 adolescents aged 15 to 17 years in a public high school in the Northeastern United States, selected from 797 students from 9th to 11th grade participating in a larger study on the social and academic development of youth. Participants in the larger study were recruited via a letter addressed to them and their parents that was sent to all students in their grade. Only students who obtained permission participated in the larger study. The sample of the current study was selected from the larger sample based on two criteria presented below. Participants were predominantly European American as indicated by self-reports of ethnicity and from lower to lower middle-class SES backgrounds as indicated by school records.

The 224 selected participants formed 112 friendship dyads (71 female and 41 male). Eleven mixed-sex dyads were identified but this number was too small for inclusion in the analyses. The selection criteria were: (1) dyad members named each other reciprocally as the one best friend for whom they completed a friendship qualities scale; (2) they also named each other as best friend on a separate sociometric measure. Because the sociometric measure was unlimited with grade as the reference group, 95% of the larger sample named more than one best friend on this measure (Criterion 2). However, because the friendship quality measure could be completed for only one best friend, the number of possible matches for Criterion 1 was restricted to 0 or 1. As a result, all 112 dyads that were identified by combining both criteria were unique, that is, no member of any dyad was also a member of another dyad.

The data for this study were collected in one 90-min class period at school in the spring of the school year. Participants first completed the sociometric measure that began with the best friend nomination question followed by a set of additional items, including peer nominations of physical aggression, relational aggression, and prosocial behaviour from which the peer reports of these behaviours were derived (see below). Following the sociometric instrument students completed a self-report measure that included the friendship qualities scale. The self-report measure also included ratings of physical aggression, relational aggression, and prosocial behaviour, from which the self-report scores for these behaviours were derived (see below).

Measures

Identification of best friendships. Best friendships were identified with two questions. First, before completing the FQS, participants indicated who their best friend was for whom they were going to complete the measure. Best friends were identified with a code number derived from a roster with names of all peers in the participants' grade. To corroborate the reciprocity of these friendships, best friend choices were examined that had been collected earlier in the testing session as part of a larger sociometric instrument. The sociometric instrument included 20 items in which participants were asked to name peers for a variety of criteria. Nominations were unlimited and across participants' entire grade. The best friend question was the first question on the sociometric measure. Participants were first asked to name all their best friends in their grade, and then ranked their top five choices. Members of the 112 dyads had all named each other within their list of top five best friends, thus validating the operationalisation of friendships in this study.

Friendship quality. Participants completed the Friendship Qualities Scale (FQS, Bukowski et al., 1994), a 23-item self-report measure with the following five subscales: conflict (4 items, α = .76), closeness (5 items, α = .91), companionship (4 items, α = .69), receiving help (5 items, α = .80), and security (5 items, α = .71). Example items are: "My friend and I argue a lot" (conflict), "If my friend had to move away, I would miss him/her" (closeness), "My friend and I spend all our free time together" (companionship), "My friend helps me when I am having trouble with something" (receiving help), and "If there is something bothering me, I can tell my friend about it" (security). Participants rated on a 7-point scale (1 = *not true*, 7 = *really true*) how true each statement was for their best friendship.

Self-reports of social behaviour. Participants rated how frequently they engaged in two forms of aggression and prosocial behaviour on a 5-point scale (1 = *never*, 5 = *a few times a week*) using items from the Peer Experiences Questionnaire (PEQ, Prinstein, Boergers, & Vernberg, 2001; Vernberg, Jacobs, & Hershberger, 1999). Example items are: "I threatened to hurt another student" (physical aggression, 4 items, α = .86), "I tried to damage another student's social reputation by spreading rumors about them" (relational aggression, 9 items, α = .87), and "I helped another student when they were having a problem" (prosocial, 5 items, α = .83).

Peer reports of social behaviour. Unlimited peer nominations were used within the entire grade, allowing both same- and cross-sex nominations. Three sociometric questions were used to assess *physical aggression* ("the people in your grade who start fights, say mean things, and tease others"), *relational aggression* ("the people who ignore others, spread rumors, and exclude other people in order to get their way"), and *prosocial behaviour* ("the people who cooperate, share, and help others"). Nominations received were counted and standardised within grade.

Results

Analysis strategy

The estimation of APIM was conducted using structural equation modelling. Figure 1 presents the model that estimates the effects. In APIM, paths are estimated with dyad as the unit of analysis. Because the dyads in this study consisted of either two females or two males, there is no role distinction between dyad members (as opposed to distinguishable dyads such as married couples). The estimation of actor and partner effects for indistinguishable dyads in SEM requires that the following parameters are set equal for both members of the dyad: the variance and mean for the predictor variables, the actor paths, partner paths, intercepts, and the mean and variance of the

disturbances. These constraints are indicated in Figure 1. Olsen (2004, personal communication) first proposed this extension of Kenny and Acitelli's (2001) SEM model for APIM with distinguishable dyads to the case of indistinguishable dyads.

Separate analyses were conducted for all combinations of predictor variables (physical aggression, relational aggression, and prosocial behaviour, according to self and peers) and outcome variables (closeness, conflict, receiving help, security, and companionship). These analyses were conducted in AMOS 5.0 (structural equation modelling program), but the identical results can be obtained in SPSS 12.0 or SAS 9.0 using a linear mixed model. For each predictor–outcome combination, the analysis was conducted in three steps. First, we ran a two-group model in which all parameters were allowed to vary between gender (fully unconstrained model, $df = 14$). Second, to test whether actor or partner effects were moderated by gender, we ran the same two-group model in which the actor and partner paths were forced to be equal between gender (constrained model, $df = 12$). Third, we conducted a χ^2 difference test ($df = 2$) between the constrained and unconstrained models. If the fit of the constrained model was not significantly worse than the unconstrained model, there was no evidence for moderation by gender for either actor or partner effects. If the model fit was significantly worse, follow-up tests were conducted to determine whether moderation was due to actor, partner, or both.

Intercorrelations between main study variables

Table 1 shows the zero-order correlations between the main study variables, computed with individual as the unit of analysis. Because these correlations are inflated due to dependency, they are presented for comparison purposes only. The results are interpreted below, and should be compared to the exogenous correlations that follow.

As can be seen in Table 1, physical and relational aggression were positively correlated both according to self ($r = .69$) and peers ($r = .61$). The two types of aggression were not significantly correlated with prosocial behaviour for either self or peer measures. There was agreement between self and peer measures of physical aggression ($r = .25$) and prosocial behaviour ($r = .19$), but not for relational aggression. Physical

aggression and prosocial behaviour were negatively correlated across methods (rs $= -.21$ and $-.16$, respectively).

The positive friendship qualities closeness, companionship, helping, and security correlated positively with one another ($.57 < r < .76$), and negatively with conflict ($-.34 < r < -.18$). The correlations of these five friendship qualities with behaviour self-ratings followed a clear pattern. Friendship conflict was positively correlated with self-ratings of physical and relational aggression. The four positive friendship qualities were positively correlated with self-ratings of prosocial behaviour, and significantly and negatively correlated with self-ratings of physical and relational aggression, with one exception (companionship and physical aggression).

There were fewer significant correlations between friendship qualities and peer nominations of behaviour. Closeness and helping were negatively correlated with physical aggression. All four positive friendship qualities were significantly and positively correlated with peer nominations of prosocial behaviour.

The correlations of Table 1 were also computed for boys and girls separately, and tested for significance between gender using Fisher's r-to-Z transformations. Only 3 of the 55 comparisons were significant, and in only 1 of the 3 cases was one of the two correlations involved significantly different from zero. The correlation between self- and peer reports of relational aggression was significantly larger for girls ($r = .25$, $p = .003$) than for boys ($r = -.04$, $p > .05$), $Z = 2.047$, $p = .020$. It is interesting that there was larger cross-method consistency for relational aggression for girls than for boys.

Assessment of dyadic dependence

To assess the degree of dependence due to dyads, two methods were followed. First, we computed for each variable the intraclass correlation (ICC) that expresses the degree of dyadic dependence in a variable (Kashy & Kenny, 2000). An ICC close to zero indicates the absence of dyadic dependence, a positive ICC means positive dependence or similarity within dyads, and a negative ICC means negative dependence or dissimilarity within dyads. All ICCs were different from zero with large effect sizes (range .59–.82, $M = .68$, see Table 2). Because the ICC for any variable is computed by dividing the between-dyad variance by the total variance, it can also be interpreted as the proportion of variance due to dyads. Thus,

Table 1
Intercorrelations between main study variables (n = 224 participants)

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Physical ag. (self)	.69★	.03	.25★	.06	−.21★	.27★	−.22★	−.09	−.20★	−.19★
2. Relational ag. (self)		.10	.12	.13	−.11	.29★	−.25★	−.15★	−.28★	−.19★
3. Prosocial (self)			−.16★	.02	.19★	−.10	.42★	.30★	.33★	.44★
4. Physical ag. (peer)				.61★	−.12	−.01	−.22★	−.05	−.14★	−.13
5. Relational ag. (peer)					−.01	.01	.03	.11	.10	.05
6. Prosocial (peer)						−.06	.15★	.16★	.17★	.15★
7. Conflict							−.34★	−.18★	−.25★	−.29★
8. Closeness								.58★	.75★	.74★
9. Companionship									.57★	.61★
10. Helping										.76★
11. Security										

★ $p < .05$.

Table 2
Intraclass correlations for main study variables (k = 112 dyads)

	ICC
1. Physical aggression (self)	.67*
2. Relational aggression (self)	.63*
3. Prosocial (self)	.64*
4. Physical aggression (peer)	.62*
5. Relational aggression (peer)	.59*
6. Prosocial (peer)	.73*
7. Conflict	.59*
8. Closeness	.82*
9. Companionship	.66*
10. Helping	.74*
11. Security	.75*

* $p < .05$.

68% of the variance in our study variables was due to dyads (range 59% to 82%), further emphasising the importance of considering the effect of dyads in the analyses. The ICCs were also computed by gender and compared (see Donner & Bull, 1983). There were no significant gender differences.

In addition to the ICC, a separate estimate of the similarity between dyad partners is provided by the correlation between the two exogenous variables in the APIM model (the curved line on the left in Figure 1). These are presented in the first column of Table 3. APIM does not estimate a similar correlation for the dependent variables (see Figure 1), only the correlation between their disturbances, which are of lesser interest. As can be seen, five of the six exogenous correlations were significant indicating similarity between friends on these variables. The exogenous correlations were also compared by gender. No significant gender differences were found. (The test for moderation by gender in APIM is described below.)

Effects of social behaviour on dyadic friendship quality

For the 30 models, the initial test for gender differences yielded no evidence for moderation by gender except in two cases. Because of the general absence of gender differences, we first present the results of all APIM model tests in the total sample of 112 dyads. The parameter estimates for all models in the total sample are presented in Table 3. Follow-up tests for the

two cases where moderation occurred are presented at the end of this section.

Model fit was excellent for all 30 models in the total sample, with $\chi^2(12)$ ranging from 1.7 to 13.9, all ps > .307. As can be seen in Table 3, there were significant actor effects of self-reported physical and relational aggression on conflict. Adolescents who rated themselves as more aggressive (both physically and relationally) rated their dyadic friendships higher on conflict. Adolescents who rated themselves as more physically aggressive also rated their friendships as lower in closeness, helping, and security. Adolescents who rated themselves as more relationally aggressive rated their friendships lower on all four positive friendship qualities (closeness, companionship, helping, and security). Conversely, adolescents who rated themselves as more prosocial rated their friendships higher on all four positive friendship qualities.

Significant partner effects were found for self-ratings of physical aggression and prosocial behaviour. Participants who rated themselves as physically aggressive had friends who rated their relationship low in closeness, helping, and security. Participants who rated themselves as prosocial had friends who rated their relationship high on closeness, helping, and security. No significant partner effects were found for self-ratings of relational aggression.

For the peer-based measures, significant actor and partner effects were found for physical aggression. Adolescents who were physically aggressive according to peers rated their friendships low on closeness, and had friends who rated their relationship high on conflict. Adolescents who were seen as prosocial by their peers rated their friendships high on companionship and helping, and had friends who rated their relationship low on conflict and high on closeness. No significant effects were found for relational aggression.

For two models, there was significant moderation by gender. For the association between self-rated prosocial behaviour and security, the χ^2 difference test was significant, $\chi^2(2) = 6.8$, $p = .033$. Follow-up test indicated that model fit significantly worsened if the actor effect was constrained between genders, $\chi^2(1) = 5.6$, $p = .018$, but not when the partner effect was constrained, $\chi^2(1) = 0.1$, $p = .752$. Thus, moderation was due to gender differences for the actor effect. The actor effects were .19 ($p < .05$) for girls and .38 ($p < .05$) for boys. Thus, for both genders self-ratings of prosocial behaviour positively predicted self-ratings of friendship

Table 3
Estimates of exogenous correlations and actor and partner effects for the prediction of five friendship qualities from physical aggression, relational aggression, and prosocial behaviour according to self and peers

		Conflict		Closeness		Companionship		Helping		Security	
	r	Actor	Partner	Actor	Partner	Actor	Partner	Actor	Partner	Actor	Partner
Self-report											
Physical	.36*	.26*	.06	−.19*	−.16*	−.05	−.12	−.13*	−.19*	−.14*	−.15*
Relational	.26*	.27*	.09	−.24*	−.09	−.14*	−.02	−.25*	−.10	−.16*	−.12
Prosocial	.30*	-.06	−.16*	.38*	.23*	.30*	.02	.28*	.18*	.40*	.14*
Peer report											
Physical	.24*	−.06	.22*	−.18*	−.15	−.02	−.12	−.12	−.09	−.11	−.10
Relational	.18	−.02	.07	.03	−.02	.11	−.01	.10	−.04	.05	.02
Prosocial	.46*	.03	−.20*	.08	.14*	.14*	.06	.13*	.08	.10	.12

* $p < .05$.

security, but this effect was significantly stronger (and twice as strong) for boys as it was for girls.

For the association between peer-nominated relational aggression and conflict, the χ^2 difference test was significant, $\chi^2(2) = 8.3$, $p = .016$. Follow-up test again indicated that moderation was due to the actor effect, $\chi^2(1) = 7.4$, $p = .007$, and not the partner effect, $\chi^2(1) = 0.7$, $p = .403$. The actor effects for boys and girls separately were .12 ($p > .05$) for girls and $-.25$ ($p < .05$) for boys. For boys, relational aggression negatively predicted self-ratings of friendship conflict. For girls, however, relational aggression did not predict ratings of friendship conflict.

Discussion

The goal of this study was to expand existing knowledge of adolescent friendships by examining predictors of friendship quality. While researchers have argued for the importance of friendship quality (see, e.g., Berndt, 2002), relatively little is known about the variables that predict high or low friendship quality in this age group. Specifically, we examined the predictive effects of physical aggression, relational aggression, and prosocial behaviour on conflict, closeness, companionship, helping, and security. Collins (2002) argued that the dyad is an essential unit of analysis in modern social development research. Consistent with this trend, we used the Actor-Partner Independence Model (Kenny & Acitelli, 2001) as our analytic framework.

Correlational analyses among the variables of this study indicated that physical and relational aggression were positively correlated, but independent from, prosocial behaviour. The correlations between peer and self evaluations of the three behaviours ranged from .13 to .25, indicating modest agreement. The correlation for relational aggression (.13) did not reach significance. There are three possible reasons for this modest agreement between peer and self constructs. First, the wording of the questions in both cases was not identical (see Method). Second, self-perceptions are subject to biases that do not influence peer evaluations. For example, individuals are less likely to rate themselves as aggressive than their peers are. Third, peer evaluations are aggregated across multiple informants reflecting the perspective of the peer group at large, whereas self-ratings only reflect the target person's own perspective. For these reasons, it makes sense to analyse the contributions of peer and self-perceptions separately.

Moreover, examining scores derived from peer nominations in APIM makes a new contribution to the use of this analytic model. Typically, on the predictor side are variables that measure self-perceptions. In this case, the APIM tests how individuals' own perceptions (e.g., perceptions of conflict) are related to ratings of the relationship by self and partner (e.g., satisfaction). In the current study, we have added peer-based variables to the predictor side, allowing us to examine the associations between how individuals are seen by their peers and their own and their partners' views of the relationship. This application may be of use in other dyadic studies in the peer relations domain where peer nomination variables are available and their predictive effects are of interest.

The initial correlations validated the structure of the Friendship Qualities Scale as consisting of a negative conflict dimension and four nonoverlapping positive dimensions that measure separate domains of adolescent friendship. The friendship qualities correlated quite consistently with the behaviour self-ratings. Positive correlations were found between self-perceived physical and relational aggression and friendship conflict, and between self-perceived prosocial behaviour and the four positive friendship qualities. Negative correlations were found between self-perceived physical and relational aggression and the four positive qualities. This pattern of results validated the questions of the Peer Experiences Questionnaire, from which the self-report scores were derived.

The correlations between peer measures of prosocial behaviour and positive friendship qualities confirmed what was found for the self measures, although the effects were smaller in size, possibly due to the above-mentioned reasons. As for the self measures, peer nominations of physical aggression correlated negatively with closeness and receiving help. Thus, across the two sources of information, consistent evidence was found that individual tendencies to be prosocial are associated with positive friendship qualities, whereas individual tendencies to be antisocial (physically aggressive) are correlated negatively with the same positive friendship qualities. These findings confirm at the correlational level the cross-contextual consistency between individual behaviours and dimensions of friendship quality.

Unlike the findings for self-ratings, peer nominations of physical aggression did not correlate with measures of friendship conflict. Adolescents who were seen as physically aggressive by the peer group at large did not necessarily report more conflict in their friendships. This fits with the idea that adolescents who have an aggressive reputation and may be rejected and/or disliked in the peer group at large may still have good-quality friendships. Although their friendships were lower in closeness and receiving help, other dimensions were not affected.

Interestingly, peer nominations of relational aggression did not correlate with any of the friendship qualities whereas self-ratings correlated with all of them. One possible explanation for this finding is that it is entirely due to the lack of shared variance between peer nominations and friendship quality ratings. If this were the case, however, other significant correlations such as those for prosocial behaviour would not have emerged either. Thus, there may also be substantive reasons for the lack of association. Relational aggression may function as a double-edged sword. While relationally aggressive behaviour is clearly disliked by peers, it can function at the same time to forge coalitions and alliances with others, which may lead to greater social network centrality, especially for girls (Cillessen & Mayeux, 2004). Thus, positive and negative correlations may cancel each other out, yielding zero-level correlations. The current findings suggest that the Janusian nature of relational aggression is also reflected at the dyadic level.

The intraclass correlations indicated that two thirds of the variance in the study variables was dyadic. Estimates of the exogenous associations indicated dyadic similarity for the independent variables. Thus, friends in general were similar to one another in self-reported physical aggression, relational aggression, and prosocial behaviour, and peer-reported physical aggression and prosocial behaviour. These findings confirm the well-established similarity-friendship hypothesis (e.g., Haselager et al., 1998). The consistent findings for physical aggression confirm the homophily hypothesis (Cairns, Cairns,

Neckerman, Gest, & Gariépy, 1988); that aggressive adolescents gravitate towards one another and begin to form deviant social networks. Interestingly, our results did not confirm these hypotheses for one of the relational aggression variables. Thus, while friendship dyads may be similar in physical aggression and prosocial behaviour, they are less likely to be symmetrical in terms of relational aggression.

Comparison of the APIM estimates in Table 3 with the zero-order correlations in Table 1 shows similar findings, but more attenuated and conservative effect sizes for APIM results than for individual level correlations. Together, these findings highlight the importance of taking the dyad into account when conducting dyadic research, and illustrate the amount of bias that may exist in the results when the dyadic level is not accounted for. Future research on dyads in the peer relations field needs to build in controls such as those provided by the APIM, in the same way that the group level of analysis needs to be controlled for in studies of groups with models such as the SRM (Kenny, 1994) or other multilevel models. At a minimum, researchers need to estimate the degree of dependence due to dyads or groups, as illustrated in this paper with the ICC. (See Green, Cillessen, Berthelsen, Irving, & Catherwood, 2003, for an example of using the ICC for behaviour in small groups.)

The main results of the present study are the significant actor and partner effects between social behaviours and friendship qualities. Adolescents who saw themselves as physically aggressive perceived their friendships as high in conflict. These adolescents themselves and their friends perceived their relationship as low in closeness, receiving help, and security. Adolescents who were physically aggressive according to their peers saw their friendships as low in closeness and had partners who rated their friendship high on conflict.

Adolescents who rated themselves as relationally aggressive perceived their friendships as high in conflict, and low on each positive friendship quality. Interestingly, the friends of these relationally aggressive adolescents did not confirm any of these negative relationship perceptions. Being perceived as relationally aggressive by one's peers also had no implications for perceived friendship quality by either member of the friendship dyad.

Adolescents who saw themselves as prosocial had friends who rated their relationship low in conflict. These adolescents themselves and their friends rated their friendship high on all four positive friendship qualities with one exception. The partners did not necessarily see the friendship as high in companionship. Adolescents who were prosocial according to peers rated their friendships high on companionship and helping, and their friends rated their relationships as low in conflict and high on closeness.

Together, these findings indicate that there is a substantial degree of consistency between individual behaviour tendencies, whether self-rated or determined by peers, and friendship quality as seen by both members of the dyad. These findings therefore confirm earlier findings of the cross-contextual consistency of behaviour (Malloy et al., 1997) and suggest that this consistency also extends itself to the domain of friendships in general and friendship quality specifically. The findings also suggest that behaviours and friendship quality are not entirely orthogonal. It has been suggested (Parker & Asher, 1993; Renshaw & Brown, 1993) that friendships may form a buffer against the negative consequences of rejected status in the peer group. The current findings suggest that this may not be the case for students who are rejected and aggressive. Their friendships may not be optimal in quality, thus reducing the possibility that they can override the negative effects of poor status in the peer group at large.

Remarkably few gender differences were found in this general pattern of results. Only two gender differences emerged. Adolescents who saw themselves as prosocial rated their friendships positively on security, and this effect was stronger for boys than for girls. One possible interpretation of this finding may be that friendship security for girls is more dependent on other relationship characteristics, rather than just being prosocial. Boys who were relationally aggressive according to peers rated their friendships low in conflict, but for girls being seen as relationally aggressive was again not related to friendship quality. This finding may suggest that the meaning of relational aggression is different for boys than for girls, and that perhaps relational aggression in adolescent males is seen more as playful or teasing rather than mean behaviour. Such an interpretation, however, is speculative in the absence of a more consistent pattern of gender differences for this behaviour.

It is interesting that it was more difficult to identify dyads of adolescent boys than girls that met the criteria for study inclusion, to a ratio of almost 2 to 1 in favour of girls, even though the proportion of boys and girls in the study at large was about equal. Assuming that meeting the criteria for inclusion (reciprocal nominations on two best friend peer nominations) is an indication of stability or cohesion of a friendship relationship, this finding could suggest that there were fewer stable or cohesive best friend relations among adolescent boys in this study than among girls. Alternatively, the differential rate of meeting the best friend criteria may be due to the fact that girls are more exclusive in their friendships than boys are (Eder & Hallinan, 1978). It is also possible that the differential rate of identified friends is a methodological artifact of the questions that were asked. Perhaps a larger number of male dyads would be found if the criteria were relaxed or changed. It is possible, for example, that adolescent males are more likely to think of best friends as people they "hang around with", and that the use of such criteria for adolescent males might reveal frequencies of reciprocal dyads that are similar to those for girls based on the "best friend" question.

The current study relied on self-report measures of friendship quality and self- and peer-report measures of aggression. Observational data of friends' actual interactions with one another would provide an important way to extend this research. Important examples exist of observational research on friendship dyads, and the study of friendship quality would benefit from determining observationally which aspect of dyadic interaction might yield reliable actor and partner effects for the prediction of friendship quality.

The current study considered gender as a between-dyad variable. Given the importance of gender differences in social developmental research, the consideration of gender makes sense. However, other between-dyad factors are worthy of consideration in future research. Friendship dyads may differ in cohesiveness, degree of behavioural similarity, and ethnic composition, for example. Age and developmental differences may be considered as well. Variables such as these, considered either categorically or continuously, may serve as important moderators of the associations between individual social

behaviours and friendship quality, and are important to be considered in future research.

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