Me, My Friends, and I : a neuro-ecological perspective on adolescent prosocial development

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CHAPTER 4

Friends in high places: A dyadic perspective on peer status as predictor of friendship quality and the mediating role of empathy and prosocial behavior

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ABSTRACT

Friendships and peer status play important roles in the social landscape of adolescents and are related to developmental outcomes. Yet, how peer status is related to friendship quality and what role social skills play in this association remains unclear. In this study, we use Actor-Partner Interdependence (Mediation) Modeling (Ledermann, Macho, & Kenny, 2011) to investigate how two forms of peer status, preference and popularity, are related to positive and negative friendship quality in mid-adolescence. Results show that adolescents who are friends with more preferred (i.e., likable) and popular adolescents report higher friendship quality. These partner effects were partially mediated by adolescents' own prosocial behavior and their friends' empathy levels. Higher levels of empathy of one's friend and one's own lesser preference for equity explained why adolescents were more satisfied in a friendship with highly preferred (i.e., likable) adolescents. Interestingly, empathy was not a mediator for the link between friendship quality and popularity. These findings promote a better understanding of the interplay between different levels of social complexity (i.e., individual, dyadic and peer group level) in adolescence.

4.1 INTRODUCTION

Friendships are of great significance across the life span, and they are one of the most important aspects of adolescents' lives in particular. Adolescence is characterized by social reorientation and adolescents spend increasingly more time with peers (Steinberg & Morris, 2001). Social reciprocity is the stable factor unifying the concept of friendship over all developmental stages. However, when compared to early childhood, adolescent friendships involve more social exposure to friends in general and more shared activities, such as socializing, instead of mutual play in early childhood (Bagwell & Schmidt, 2013). Although having friends in adolescence is a predictor of adult adjustment (Bagwell, Newcomb, & Bukowski, 1998), friendship quality has been shown to make a separate contribution to the prediction of social developmental outcomes and has as such been identified as one of the most crucial aspects of the developmental significance of having friends (Berndt, 2002). Not only are friendships of high quality related to higher psychological well-being, deviant behavior increases less among youth with supportive and intimate friendships (Poulin, Dishion, & Haas, 1999; Rubin et al., 2004).

Popularity of friends

Besides establishing close friendships, who to affiliate with in terms of peer status becomes important during early adolescence (Buhrmester, 1990). Individuals can be high in status because they are generally well-liked, or they can be perceived by peer group members as popular. In literature, the first type of high status is referred to as "likability", "sociometric popularity", or "preference" (hereafter: preference). Behavior of preferred peers is typically high in prosocial and low in antisocial qualities (Newcomb, Bukowski, & Pattee, 1993; Wolters, Knoors, Cillessen, & Verhoeven, 2013). The behavioral profile of the second type of high status, referred to as "perceived popularity" (hereafter: popularity), is generally much more diverse: both prosocial and antisocial qualities are typical for popular adolescents (Cillessen & Rose, 2005; LaFontana & Cillessen, 2002; Lease, Musgrove, & Axelrod, 2002; Rodkin, Farmer, Pearl, & Van Acker, 2000; Wolters et al., 2013). As such, preference and popularity are distinct social constructs in the peer system, with distinct provisions. It has been suggested that preference (which is based on acceptance by peers) pro-

vides a sense of inclusion and belonging, whereas popularity is a perceptual phenomenon based on how one is seen by others and is thus about status and power (Bukowski, 2011).

Popular friends are scarce, since social status is relative to other members of the peer group, and popularity therefore is reserved for a few individuals only (Bateson, 1958; Hirsch, 1976). Many compete for the attention of those at the top of the social hierarchy. Popular individuals are able to control resources and exert power over group members (De Bruyn & Cillessen, 2006; Lease et al., 2002). Being associated with the most powerful can make some status reflect upon the affiliate and thereby influence how one is perceived by the rest of the peer group (also called the "basking in reflected glory effect") (Cialdini, & Richardson, 1980). Having so called "friends in high places" can thus be good for one's own status (Dijkstra, Cillessen, Lindenberg, & Veenstra, 2010) and peer status in itself can be why popular friends are attractive.

On the other hand, friends high in peer status may actually be better friends. Preference and popularity both have been shown to predict friendship quality, such that more preferred and popular children report higher friendship quality with their best friends (Nangle, Erdley, Newman, Mason, & Carpenter, 2003; Poorthuis, Thomaes, Denissen, Van Aken, & Orobio de Castro, 2012). Some studies, however, did not find an association between peer status and friendship quality (Brendgen, Little, & Krappmann, 2000; Lansford et al., 2006). Interestingly, Brendgen and colleagues (2000) found that the friends of preferred adolescents perceived their friendship more positively than the preferred adolescents themselves. To our knowledge, other studies did not distinguish between the perception of popular and preferred adolescents and their friends on their respective reports of friendship quality. In the current study, we investigated the role of peer status in predicting friendship quality. We specifically examined both preference and (perceived) popularity as two types of high status and how they are related to reports of friendship quality. Importantly, we incorporated a dyadic perspective in examining this link such that we examined both the status of an adolescent and the status of her or his friend in predicting reported friendship quality.

Current study

Understanding adolescent's social environment in general and the underlying motives in selecting and maintaining friendships is of great importance for psychosocial

interventions in the professional context. Preferences for affiliating with popular peers are not well understood, especially when a more prosocial friend is available. Furthermore, better understanding of adolescents' friendship choices is contingent upon a better understanding of these friendships within the larger peer system (Bukowski, 2011). The current study aimed to fill this gap by investigating the links between the peer system and adolescent friendships.

Although the association between peer status and friendship quality has been reported, a clear understanding of the mechanisms of this association is missing. Higher levels of prosocial behavior of adolescents of high status might be one explanation. Prosocial behavior, such as helping others and being cooperative, has been shown to be related to being liked by peers and to being popular (Peters, Cillessen, Riksen-Walraven & Haselager, 2010). Prosocial children and adolescents thus have higher preferred status in the peer group and they also have more friends (Güroğlu, Van Lieshout, Haselager, & Scholte, 2007). Previous studies have also shown that prosocial behavior of both the self and of friends are predictive of high friendship quality, such as more closeness, companionship, helping, and security (Cillessen, Jiang, West, & Laszkowski, 2005; Markiewicz, Doyle, & Brendgen, 2001). Prosocial behavior may explain the link between peer status and friendship quality: as both preferred and popular youths are likely to be more prosocial in their interactions with peers, their friends might be more satisfied with the friendship and report high levels of friendship quality. However, a previous study has shown that popular children have high levels of friendship quality regardless of the level of helping behavior in an experimental setting, suggesting that the link between peer status and friendship quality (Poorthuis et al., 2012) cannot be explained simply by prosocial behavior but that other possible mediators also should be considered.

An important precursor for prosocial behavior is empathy, which refers to the ability to share (affective empathy) and understand (cognitive empathy) others' emotional states and the tendency to act upon this understanding (prosocial motivation) (Netten et al., 2015; Pouw, Rieffe, Oosterveld, Huskens, & Stockmann, 2013). These empathic features have been shown to be differentially related to peer status and better friendship quality (Caravita, Di Blasio & Salmivalli, 2009; Chow, Ruhl, & Buhrmester, 2013). The perception of friendship quality by both members of a dyad can be influenced by each friend's behavior, but also by each friend's ability to share and understand the mental states of the other, which would also be expected to influence their behaviors to one another. Therefore, not only prosocial behavior but

also empathy could be an important explanation of perceptions of higher friendship quality.

Study design

The goal of this study was to investigate the association between peer status and friendship quality and the mediating role of empathy and prosocial behavior in this association. Because friendship is a dyadic concept involving two friends our study employed a dyadic design using information from both friends. Accordingly, we used the Actor Partner Interdependence Model (APIM) for the analysis of dyadic data (Kashy & Kenny, 2000; Kenny & Acitelli, 2001; Kenny, Mannetti, Pierro, Livi, & Kashy, 2002). The APIM includes two types of effects. The *actor effect* (path a in Figure 1) is the effect of adolescents' peer status on their own friendship quality ratings. The *partner effect* (path p) is the effect of adolescents' peer status on their friends' friendship quality ratings. For example, popular adolescents might rate the quality of their own friendships highly (actor effect), and their friends also might rate the quality of their friendship highly (partner effect). The APIM simultaneously estimates the coefficients for all paths, with the two paths a and two paths b in Figure 1 set equal due to indistinguishability of dyad members (mutual friends) in this study.

An extension of this model is the Actor-Partner Interdependence Mediation Model (APIMeM) (Ledermann, Macho, & Kenny, 2011). The APIMeM allows for testing of mediation effects within the actor and partner paths. While the APIM is a technique to examine associations between the characteristics of the two members of a dyad, it does not explain why these associations occur. With two members in a dyad, characteristics of both dyad members can be (partly) responsible for existing actor and partner effects. Using APIMeM, it is possible to differentiate between actor mediators and partner mediators on either actor or partner paths. Figure 2 shows the resulting four different mediation paths: actor-actor (a_{A1}-b_{A1} and a_{A2}-b_{A2}), partner-partner (a_{P1}-b_{P2} and a_{P2}-b_{P1}), actor-partner (a_{A1}-b_{P2} and a_{A2}-b_{P1}) and partner-actor (a_{P1}-b_{A1} and a_{P2}-b_{A2}) mediation. For example: the link between friend A's peer status and friend A's friendship perception may be explained by their own prosocial behavior (actor-actor mediation). This link also may be explained by friend B's prosocial behavior (partner-partner mediation). The link between an friend A's peer status and friend B's friendship perception similarly may be explained by friend A's prosocial behavior (actor-partner mediation) or friend B's prosocial behavior

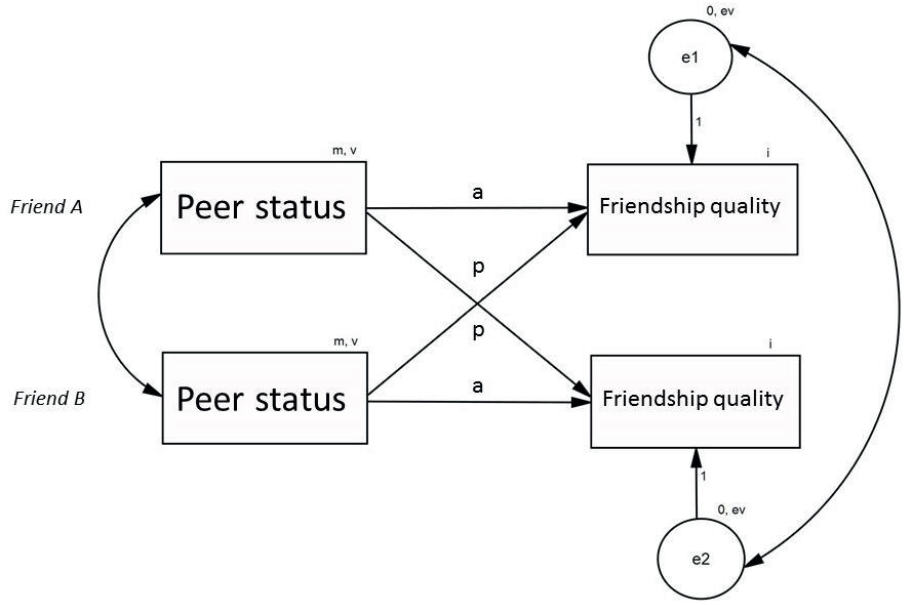

Figure 1. *The Actor-Partner Interdependence Model (Kenny & Acitelli, 2001)*

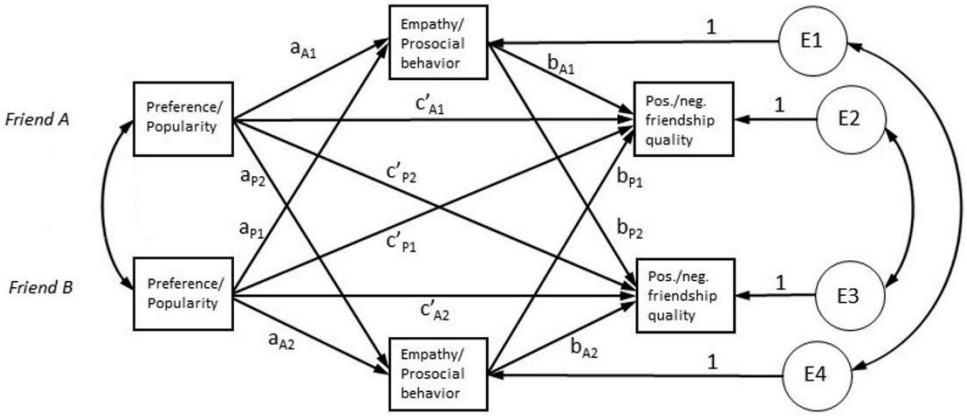

Figure 2. *The Actor-Partner Interdependence Mediation Model (Ledermann, Macho, & Kenny, 2011). Pos. = Positive; Neg. = Negative.*

(partner-actor mediation). Note that dyad members in this study are indistinguishable and therefore each dyad member could be either friend A or friend B.

Hypotheses

We expected to find an association between preference and friendship quality and that this association would be mediated by empathy and prosocial behavior, since previous studies have found these three constructs to be related. When distinguishing actor and partner effects, we expected an actor effect of preference on a more positive perception of the friendship by the actor, due to more empathy and more prosocial behavior of the actor. For both preference and popularity we expected partner effects. For preference as a predictor, we expected these effects to be explained by higher levels of empathy and prosocial behavior. The link between popularity and prosocial behavior seems less straightforward, as previous research shows that prosocial behavior is related to friendship quality, but not for popular adolescents (Poorthuis et al., 2012). Therefore we did not have strong expectations regarding the role of empathy and prosocial behavior in the link between popularity and friendship quality.

A special type of prosocial behavior is other-regarding decision-making when distributing valuable goods. Choosing to divide equally indicates a willingness to build relationships on fairness and within friendships, balance is an important condition of friendship positive quality and connectedness (Deutz, Lansu, & Cillessen, 2014). We asked our participants to choose between equity or inequity in an experimental paradigm. We expected that an attitude towards fairness would be related to friendship quality. Looking at peer status, we expected there to be more fairness with higher peer status, because previous research shows associations between both preference and popularity and prosocial behavior. On the other hand, "divide and conquer" is an ancient strategy to attain power and this is not in line with a strong preference for fairness.

We made a distinction between positive and negative friendship quality. The two are related yet distinct and uniquely contribute to the overall quality of a friendship. Positive friendship quality entails friendship aspects such as intimacy, closeness and companionship. Negative quality entails conflict and imbalance (Bukowski, Hoza, & Boivin, 1994). Especially since adolescents high in peer status have the ability to exert power over the peer group (Cillessen & Rose, 2005), it is important to

address both the positive qualities of friendship and the challenging qualities of imbalance and conflict. Popular adolescents are known for using controlling strategies in social interactions (Dijkstra, Lindenberg, & Veenstra, 2008), which might be reflected in their friendships. In our analyses we thus explored links with these two distinct aspects of friendship quality.

4.2 METHOD

Participants and procedure

Participants were 430 7th to 10th grade adolescents (M_{age} = 14.36, SD_{age} = 1.22, range 11.91 to 18.16) in 215 unique same-sex best friend dyads (54% female), based on mutual nominations of one same-sex best friend in school classes. A total of 1259 participants in 48 classrooms from two local high schools were tested as part of a larger study. Two classrooms were excluded from analyses because they were combined classes of seniors containing 52 and 60 students. Due to school program setup it was unlikely that these participants knew each other well enough to report meaningful peer nominations. Other class sizes ranged from 10 to 32 (M = 24.91, SD = 4.87). Participants were asked to nominate one classmate as their best friend. Thirty-five participants (3.1%) who nominated more than one classroom best friend and nine participants (0.7%) who nominated no classroom best friend were excluded from the analyses. Among the remaining 1103 participants in 46 classrooms, we identified 215 friendship dyads based on mutual best friend nominations, yielding the sample of 430 participants. Of them, 85.5% were of Dutch origin; the remainder was of minority origin (Moroccan, Turkish, Surinamese, Pakistani, and *Curaçaoan*).

Data collection took place near the end of the school year to guarantee that the participants in 7th grade (the first grade of secondary school) had spent sufficient time together to know each other. Testing sessions were supervised by trained assistants. All testing was done in an online survey and took between 60 and 90 minutes. Consent was obtained from schools and parents.

Measures

Preference and popularity

Four questions were used to assess peer status: “Who do you like most?” and “Who

do you like least?" were used to measure preference; "Who is most popular?" and "Who is least popular?" were used for popularity. The nomination process was aided by an alphabetic list of names of all classmates. An unlimited number of nominations could be given; self-nominations were not allowed. The total number of nominations received was determined for each participant for each question. A composite score for preference was calculated by taking the difference between the number of liked most and liked least nominations received and standardizing the resulting difference score within classrooms. A composite score for popularity was calculated by taking the difference between the number of most popular and least popular nominations received, again standardizing the resulting difference score within classrooms.

Friendship quality

Participants rated the quality of their best friendship using a Dutch adaptation of the Friendship Qualities Scale (FQS; Bukowski et al., 1994). This scale contained 13 items measuring *positive friendship quality*, such as closeness, companionship and security (Cronbach's $\alpha = .90$), and 7 items measuring *negative friendship quality*, such as conflict and imbalance ($\alpha = .78$). Example items for each subscale are: "I know that I am important to my friend" (*positive friendship quality*) and "My friend and I can argue a lot" (*negative friendship quality*). Items were scored on a 5-point scale, ranging from "not true" to "really true". Sum scores were calculated for each subscale; higher scores of *positive friendship quality* imply higher levels of positive quality and higher scores of *negative friendship quality* imply higher levels of negative quality.

Empathy

The Empathy Questionnaire for Children and Adolescents (EmQue-CA) was used to assess empathy skills (Netten et al., 2015; Pouw et al., 2013). The EmQue-CA measures *affective empathy* (7 items; Cronbach's $\alpha = .68$), *cognitive empathy* (5 items; $\alpha = .64$), and *prosocial motivation* (6 items; $\alpha = .75$). Items in the EmQue-CA are descriptions of reactions to a certain social context. Example items for each subscale are: "If a friend is sad, I also feel sad" (*affective empathy*); "When a friend is angry, I tend to know why" (*cognitive empathy*); and "I want everyone to feel good" (*prosocial motivation*). Participants rated the items as: "not true" (1); "true to some extent" (2); and "true" (3). Scores were summed; higher scores indicate higher levels of empathy.

Prosocial behavior

There were two separate measures of prosocial behavior: peer reports and an experimental measure. Peer-reported prosocial behavior was measured with peer nominations of helping ("Who helps other people?") and cooperation ("Who cooperates?") (inter-item correlation r = .75). All participants from the larger study were asked to nominate an unlimited number of classmates for these questions. Nominations received for the two items were added to one score and standardized within classrooms.

The experimental measure was based on four allocation games where participants were asked to divide coins between themselves and an anonymous peer (Meuwese, Crone, de Rooij, & Güroğlu, 2015). In each game participants were asked to choose between an equal and an unequal distribution of coins between themselves and the other player. The equal distribution was always 1 euro for the other player and 1 euro for the participant. The alternative distribution could be disadvantageous for the other (i.e., 0 coins for the other and 1 coin for the self) or disadvantageous for the other and advantageous for the participant (i.e., 0 coins for the other and 2 coins for the self). The inequity option could also be advantageous for the other player (i.e., 2 coins for the other and 1 coin for the self) or for the participant (i.e., 1 coins for the other and 2 coins for the self). Equity choices were scored as 1, inequity choices were scored as 0.

Combining equity choices in the first two games demonstrates *prosocial fairness* and combining equity choices in the second two games demonstrates *inefficient fairness*. See Table 1 for an overview of the choices in the games and the combinations of choices that were used as measures of fairness. Prosocial fairness means choosing an equal division of coins when this is beneficial for the other player, whereas inefficient fairness means choosing an equal division of coins when the inequity option would result in more coins to divide in total. See Meuwese et al. (2015) for more information on these games. Due to technical difficulties 17 participants from 10 dyads did not have any experimental data on the allocation games. Thus, analyses with the experimental variables were conducted with the remaining 205 friendship dyads, instead of the 215 dyads that were included in all the other analyses.

Table 1
Composition of fairness variables

	Prosocial fairness choice	Inefficient fairness choice
Game 1	1-1 vs. 1 for self and 0 for other	
Game 2	1-1 vs. 2 for self and 0 for other	
Game 3		1-1 vs. 1 for self and 2 for other
Game 4		1-1 vs. 2 for self and 1 for other

Analysis strategy

Assessment of interdependence

First, interdependence of data within dyads was tested using intraclass correlations (ICC) for interval variables and Cohen's kappa for nominal variables (Kashy & Kenny, 2000). The ICC was calculated by dividing the between dyad variance by the total variance and indicates the proportion of variance explained by the dyadic nesting of the data. ICC values range from -1 to 1; a value close to zero indicates dyadic independence of the variable, whereas values close to 1 indicate similarity and values close to -1 indicate dissimilarity between members of a dyad.

APIM

Actor-Partner Interdependence Modeling analyses were conducted in Amos 22 to find simple actor and partner effects for the associations of preference and popularity with positive and negative friendship quality. See Figure 1 for the model. The members within each dyad were indistinguishable, therefore the estimate constraints were actor effects, partner effects, intercepts, mean and variance of predictors and errors ($df = 6$). We conducted a χ^2 difference test (df = 2) between the constrained and unconstrained models to test for moderation by gender. The fit of the constrained model was not significantly worse than the unconstrained model, therefore there was no evidence for moderation by gender for either actor or partner effects.

APIMeM

A pre-build APIMeM Amos setup was downloaded from thomasledermann.com (Ledermann, 2011) and used for all analyses. This model had the following constraints: 6 for the effects, 1 for means, 2 for intercepts and 3 for variances ($df = 12$) (Olsen & Kenny, 2006). Phantom models were used to test for indirect effects in Amos 22. To

determine whether an indirect effect or a total effect was statistically significant, we used the *p*-values derived from a bias-corrected bootstrap 95% CI, based on 5000 bootstrap samples. The significant simple effects between peer status and friendship quality in the APIM determined whether actor and/or partner follow-up mediation analyses for empathy and prosocial behavior were conducted.

4.3 RESULTS

Descriptives and intercorrelations

Table 2 shows means, standard deviations, and correlations for the study variables. The friendship quality subscales were related to most other variables. Descriptive statistics for positive friendship quality were $M = 52.98$, $SD = 8.25$ (range 21-65) and for negative friendship quality $M = 12.45$, $SD = 4.68$ (range 7-35). Preference was positively related to affective empathy ($r = .11$, $p = .022$), prosocial motivation ($r = .14$, $p = .004$), peer-reported prosocial behavior ($r = .51$, $p < .001$), and prosocial fairness ($r = .12$, $p = .013$). Popularity did not correlate significantly with any of the possible mediating variables. Higher peer-reported prosocial behavior was positively related to affective empathy ($r = .23$, $p < .001$), cognitive empathy ($r = .19$, $p < .001$) and prosocial motivation ($r = .20$, $p < .001$). Prosocial fairness was also related to higher levels of empathy in all three subscales ($r = .16$, $p = .001$; $r = .10$, $p = .044$; $r = .26$, $p < .001$) such that more empathic participants more often chose equity. Inefficient fairness was related to prosocial motivation ($r = .16$, $p = .001$), with choosing for fairness being related to more prosocial motivation. Finally, higher preference scores were related to higher popularity ($r = .29$, $p < .001$).

Dyadic analyses

ICC

Table 3 shows that 7 out of 10 ICC values differed significantly from zero (ranging from $r = .18$ to $.75$ for significant correlations). Up to 75% of the variance in the study variables could be explained by dyadic dependence. Our results revealed similarity in preference and popularity and in empathy and prosocial behavior between dyad members; cognitive empathy, prosocial fairness, and inefficient fairness did not

show dyadic dependence. Considering that for the majority of the variables of interest a significant portion of the variance could be explained by the dyadic structure of the data, methods for analyzing interdependent dyadic data were justified.

APIM

Model fit was good: analyses showed that there were no significant χ^2s. See Table 4 for model fit statistics. Table 5 shows actor and partner effects for the predictor variables of peer status on positive and negative friendship quality. There were significant partner effects for the associations of preference (b = .11, p = .032) and popularity (b = .18, p = .005) with positive friendship quality, indicating that participants who were friends with high-status peers, either in terms of preference or popularity, reported higher positive friendship quality. There was also a significant partner effect for the link between preference and negative friendship quality (b = -.14, p = .005), indicating that participants with friends with higher preference scores reported less negative aspects of their friendship. There were no actor effects for the link between peer status variables and friendship quality.

APIMeM

The APIM results revealed partner effects for the link between preference and popularity and friendship quality. We further tested the mediating role of empathy and prosocial behavior in these associations. Table 6 and 7 show the results. Mediating effects for the link between actor peer status and actor friendship quality were not examined since there were no significant simple actor effects. Model fit for the models in the analyses was good: no χ^2s differed significantly from zero. See Table 4 for model fit statistics.

Preference

Table 6 shows the mediating effects for actor preference on partner friendship quality. Total effect of actor preference on partner positive friendship quality was ß = 1.04; p = .039 and ß = -0.70; p = .020 on negative friendship quality (N = 430). In analyses with an experimental variable as mediator (N = 410), total effect was ß = 0.97; p = .047 (positive friendship quality) and ß = -0.73; p = .016 (negative friendship quality).

As Table 6 shows, there were three partial mediating effects of actor empathy of the associations between preference and friendship quality. For the link between

Table 2

Means, standard deviations and intercorrelations

	M	SD	2	3	4	5	6	7	8	9	10
Friendship quality											
1. Positive friendship quality	52.98	8.25	-.26***	.08	.12*	.38***	.27***	.45***	.13**	.16**	.08
2. Negative friendship quality	12.45	4.68		-.10*	.06	-.07	-.15**	-.26***	-.12*	-.18***	-.14**
Peer status											
3. Preference	0.15	0.90			.29***	.11*	.08	.14**	.51***	.12*	-.03
4. Popularity	0.12	0.92				.04	.01	.01	.04	-.06	-.08
Empathy											
5. Affective empathy	14.46	2.70					.39***	.49***	.23***	.16**	.08
6. Cognitive empathy	12.17	1.79						.43***	.19***	.10*	.09
7. Prosocial motivation	15.20	2.45							.20***	.11*	.16**
Prosocial behavior											
8. Peer reported	0.35	1.82								.11*	.04
9. Prosocial fairness	65.1%										.36***
10. Inefficient fairness	42.9%										

Note. *< .05 **< .01 ***< .001

Table 3
Intraclass correlations for the study variables

	ICC	*p*
Friendship quality		
Positive friendship quality	.34	<.001
Negative friendship quality	.39	<.001
Peer status		
Preference	.37	<.001
Popularity	.75	<.001
Empathy		
Affective empathy	.23	<.001
Cognitive empathy	.01	.462
Prosocial motivation	.18	.005
Prosocial behavior		
Peer-reported	.45	<.001
Prosocial fairness	.05[†]	.495
Inefficient fairness	.01[†]	.939

Note. [†]Cohen's kappa

preference and positive friendship quality, the indirect actor-partner path of prosocial motivation (β = 0.17, p = .004) and the direct effect were significant. For the link between preference and negative friendship quality, the same indirect effect was significant for prosocial motivation (but in the opposite direction, β = -0.07, p = .041) and for affective empathy (β = -0.05, p = .016), together with the direct effect. See Figure 3A and 3B for standardized regression coefficients of the paths in these models. Further testing of the contrasts between the indirect and direct partner paths revealed no difference for prosocial motivation as actor-partner mediator between preference and positive friendship quality. For the indirect effects of the association between preference and negative friendship quality, the direct effects were margin-

Table 4

Fit Statistics for the APIM and APIMeM Models

	χ^2 (*df*)	*p*	RMSEA	CFI
APIM				
Preference → Positive Friendship Quality	4.77 (6)	.574	0	1
Preference → Negative Friendship Quality	10.53 (6)	.104	.06	.94
Popularity → Positive Friendship Quality	6.31 (6)	.389	.02	.99
Popularity → Negative Friendship Quality	9.62 (6)	.141	.05	.98
APIMeM				
Preference → x → Positive Friendship Quality				
Empathy				
Affective empathy	14.15 (12)	.291	.03	.99
Cognitive empathy	9.98 (12)	.618	0	1
Prosocial motivation	9.64 (12)	.648	0	1
Prosocial behavior				
Peer-reported	14.71 (12)	.258	.03	.99
Prosocial fairness	8.35 (12)	.758	0	1
Inefficient fairness	6.62 (12)	.882	0	1
Preference → x → Negative Friendship Quality				
Empathy				
Affective empathy	15.13 (12)	.235	.04	.97
Cognitive empathy	16.93 (12)	.152	.04	.94
Prosocial motivation	17.35 (12)	.137	.05	.96
Prosocial behavior				
Peer-reported	14.89 (12)	.248	.03	.99
Prosocial fairness	11.97 (12)	.448	0	1
Inefficient fairness	10.99 (12)	.530	0	1
Popularity → x → Positive Friendship Quality				
Empathy				
Affective empathy	14.56 (12)	.266	.03	.99
Cognitive empathy	13.27 (12)	.350	.02	1
Prosocial motivation	10.14 (12)	.604	0	1
Prosocial behavior				
Peer-reported	15.30 (12)	.225	.04	.99
Prosocial fairness	10.73 (12)	.552	0	1
Inefficient fairness	12.28 (12)	.423	.01	.99

Note. RMSEA = root mean square error of approximation. CFI = confirmatory fit index.

Table 5

APIM effects – Exogenous correlations and regression weights for peer status

	r	Positive friendship quality		Negative friendship quality	
		Actor	Partner	Actor	Partner
Preference	.39***	.04 (0.41/0.46)	.11*	-.05 (-0.24/0.26)	-.14** (-0.73/0.26)
Popularity	.75***	-.00 (-	.18**	.07 (0.34/0.32)	-.00 (-0.01/0.32)

Note. *< .05 **< .01 ***< .001

Table 6

APIMeM unstandardized mediating effects: actor preference → actor and partner social skills → partner positive and negative friendship quality

	Partner positive friendship quality			*Partner negative friendship quality*		
Mediator	Actor mediation	Partner mediation	Direct effect (b†)	Actor mediation	Partner mediation	Direct effect (b†)
Empathy						
Affective empathy	0.19	0.02	0.82 (.09)	**-0.05***	-0.00	-0.65* (-.13)
Cognitive empathy	0.13	0.02	0.89 (.10)	-0.03	-0.01	-0.66* (-.13)
Prosocial motivation	**0.17****	-0.03	0.90* (.10)	**-0.07***	0.01	-0.65* (-.13)
Prosocial behavior						
Peer-reported	0.24	-0.01	0.80 (.09)	-0.25	0.00	-0.46 (-.09)
Prosocial fairness	0.12	-0.10	0.95* (.10)	-0.06	0.07	-0.73* (-.14)
Inefficient fairness	0.03	**-0.14***	1.09* (.12)	-0.01	**0.14****	-0.86* (-.16)

Note. *< .05 **< .01 ***< .001 † = standardized effect. Significant mediating effects in are indicated in bold. Mediation analyses were only conducted for significant simple APIM effects (see Table 5).

ally stronger than the actor-partner indirect effects (affective empathy: β = 0.60, p = .040; prosocial motivation: β = 0.58, p = .043).

For inefficient fairness as a mediator in the association between preference and friendship quality, the partner-actor indirect paths for both positive and negative friendship quality were significant (β = -0.14, p = .026; β = 0.14, p = .002, respectively). These indirect effects were again effects of partial mediation. See Figure

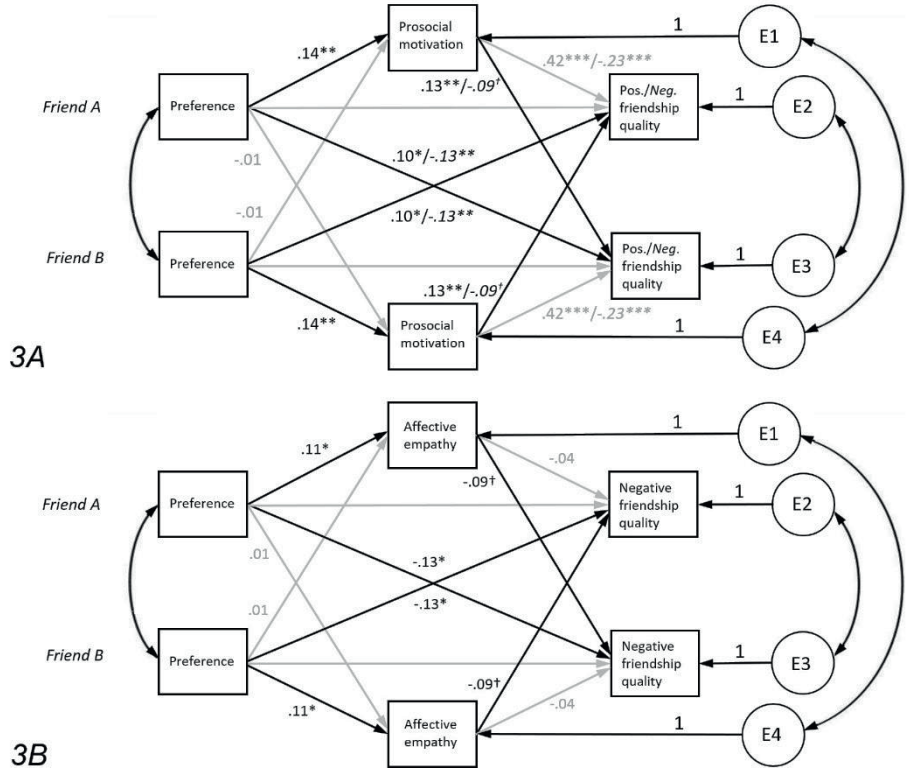

Figure 3. *Standardized regression coefficients for individual actor and partner paths and direct partner effect of mediating effects. A. Actor mediation; effects on negative friendship quality in italic font; †p = .051. B. Actor mediation; †p = .051.*

3C for standardized regression coefficients of these models. Further testing of the contrasts revealed no difference between the partner direct effect and the indirect paths. No indirect effects of peer-reported prosocial behavior or prosocial fairness were found to explain the partner effect of preference on positive or negative friendship quality. The actor-partner indirect effect for prosocial fairness on the link between preference and positive friendship quality almost reached statistical significance ($\beta = 0.12$, $p = .058$).

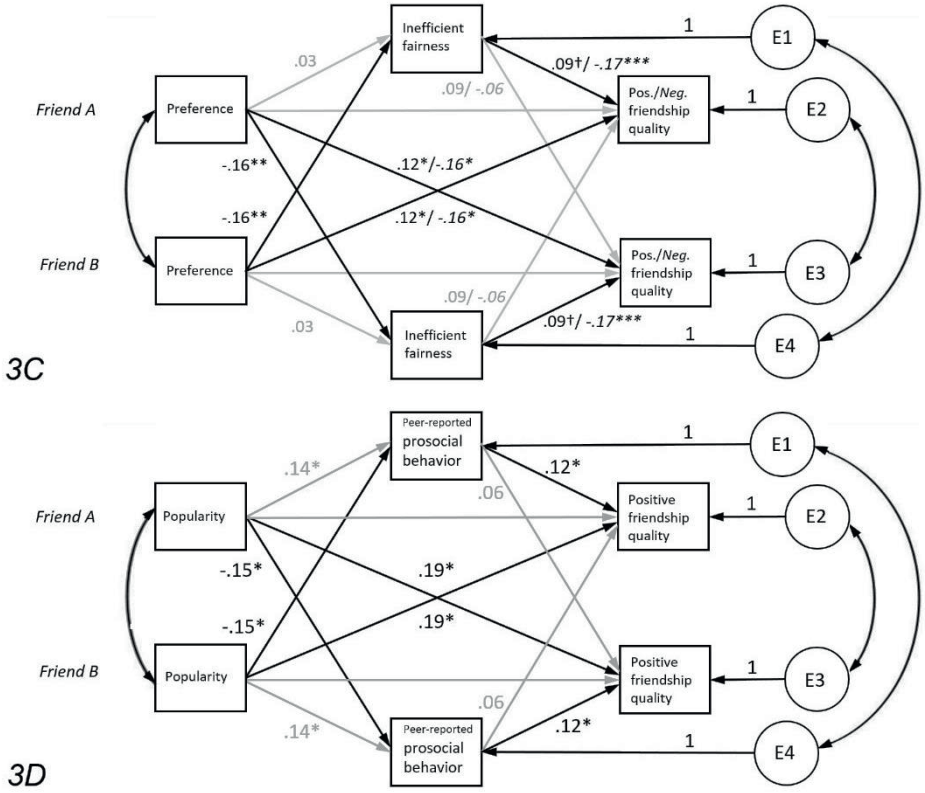

Figure 3 (continued). *Standardized regression coefficients for individual actor and partner paths and direct partner effect of mediating effects. C. Partner mediation; effects on negative friendship quality in italic font; †p = .056. D. Partner mediation.*

Popularity

APIM-analyses with popularity as a predictor showed no association with negative friendship quality; therefore, further mediation analysis with this outcome variables was omitted. Table 7 shows the mediating effects for actor popularity on partner positive friendship quality. Total effect of actor popularity on partner positive friendship quality was ß = -1.58; p = .014 (N = 430) and in analyses with the experimental variables, total effect was ß = 1.58; p = .027 (N = 410). Mediation analyses for positive friendship quality revealed no indirect partner effects for empathy, prosocial fairness, and inefficient fairness, as Table 6 shows. Only peer-reported prosocial behav-

Table 7

APIMeM unstandardized mediating effects: actor popularity → actor and partner social skills → partner positive friendship quality

	Partner positive friendship quality		
Mediator	Actor mediation	Partner mediation	Direct effect ($b^{\dagger}$)
Empathy			
Affective empathy	0.10	-0.08	1.56* (.17)
Cognitive empathy	0.05	-0.06	1.59* (.18)
Prosocial motivation	0.08	-0.24	1.74** (.20)
Prosocial behavior			
Peer-reported	0.12	**-0.14***	1.60* (.19)
Prosocial fairness	-0.08	0.03	1.63* (.18)
Inefficient fairness	-0.03	-0.05	1.66* (.18)

Note. *< .05 **< .01 ***< .001 † = standardized effect. Significant mediating effects in are indicated in bold. Mediation analyses were only conducted for significant simple APIM effects (see Table 5).

ior showed a negative partner mediating effect (β = -0.14, p = .031). See Figure 3D for standardized regression coefficients of the paths in this model. The direct effect was stronger than the partner-actor indirect effect (β = -1.74, p = .013).

4.4 DISCUSSION

The goal of this study was to examine the association between peer status and friendship quality and the possible mediating role of empathy and prosocial behavior, using dyadic models. The APIM enabled us to distinguish between the effects of an adolescent's status on her or his own reports of the quality of a friendship (actor effect) and the effects of an adolescent's status on the friend's reports of the quality of the friendship (partner effect). The APIMeM made it possible to test for mediators of each of these two effects (actor and partner). First, actor and partner effects of peer status (preference, popularity) on perceived friendship quality were studied. Second, following the significant results from the first analyses, we tested whether

the partner effects of preference and popularity on friendship quality were mediated by empathy and prosocial behavior.

Partner effects of peer status: Friends' status predicts friendship quality
As expected, the APIM analyses showed simple partner effects of both types of peer status, indicating that if an adolescent was more preferred or more popular, their friend perceived the friendship more positively. If an adolescent was more preferred, their friend also perceived the friendship less negatively. There were no actor effects of peer status on friendship quality. In other words, adolescents' status determined how their friends perceived their relationship, but not how they themselves perceived it.

We expected that the friends of popular adolescents would report negative friendship qualities such as power imbalance and conflict. This was not found. This may be due to a selection effect that leads to higher acceptance of popular adolescents' authority by their friends. This explanation is supported by the idea that adolescents want to hang out with popular peers and avoid conflict with them by accepting certain negative features of the relationship so that they can "bask in their glory" (e.g., Dijkstra et al., 2010). It is also possible that negative friendship quality is underreported in friendships with popular individuals, due to a reputational bias: "everyone else wants to be friends with this person, therefore she/he must be a good friend". Our finding of a partner effect of peer status on friendship quality but no actor effect could explain contradicting findings in previous research. Some earlier studies tested only actor effects (Poorthuis et al., 2012) or only partner effects (Dijkstra et al., 2010). Using a dyadic approach in the current study made it possible to separate and test both effects.

Mediation of partner effects: Role of empathy and prosocial behavior
Mediation analyses revealed that the partner effect of preference on friendship quality was partially mediated by empathy and prosocial behavior. This was less pronounced for the partner effect of popularity (only peer-reported prosocial behavior was a partial mediator). Overall, empathy was a partial *actor*-mediator and prosocial behavior a partial *partner*-mediator. That is, friends of more preferred adolescents see their friendships more positively because their friends are more empathic (actor mediation). On the other hand, the friends of preferred or popular adolescents see their friendships more positively because they themselves are less prosocial. These

results are further discussed in detail below.

Actor-mediation

On the level of mediating effects by the actor, the association between the higher preference of one's friend (actor) and more positive views on the friendship quality (partner) was mediated by the friend's (actor) stronger prosocial motivation. This motivation reflects the tendency to take more empathic prosocial actions. In addition, the association between the higher preference of one's friend (actor) and less negative views on the friendship quality (partner) was mediated by the friend's (actor) affective empathy and prosocial motivation. In other words, to a certain extent individuals who are friends with well-liked others perceive their friendships to be of higher quality due to the higher levels of social skills of their well-liked friends.

Partner-mediation

Interestingly, it is one's own lower preference for inefficient fairness (partner) that partially explains the link between the friend's preference (actor) and the perceptions of positive and negative friendships quality (partner). Not choosing for inefficient fairness means that inequity is not completely avoided and therefore acceptable under some circumstances. Adolescents with higher status are generally able to exert power over the peer group (De Bruyn & Cillessen, 2006; Lease et al., 2002) and a difference in preference can result in a power imbalance within the friendship as well. Thus, more acceptance of inequity explains why friendships with more preferred adolescents were seen as less imbalanced and less troubled by the friend. On the other hand, preference levels were highly similar within dyads; thus the effect must have been driven by small differences in status or by the small portion of dyads with larger differences. It should also be noted that no *actor*-mediating effect was found for fairness in the link between preference and negative friendship quality. It is therefore not the attitude towards fairness of one person that explains the association between this person's higher levels of preference and the other person's reporting of less imbalance and conflict. Finally, there was no mediating effect of fairness for popularity.

Although there was no *actor*-mediating effect of peer-reported prosocial behavior on the association between peer status and friendship quality, there was negative *partner*-mediation of the link between popularity and friendship quality. The findings indicated that one's own lower levels of prosocial behavior (partner) explain

why the friend's higher popularity (actor) is related to higher friendship quality (partner). Interestingly, this would mean that adolescents rate their friendship with a more popular friend as more positive due to their own lower levels of prosociality, or conversely, that due to their high levels of prosociality, adolescents might see their friendship with less popular friends as less positive. It has been shown that popular adolescents typically display both more antisocial and prosocial behavior (Mayeux et al., 2011). It could thus be that highly prosocial adolescents are not quite satisfied with their friendships with less popular, and thus possibly less prosocial, friends.

Cognitive empathy

Contrary to expectations, cognitive empathy did not mediate the associations between peer status and friendship quality. Since the reliability of the cognitive empathy subscale was borderline sufficient, results should be interpreted with caution. There were associations between cognitive empathy and friendship quality, but not between peer status and cognitive empathy. Thus, cognitive empathy seems to be important in friendships but not for status in the peer group. What may be at play here is the complex nature of cognitive empathy as a skill. In our study it was positively related to affective empathy, prosocial motivation, and prosocial behavior, but studies are not consistent in reporting such associations. While some studies failed to find negative links between cognitive empathy and aggression, others reported positive links between cognitive empathy and bullying (Caravita, et al., 2009; Jolliffe & Farrington, 2004). Other studies even reported an association between emotion understanding and self-serving manipulation of others (Konrath, Corneille, Bushman, & Luminet, 2014; Nozaki & Koyasu, 2013).

In light of these findings, cognitive empathy can be seen as a skill that can aid the expression of appropriate prosocial behavior, but can also facilitate manipulative antisocial behavior. It is possible that it depends on the social context what type of behavior follows from cognitive empathy skills. What could explain our results is that within a reciprocal relationship such as friendship, cognitive empathy is used to increase the quality of the relationship and it is less likely that it is employed for self-serving manipulation since this can threaten long-term continuation of the relationship. Furthermore, having a friend with poor emotion understanding can lead to miscommunications and feelings of disconnect, and thereby lower friendship quality. In the peer group, good cognitive empathy skills do not necessarily have to

be related to higher preference or popularity, because it can be used for status enhancing behavior, but also for self-serving manipulation or even bullying.

Conclusion

Taken together, the current study showed simple partner effects for peer status on friendship quality, but no actor effects. The lack of actor effects is noteworthy in itself and suggests that when it comes to peer status, friend's characteristics are more important than individual characteristics in one's perception of friendship quality. As previously shown however, other individual behavioral tendencies such as aggression or prosocial behavior are related to perceptions of friendship quality (Cillessen et al., 2005). The fact that we only found simple partner effects might be related to the nature of the measurement 'peer status'. Peer status is a social concept and is determined by all members of the peer group, which might explain why friend's peer status rather than one's own status predict perceptions of friendship quality. Which other characteristics of friends relate to individuals' satisfaction with their friendship is a worthwhile future direction for research.

Furthermore, our findings emphasize the nature of preference and popularity as unique measures of status (Cillessen & Marks, 2011) because their simple and mediating effects were strikingly different. Friends of highly preferred or popular adolescents perceive the friendship as more positive and less negative, but being higher in peer status is not related to more positive views of the same friendship. Empathy of highly preferred friends explained this association, but this did not account for the links between popularity and friendship quality. The discrepancy between the actor and partner effects of peer status on friendship quality and the absence of an explanation of the association between popularity and friendship quality by social skills points in the direction of a reputational bias on the perception of friendship quality. Apparently, being friends with a popular peer has something else to offer than a compassionate, understanding, and prosocial friend, that is highly satisfactory or desirable nonetheless. It is possible that the "basking in reflected glory effect" (Dijkstra et al., 2010) is responsible for this reputational bias.

Limitations and closing remarks

All mediating effects in this study were partial mediation effect, which means that a relevant portion of the variance remained unexplained. Even though we carefully se-

lected our mediators, other constructs such as shyness, antisocial behavior, or personality dimensions (e.g., extraversion, agreeableness) may explain the direct links between the friend's peer status and friendship quality. The need for dominance by the partner in the dyad could also explain the link between popularity and the friend's perception of the friendship quality. Furthermore, although we have based our model on current literature, since our design is cross-sectional, we cannot fully exclude the possibility that outcome and mediating variables could be switched. Future studies should address this by using longitudinal designs.

Previous studies have shown that the sensitivity for social hierarchy peaks in mid-adolescence (Gavin & Furman, 1989; LaFontana & Cillessen, 2010). Unfortunately the age range in our study was too small to examine developmental patterns. With a mean age of 14, our sample focuses on mid-adolescence and the effects of peer status on friendship quality may be specific to this phase in social development. Although we would expect peer acceptance to be related to higher friendship quality across different age groups (Parker & Asher, 1993), the role of popularity among peers might be expected to be less important at earlier developmental stages. Furthermore, due to its dyadic design the current study is unique in examining partner effects in friendship quality, which again might be less salient during early adolescence. Future research should address the early development of the influence of peer status on friendship quality.

In our study we did not test for differences in peer status between the two members of a friendship dyad. Intraclass correlations showed high levels of similarity of peer status between dyad members, especially for popularity. This is consistent with earlier studies (e.g., Peters et al., 2010). Nevertheless, it is not unthinkable that the effects in our study would be stronger when accounting for a possible moderating effect of the difference in peer status between friends and the associated control and dominance over the peer group, which should be investigated in future research.

This study used a process model of the role of peer status in friendship quality and found that higher peer status is positively related to friendship quality and that this association is partly explained by empathy and prosocial behavior. The current study is unique in using a dyadic perspective to examine links between peer status and friendship quality, as well as combining self-report, peer-report, and experimental measures of social skills and behavior. We showed that adolescents who were highly valued in the peer group were also highly appreciated as friends and their

social skills played a meaningful role on the friendship level. At the same time, adolescents who were popular but not necessarily liked also were seen as better friends, but this was not due to their empathy or prosocial behavior. This further supports the notion that high regard in the peer group in itself can contribute to dyadic friendship processes. Our findings support that intrapersonal factors (e.g., individual characteristics such as empathy skills), interpersonal dyadic factors (e.g., friendship quality), and the social dynamics in the peer system at large (e.g., peer status) are interlinked. As such, our findings increase our understanding of adolescents' decisions regarding their friendships, which might not always be clear for parents or practitioners working with adolescents. We show that understanding dyadic friendships (e.g., why it is desirable to have "friends in high places") is closely related to understanding the role of peer status in friendship quality. Our study confirms that dyadic relationships do not exist in a social vacuum and are influenced by both intrapersonal skills and social contextual factors.