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Associations of group level popularity with observed behavior and influence in a dyadic context

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ABSTRACT

This study examined the association between popularity in the peer group and adolescents' behavior in a dyadic context. After collecting peer nominations for popularity, 218 early adolescents ($M_{\text{age}} = 11.0$ years) in 109 randomly composed same-sex dyads participated in a discussion task where they planned a party for their classroom. From digital recordings of the sessions, each participant's influence, involvement, skillful leadership, coercive resource control, submissiveness, positivity, and negativity were observed. Analyses with the actor-partner interdependence model (APIM) demonstrated that for girls high group level popularity was associated with a socially sensitive interaction style and influence in the dyadic context. For both boys and girls, the interaction partner's group level popularity negatively predicted their use of coercive resource control strategies and negative behavior in the dyad. For girls, in addition, the interaction partner's group level popularity also positively predicted their submissiveness and negatively predicted their task influence. These results indicate that, in particular for girls, adolescents' group level popularity plays an important role in the behavior of both peers in a cooperative dyadic context.

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Introduction

The link between high group status and access to resources has been demonstrated in multiple instances (Gilbert, 1992; Hawley, 1999; Price, Sloman, Gardner, Gilbert, & Rohde, 1994). Hawley, for example, found a link between access to resources and position in the social hierarchy in the social groups of young children (Hawley, 2002; Hawley & Little, 1999) and adolescents (Hawley, 2003). High-status group members have access to resources and the power to distribute them to others. As a result, others will comply with their wishes and desires, giving the person high in social status the power to influence decisions.

When adolescents have high status because their peers see them as powerful and dominant, this is referred to as popularity. Popularity is distinct from acceptance in the peer group both conceptually and in the behaviors associated with both indicators of status (for a review, see Cillessen, Schwartz, & Mayeux, 2011). The recent literature on popularity consistently shows that adolescent popularity is associated with exerting influence through socially skilled and coercive or manipulative behaviors. Most of this knowledge is based on peer nominations (e.g., Cillessen & Mayeux, 2004; LaFontana & Cillessen, 2002; Lease, Kennedy, & Axelrod, 2002; Rose, Swenson, & Waller, 2004) or teacher report data (e.g., Puckett, Aikins, & Cillessen, 2008; Rodkin, Farmer, Pearl, & Van Acker, 2000; Xie, Swift, Cairns, & Cairns, 2002), which is thought to represent a general behavioral profile within the classroom or grade context.

Knowledge on influence and specific behaviors associated with group level popularity in dyadic situations cannot be extracted from peer nominations because they measure general behavioral profiles but do not reveal specific behavioral processes. Here we argue that we also need to understand how popular adolescents behave in interactions with one peer, rather than examining only general behavioral profiles, to better understand the scope of group level popularity. Observational data on dyadic behavior of adolescents varying in popularity status provide us with the opportunity to examine whether and how popularity plays a role in interactions with peers outside of the group context. The question is whether popularity, as defined in the larger peer context, is associated with influence and a unique behavioral profile in dyadic interactions.

Adolescents' popularity and their own behavior and influence in a dyadic setting

Much can be learned about youths' social relationships from observed one-on-one interactions between two peers (e.g., Gottman, 1983; Parker & Gottman, 1989; Parker & Herrera, 1996). Although observational data have been used frequently throughout the history of research on peer relationships (see, e.g., Asher & Coie, 1990; Ladd, 2005; Newcomb, Bukowski, & Pattee, 1993; Rubin, Bukowski, & Parker, 2006), surprisingly few studies have related observational data to popularity (for exceptions, see Allen, Porter, McFarland, Marsh, & McElhaney, 2005; McElhaney, Antonishak, & Allen, 2008). Cohen and Prinstein's (2006) study is closest to this type of design. However, those authors studied groups of four instead of dyads, did not observe live interactions between peers, and conceptualized high social status as either acceptance or popularity. The current study examined the association between peer-nominated popularity and observed behavior in a dyadic interaction with a peer.

Previously, Hinde (1976) and Hartup (1983) indicated that dyadic interactions differing in content and quality are the building blocks of dyadic relationships. Dyadic relationships, in turn, shape group structure, making it likely that dyadic interactions (through relationships) are related to status hierarchies at the group level. Although dyadic situations thus contribute to shaping status at the group level (Hinde, 1976), this does not necessarily mean that group level status always predicts behavior in all types of dyadic interactions.

Popular adolescents may behave differently in interactions with one peer than in the context of the classroom because both contexts pose different challenges, trigger different responses, and/or depend on different competencies. Coercive behavior may be partly motivated by the desire to be seen by the group as bold and powerful. In a dyad, however, there is no longer a group audience. In a dyad, there also is no support from peers who may assist or encourage coercive behavior in a larger group. Thus,

although popularity is strongly associated with aggressive and coercive behaviors in the classroom (Cillessen & Borch, 2006; Cillessen & Mayeux, 2004; Rose et al., 2004), a weaker association may be expected in a dyadic one-on-one setting.

If behavior in the dyadic setting is related to group level popularity, this may depend on the type of dyadic situation. If the goal in a dyadic context is to collaboratively come to a plan (as is the case in the current study), youths high in popularity may display socially skilled behavior. If the dyadic situation is competitive or leaves more room for status display and reinforcement, youths high in popularity may instead resort to more coercive behaviors.

Thus, we expected higher levels of adolescents' group level popularity to be related to the amount of influence adolescents have in the dyadic setting. Because the dyadic setting does not provide an audience or support from peers, taking away a part of the rewards and facilitators of coercive dominant behavior, we expected adolescents' group level popularity to be related to prosocial ways of exerting influence rather than being related to coercive ways of exerting influence.

Adolescents' popularity and their peers' behavior and influence in a dyadic setting

In addition to popular adolescents' own behavior in dyadic interactions, it is also interesting to examine how popular adolescents affect the behavior of the peer with whom they are interacting. Popularity is often associated with peer influence (see, e.g., Sandstrom, 2011); studies have shown that the friends of popular adolescents are likely to become similar to them in aggression (Prinstein & Cillessen, 2003; Rose et al., 2004), depressive symptoms (Prinstein, 2007), and health risk behaviors (Rancourt & Prinstein, 2010). The influence of popularity on peers' behaviors has also been demonstrated with social network models (Dijkstra, Berger, & Lindenberg, 2011) and chat room paradigms (Cohen & Prinstein, 2006). However, no studies have directly observed the behaviors of popular adolescents in a one-on-one situation with a peer where the influence may actually occur. Such influence can take place through direct reinforcement of behavior such as in deviancy training (Dishion, Spracklen, Andrews, & Patterson, 1996). But it is also possible that an adolescent's reputation is enough to elicit certain behaviors from a peer who is interacting with her or him (Lansu, Cillessen, & Sandstrom, 2014).

Although previous studies have found that adolescents become similar in behavior to a popular peer (e.g., Prinstein, 2007; Rancourt & Prinstein, 2010; Rose et al., 2004), contrast or complementary effects are also possible. If the other person is using force to exert influence, mimicking this behavior may lead to a clash. With such behaviors, the response most beneficial for a successful interaction may be one of reciprocity (e.g., submissiveness in response to coercive behavior) or decreasing one's coercive behavior because the other person is showing high levels of coercion.

This reciprocity is consistent with Leary's (1957) interpersonal circumplex theory. Leary distinguished two main dimensions of interpersonal behavior: affiliative behavior (e.g., kindness) and controlling behavior (e.g., coercion). He further predicted correspondence in interpersonal interactions for affiliative behaviors (e.g., kindness evoking kindness) but reciprocity for controlling behaviors (e.g., coercion evoking submissiveness). Therefore, early adolescents may respond in a reciprocal fashion to popular peers' displays of power. In addition, because popular adolescents supposedly have more influence on decisions being made during the task, their interaction partners may have less influence.

Thus, we expected adolescents' high group level popularity to be associated with reduced task influence by their interaction partner. Moreover, based on the circumplex theory, we expected that higher levels of adolescents' group level popularity would trigger lower levels of display of coercive resource control strategies and higher levels of submissiveness in their interaction partner during a dyadic interaction.

Research questions and study design

The goal was to examine the association between adolescents' group level popularity and their observed dyadic behavior. First, we examined the association of adolescents' group level popularity with their own leadership/coercive/submissive behavior, positive/negative behavior, and influence exerted in a dyadic interaction setting. Second, we also examined the association of adolescents' group

level popularity with the leadership/coercive/submissive behavior, positive/negative behavior, and influence exerted by the interaction partner. The associations of adolescents' group level popularity with their own behavior and that of their interaction partner in a dyadic context are new and innovative issues that have not yet been addressed in the popularity literature.

To address these questions, group level popularity was measured with a sociometric procedure in the classroom. Next, adolescents participated in a dyadic cooperative task with a random same-sex classmate, and their behavior during the interaction was video-recorded. The recordings were later coded for each participant's task involvement, leadership behaviors, coerciveness and submissiveness, positive and negative behaviors, and influence during the task.

We chose to study these questions during early adolescence because popularity is becoming increasingly important at this age (LaFontana & Cillessen, 2010) and popularity starts to have its own distinctive behavioral profile. We chose the "party plan task" because it allows youths to interact in a very natural way without explicit rules or manipulation by the researcher, thereby closely resembling a frequently occurring situation in the school context. Whereas the task itself is cooperative in nature, the situation does allow for participants to show coercive behaviors such as not taking turns, pushing their own ideas, and showing negative behaviors (e.g., discarding or mocking suggestions from the interaction partner).

Boy and girl dyads were considered separately. There are gender differences in the correlates and consequences of adolescent popularity (for a review, see Rose, Glick, & Smith, 2011), and the dyadic context also plays a different role in the social lives of girls and boys. Girls spend more time in dyadic interactions (Belle, 1989; Benenson, 1993), have more extended dyadic interaction episodes (Benenson, Apostoleris, & Parnass, 1997), and are focused more on dyadic relationships than boys (Maccoby, 1998). Furthermore, the nature of dyadic interactions differs between boys and girls (Maccoby, 1998). For example, observational studies have shown that young boys' same-sex play is more active-forceful and stereotyped than girls' play (Fabes, Martin, & Hanish, 2003), whereas girls engage in more collaborative work and play (Hops, Alpert, & Davis, 1997; Leaper, 1991). Given such gender differences associated with popularity and with dyadic behaviors, same-sex girl and boy dyads were examined separately.

Dyads of same-sex classmates were randomly formed, which fits the research questions well. In this way, homophily effects were ruled out and there was no structural organization of the dyads with regard to preexisting relationships or within-dyad status differences that could account for the results. During the party plan task, both dyad members were assigned the same role (collaborator), and the dyads were not selected based on preexisting relationships with roles within those relationships. Therefore, the data were analyzed with the actor-partner interdependence model (APIM) for interchangeable dyads (Olsen & Kenny, 2006). This statistical model yields *actor effects*, indicating the association of group level popularity with adolescents' own behaviors and task influence, and *partner effects*, indicating the association of group level popularity with a peer's behavior and task influence.

The APIM for interchangeable dyads estimates actor and partner effects simultaneously with each member of the dyad, thereby serving as both actor and partner. The associations between predictor and outcome for both dyad members are treated as being equal in the model. Thus, estimates remain the same whether a child takes the position of Child A or Child B in the analyses.

Method

Participants and procedure

Participants were early adolescents from nine fifth- and sixth-grade classrooms of five elementary schools serving middle-class communities in The Netherlands. Classroom sizes ranged from 17 to 41, with a total of 249 students. The sample was 93% Caucasian, with the remaining 7% coming from various ethnic backgrounds. The data collection consisted of a sociometric measurement in the late fall of the school year and an experimental part in the early spring and was approved by the institute's institutional review board. Parents were informed of the study by a letter and were asked

to indicate in writing if they did not want their children to participate, hence using a passive consent procedure.

Of the 249 students in the classrooms, 243 (98%) (114 boys and 129 girls, $M_{\text{age}} = 11.0$ years, $SD = 0.7$) participated in the sociometric part and 234 (94%) participated in the dyadic task. Six students did not complete the sociometric questionnaire because they were absent on the day of testing. Six students did not participate in the dyadic task because their parents did not give permission for video-recording them. Fifteen students did not participate in the dyadic task because they were absent or because the number of students in their classroom was uneven. The 228 students in the dyadic task formed 109 same-sex dyads (55 female and 54 male) and, due to uneven numbers of girls and boys in some classrooms, 5 mixed-sex dyads. The mixed-sex dyads were not included in the analyses.

Sociometric measure

Following the procedure advised by Cillessen and Marks (2011), students could nominate classroom peers who were “most popular” and “least popular.” Unlimited peer nominations enabled same- and other-sex nominations, with classroom as the reference group. Nominations received were counted for each question and standardized within classrooms. A continuous score for *popularity* was computed as the difference between the standardized numbers of most popular and least popular nominations received, again standardizing the resulting difference scores within classrooms.

Dyadic interaction task

The second part of the study took place in a quiet room in the school. There, participants completed a “party plan task” together with one randomly selected same-sex peer from their classroom. The two participants sat in front of a laptop with a webcam. They were asked to plan a classroom party by completing a form on the laptop. The form asked them to make decisions about the day and time of the party, the activities that would take place, and the drinks and snacks that would be available. Each dyad had 10 minutes to complete this task. The 10-min interaction was videotaped, and participants were aware of the video-recording.

Behavior ratings

The recorded interactions were rated by three independent coders using an adapted version of the Child–Friend Interaction Rating Scales (C-FIRS; Peters, Van den Bosch, & Riksen-Walraven, 2007), which is an adapted version of the Observed Friendship Quality Scale (OFQS) developed by Flyr, Howe, and Parke (1995). The coders rated both dyad members separately on seven 5-point Likert scales. *Task influence* measured the degree to which a child actually influenced the planning of the party regardless of the strategy used to exert influence. *Involvement with the other peer* reflected the degree to which the adolescent was interested in, involved with, and attentive and oriented to the peer. *Skillful leadership* reflected the use of sophisticated and flexible strategies in the pursuit of the adolescent’s goals while taking into account the goals and feelings of the other. *Coercive resource control* reflected the degree to which the adolescent was dominant or “bossy,” trying to exert disproportionate control over what was happening during the session. *Submissive behavior* reflected the degree to which the adolescent had a role as a “follower,” let the peer control her or his behavior, was submissive to the peer’s efforts to dominate, and actively sought direction, approval, or permission from the peer. *Positive behavior* reflected the degree to which the adolescent showed positive behavior and positive affect in interactions with the peer. *Negative behavior* reflected the degree to which the adolescent showed negative behavior and negative affect toward the peer.

Coder reliability tested with intraclass correlation coefficients (ICCs) ranged from .56 to .77 (task influence, ICC = .66; involvement with the peer, ICC = .60; skillful leadership, ICC = .56; dominant behavior, ICC = .64; submissive behavior, ICC = .58; positive behavior, ICC = .73; negative behavior, ICC = .77). The scores of the three coders were averaged to one score for each behavior.

Results

Descriptive statistics

Table 1 shows the means and standard deviations for all variables in the total sample and by gender. Gender differences were tested for significance. Girls were more involved ($\eta^2 = .16$) and showed more skillful leadership ($\eta^2 = .08$) and positive behavior ($\eta^2 = .07$) than boys. Boys showed more coercive resource control ($\eta^2 = .04$) than girls. There were no gender differences for the other variables. Table 2 shows the within-person associations between popularity and observed behavior and influence variables by gender. These were computed with SEM analyses that take into account the possible dependency between dyad members.

The APIM for interchangeable dyads (Olsen & Kenny, 2006) was run in AMOS to predict observed influence and behavior from peer-nominated popularity. Fig. 1 displays the model. The model was estimated separately for each observed behavior and task influence. On the left side of the model, the peer-nominated popularity scores of both dyad members were always the predictors, predicting one type of observed behavior on the right side. Each model was run as a two-group model for boy and girl dyads separately. Table 3 shows the results of these models. Gender differences between pathways were tested with pairwise comparisons between path coefficients (two-tailed testing, $p < .05$ when z -value > 1.96).

Adolescents' popularity and their own behavior and influence in a dyadic setting

The actor effects illustrate the association between one's popularity and one's own behaviors and own influence in the dyadic context. For boys, group level popularity tended to be negatively associated with showing skillful leadership during the interaction. Popularity was not associated with other observed behaviors of boys. For girls, group level popularity was associated with a wider set of behaviors during the dyadic interaction. Girls' popularity was positively associated with involvement and skillful leadership and negatively associated with submissiveness during the dyadic interaction.

Furthermore, group level popularity was positively associated with girls' influence during the task, whereas boys' popularity was not associated with influence during the task.

Adolescents' popularity and their peers' behavior and influence in a dyadic setting

The partner effects illustrate the association of one's popularity with one's interaction partner's behaviors and the interaction partner's influence in the dyadic interaction. Results showed that group level popularity was not only associated with adolescents' own behavior but also associated with the behavior of their randomly selected interaction partner. In both boy and girl dyads, an adolescent's group level popularity was negatively associated with the interaction partner's coercive resource

Table 1

Means and standard deviations for popularity and observed behaviors in the overall sample and by gender.

	Overall ($n = 218$)		Girls ($n = 110$)		Boys ($n = 108$)	
	M	SD	M	SD	M	SD
Popularity	0.01	0.99	-0.04	0.98	0.06	1.01
Involvement	3.34	0.54	<u>3.56</u>	0.45	<u>3.13</u>	0.53
Skillful leadership	2.35	0.65	<u>2.52</u>	0.67	<u>2.17</u>	0.59
Coercive resource control	1.27	0.42	<u>1.19</u>	0.33	<u>1.36</u>	0.48
Submissiveness	1.84	0.46	1.86	0.47	1.81	0.46
Positive behavior	2.78	0.62	<u>2.94</u>	0.62	<u>2.60</u>	0.59
Negative behavior	1.22	0.41	1.18	0.41	1.25	0.42
Influence	3.17	0.54	3.18	0.53	3.17	0.56

Note. Means that are underlined were significantly different by gender in a one-way analysis of variance ($p < .05$).

Table 2
Within-person associations of popularity with observed behaviors by gender.

	1	2	3	4	5	6	7	8
1. Popularity		.15 [†]	.18 [†]	-.10	-.14	.06	.00	.02
2. Involvement	-.12		.39 [†]	-.19 [*]	-.07	.60 [*]	-.28 [*]	.09 [†]
3. Skillful leadership	-.20 [*]	.57 [*]		.10	-.40 [*]	.11 [†]	-.05	.23 [*]
4. Coercive resource control	.09	-.13	.02		-.25 [*]	-.12 [†]	.62 [*]	.12 [†]
5. Submissiveness	-.03	-.32 [*]	-.27 [*]	-.23 [*]		-.02	-.21 [*]	-.34 [*]
6. Positive behavior	-.08	.69 [*]	.27 [*]	-.22 [*]	.00		-.24 [*]	.09 [*]
7. Negative behavior	-.04	-.10	-.03	.66 [*]	-.22 [*]	-.20 [*]		.01
8. Influence	.08	.19 [*]	.23 [*]	.07	-.41 [*]	.18 [*]	.07	

Note. Girls, $n = 110$; boys, $n = 108$. Girls' associations are above the diagonal, and boys' associations are below the diagonal.

^{*} $p < .05$.

[†] $p < .10$.

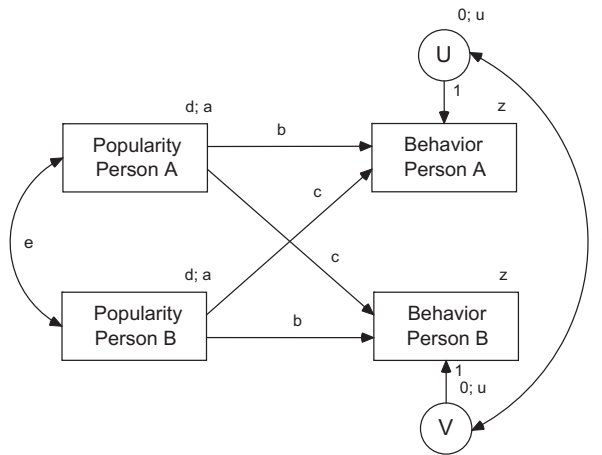


Fig. 1. APIM model for the prediction of dyadic behavior from classroom popularity. d, predictor mean; a, predictor variance; b, actor effect; c, partner effect; z, outcome mean; u, error variance; e, correlation of predictors Person A and Person B; f, correlation of the errors. This model was run as a two-group model with gender as the grouping variable. Equal letters for parameters indicate within-gender equality constraints as specified by Olsen and Kenny (2006).

Table 3
Standardized regression weights of actor and partner effects of popularity on observed behaviors in same-sex dyads.

	Girls ($n = 110$)		Boys ($n = 108$)	
	Actor effect	Partner effect	Actor effect	Partner effect
Involvement	<u>.18[*]</u>	.09	<u>-.13</u>	-.02
Skillful leadership	<u>.22[*]</u>	-.16 [†]	<u>-.18[†]</u>	-.08
Coercive resource control	-.01	-.28 [*]	.08	-.21 [*]
Submissiveness	-.22 [*]	.25 [*]	-.05	.08
Positive behavior	.14	.16 [†]	-.08	.01
Negative behavior	-.04	-.25 [*]	-.06	-.18 [*]
Influence	.22 [*]	-.24 [*]	.12	-.05

Note. Path estimates that are underlined differ significantly between boys and girls.

^{*} $p < .05$.

[†] $p < .10$.

control and negative behavior. In addition, in girl dyads but not boy dyads, group level popularity was also positively associated with the interaction partner's submissiveness. Furthermore, there was a trend that in girl dyads popularity was positively associated with the interaction partner's positive behavior and negatively associated with the interaction partner's skillful leadership.

The association of adolescents' group level popularity with their interaction partner's influence during the task again was significant in girl dyads but not in boy dyads. In girl dyads, a girl's popularity was negatively associated with the other girl's influence during the task.

Discussion

This study had two main goals. The first goal was to examine the association between early adolescents' group level popularity and their observed behavior and influence in a dyadic context. The second goal was to examine the association between early adolescents' group level popularity and a peer's behavior and influence in a dyadic context. This study was unique in that it examined behaviors in a dyadic setting in association with early adolescent popularity. A strength was the use of the APIM to determine the associations of popularity with adolescents' own and a peer's behavior and influence during the task. A further strength was that the design ruled out homophily as an explanation. Because dyads were composed randomly, there could be no selection effects. In this design, the impact of adolescents' own popularity on peer behavior in the dyadic task could be explained only by socialization.

Adolescents' popularity and their own behavior and influence in a dyadic setting

This study demonstrated that popularity, a group-defined characteristic, plays a role in a dyadic setting with a classroom peer. In the APIM analyses, popularity was associated with behavior in the dyadic setting for both genders, in particular for girls. For girls, group level popularity was related to a socially sensitive interaction style during the party plan task, characterized by involvement and skillful leadership. For boys, group level popularity was primarily related to skillful leadership. In contrast to girls, boys' popularity predicted low levels instead of high levels of skillful leadership during the party plan task. Thus, popularity was associated with behaviors in a dyadic setting in some interesting and surprising ways.

One focus of this study was on the association of popularity with coercive resource control. Whereas popularity is associated with displays of aggression and coercion at the group level (see, e.g., [Mayeux, Houser, & Dyches, 2011](#)), we expected this association to be weaker in a dyadic setting. Indeed, youths' popularity was unrelated to their coercive behavior in our dyadic task. One explanation for this difference may be that popularity is related to coercion only when there is something to gain such as prestige in the larger peer group. Without the peer group as a witness, gaining prestige does not play a role in a dyadic setting. In contrast, in settings with multiple peers or when adolescents know that their peers will learn about their behavior, the association between popularity and observed use of coercive resource control strategies might be stronger.

Another explanation for the different associations of popularity with group level versus dyadic behavior may lie in the nature of the task. Our dyadic task was a cooperative game. Because coercive strategies are more costly than prosocial strategies (leading to conflict and potentially resulting in defeat or retaliation), popular adolescents might only incidentally resort to aggressive strategies when prosocial strategies might not suffice. They are not likely to use coercive strategies when costs outweigh benefits ([Pellegrini, 2008](#)) such as in this cooperative task. However, conditions of scarce resources might be more likely to trigger coercive strategies in popular adolescents. Under such conditions, popular adolescents may use different influence strategies than when they are asked to cooperate as in this study.

We also examined whether group level popularity predicted influence during the dyadic task. Previously, a link between social dominance and self-reported resource control was found ([Hawley, 2003](#)). Indeed, for girls popularity was associated with actual influence; it positively predicted girls' own influence during the task. How might this influence be acquired? Theoretically, both coercive

and diplomatic strategies can yield influence. Among the girls in this sample, popularity seemed to predict a diplomatic or prosocial strategy to exert influence; it was associated with skillful leadership. This reminds us of [Hawley's \(1999\)](#) “prosocial controllers,” although skillful leadership was slightly different from that construct. Skillful leadership needed to benefit the child taking the lead as well as her interaction partner, whereas prosocial resource control usually is mainly focused on benefiting the child using the strategy. Previous studies demonstrated the association between popularity and prosocial control with peer- or self-report methods. This study provided further evidence for a link between status and influence through prosocial behavior in girls with observational data.

Adolescents' popularity and their peers' behavior and influence in a dyadic setting

This study also examined the association between an adolescent's popularity and the behavior of the partner in the dyadic task. Adolescents' popularity was associated with the behavior of the interaction partner. Boys and girls kept a low profile when interacting with a high-status peer. An adolescent's above-average group level popularity was associated with below-average coercion and negativity in the partner, as if the peer did not want to upset the popular adolescent. Because popularity was a continuous predictor, the results can also be interpreted from the low-popularity perspective. Adolescents may have felt freer to be bossy or disapproving to an unpopular peer.

It is interesting that popularity was not related to an adolescent's own coercive resource control and negativity in the dyad but rather was related to the coercive resource control and negativity of the peer. Thus, adolescents seem to adapt their behavior to a peer's reputation with regard to coercive behavior in the larger peer group even when coercive behavior does not actually seem to occur during the dyadic interaction. Popular peers may have used aggression and coercive strategies earlier to gain status in their peer group, but because coercion is costly, they may try to minimize its use while maintaining their group position ([Hartup, 1983](#); [McGrew, 1972](#); [Strayer, 1980](#)). Once the group hierarchy is established, there is less need to engage in such potentially costly strategies. A reputation of aggression and coercion may be enough to keep peers under control. Interaction partners of high-status adolescents may keep a low profile because they are aware of the capabilities of the high-status influential peer.

We also examined whether adolescents' popularity predicted their partner's influence in the task. Indeed, group level popularity negatively predicted the partner's influence. Thus, popularity had reciprocal effects on task influence in girl dyads. Because influence during the task is related to control rather than affiliation, this is in line with [Leary's \(1957\)](#) circumplex theory.

Gender

Some gender differences have been found in the correlates and consequences of popularity examined at the level of behavioral profiles ([Rose et al., 2011](#)), but numerous previous studies have described both popular girls and popular boys as prosocial and socially skilled ([Adler, Kless, & Adler, 1992](#); [Eder, 1985](#); [Gorman, Kim, & Schimmelbusch, 2002](#); [Lease et al., 2002](#)). Our observational data showed a remarkable difference in this respect. Popularity was related to skillful leadership quite differently—positively for girls but negatively for boys.

In general, in the APIM analyses, we found more actor effects of popularity on observed behavior for girls than for boys. Apparently, in the current context, the connection between popularity and involvement and popularity and skillful leadership behavior is more strongly positively related for girls than for boys. If boys' popularity primarily depends on visible group behavior, whereas girls' popularity depends more on small group or dyadic interactions, this may partly explain the current findings. If boys can acquire and maintain status by showing off or intimidating others in the schoolyard and by doing well in sports, dyadic interactions may be less important to them as means to gain or maintain status. But if girls acquire and maintain status by being nice to certain other girls while making fun of or gossiping about others, dyadic interactions with other girls may be opportunities to reinforce or lose status. Such mechanisms might account for the numerous associations between popularity and dyadic behavior in the APIM analyses of girl dyads but the relative absence of these associations in boy dyads.

Although we aimed to present the dyads with a situation that is suitable for both boy and girl dyads, the dyadic setting may have been more comfortable for girls (reflected in their higher engagement in the task) because they have more experience with such situations (Hops et al., 1997; Leaper, 1991). This being comfortable could have led to a more naturalistic behavioral pattern in girls than in boys, making it more likely to find an association between group popularity and the observed behaviors for girls.

Another way in which gender could play a role is in the popularity reports. Because this is the first study to examine the relation between group level popularity and observed behavior in a dyadic setting, we used the most commonly used indicator of popularity—popularity as indicated by all group members. However, boys and girls may differ in their views on who is popular and who is not given that some traits (e.g., athleticism) weight somewhat stronger in the popularity judgments of boys than of girls (LaFontana & Cillessen, 2002). Therefore, boy-reported popularity might slightly differ from girl-reported popularity and be predictive of other types of behaviors and outcomes. Previous research using peer ratings of popularity has, for example, already shown that girl-reported and boy-reported popularity in some instances differently predict early adolescents' behavior and well-being (Troop-Gordon & Ranney, 2014). Future studies on the role of popularity in dyadic contexts could consider further examining whose view on peers' popularity (boys' or girls') is a better predictor of observed dyadic behavior.

Limitations and future research

Although observations can provide very valuable information, it is sometimes difficult to reliably code observations. The poor reliability of the skillful leadership and submissiveness scores in the current study is a limitation. For very concrete and directly observable behaviors such as physical aggression, observers' categorization of behavior tends to correlate highly. However, for more abstract behaviors such as skillful leadership and submissiveness examined in the current study, concordance between observers can be expected to be lower. This because there are more gradations in the severity of the behavior and the interpretation of the behavior is more subjective. Based on the poor to moderate levels of agreement between coders, the current findings should be interpreted with caution, especially when interpreting findings with regard to skillful leadership and submissiveness. However, because it is difficult to obtain high interrater reliability when coding this type of behavior, and because these variables are associated with popularity in a theoretically plausible way, we do think that the current findings add to our understanding of the role of popularity in a dyadic setting.

Our study involved same-sex dyads because a large part of early adolescents' interactions are with same-sex peers (Bukowski, Gauze, Hoza, & Newcomb, 1993; Maccoby, 1990; Martin & Fabes, 2001). We know less about the role of popularity in adolescents' cross-sex interactions. For example, would popular girls display equal levels of skillful leadership in interactions with boys? Because women are verbally less dominant in mixed-sex dyads than in same-sex dyads (Kimble, Yoshikawa, & Zehr, 1981), the gender of the peer may moderate the association of popularity with behavior in the dyadic context for girls. Future studies with mixed-sex dyads may clarify this issue.

The difference in popularity status between dyad members may also play a role. In dyads where the difference is large, the associations of popularity with behavior could be more pronounced. Adolescents may be more aware of their own status when paired with a peer with very different status and act according to their lower social rank or higher social rank position in such cases. When an adolescent is paired with a peer who is similar, their level of popularity may be less closely tied to their behavior in the dyadic context. Such effects have been found in bully–victim dyads. Menesini, Melan, and Pignatti (2000) showed that when there is a large difference in power between two dyad members (as is the case in a bully–victim pair), the bully behaves dominantly and the victim behaves submissively. However, when the same children interact with an average control peer, bullies are less dominant and victims are less withdrawn.

The adolescents in this study were observed in a cooperative task. A meta-analysis by Roseth, Johnson, and Johnson (2008) showed that during early adolescence cooperative contexts are associated with higher levels of positive peer interactions than competitive or individualistic contexts. Thus, it would be interesting to examine whether popularity predicts a different behavioral profile

in a competitive or stressful situation than in the current cooperative situation. Previous research has shown that aggressive and coercive responses are more likely when an interaction context is competitive (DeRosier, Cillessen, Coie, & Dodge, 1994; Dodge, Coie, Pettit, & Price, 1990). Accordingly, popular adolescents may behave differently when competing, when performing under stress, or when their social position is threatened. Under conditions of threat, popular adolescents may switch from a socially sensitive style to more coercive strategies in order to gain or maintain their status. It will be interesting to examine the behavioral correlates of popularity among adolescents under such conditions in a future study.

Finally, the effect of girls' popularity was not always one of literal peer contagion. Among girls, classroom popularity was associated with skillful leadership and influence in interaction with a peer but also with submissive behavior and reduced influence of the peer. The peer partner seemed to complement the leadership behavior of a popular adolescent rather than copy it. This seems to support the idea that popular adolescents can influence peers not only by triggering assimilation but also through a contrast effect. A very interesting goal for further research is to determine under what conditions popularity triggers similar behaviors and when it triggers reciprocal and contrasting behaviors.

Conclusion and practical implications

In this study, group level popularity was associated with behavior and influence during the task in a dyadic context. Popularity was associated with early adolescents' own dyadic behavior and task influence and those of their peer. Because the associations of popularity with behavior in dyadic interactions were numerous for girls but less evident for boys, gender should be taken into account when studying the latitude of the associations of popularity with behavior in multiple interaction contexts.

It is important for teachers to realize that popularity also can play a role when adolescents interact during class time outside of the larger peer group. Especially among girls, popularity may be linked to their own and an interaction partner's behavior in a one-on-one situation. Being aware of the ways in which popularity can shape interactions gives teachers a lead to change behavior. For example, if a teacher wants to promote assertiveness and leadership in a girl, having her work with a highly popular peer might not be the best option because the popular peer's reputation or behavior could evoke submissive behavior in the girl. Instead, the teacher could pair her with an average-status peer, or maybe explicitly assign a more submissive role to the peer with whom she would be interacting, in order to promote the girl's assertiveness. Future studies could shine more light on the conditions under which popularity plays a role in a dyadic setting. The current study, however, is one of the first to demonstrate that group level popularity is related to influence, coercion, and leadership behavior in dyadic interactions.

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