Published in final edited form as:

Dev Psychol. 2014 June ; 50(6): 1721–1733. doi:10.1037/a0036417.

Popularity among same-sex and cross-sex peers: A process-oriented examination of links to aggressive behaviors and depressive affect

Wendy Troop-Gordon and John D. Ranney

North Dakota State University

Abstract

Popularity has been linked to heightened aggression and fewer depressive symptoms. The current study extends this literature by examining the unique contributions of same-sex and cross-sex popularity to children's development, as well as potential mediating processes. Third- and fourth-graders (212 boys, 250 girls) provided data at three time points over two school years. Data included peer-reported popularity, social exclusion, friendships, peer victimization, and aggression, and self-reported social self-esteem and depressive affect. Same-sex and cross-sex popularity independently contributed to the prediction of aggression and depressive affect. Popularity was associated with heightened aggression through reduced social exclusion and was indirectly related to lower levels of depressive affect through increased friendships. For boys only, same-sex popularity was further associated with dampened depressive affect through reduced social exclusion and peer victimization and increased social self-esteem. Findings are discussed in light of the potential tradeoffs associated with popularity in preadolescence.

Keywords

popularity; aggression; depression; peer relationships

Recent attention to popularity, as characterized by power, visibility, and standing (i.e., perceived popularity, consensual popularity; Cillessen & Rose, 2005; de Bruyn & van den Boom, 2005; for further discussion regarding terminology for popular status, see Cillessen & Marks, 2011), has challenged the premise that success within peer domains leads ubiquitously to healthy development. The risks associated with popularity are well-documented and include engagement in delinquent behaviors and academic failure (Schwartz & Gorman, 2011). Most notably, popularity is positively associated with aggressive behavior (Cillessen & Rose, 2005), and longitudinal evidence suggests that popularity may play a causal role in the development of aggression (Cillessen & Mayeux, 2004; Rose, Swenson, & Waller, 2004a). Despite these risks, popularity may protect youth from emotional distress. Popular youth report depressive symptoms and anxiety at levels

comparable to, or even lower than, youth with average social standing (Luthar & McMahon, 1996; Rose & Swenson, 2009), and, for boys, popularity predicts lower levels of internalizing problems (Sandstrom & Cillessen, 2006; 2010).

One limitation of this previous research is an implicit assumption of consensus within the peer group as to which members are popular. Subgroups within the peer system may have divergent perceptions as to who they perceive as “popular.” A particularly salient dimension on which the peer group is often divided is children’s sex. Sex-segregation starts early in childhood, and cross-sex interactions remain limited throughout early adolescence (Maccoby & Jacklin, 1987). Consequently, children perceived as popular by same-sex peers may not be perceived as popular by cross-sex peers. However, little is known as to the extent to which same-sex and cross-sex popularity are related or whether cross-sex popularity contributes to development over and above same-sex popularity. The current study addressed this issue by examining same-sex and cross-sex ratings of popularity separately and investigating whether each uniquely predicts aggression and depressive affect over the course of a year.

In addition, little is known as to why popularity is a risk factor for aggressive behavior or why it may protect against depressive affect. To address this limitation, we drew on self-determination theory (SDT; Deci & Ryan, 2000) as a theoretical framework with which to identify mechanisms through which popularity is associated with aggressive behavior and depressive affect and to examine whether there are similar or divergent pathways linking same-sex and cross-sex popularity to aggression and depressive affect.

Same-sex and Cross-sex Popularity in Preadolescence

During early and middle childhood, children socialize primarily with same-sex agemates (Maccoby & Jacklin, 1987). Consequently, by preadolescence, popularity among same-sex peers may reflect long-established social hierarchies. In contrast, popularity among children of the opposite sex during this period may reflect a marked shift in the nature of their interactions with cross-sex classmates. During the late elementary school years, children increasingly engage in what has been termed “border work” – playful interactions with cross-sex peers, often occurring in group contexts and involving teasing, pranking, and conversing on a limited range of safe topics (e.g., homework assignments, school activities; Adler & Adler, 1998; Eder & Parker, 1987; Poulin & Pedersen, 2007; Thorne, 1993). Furthermore, although cross-sex friendships remain rare (Kovacs, Parker, & Hoffman, 1996) and romantic relationships will not develop for a number of years (Adler & Adler, 1998; Furman & Collins, 2009), preadolescents often are aware as to which boys and girls are the frequent targets of romantic crushes (i.e., “liked”; Adler & Adler, 1998). Consequently, preadolescence may be a period in which children develop salient perceptions as to which of their cross-sex peers are popular.

Emerging popularity among cross-sex peers may not correspond to being viewed as popular among same-sex peers. Although the characteristics associated with popularity in childhood are well-documented (e.g., athleticism, toughness, humor, for boys; physical attractiveness, academic success, selectivity in friendships, for girls; Adler & Adler, 1998; LaFontana &

Cillessen, 2002; Vaillancourt & Hymel, 2006), boys and girls may differ as to which traits are integral to their evaluations of popularity. For example, boys have been shown to place greater emphasis on athletic ability than girls when judging popularity (LaFontana & Cillessen, 2002). Furthermore, children's interactions with same-sex and cross-sex peers differ in both quantity and quality, likely leading to significant differences in the information available to children when considering the popularity of same- and cross-sex peers (see Dijkstra, Cillessen, Lindenberg, & Veenstra, 2010a, for a similar argument regarding same-sex and cross-sex likeability). Thus, children may evaluate their cross-sex peers' popularity using a limited set of publically observable behaviors that are likely to be evidenced in mixed-sex groups (e.g., toughness, physical attractiveness, humor). Evaluations of same-sex popularity may be based on observations in a wider-range of interpersonal contexts (e.g., same-sex play, after school activities), including more intimate, dyadic friendships.

Cross-sex popularity also may confer risks and benefits over and above those found for same-sex popularity. This may be particularly true during the preadolescent period when, due to normative maturational shifts, children evidence increased interest in, and interactions with, cross-sex peers (Poulin & Pedersen, 2007; Thorne, 1986). Cross-sex popularity may directly affect the quality of children's interactions with cross-sex peers, even if such interactions are somewhat infrequent. The consequence may be more beneficial and supportive of exchanges with cross-sex peers. However, greater prominence and inclusion in mixed-sex interactions may also lead to greater displays of toughness and social dominance, resulting in heightened aggression. Therefore, although perhaps not as pivotal as same-sex popularity, cross-sex popularity may uniquely contribute to children's depressive affect and aggressive behavior.

A Self-Determination Theory Perspective on Popularity and Development

Stump, Ratliff, Wu, and Hawley (2009) propose that children are socially competent to the extent that their behaviors allow them to fulfill intrapsychic and interpersonal needs. Their view was derived, in part, from Self-determination Theory (SDT; Deci & Ryan, 2000). SDT postulates that well-being is the result of a congruent self-identity in which one's actions are intrinsically and autonomously motivated. This autonomously motivated state can be achieved only when needs for autonomy, relatedness, and competence are met. When these needs are thwarted, mental and physical health is compromised (Deci & Ryan, 2000). Drawing on Stump et al.'s proposition, we contend that popularity may help fulfill each of these needs. We further contend that by fulfilling these needs popularity may protect children from psychological distress, but may also increase the likelihood that they will engage in aggressive acts aimed at maintaining their privileged status.

In this study, we focused on popularity as fulfilling relatedness and competence needs. Popularity may satisfy relatedness needs, in part, by affording youth greater inclusion in peer activities and opportunities to forge friendships. This premise is consistent with peer relations literature in which group status, dyadic relationships, and social interactions are viewed as conceptually distinct, but inter-related, processes (Rubin, Bukowski, & Parker, 2006). Consistent with this view, popular youth have been shown to be less socially isolated than their peers (LaFontana & Cillessen, 2002), to engage in more fun and social activities

(Adler & Adler, 1998), and have more friends than lower status peers (Adler & Adler, 1998; Rose, Swenson, & Carlson, 2004b). Popularity also predicts increases in being sought after for friendships (Dijkstra, Cillessen, & Borch, 2013; Dijkstra, Berger, & Lindenberg, 2011). Thus, less social exclusion and an increasing number of friends may be provisions procured through achieving popular status.

Popularity may also fulfill competence needs by protecting children from negative peer treatment and enhancing a sense of social self-efficacy. Popularity likely protects children from peer victimization, as agemates wish to ingratiate themselves with popular peers in order to elevate their own status (Dijkstra, Cillessen, Lindenberg, & Veenstra, 2010b), and research has shown that popular youth experience little direct peer victimization (de Bruyn, Cillessen, & Wissink, 2010). Popularity may also bolster social self-esteem. Popular children receive esteem-enhancing feedback (Eder, 1985), have influence over peers (Vaillancourt & Hymel, 2006), and report high levels of social self-efficacy (e.g., Cillessen & Mayeux, 2007; Hawley, 2003).

It is possible, however, that same-sex and cross-sex popularity do not equivalently contribute to need fulfillment. Because same-sex relationships remain children's primary source for friendships and social activities during preadolescence (Kovacs et al., 1996; Maccoby & Jacklin, 1987), the affordances associated with same-sex popularity are likely multifaceted. Popularity among same-sex peers may fulfill relatedness and competence needs by reducing social exclusion, increasing friendships, decreasing peer victimization, and increasing a sense of social self-efficacy. In contrast, given the relatively superficial nature of cross-sex relationships at this age, the avenues through which cross-sex popularity fulfills relatedness and competence needs may be more limited. For instance, cross-sex popularity may decrease social exclusion as mixed-sex peer interactions and activities increase, but likely plays little role in the development of new friendships. Furthermore, as children, particularly girls, are victimized by same-sex and cross-sex peers (Rodkin & Berger, 2008), cross-sex popularity may protect children from peer victimization. However, because of the relative novelty of cross-sex relationships in preadolescence, popularity among cross-sex peers may have little impact on children's sense of social self-esteem at this age. Thus, although it would be expected that cross-sex popularity would make a unique contribution to the fulfillment of relatedness and competence needs, these contributions likely would be limited to reducing social exclusion and victimization from peers.

The proposition that having relatedness and competence needs satisfied results in psychological benefits has been borne out in the literature on youth development. Whereas having friendships and being included in group activities predict lower levels of internalizing problems, having competence needs thwarted by peer harassment and abuse undermines mental health and adjustment (Gazelle & Ladd, 2003; Troop-Gordon & Ladd, 2005). However, fulfillment of these needs may also increase risk for engaging in aggressive behaviors. By forging new friendships and gaining inclusion in peer activities, children may be presented with increased opportunities to aggress against others (Rose et al., 2004a). These friends and other social affiliates may also be willing to act as assistants or reinforcers for their aggressive acts (Rose et al., 2004a). Low levels of peer victimization may allow children to aggress against peers without fear of retribution (Rose et al., 2004a), and

increased social self-esteem may escalate the risk for aggression, as children may act out against those who challenge their heightened view of self-worth (Diamantopoulou, Rydell, & Henricsson, 2008). Thus, same-sex popularity may increase risk for aggression and protect against depressive affect by leading to an increased number of friends, protecting against social exclusion and peer victimization, and enhancing social self-esteem. Cross-sex popularity may be similarly associated with aggression and depressive affect, but only through lowered social exclusion and peer victimization.

The Current Study

To summarize, the current study had two objectives. The first was to test the hypothesis that same-sex and cross-sex popularity uniquely predict heightened aggressive behavior and lower levels of depressive affect during preadolescence. The second objective was to identify mechanisms which may account for these associations. Same-sex popularity was expected to predict greater aggression and lower levels of depressive affect through lower levels of social exclusion, an increased number of friends, less peer victimization, and heightened social self-esteem. In contrast, only lower levels of social exclusion and peer victimization were expected to link cross-sex popularity to these outcomes. To test these hypotheses, path models were estimated using data collected at three time points across two school years.

Potential sex differences were also taken into account. Although empirical and theoretical work on sex differences in the link between popularity and adaptation is still nascent (Litwack, Aikins, & Cillessen; 2012), sex may play an important part in how popularity influences development. For example, popularity has been found to protect against depressive affect among boys, but not girls (Sandstrom & Cillessen, 2006; 2010). However, girls evidence greater support and validation from their friends than boys (Rose & Rudolph, 2006), suggesting that indirect effects through friendships formation may be stronger for girls. Sex differences, therefore, may emerge in the total effects of popularity on aggression and depressive affect and in the mediating pathways. Accordingly, multi-group analyses were employed when testing each path model.

Analyses were also conducted to address potential overlap between children's popularity and their acceptance by peers (i.e., likeability, preference). Although even among preadolescents the characteristics associated with popularity are different from those associated with peer acceptance, the two are often highly correlated (LaFontana & Cillessen, 2002; Lease, Kennedy, & Axelrod, 2002). To determine to what extent popularity-outcome links are due to power and social prominence rather than acceptance and likeability, a final set of models was tested in which the direct and indirect effects of popularity on aggressive behavior and depressive affect were tested controlling for same-sex and cross-sex ratings of peer acceptance.

Method

Participants

Data were collected as part of a larger study on children's socio-emotional development. All 3rd- and 4th-grade teachers from 5 public elementary schools in the upper-Midwest of the USA were invited to participate. Twenty-four (80%) participated in the study. Parental consent forms were sent home to all children in the participating classes. Parental consent was obtained for 366 children (74.1%). During the fall of the second year of the study, 99 additional children consented to participate. These children had been in non-participating classrooms during the first year of the study or were new to the participating schools. Data from three of these children were not included in the analyses presented here due to having obtained consent after peer-report data had been collected. Thus, the final sample included 462 children (212 boys, 250 girls; $M_{\text{age}} = 9$ years, 4 months, $SD_{\text{age}} = 8.29$ months). Children were Caucasian (84.6%), Native American (5.4%), Hispanic (1.3%), African-American (1.1%), Asian-American (1.1%), or mixed or other ethnicity (6.6%). Children and their families resided in three rural communities and two mid-sized cities. Families were primarily middle or upper-middle class. Two hundred and seventy-six parents provided data on their family's annual income; 6.2% reported annual incomes between \$0–\$20,000, 17.4% within \$20–\$40,000, and 76.4% reported incomes of \$41,000 or greater.

Measures

Same-sex and cross-sex popularity—Popularity was assessed by having children rate how “popular” their participating classmates were on a scale from 1 (*not at all*) to 3 (*a lot*). *Popular* was defined as “being respected by other children, seen as being ‘cool,’ and [having] many kids want to be friends with [this child].” This item is consistent with previous assessments of popularity in which children have been asked to nominate “popular” peers (e.g., Rose & Swenson, 2009), peers who are “cool” (Farmer, Estell, Bishop, O’Neal, & Cairns, 2003), or peers others often wish to befriend (Ryan & Shim, 2008). Children received two popularity scores. The first was the average status rating received from same-sex classmates. The second score was the average rating received from cross-sex classmates.

Social exclusion—Social exclusion was assessed by having children rate participating classmates as to how often each “get[s] left out of things that kids are doing [or] kids don’t let him or her play with them” on a scale from 1 (*Never*) to 4 (*A lot*). This item taps solitary behavior due to being actively isolated from peer group activities and relationships and is distinct from isolated behavior stemming from low approach motivation, anxiety, or fearfulness (e.g., unsociability, anxious solitude; Bowker & Raja, 2011). A composite social exclusion score was computed by averaging all ratings received on this item.

Number of friends—To identify friendships, children were provided with a list of names of their participating classmates and were asked to circle the names of up to five children with whom they were good or best friends (Parker & Asher, 1993). Friendships were limited to those instances when children nominated each other as friends. Children’s friendship

scores were calculated as the total number of reciprocated friendship nominations they received.

Peer victimization—Three peer-rating items, derived from the Multi-Informant Peer Victimization Inventory (Ladd & Kochenderfer-Ladd, 2002), were used to measure peer victimization. These items tapped physical (i.e., “hit or pushed at school”), verbal (i.e., “kids call bad names or say other mean things to him or her”), and general peer victimization (i.e., “picked on by other kids”). Children rated how often each of their participating classmates were the target of the specific form of victimization on a scale from 1 (*Never*) to 4 (*A lot*). The average rating received on each item was computed, and these three item scores were averaged to create a composite peer victimization score ($\alpha = .80, .85, \text{ and } .87$, for Waves 1, 2, and 3, respectively).

Social self-esteem—Children completed four items derived from the perceived social acceptance subscale from the Harter (1985) Self-Perception Profile for Children (e.g., “How easy is it for you to make friends at school?”). Children indicated their level of social self-esteem on a scale from 1 (*Not at all*) to 4 (*Very*). Item scores were averaged to compute a composite social self-esteem score ($\alpha = .66, .72, \text{ and } .65$, for Waves 1, 2, and 3, respectively).

Aggression—Aggression was measured using four peer-rating items tapping general (“picks on others”), physical (“hits or pushes other kids”), verbal (“calls other bad names”), and relational aggression (“tells other kids that they can’t play with them or that they won’t be friends with them”). These items are similar to those used in previous studies (e.g., Bowker, Rubin, Buskirk-Cohen, Rose-Krasnor, & Booth-LaForce, 2010; Rose & Swenson, 2009). Ratings were made on a scale from 1 (*Never*) to 4 (*A lot*) (α s = .94, .95, and .96, for Waves 1 – 3, respectively). Item scores were computed by averaging ratings received. Although previous research suggests that relational aggression may be more characteristic of popular youth than physical aggression (Cillessen & Rose, 2005), preliminary analyses revealed no differences in the pattern of associations for these two forms of aggression. Therefore, a composite aggression variable was computed by averaging the four item scores.

Depressive affect—Depressive affect was assessed with four items adapted from the Center for Epidemiological Studies Depression Scale for Children (Radloff, 1977). Children rated the extent to which they “[felt] like crying,” “were unhappy,” “were sad in school,” and “were happy” (reverse-scored) on a scale from 1 (*Never*) to 4 (*A lot*). Item ratings were averaged to create a composite scale ($\alpha = .72, .76, \text{ and } .68$, for Waves 1, 2, and 3, respectively).

Peer acceptance—Ratings of peer acceptance were obtained by having children rate how much they like to play with each of their participating classmates on a 3-point scale from 1 (*Not at all*) to 3 (*A lot*) (Parker & Asher, 1993). At Wave 1, the mean same-sex acceptance scores was 2.29, $SD = .42$, and the mean cross-sex acceptance score was 1.60, $SD = .36$. Wave 1 same-sex acceptance and same-sex popularity scores were significantly correlated ($r = .62, p < .001$), as were cross-sex acceptance and cross-sex popularity ($r = .36, p < .001$).

Procedures

Data were collected during the fall and spring of the 2005–2006 school year and the fall of the 2006–2007 school year. Written, informed assent was obtained at the start of each data collection session. One research assistant read questions aloud, and additional assistants were available to offer help to students individually. Children completed questionnaires on a range of topics, but only peer-reports of popularity, friendships, victimization, aggression, and acceptance, and self-reports of social self-esteem and depressive affect were used for this study.

Results

Descriptive Statistics and Missing Data

Table 1 presents descriptive statistics for same-sex and cross-sex popularity, the mediator variables, and aggression and depressive affect. Children evidenced greater same-sex than cross-sex popularity, and social isolation, peer victimization, aggression, and depressive affect scores were relatively low. At Wave 1 (W_1), girls had higher cross-sex popularity ($M = 1.94$; $SD = .31$) than boys ($M = 1.83$; $SD = .37$), $t(362) = -3.04$, $p = .003$, $d = .32$, and lower social exclusion scores ($M_s = 1.41$ and 1.48 , $SD = .28$ and $.35$, for girls and boys, respectively), $t(362) = 2.25$, $p = .03$, $d = .24$. At all three waves, boys had higher peer victimization and aggression scores than girls ($p_s < .001$, d_s ranged from .41 to .72). Girls, in contrast, had higher depressive symptom scores at Waves 2 and 3 (W_2 and W_3 ; $M_s = 1.76$ and 1.64 ; $SD_s = .72$ and $.61$) than boys ($M_s = 1.52$ and 1.48 ; $SD_s = .58$ and $.52$), $p_s = .004$, $d_s = .37$ and $.29$, for W_2 and W_3 , respectively.

Missing data occurred due to repeated absences, children moving schools, and a teacher not consenting to data collection in W_3 ($n = 14$). Missing data ranged from 0% – 14.94% across study variables. Children with complete data had higher same-sex (W_1 & W_2) and cross-sex popularity scores (W_2 & W_3), more friends (W_1 , W_2 , & W_3), higher social self-esteem (W_3), less social exclusion (W_2), and higher same-sex peer acceptance (W_1). By using full information maximum likelihood (FIML) in Mplus (Muthén & Muthén, 2007), all available data from the 462 children were included in analyses.

Bivariate Correlations

Table 2 presents correlations among same-sex and cross-sex popularity, as well as their correlations with the mediator and outcome variables. Table 3 presents correlations among the mediator and outcome variables. These correlations were, for the most part, significant and in expected directions. One notable exception was the modest negative associations found between popularity and aggression. Correlations between aggression and depressive affect (not shown in Table 3) were modest ($r_s = .22$) and not always significant.

Direct Effects of W_1 Same-sex and Cross-Sex Popularity on W_3 Adjustment

Path models were estimated to test whether W_1 same-sex and cross-sex popularity independently predicted W_3 aggression and depressive affect. Models were tested separately for aggression and depressive affect, and multi-group analyses were used to test for sex differences. In each model, $W_1 - W_3$ indicators of each variable were included, and all

autoregressive paths were estimated. As it was assumed that popularity within one peer group would bolster popularity within other peer groups, cross-lagged paths were included between same-sex and cross-sex popularity. Paths were included from W_1 same-sex and cross-sex popularity to W_3 aggression and depressive affect. Equality constraints were imposed to test: a) stationarity of effects across waves (see Cole & Maxwell, 2003) and b) sex differences in parameter estimates.

Aggression—Figure 1 presents final parameter estimates for the path model testing links between popularity and aggression. To improve model fit, paths were added from W_1 aggression to W_3 aggression, and from W_1 aggression to W_2 same-sex and cross-sex popularity. Cross-sex popularity was less stable for girls than for boys, $\chi^2(1) = 27.24, p < .001$. Aggression was more stable from W_1 to W_2 than from W_2 to W_3 , $\chi^2(1) = 29.38, p < .001$, and aggression was more stable from W_2 to W_3 for girls than boys, $\chi^2(1) = 3.99, p = .046$. The paths from W_1 aggression to W_2 same-sex, $\chi^2(1) = 4.20, p = .04$, and cross-sex popularity, $\chi^2(1) = 13.23, p < .001$, were stronger for girls than for boys. Cross-lagged paths between same-sex and cross-sex popularity were significant and positive. Not shown in Figure 1 are within-wave covariances. The covariance between same-sex and cross-sex popularity was positive at each wave (r s range from .24 to .46) and was stronger for boys than for girls at W_1 , $\chi^2(1) = 5.93, p = .01$. Within-wave covariances between popularity and aggression were modest and negative (r s range from $-.02$ to $-.27$), and were significant only at W_1 for boys. The final model adequately fit the data, $\chi^2(44, N = 462) = 81.61, p < .001$, comparative fit index (CFI) = .98, root mean square error of approximation (RMSEA) = .061, standardized root mean square residual (SRMR) = .061.

Tests of the direct effects of popularity on aggression revealed a significant difference between same-sex popularity and cross-sex popularity, $\chi^2(1) = 6.08, p = .01$. W_1 same-sex popularity was not predictive of W_3 aggression. However, W_1 cross-sex popularity predicted greater levels of W_3 aggression.

Depressive affect—Figure 2 presents final parameter estimates for the path model testing links between popularity and depressive affect. As was the case for aggression, cross-sex popularity was less stable for girls than boys, and all cross-lagged paths between same-sex and cross-sex popularity were positive and significant. Within-wave covariances between same-sex and cross-sex were modest and were stronger at W_1 for boys than for girls. Within-wave covariances between popularity and depressive affect were modest (r s range from .03 to $-.17$) and rarely statistically significant. The final model adequately fit the data, $\chi^2(53, N = 462) = 86.14, p = .003$, CFI = .97, RMSEA = .052, SRMR = .088.

W_1 same-sex popularity predicted lower levels of W_3 depressive affect for boys and heightened W_3 depressive affect for girls, a significant sex difference, $\chi^2(1) = 13.91, p < .001$. For boys and girls, W_1 cross-sex popularity predicted less W_3 depressive affect.

Indirect Effects of W_1 Same-Sex and Cross-Sex Popularity on W_3 Adjustment

Models were next tested to identify indirect effects of same-sex and cross-sex popularity on aggression and depressive affect. Each combination of mediator and outcome variable was tested in a separate model (see Figure 3 for the structure of the models tested). As indirect

effects can be detected in the absence of direct effects (MacKinnon, Krull, & Lockwood, 2000), same-sex popularity was retained in models testing indirect effects on aggression. Equality constraints for the status and outcome variables were retained from previous analyses. To improve model fit, adjustments were made to the model based on the modification indices. These changes were limited to adding within-wave covariances and directional paths and freeing the stability of directional paths. The number of modifications made ranged from two to seven across the models tested. A list of these modifications can be obtained from the first author. Indirect effects were tested using bootstrapped confidence intervals (CI) using 1,000 resamples (MacKinnon, Lockwood, & Williams, 2004). CIs that did not contain 0 signified a significant indirect effect.

Aggression—Table 4 presents standardized coefficients for paths leading from W_1 same- and cross-sex popularity to the W_2 mediator and from the W_2 mediator to W_3 aggression, as well as the 95% CIs for the indirect effects. When testing indirect effects through social exclusion, the final model adequately fit the data, $\chi^2(75, N = 462) = 125.27, p < .001$, CFI = .98, RMSEA = .054, SRMR = .058. For boys and girls, W_1 same-sex popularity was indirectly associated with heightened W_3 aggression through lower levels of W_2 social exclusion. A sex difference emerged in the path from W_1 cross-sex popularity to W_2 social exclusion, $\chi^2(1) = 3.99, p = .046$, such that the path was significant only for boys. Consequently, for boys, but not for girls, W_1 cross-sex popularity was indirectly associated with heightened W_3 aggression through lower levels of W_2 social exclusion.

When testing indirect effects through number of friends, peer victimization, and social self-esteem, the final models adequately fit the data, with fit statistics ranging from $\chi^2(80-87, N = 462) = 138.09 - 146.40, ps < .001$, CFI = .97, RMSEA = .051 - .060, SRMR = .065 - .072. W_1 same-sex and cross-sex popularity predicted having more friends, less peer victimization, and heightened social self-esteem at W_2 . However, W_2 friends, peer victimization, and social self-esteem did not predict W_3 aggression, and the indirect effects were not significant.

Depressive affect—Table 5 presents standardized coefficients for paths leading from W_1 same-sex and cross-sex popularity to the W_2 mediator and from the W_2 mediator to W_3 depressive affect, as well as the 95% CIs for the indirect effects. When testing indirect effects through social exclusion, the model fit the data well, $\chi^2(87, N = 462) = 132.94, p < .001$, CFI = .98, RMSEA = .048, SRMR = .067. W_1 same-sex and cross-sex popularity predicted less W_2 social exclusion. W_2 social exclusion predicted greater W_3 depressive affect for boys, but not girls, a significant sex difference, $\chi^2(1) = 12.97, p < .001$. Consequently, for boys only, W_1 same-sex and cross-sex popularity were indirectly associated with lower levels of W_3 depressive affect through lower levels of W_2 social exclusion.

When testing indirect effects through number of friends, the model fit the data well, $\chi^2(90, N = 462) = 134.00, p < .001$, CFI = .97, RMSEA = .049, SRMR = .073. For boys and girls, W_1 same-sex and cross-sex popularity were indirectly associated with lower levels of W_3 depressive affect through having more friends at W_2 .

When testing indirect effects through peer victimization, the model adequately fit the data, $\chi^2(94, N = 462) = 157.17, p < .001$, CFI = .96, RMSEA = .054, SRMR = .073. W_1 same-sex, but not cross-sex, popularity predicted less W_2 peer victimization, and W_2 victimization predicted greater W_3 depressive affect for boys, but not girls, a significant sex difference, $\chi^2(1) = 12.84, p < .001$. Consequently, for boys only, W_1 same-sex popularity was indirectly associated with lower levels of W_3 depressive affect through lower levels of W_2 peer victimization.

When testing indirect effects through social self-esteem, the model adequately fit the data, $\chi^2(94, N = 462) = 158.32, p < .001$, CFI = .96, RMSEA = .054, SRMR = .081. W_1 same-sex, but not cross-sex, popularity predicted lower W_2 social self-esteem, and W_2 social self-esteem predicted greater W_3 depressive affect for boys, but not girls, a significant sex difference, $\chi^2(1) = 10.21, p = .001$. Consequently, for boys only, W_1 same-sex popularity was indirectly associated with lower levels of W_3 depressive affect through heightened W_2 social self-esteem.

Effect of Popularity Controlling for Same-sex and Cross-sex Acceptance

In order to determine whether the direct and indirect effects found for same-sex and cross-sex popularity could be attributed to children's acceptance by same-sex and cross-sex peers, we reran the models including W_1 same-sex and cross-sex peer acceptance as predictors of W_3 aggression and depressive affect in the models testing the direct effects of popularity and as predictors of the W_2 mediator in models testing indirect effects. The pattern of results for same-sex and cross-sex popularity remained the same even after controlling for same-sex and cross-sex acceptance, and all CIs for indirect effects remained significant.

Discussion

The contributions of the current investigation are twofold. First, the results show that during preadolescence, when social relationships remain strongly sex-segregated, popularity among cross-sex peers makes a contribution to the prediction of aggression and depressive affect that is neither negligible nor redundant with that of popularity among same-sex peers. Second, by drawing on SDT, the findings move us closer to a process-oriented account of how popularity fosters psychological well-being (e.g., lower depressive affect), while simultaneously increasing risk for aggression. Same-sex popularity was associated with lowered depressive affect through the fulfillment of relatedness (i.e., lower social exclusion, increased friendships) and competence needs (i.e., lower peer victimization, heightened social self-esteem). However, most of these links were limited to boys, providing novel insights as to why popularity may be more protective of depressive affect for boys than girls (Sandstrom & Cillessen, 2006; 2010). Furthermore, the current study points to cross-sex popular status as particularly influential in the development of aggression during preadolescence and provides evidence that popularity fosters aggression by affording youth greater social inclusion.

Same- and Cross-sex Popularity and Aggressive Behavior

Although popular youth exhibit high levels of aggression, developmental trends have been noted, indicating weak relations between popularity and aggression during the preadolescent years that become stronger during early adolescence (Aikins & Litwack, 2011; Cillessen & Rose, 2005). In the current study, correlations between popularity and aggression were negative and modest. This likely reflects low levels of popularity among aggressive children established earlier in the elementary school years. Preadolescence marks a transition in the relation between popularity and aggressive behavior during which popular status may foster increased use of aggression among youth who were previously non-aggressive.

The current findings suggest that cross-sex popularity, in particular, may play a role in the development of aggression during preadolescence. Cross-sex, but not same-sex, popularity, was directly associated with heightened aggression one year later. One explanation for this finding can be culled from research showing that aggression peaks when social hierarchies are in flux (Pellegrini & Bartini, 2001). It is possible that during the late elementary school years, same-sex status hierarchies are well-formed resulting in infrequent aggressive interactions among same-sex peers. Cross-sex status may be less stable at this age, leading to greater competition for cross-sex attention. However, cross-sex stability coefficients were found to be lower than same-sex stability coefficients for girls only, and, thus, this explanation would not hold up for boys. An alternative explanation may be derived from evidence of an increase in attraction to aggressive cross-sex peers during preadolescence (Bukowski, Sippola, & Newcomb, 2000; Pellegrini & Long, 2003). Preadolescents who obtain stature among their cross-sex peers may become increasingly aggressive against same-sex peers in order to maintain favor among cross-sex agemates. Alternatively, they may increasingly aggress against cross-sex peers in an immature attempt at flirting and demonstrating dominance (Poulin & Pedersen, 2007; Thorne, 1993). Thus, to explicate why cross-sex popularity is associated with later aggression, it will be important to identify who cross-sex popular children target when they aggress against others.

The current study was also one of the first to examine potential mechanisms linking popularity to aggression. Only social exclusion emerged as a significant mediator, linking same-sex popularity to aggression for boys and girls, and cross-sex popularity to aggression for boys. It has been proposed that greater social inclusion affords popular youth opportunities to manipulate peer relationships and aggress against those who threaten their social status (Rose et al., 2004a). Through increased social inclusion, popular youth may also interact with a more varied set of agemates, including peers who engage in aggressive behaviors (Schwartz & Gorman, 2011). Evidence indicates that aggressive, popular youth affiliate with each other (Witvliet et al., 2010), and that these affiliations cultivate increased use of aggression (Dijkstra et al., 2011). The current findings suggest that, not only may such influences account for increased aggression among popular youth, greater social inclusion may provide a key mechanisms through which popularity is associated with later aggressive behavior.

Two caveats need to be addressed. First, social exclusion mediated the link between cross-sex popularity and aggression for boys, but not girls. Boys are more likely to aggress against girls than girls are to aggress against boys (Rodkin & Berger, 2008). Thus, greater social

inclusion in cross-sex peer activities may afford boys, but not girls, greater opportunities to aggress. Second, although same-sex popularity was indirectly related to aggression, the direct effect was not significant. This suggests that there are mechanisms through which same-sex popularity reduces risk for aggression, resulting in a non-significant total effect. One possibility is that popular youth experience little agonism from peers, reducing their need to retaliate against others. However, the current findings did not indicate that same-sex popularity was linked to lower levels of aggression through reduced peer victimization. Alternatively, popular status within a relatively stable network of same-sex peers may reduce social cognitive biases that can lead to increases in aggressive behavior (Crick & Dodge, 1994). Research is needed to explicate how same-sex popularity may simultaneously promote, and protect against, aggressive behavior.

Same- and Cross-sex Popularity and Depressive Affect

Despite the risks, popularity has been shown to have psychological benefits, including protecting against depressive symptoms (Rose & Swenson, 2009; Sandstrom & Cillessen, 2006). The current study expands on this research by showing that same-sex and cross-sex popularity additively contribute to the prediction of depressive affect and by identifying processes through which popularity may reduce depressive affect. However, as anticipated, a broader array of mechanisms was identified for same-sex popularity than for cross-sex popularity.

Consistent with the proposition that popular status protects against depressive affect through the fulfillment of relatedness needs, same-sex and cross-sex popularity were associated with dampened depressive affect through an increased number of friends. That increased friendships emerged as a prominent mechanism linking popularity to lowered depressive affect is not surprising. Popular youth are sought after for friendship and affiliation (Dijkstra et al., 2010b; Eder, 1985). Through the formation of new friendships, popular youth likely are able to elicit emotional support, validation, and companionship, reducing risk for depressive affect (Vitaro, Boivin, & Bukowski, 2009).

Still, given the sex-segregated nature of children's peer groups, that cross-sex popularity predicted increased friendships was unexpected. It is possible that, although such friendships are rare at this age, popular youth develop friendships with opposite-sex peers. To this end, Kovacs et al. (1996) found that having cross-sex friendships may be a marker of healthy social adjustment if they do not constitute one's primary friendships. Although perhaps not as intimate, these cross-sex friendships may elicit many of the same provisions as same-sex friendships. It is also possible that cross-sex popularity affords children opportunities to develop same-sex friendships. Children, for example, may wish to befriend peers high in cross-sex popularity as a means of gaining access to cross-sex peer interactions and relationships.

The findings further help explain why popularity may protect against depressive symptoms for boys. Sandstrom and Cillessen (2006, 2010) speculated that this may be due to boys valuing dominance and prestige, rather than close relationships. However, the current findings suggest that same-sex popularity protects against depressive affect for boys through the fulfillment of relatedness needs (i.e., lower social exclusion and greater number of

friends) and competence needs (i.e., lower peer victimization and greater social self-esteem). In addition, cross-sex popularity was linked to dampened depressive affect for boys through reduced social exclusion. Because boys' tend to socialize in groups (Rose & Rudolph, 2006), exclusion from mixed-sex activities may reduce boys' options for fun and companionship (Gazelle & Ladd, 2003). Thus, whereas same-sex popularity may protect against depressive affect for boys through a variety of social and psychological provisions, cross-sex popularity may benefit boys primarily by increasing engagement in cross-sex or mixed-sex play and activities.

The findings point to two explanations as to why popularity may have a limited role in protecting girls from depressive affect. First, although same-sex popularity was indirectly related to dampened depressive affect, the direct effect was positive. Same-sex popularity may have liabilities for girls (e.g., competition with other girls, pressure to maintain popular status) that counter its positive effects. Second, social exclusion, peer victimization, and social self-esteem did not predict girls' depressive affect, suggesting that fulfillment of relatedness and competence needs may not protect girls from depressive feelings. This is surprising as past research connects these social and psychological provisions to girls' emotional well-being (e.g., Prinstein, Boergers, & Vernber, 2001; Troop-Gordon & Ladd, 2005). As girls transition into adolescence, however, they report higher levels of depression than boys (Nolen-Hoeksema, 2001), potentially due to greater generation of interpersonal stress (Rudolph, Flynn, Abaied, Groot, & Thompson, 2009). Friendships, rather than other interpersonal or intrapsychic resources, may limit interpersonal problems that sustain or heighten girls' depressive affect.

Limitations and Future Directions

The current findings provide evidence that, although related, same-sex and cross-sex popularity are independently associated with children's adjustment and may have varying effects on their well-being. Moreover, these relations held even after controlling for same-sex and cross-sex peer acceptance. Thus, these findings contribute to a growing body of research highlighting the importance of comparing same-sex and cross-sex peer relationships (Dijkstra, Lindenberg, & Veenstra, 2007; Dijkstra et al., 2010a). However, it will be important to study these associations during adolescence when concerns regarding popularity increase (LaFontana & Cillessen, 2010), and cross-sex relationships mature (Furman & Collins, 2009). Notably, in the current study, differences were not found between overt and relational aggression. However, as relational aggression has been shown to be uniquely related to popularity during adolescence (see Cillessen & Rose, 2005), the contributions of same-sex and cross-sex popularity to this form of aggression at older ages warrants further study. Moreover, although we speculate that children may base perceptions of cross-sex popularity on readily observable behaviors, studies are needed to identify which characteristics proffer popularity among cross-sex peers and which are central to establishing popularity among same-sex peers.

Integral to any process-oriented examination of the etiology of maladjustment is the utilization of longitudinal data with which prospective relations can be established between predictor, mediator, and outcome variables (Cole & Maxwell, 2003). Accordingly, a major

strength of this study was the inclusion of a three-wave panel design. However, the duration of the study was relatively short. Studies in which the consequences of same-sex and cross-sex popularity are studied over larger developmental periods will provide clearer insights as to the effect popular status has on trajectories of social and psychological development.

An additional strength of this paper was the inclusion of self- and peer-reported measures. Although associations may reflect shared method variance, controlling for stability in these variables likely reduced those effects. Depressive affect, however, was measured with only four items. A more comprehensive assessment of depressive symptoms should be included in subsequent research. Moreover, as popularity has been linked to prosocial behavior, academic attainment, and risky behavior (see Cillessen, Schwartz, & Mayeux, 2011), research is needed to identify the processes linking popular status to a broad range of outcomes.

Conclusion

The current findings underscore the importance of variations in popular status across same-sex and cross-sex peer groups and elucidate mechanisms through which popularity is associated with aggression and depressive affect. By allowing for integration into peer networks and activities, popularity was shown to predict increased aggression while simultaneously forecasting dampened depressive affect. Similar pathways were found for same-sex popularity; however, for boys, same-sex popularity was also associated with lower levels of depressive affect through decreased peer victimization and increased social self-acceptance. An important next step in this research will be identifying means of bolstering the benefits procured through popularity while minimizing potential risks to children's behavioral and emotional adjustment.

Acknowledgments

Data for this study came from the NDSU Youth Development Study. This research was supported by ND EPSCoR Grant #EPS-0447679 and North Dakota State University. We would like to thank Elizabeth Ewing Lee and all of the undergraduate research assistants who aided in data collection and management. We also wish to thank Stephanie Smith for assisting with formatting of the final draft of the paper. We are especially grateful to the children, teachers, and school administrators who participated in this study.

References

- Adler, P.A.; Adler, P. *Peer power: Preadolescent culture and identity*. Piscataway, NJ: Rutgers University Press; 1998.
- Aikins, J.W.; Litwack, S.D. Prosocial skills, social competence, and popularity. In: Cillessen, A.H.N.; Schwartz, D.; Mayeux, L., editors. *Popularity in the peer system*. NY: Guilford Press; 2011. p. 140-162.
- Bowker JC, Raja R. Social withdrawal subtypes during early adolescence in India. *Journal of Abnormal Child Psychology*. 2011; 39:201–212.10.1007/s10802-010-9461-7 [PubMed: 20922475]
- Bowker JC, Rubin KH, Buskirk-Cohen A, Rose-Krasnor L, Booth-LaForce C. Behavioral changes predicting temporal changes in perceived popular status. *Journal of Applied Developmental Psychology*. 2010; 31:126–133.10.1016/j.appdev.2009.10.002 [PubMed: 20209113]
- Bukowski WM, Sippola LK, Newcomb AF. Variations in patterns of attraction of same- and other-sex peers during early adolescence. *Developmental Psychology*. 2000; 36:147–154.10.1037/0012-1649.36.2.147 [PubMed: 10749072]

- Cillessen AHN, Mayeux L. From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development*. 2004; 75:147–163.10.1111/j.1467-8624.2004.00660.x [PubMed: 15015681]
- Cillessen AHN, Mayeux L. Expectations and perceptions at school transitions: The role of peer status and aggression. *Journal of School Psychology*. 2007; 45:567–586.10.1016/j.jsp.2007.05.004
- Cillessen AHN, Rose AJ. Understanding popularity in the peer system. *Current Directions in Psychological Science*. 2005; 14:102–105.10.1111/j.0963-7214.2005.00343.x
- Cillessen, AHN.; Schwartz, D.; Mayeux, L. Popularity in the peer system. NY: Guilford Press; 2011.
- Cole DA, Maxwell SE. Testing mediation models with longitudinal data : Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology*. 2003; 112:558–577.10.1037/0021-843X.112.4.558 [PubMed: 14674869]
- Crick NR, Dodge KA. A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*. 1994; 115:74–101.10.1037/0033-2909.115.1.74
- de Bruyn EH, van den Boom DC. Interpersonal behavior, peer popularity, and self-esteem in early adolescence. *Social Development*. 2005; 14:555–573.10.1111/j.1467-9507.2005.00317.x
- de Bruyn EH, Cillessen AHN, Wissink IB. Associations of peer acceptance and perceived popularity with bullying and victimization in early adolescence. *The Journal of Early Adolescence*. 2010; 30:543–566.10.1177/0272431609340517
- Deci EL, Ryan RM. The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*. 2000; 11:227–268.10.1207/S15327965PLI1104_01
- Diamantopoulou S, Rydell A, Henricsson L. Can both low and high self-esteem be related to aggression in children? *Social Development*. 2008; 17:682–698.
- Dijkstra JD, Cillessen AHN, Borch C. Popularity and adolescent friendship networks: Selection and influence dynamics. *Developmental Psychology*. 2013; 49:1242–1252.10.1037/a003009810.1037/a0030098.supp [PubMed: 22985296]
- Dijkstra JD, Berger C, Lindenberg S. Do physical and relational aggression explain adolescents' friendship selection? The competing roles of network characteristics, gender, and social status. *Aggressive Behavior*. 2011; 37:417–429.10.1002/ab.20402 [PubMed: 21688275]
- Dijkstra JK, Cillessen AHN, Lindenberg S, Veenstra R. Basking in the reflected glory and its limits: Why adolescents hang out with popular peers. *Journal of Research on Adolescence*. 2010b; 20:942–958.10.1111/j.1532-7795.2010.00671.x
- Dijkstra JK, Cillessen AHN, Veenstra R, Lindenberg S. Same-gender and cross-gender likeability: Associations with popularity and status enhancement. *The Trails Study. Journal of Early Adolescence*. 2010a; 30:773–802.10.1177/0272431609350926
- Dijkstra JK, Lindenberg S, Veenstra R. Same-gender and cross-gender peer acceptance and peer rejection and their relation with bullying and helping among preadolescents: Comparing predictions from gender-homophily and goal-framing approaches. *Developmental Psychology*. 2007; 43:1377–1389.10.1037/0012-1649.43.6.1377 [PubMed: 18020818]
- Eder D. The cycle of popularity: Interpersonal relations among female adolescents. *Sociology of Education*. 1985; 58:154–165.10.2307/2112416
- Gazelle H, Ladd GW. Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. *Child Development*. 2003; 74:257–278.10.1111/1467-8624.00534 [PubMed: 12625449]
- Farmer TW, Estell DB, Bishop JL, O'Neal KK, Cairns BD. Rejected bullies or popular leaders? The social relations of aggressive subtypes of rural African American early adolescents. *Developmental Psychology*. 2003; 39:992–1004.10.1037/0012-1649.39.6.992 [PubMed: 14584980]
- Furman, W.; Collins, WA. Adolescent romantic relationships and experiences. In: Rubin, KH.; Bukowski, WM.; Laursen, B., editors. *Handbook of peer interactions, relationships, and groups*. NY: Guilford Press; 2009. p. 341-360.
- Harter, S. The self-perception profile for children. University of Denver; Denver, CO: 1985. Unpublished manual

- Hawley PH. Prosocial and coercive configurations of resource control in early adolescence: A case for the well-adapted Machiavellian. *Merrill-Palmer Quarterly*. 2003; 49:279–309.10.1353/mpq.2003.0013
- Kovacs DM, Parker JG, Hoffman LW. Behavioral, affective, and social correlates of involvement in cross-sex friendship in elementary school. *Child Development*. 1996; 67:2269–2286.10.2307/1131622 [PubMed: 9022241]
- Ladd GW, Kochenderfer-Ladd B. Identifying victims of peer aggression from early to middle childhood: Analysis of cross-informant data for concordance, estimation of relational adjustment, prevalence of victimization, and characteristics of identified victims. *Psychological Assessment*. 2002; 14:74–96.10.1037/1040-3590.14.1.74 [PubMed: 11911051]
- LaFontana KM, Cillessen AHN. Children's perceptions of popular and unpopular peers: A multimethod assessment. *Developmental Psychology*. 2002; 38:635–647.10.1037/0012-1649.38.5.635 [PubMed: 12220043]
- LaFontana KM, Cillessen AHN. Developmental changes in the priority of perceived status in childhood adolescence. *Social Development*. 2010; 19:130–147.10.1111/j.1467-9507.2008.00522.x
- Lease AM, Kennedy CA, Axelrod JL. Children's social constructions of popularity. *Social Development*. 2002; 11:87–109.10.1111/1467-9507.00188
- Litwack SD, Aikins JW, Cillessen AHN. The distinct roles of sociometric and perceived popularity in friendship: Implications for adolescent depressive affect and self-esteem. *The Journal of Early Adolescence*. 2012; 32:226–251.10.1177/0272431610387142
- Luthar SS, McMahon TJ. Peer reputation among inner-city adolescents: Structure and correlates. *Journal of Research on Adolescence*. 1996; 6:581–603.
- Maccoby, EE.; Jacklin, CN. Gender segregation in childhood. In: Reese, HW., editor. *Advances in child development and behavior*. New York: Academic Press; 1987. p. 239-288.
- MacKinnon DP, Krull JL, Lockwood CM. Equivalence of the mediation, confounding and suppression effect. *Prevention Science*. 2000; 1:173–181.10.1023/A:1026595011371 [PubMed: 11523746]
- MacKinnon DP, Lockwood CM, Williams J. Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*. 2004; 39:99–128.10.1207/s15327906mbr3901_4 [PubMed: 20157642]
- Muthén, LK.; Muthén, BO. *Mplus user's guide*. 5. Los Angeles: Authors; 2007.
- Nolen-Hoeksema S. Gender differences in depression. *Current Directions in Psychological Science*. 2001; 10:173–176.10.1111/1467-8721.00142
- Parker JG, Asher SR. Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*. 1993; 29:611–621.10.1037/0012-1649.29.4.611
- Pellegrini AD, Bartini M. Dominance in early adolescent boys: Affiliative and aggression dimensions and possible functions. *Merrill-Palmer Quarterly*. 2001; 47:142–163.10.1353/mpq.2001.0004
- Pellegrini AD, Long JD. A sexual selection theory longitudinal analysis of sexual segregation and integration in early adolescence. *Journal of Experimental Child Psychology*. 2003; 85:257–278.10.1016/S0022-0965(03)00060-2 [PubMed: 12810038]
- Poulin F, Pedersen S. Developmental changes in gender composition of friendship networks in adolescent boys and girls. *Developmental Psychology*. 2007; 43:1484–1496.10.1037/0012-1649.43.6.1484 [PubMed: 18020826]
- Prinstein MJ, Boergers JV, Vernberg EM. Overt and relational aggression in adolescents: Social-psychological adjustment of aggressors and victims. *Journal of Clinical Child Psychology*. 2001; 30:479–491.10.1207/S15374424JCCP3004_05 [PubMed: 11708236]
- Radloff LS. The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*. 1977; 1:385–401.10.1177/014662167700100306
- Rodkin PC, Berger C. Who bullies whom? Social status asymmetries by victim gender. *International Journal of Behavioral Development*. 2008; 32:473–485.10.1177/0165025408093667
- Rose AJ, Rudolph KD. A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin*. 2006; 132:98–131.10.1037/0033-2909.132.1.98 [PubMed: 16435959]

- Rose AJ, Swenson LP. Do perceived popular adolescents who aggress against others experience adjustment problems themselves? *Developmental Psychology*. 2009; 45:868–872.10.1037/a0015408 [PubMed: 19413437]
- Rose AJ, Swenson LP, Carlson W. Friendships of aggressive youth: Considering the influences of being disliked and of being perceived as popular. *Journal of Experimental Psychology*. 2004b; 88:25–45.10.1016/j.jecp.2004.02.005
- Rose AJ, Swenson LP, Waller EM. Overt and relational aggression and perceived popularity: Developmental differences in concurrent and prospective relations. *Developmental Psychology*. 2004a; 40:378–387.10.1037/0012-1649.40.3.378 [PubMed: 15122964]
- Rubin, KH.; Bukowski, WM.; Parker, JG. Peer interactions, relationships, and groups. In: Eisenberg, N.; Damon, W.; Lerner, RM., editors. *Handbook of child psychology, vol. 3: Social, emotional, and personality development*. 6. Hoboken, NJ: John Wiley & Sons; 2006. p. 571-645.
- Rudolph KD, Flynn M, Abaied JL, Groot A, Thompson R. Why is past depression the best predictor of future depression? Stress generation as a mechanism of depression continuity in girls. *Journal of Clinical Child and Adolescent Psychology*. 2009; 38:473–485.10.1080/15374410902976296 [PubMed: 20183635]
- Ryan AM, Shim SS. An exploration of young adolescents' social achievement goals and social adjustment in middle school. *Journal of Educational Psychology*. 2008; 100:672–687.10.1037/0022-0663.100.3.672
- Sandstrom MJ, Cillessen AHN. Likeable versus popular: Distinct implications for adolescent adjustment. *International Journal of Behavioral Development*. 2006; 30:305–314.10.1177/0165025406072789
- Sandstrom MJ, Cillessen AHN. Life after high school: Adjustment of popular teens in emerging adulthood. *Merrill-Palmer Quarterly*. 2010; 56:474–499. doi:0.1353/mpq.2010.0000.
- Schwartz, D.; Gorman, AH. The high price of high status: Popularity as a mechanism of risk. In: Cillessen, AHN.; Schwartz, D.; Mayeux, L., editors. *Popularity in the peer system*. NY: Guilford Press; 2011. p. 245-270.
- Stump, KN.; Ratliff, JM.; Wu, YP.; Hawley, PH. Theories of social competence from the top-down to the bottom-up: A case for considering human needs. In: Matson, JL., editor. *Social behavior and skills in children*. NY: Springer Science + Business Media; 2009. p. 23-37.
- Thorne, B. Girls and boys together but mostly apart: Gender arrangements in elementary schools. In: Hartup, WW.; Rubin, Z., editors. *Relationships and development*. Hillsdale, NJ: Erlbaum; 1986. p. 167-184.
- Troop-Gordon W, Ladd GW. Trajectories of peer victimization and perceptions of the self and schoolmates: Precursors to internalizing and externalizing problems. *Child Development*. 2005; 76:1072–1091.10.1111/j.1467-8624.2005.00898.x [PubMed: 16150003]
- Vaillancourt T, Hymel S. Aggression and social status: The moderating roles of sex and peer-valued characteristics. *Aggressive Behavior*. 2006; 32:369–408.10.1002/ab.20138
- Vitaro, F.; Boiving, M.; Bukowski, WM. The role of friendship in child and adolescent psychosocial development. In: Rubin, KH.; Bukowski, WM.; Laursen, B., editors. *Handbook of peer interactions, relationships, and groups*. NY: Guilford Press; 2009. p. 568-585.
- Witvliet M, Olthof T, Hoeksma JB, Goossens FA, Smits MSI, Koot HM. Peer group affiliation of children: The role of perceived popularity, likeability, and behavioral similarity in bullying. *Social Development*. 2010; 19:285–303.10.1111/j.1467-9507.2009.00544.x

Figure 1.

Path analysis of the direct effects of W_1 same-sex and cross-sex popularity on W_3 aggression. Standardized coefficients for boys are presented on the left side of the slash, and standardized coefficients for girls are presented on the right side of the slash.

* $p < .05$. ** $p < .01$. *** $p < .001$. ^a Sex difference at $p < .05$. ^b Sex difference at $p < .001$.

Figure 2.

Path analysis of the direct effects of W_1 same-sex and cross-sex popularity on W_3 depressive affect. Standardized coefficients for boys are presented on the left side of the slash, and standardized coefficients for girls are presented on the right side of the slash.

* $p < .05$. ** $p < .01$. *** $p < .001$. ^bSex difference at $p < .001$.

Figure 3. Hypothesized path model used to test indirect effects of W_1 same-sex and cross-sex popularity on W_3 aggression and depressive affect.

Table 1

Descriptive Statistics

Variable	Wave 1		Wave 2		Wave 3	
	M	SD	M	SD	M	SD
Same-sex popularity	2.06	.44	2.19	.48	2.14	.48
Cross-sex popularity	1.89	.34	1.90	.45	1.88	.43
Social exclusion	1.46	.32	1.95	1.02	1.81	.95
Number of friends	2.65	1.44	2.48	1.45	2.58	1.55
Peer victimization	1.58	.70	1.63	.65	1.58	.65
Social self-esteem	2.81	.78	2.96	.77	3.03	.71
Aggression	1.41	.33	1.53	.40	1.48	.39
Depressive affect	1.65	.62	1.65	.67	1.57	.58

Note. Same-sex and cross-sex popularity were scored on a scale from 1 (*Not at all*) to 3 (*A lot*). Social exclusion, peer victimization, aggression, and depressive affect were scored on a scale from 1 (*Never*) to 4 (*A lot*). Social self-esteem was scored on a scale from 1 (*Not at all*) to 4 (*Very*). The number of friends identified could range from 0 to 5.

Table 2

Bivariate Correlations with Same and Cross-Sex Popularity

	Same-sex popularity			Cross-sex popularity		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
W ₁ same-sex popularity	---					
W ₂ same-sex popularity	.66***	---				
W ₃ same-sex popularity	.58***	.70***	---			
W ₁ cross-sex popularity	.38***	.47***	.40***	---		
W ₂ cross-sex popularity	.52***	.63***	.60***	.54***	---	
W ₃ cross-sex popularity	.48***	.62***	.61***	.45***	.67***	---
W ₁ social exclusion	-.47***	-.59***	-.50***	-.40***	-.47***	-.46***
W ₂ social exclusion	-.56***	-.65***	-.59***	-.45***	-.50***	-.53***
W ₃ social exclusion	-.51***	-.61***	-.63***	-.38***	-.51***	-.55***
W ₁ number of friends	.47***	.56***	.54***	.33***	.46***	.48***
W ₂ number of friends	.45***	.54***	.47***	.33***	.40***	.48***
W ₃ number of friends	.42**	.50***	.65***	.33***	.37***	.48***
W ₁ peer victimization	-.39***	-.47***	-.46***	-.36***	-.39***	-.42***
W ₂ peer victimization	-.38***	-.41***	-.42***	-.33***	-.34***	-.38***
W ₃ peer victimization	-.35***	-.41***	-.40***	-.25***	-.36***	-.39***
W ₁ social self-esteem	.31***	.38***	.31***	.20***	.26***	.25***
W ₂ social self-esteem	.31***	.37***	.30***	.19***	.27***	.26***
W ₃ social self-esteem	.30***	.38***	.35***	.19***	.32***	.33***
W ₁ aggression	-.16***	-.18***	-.20***	-.19***	-.21***	-.19***
W ₂ aggression	-.18***	-.22**	-.21***	-.18***	-.18***	-.14**
W ₃ aggression	-.11*	-.12**	-.13**	-.07	-.07	-.10*
W ₁ depressive affect	-.11*	-.19***	-.21***	-.07	-.13*	-.17**
W ₂ depressive affect	-.09	-.16**	-.10	-.07	-.13*	-.16**

	Same-sex popularity			Cross-sex popularity		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
W ₃ depressive affect	-.07	-.12 *	-.08	-.13 **	-.18 **	-.19 ***

Note. W₁ = Wave 1. W₂ = Wave 2. W₃ = Wave 3.

*
p < .05.
**
p < .01.

p < .001.

Table 3

Bivariate Correlations between Mediators, Aggression, and Depressive Affect

	Social exclusion			Number of friends			Peer Victimization			Social Self-esteem		
	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3
W1 social exclusion	---											
W2 social exclusion	.71***	---										
W3 social exclusion	.60***	.63***	---									
W1 number of friends	-.39***	-.43***	-.46***	---								
W2 number of friends	-.33***	-.40***	-.42***	.55***	---							
W3 number of friends	-.41***	-.44***	-.43***	.49***	.38***	---						
W1 peer victimization	.79***	.66***	.56***	-.36***	-.29***	-.37***	---					
W2 peer victimization	.59***	.76***	.48***	-.31***	-.26***	-.32***	.69***	---				
W3 peer victimization	.51***	.51***	.60**	-.35***	-.31***	-.32***	.61***	.60***	---			
W1 social self-esteem	-.34***	-.36***	-.38***	.28***	.28***	.31***	-.30***	-.31***	-.25***	---		
W2 social self-esteem	-.29***	-.37***	-.36***	.30***	.30***	.23***	-.28***	-.33***	-.29***	.61***	---	
W3 social self-esteem	-.34***	-.35***	-.32***	.27***	.28***	.30***	-.28***	-.25***	-.22***	.51***	.56***	---
W1 aggression	.45***	.38***	.22***	-.29***	-.21**	-.23**	.65***	.54***	.52***	-.15***	-.19***	-.21**
W2 aggression	.39***	.48***	.20***	-.23***	-.25***	-.20***	.53***	.69***	.49***	-.17***	-.19***	-.19***
W3 aggression	.27***	.22***	.23***	-.16***	-.16***	-.17***	.45***	.44***	.74***	-.07*	-.10*	-.10*
W1 depressive affect	.23***	.21***	.21***	-.19***	-.10	-.17**	.24***	.22***	-.18**	-.36***	-.26***	-.16**
W2 depressive affect	.02	.15**	.11*	-.19***	-.21***	-.14*	.02	.14**	.06	-.34***	-.40***	-.24***
W3 depressive affect	.17**	.17**	.12*	-.10	-.09	-.17**	.13*	.11*	.05	-.20***	-.17**	-.34***

Note. W1 = Wave 1. W2 = Wave 2. W3 = Wave 3.

*
p < .05.

**
p < .01.

p < .001.

Table 4
Paths and 95% Confidence Intervals for the Indirect Effects of Same-sex and Cross-sex Popularity on Aggression

Mediator	Standardized path coefficients				95% C.I. for the Indirect Effect			
	W ₁ same-sex pop → W ₂ mediator		W ₁ cross-sex pop → W ₂ mediator		W ₂ mediator → W ₃ aggression		W ₁ Same-sex pop. on W ₃ aggression	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Exclusion	-.23***	-.23***	-.14***	-.05	-.13**	-.18**	.01, .05	-.001, .02
Friends	.22***	.20***	.12**	.10**	.01	.01	-.01, .01	-.01, .01
Peer victimization	-.12***	-.13***	-.07***	-.07***	-.03	-.04	-.002, .01	-.002, .01
Self-esteem	.13***	.12***	.07*	.06*	-.03	-.04	-.01, .001	-.01, .001

Note. Pop. = popularity.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5
Paths and 95% Confidence Intervals for the Indirect Effects of Same-sex and Cross-sex Popularity on Depressive Affect

Mediator	Standardized path coefficients				95% C.I. for the Indirect Effect			
	W ₁ same-sex pop → W ₂ mediator		W ₁ cross-sex pop → W ₂ mediator		W ₂ mediator → W ₃ dep. symptom		W ₁ same-sex pop. on W ₃ depressive affect	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Exclusion	-.26***	-.24***	-.09***	-.08***	.33***	-.06	-.15, -.04	-.09, -.01
Friends	.24***	.21***	.10**	.09**	-.10*	-.08*	-.06, -.004	-.04, -.002
Peer victimization	-.14***	-.14***	-.05	-.05	.26***	-.05	-.08, -.01	-.06, .000
Self-esteem	.14***	.14***	.04	.04	-.23***	.05	-.07, -.02	-.04, .01

Note. Pop. = popularity.

* $p < .05$.

** $p < .01$.

*** $p < .001$.