

**A Longitudinal Examination of Popularity and Friendship Quality as Predictors of  
Depression in School Children from Fall to Spring**

by

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## Abstract

Although researchers have established the significant role children's peer relationships have on their socioemotional functioning, missing from the literature is an understanding of the subsequent effects popularity has on children's depressive symptomology. This study utilized existing data from a longitudinal study taking place during the fall and spring of children's third and fourth grade year ( $N = 366$ ;  $M_{\text{age}} = 9.34$  years; 196 girls) and tested a moderated mediation model to examine the indirect effects of popularity on depression through friendship quality. The interaction between popularity and relational characteristics including prosocial and relationally aggressive behaviors was also included in the prediction of friendship quality to determine whether the implications of popularity for depression depend on a child's behavioral profile. Findings indicated a stronger positive association between popularity and received provisions at higher levels of relational aggression in addition to a stronger association with received provisions and being treated less meanly at lower levels of prosocial behavior. The findings also revealed popularity was predictive of lower levels of depression through more received provisions and less treated meanly for those demonstrating low levels of prosocial behavior and high levels of relational aggression, but only for girls. The current study contributes an increased understanding of some of the protective measures popularity serves against depression for children by having higher quality friendships, while also emphasizing potential risk factors associated with being low in popularity for children who are low in prosocial behavior and high in aggression. Implications regarding the potential protective measures of being popular against development of depressive symptoms through having higher quality friendships are discussed.

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## List of Abbreviations

CFI	Comparative Fit Index
FIML	Full Information Maximum Likelihood
FQQ	Friendship Quality Questionnaire
RMSEA	Root Mean Square Error of Approximation
SRMR	Standardized Root Mean Square Residual

## A Longitudinal Examination of Popularity and Friendship Quality as Predictors of Depression in School Children from Fall to Spring

Children's peer relationships is a topic of interest to researchers, educators, clinicians, and parents because the quality of these relationships are consistently predictive of children's emotional, behavioral, and social functioning (Parker & Asher, 1987). Of particular interest in the last decade has been popularity, a form of social status characterized by high visibility, leadership, social control, and attractiveness (Lease et. al, 2002), which has been found to be predictive of children's development, although associations are not universally positive or negative. For example, popularity forecasts increased self-esteem and academic success and decreased peer victimization (Ranney & Troop-Gordon, 2014, Rubin et al., 2006). However, it also predicts increases in aggressive behavior and risk taking (Cillessen & Rose, 2005; Dumas et al., 2017; Mayeux et al., 2008; Troop-Gordon et al., 2011). Moreover, unlike other forms of status (e.g., peer acceptance, social rejection) the impact of popularity on emotional well-being is difficult to discern. Whether popularity protects against, or exacerbates, depression may be particularly important to determine given the rise in depressive symptomology during early adolescence (Green et al., 2005). However, few studies have been conducted to understand the relation between popularity and depression, or other forms of internalizing problems, and those studies that have been conducted have yielded mixed findings. Thus, while researchers have attempted to understand many of the developmental impacts of popularity, its relation with depression remains unclear.

One possible reason for these mixed results is that popularity may have both positive and negative implications for the quality of children's peer relationships, particularly the quality of the friendships they form. For example, popular children may receive heightened provisions



from their friends, such as support and intimacy (Rose et al., 2004). However, it also is possible that popular children are treated more meanly by their friends than less popular children due to jealousy (Litwack et al., 2012) or rivalry for social status (Dijkstra et al., 2009). As the quality of children's friendships has a substantial impact on their depressive symptoms (Erdley et al., 2001; Nangle et al., 2003), it is possible that popularity is associated with depression through its influence on friendship quality. This study examines, therefore, the pathways between popularity and depressive symptoms through friendship quality. Specifically, I examine the potential for popularity to protect against depression through receiving more friendship provisions, (i.e., intimacy and emotional support; Ladd et al., 1996), as well as the potential for popularity to increase depressive symptoms through being treated meanly by friends. I further examine whether individual differences among popular children, specifically the extent to which they engage in prosocial and relationally aggressive behaviors, moderate the association between popularity and the quality of their friendships, and thus, indirectly their development of depression.

### **Popularity and Depression**

Based on the benefits associated with high social status, we might expect that popularity serves as a buffer against the development of depressive symptoms. For instance, achieving high social status bolsters self-esteem (see Litwack et al., 2012), which is as a protective factor against depression (Henriksen et al., 2017; Mann et al., 2004). However, because popularity also is associated with developmental risk factors, we might expect that popularity contributes to heightened depression. For example, the downstream effects of manipulation tactics popular children exhibit as a means of maintaining status may contribute to the development of depression (Sandstrom & Cillessen, 2006).

Studies examining the association between popularity and depression are limited. A number of studies have suggested that for boys, popularity is linked with lower levels of depression or internalizing problems (Litwack et al., 2012; Sandstrom, & Cillessen, 2006; Troop-Gordon & Ranney, 2014). The link for girls has been less consistent. Whereas Litwack et al. (2012) found a negative association between popularity and depressive affect for girls, Troop-Gordon and Ranney (2014) found that same-sex popularity predicted heightened depressive affect. Further complicating the picture, Sandstrom and Cillessen (2006) found no association between popularity and depression for boys or girls. Further evidence suggests that whether popularity is associated, positively or negatively, with depression depends on additional factors beyond gender. Martin et al. (2003) found that popularity for boys and girls predicted less depression the more they valued friendship. Kornienko and Santos (2014) found that popularity predicts higher levels of depression for girls who are fearful of being evaluated by their peers, whereas popularity predicted lower levels of depression for boys who fear peer evaluation. In short, an emerging pattern suggests that popularity may lead to less depression for boys, particularly if they are sensitive to how they are seen by peers, whereas for girls, popularity may serve as a risk factor for developing depression when paired with other vulnerabilities.

### **Popularity and Friendship Quality**

Similar to the inconclusive evidence as to whether and how popularity is associated with depression, studies on the association between popularity and friendship quality have yielded mixed findings. Given the role that children's social skills and characteristics play in children's peer relationships (Berndt, 2002; Gottman et al., 1975; Newcomb & Bagwell, 1995), we might assume that popularity would foster the formation of high-quality friendships. In support of this, Bukowski et al. (1996) found that popularity provides social opportunities and, ultimately, social

acceptance, which affords a stable foundation for the development of positive friendships. In addition, LaFontana and Cillessen (2002) found an association between popularity and prosocial behavior, behaviors foundational for the formation of high-quality friendships. However, it may also be that popularity influences friendship quality negatively. Litwack et al. (2012) found that popularity is associated with greater friendship conflict. Such conflict in friendship is consistent with research showing that popularity also is associated with relational aggression (Cillessen & Mayeux, 2004; Kraft & Mayeux, 2018; LaFontana & Cillessen, 2002), a form of aggression characterized by manipulative behaviors intended to threaten or damage relationships (i.e., spreading rumors, excluding others from activities) and found in some friendships (Crick & Grotpeter, 1995, 1996; Fite et al., 2011; Hawley et al., 2007). Thus, it is likely that the degree to which a friendship is of higher or lower quality is moderated by the levels of prosocial and relational characteristics of the popular child.

Indeed, although a number of studies have found a positive correlation between popularity and being prosocial (e.g., agreeable, helpful, supportive; de Bruyn & Cillessen, 2006; Dijkstra et al., 2009), research shows that popularity is also positively correlated with, and predictive of, aggression (Cillessen & Mayeux, 2004; Cillessen & Rose, 2005; Rose et al., 2004a). Furthermore, researchers have documented subgroups of popular youth who differ in their use of aggressive behaviors. In a study of sixth-grade boys, Rodkin and colleagues (2000) identified groups who could be categorized as popular-aggressive and popular-nonaggressive (see also Hartl et al., 2020; Luthar & McMahon, 1996;). Findings indicated that both types of boys were among the most popular in school, suggesting aggressive boys were still considered to be popular (Rodkin et al., 2000). Conversely, popular non-aggressive kids were perceived as popular without exhibiting aggressive behaviors (Rodkin et al., 2000). Interestingly, Hartl and

colleagues (2020) categorized popular youths into subtypes including: aggressive popular, bistrategic popular, prosocial popular, and average. Amongst these groups, children who were identified as being aggressive and popular had higher levels of popularity than prosocial popular children.

However, not all aggressive behaviors are equally effective in obtaining or protecting popular status. Although research has shown positive correlations between popularity and both overt and relational aggression (LaFontana & Cillessen, 2002; Rose et al., 2004a), the relation between popularity and relational aggression is stronger (Cillessen & Mayeux, 2005; Rose et al., 2004a). Relational aggression has been characterized by coercive, threatening, manipulative behaviors and is believed to be a means of managing social power in order to be perceived as popular by peers (Rose et al., 2004). It has been proposed that due to the interpersonal nature of achieving high popular status popularity is specifically associated with relational aggression (LaFontana & Cillessen, 2010). Additionally, relationally aggressive behaviors are often more subtle than overtly aggressive behaviors. For example, spreading rumors is a relationally aggressive behavior that can be used strategically to hurt peers while maintaining a reputation for prosociality. Thus, relationally aggressive behaviors may be most relevant to examining the implications of being aggressive to popular children's development.

Whether popular children are prosocial or relationally aggressive with their peers may have implications for the quality of their friendships. Children with prosocial characteristics have higher quality friendships than children who are less prosocial (McDonald et al., 2011), likely due to offering more social provisions to their friends, including emotional support and reciprocity. As friends often reciprocate their friends' prosocial behaviors (Barry & Wentzel, 2006), children who are prosocial likely receive greater provisions from their friends than those

who are less prosocial. Thus, I hypothesize that higher levels of prosocial behavior would amplify positive associations between popularity and friendship quality. However, a study conducted by Poorthuis et al. (2012) found prosocial characteristics to be associated with higher friendship quality, but only for children low in popularity. Children high in popularity reported having high quality friendships regardless of how prosocial they were. Thus, although popularity is anticipated to be predictive of higher quality friendships only at high levels of prosocial behavior, it is possible that even when popular children are low in prosocial behavior their friends provide them with support, validation, and aid, and avoid interpersonal conflict in their friendships (Hawley et al., 2007). However, as only one study to date has examined prosocial behavior as a moderator of popularity-friendship quality linkages, due to a strong theoretical rationale, I retain the hypothesis that higher levels of popularity will be associated with greater friendship quality at higher levels of prosocial behavior.

Furthermore, we might anticipate popularity to be associated with lower friendship quality when children exhibit higher levels of relational aggression. Indeed, a number of studies have linked relational aggression to poor friendship quality (Kemper & Ostrov, 2013; Rose et al., 2004; Rose & Rudolph, 2006; Soenens et al., 2008). Despite this, findings have suggested that high levels of relational aggression are associated with a mix of positive and negative friendship characteristics. Banny and colleagues (2011) found that over six months, high levels of relational aggression predicted increases in both positive and negative friendship quality. Additionally, a study by Grotzinger and Crick (1996) found that friendships of relationally aggressive children were characterized by both intimacy and jealousy/exclusivity.

Relationally aggressive popular children may enlist their friends in their aggression in ways that foster a feeling of intimacy in the relationships (i.e., excluding others, talking about

others behind their backs). Popular children may also receive more provisions if they are relationally aggressive because their friends are scared to be on the receiving end of their aggression and, therefore, are especially nice to them. When popular-aggressive youth do aggress against their friends, their friends may be quick to repair the relationship rather than prolong any conflicts. Thus, at high levels of relational aggression, popularity may actually be associated with greater positive friendship characteristics and greater conflict and maltreatment. It should be noted that Rose et al. (2004) found relational aggression to be associated with friendship conflict, but not for youth high in popularity, suggesting behaviors may matter less in the friendship quality of popular youth. The current study provides an opportunity to further test the role of relational aggression in the positive and negative friendship qualities of children high in popularity. Given the totality of the extant research on the links between relational aggression and friendship quality, I predict that popularity will be associated with receiving more provisions and being treated more meanly at higher levels of relational aggression.

### **Friendship Quality and Depression**

Friendships with peers have long been considered a critical component of children's socioemotional health (Sullivan, 1953). Particularly, during late childhood and early adolescence, friendships become important for the emotional development of the child, as emotions are often generated and navigated in social contexts (Laursen, et al., 1996, Scherer et al., 1986; Sullivan, 1953; von Salisch, 2001). The extent to which friendships are considered to be reciprocated (e.g., both peers indicate they are friends) have implications for the quality of the relationship (Hartup, 1996). Coleman (1988), for example, found reciprocal friendships are more likely to provide emotional support than friendship that are not reciprocated. Friendships have also been found to contribute various benefits to children's development, including social

competence, companionship, instrumental aid, and cognitive skills; Hartup, 1966; Sullivan, 1953), Not surprising then, researchers have documented significant associations between friendship quality and mental health (Erdley et al., 2001; Troop-Gordon, et al., 2019, such as less anxiety and higher levels of self-worth (Fordham & Stevenson-Hinde, 1999)..

At the same time, stress and conflict in friendships may be a significant risk factor for mental health problems. Troop-Gordon et al. (2019) found negative treatment from friends to be predictive of higher levels of internalizing symptoms. Similarly, Nangle and colleagues (2003) found low friendship quality to be a predictor of depression, specifically for boys. Other studies have also found that elements of low-quality friendships, (i.e., conflict, betrayal, and low levels of friendship reciprocity) are associated with risk for depression and loneliness (Gil-Rivas et al., 2003; Parker & Asher, 1993. Schwartz-Mett et al., 2020; Windle, 1994). Thus, it would seem that friendships with more positive attributes play a large role in protecting against depression, just as friendships higher in conflict may contribute to the development of depressive symptoms.

### **The Potential Moderating Role of Gender**

This study also explores the possibility that gender serves as a moderator of the hypothesized associations. Previous research has suggested that popularity is more protective against depression for boys than for girls (Litwack, Aikin, & Cillessen, 2012; Sandstrom, & Cillessen, 2006; Troop-Gordon & Ranney, 2014). It could be that popularity contributes differently to the quality of boys' and girls' friendships, resulting in a gender difference in whether and how popularity protects against depression. Boys and girls value different qualities in their friendships. Girls tend to value self-disclosure more than boys and spend more time in conversations with their friends (Rose & Rudolph, 2006). Furthermore, girls desire more closeness and dependency than boys and are more likely to fear abandonment in their friendships

(Rose & Rudolph, 2006). In contrast to the connection-oriented goals of girls, boys tend to have more status-oriented/individualized goals, such as maintaining privacy (Rose & Asher, 2004) and promoting self-interest (Rose & Asher, 1999). It would seem that for girls, violations of relationship-oriented values would threaten the quality of their friendships, thus making girls more susceptible to depression than boys. In fact, girls demonstrating high levels of relationally aggressive behaviors (i.e., coercive, threatening, manipulative) may jeopardize the consistency of their friendships, contributing to a fear of abandonment. Similarly, exhibiting low prosocial behaviors, may prevent some girls from achieving the level of self-disclosure they value, impacting their ability to be close with friends. Thus, for girls who exhibit high levels of relational aggression and low levels of prosocial behavior, popularity may not be as protective against depression if these behaviors lower the quality of their friendships.

### **The Current Study**

Given the limited evidence on the relation between popularity and depression in childhood, it is critical to examine whether or not popularity is protective or harmful to a child's development. Using longitudinal data collected during the fall and spring of children's 3<sup>rd</sup> and 4<sup>th</sup> grade year, the current study examines the pathways between popularity and depression through friendship quality, as well as examines prosocial and relationally aggressive behavior as moderators of the association between popularity and friendship quality, and, therefore, the indirect effects on depression. Although positive and negative features of friendship quality are typically inversely correlated, some studies have shown that relationally aggressive children can have friendships that are high in both (Banny et al., 2011; Grotperter & Crick, 1996). Therefore, while prosocial behavior may extenuate the positive association between popularity and positive friendship quality and the negative association between popularity and negative friendship



qualities, relational aggression may lead to a stronger positive association between popularity and both positive and negative friendship qualities. Thus, I include measures of positive and negative friendship qualities in this study and examine them separately.

Moreover, the benefits of high quality friendships are most often theorized to be due to the provisions children receive from their friends (e.g., receiving emotional support and validation). Therefore, instead of using measures that assess qualities of the friendship at the dyadic level (i.e., the extent to which positive and negative friendship qualities are characteristic of both friendship members), I specifically examine the extent to which children perceive their friends as providing provisions (e.g. intimacy, affection, validation) and the extent to which they view their friends as treating them meanly. Additionally, based on gender differences in how children engage with their friends and value in their friendships (Rose & Rudolph, 2006), gender is included as a potential moderator. The following hypotheses are tested (see Figures 1-4):

**Hypothesis 1)** Popularity will be associated with depression through friendship quality.

**Hypothesis 1a)** Popularity will negatively predict depression through receiving higher levels of friendship provisions.

**Hypothesis 1b)** Popularity will negatively predict depression through being treated less meanly by friends.

**Hypothesis 2)** Prosocial behavior and relational aggression will moderate the association between popularity and friendship quality.

**Hypothesis 2a)** Prosocial behavior will moderate the positive association between popularity and receive provisions such that the association will be stronger at higher levels of prosocial behavior.

**Hypothesis 2b)** Prosocial behavior will moderate the negative association between popularity and treated meanly such that the association will be stronger (i.e., more negative) at higher levels of prosocial behavior.

**Hypothesis 2c)** Relational aggression will moderate the positive association between popularity and receive provisions. such that the association will be stronger at higher levels of relational aggression.

**Hypothesis 2d)** Relational aggression will moderate the negative association between popularity and treated meanly such that the association will be more positive (i.e., or less negative) at higher levels of relational aggression.

**Hypothesis 3)** Prosocial behavior and relational aggression will moderate the indirect effect of popularity on depression.

**Hypothesis 3a)** Popularity will be more strongly and negatively indirectly predict depression at higher levels of prosocial behavior due to a stronger positive association between popularity and receive provisions.

**Hypothesis 3b)** Popularity will be more strongly and negatively indirectly predict depression at higher levels of prosocial behavior due to a stronger negative association between popularity and treated meanly.

**Hypothesis 3c)** Popularity will be more strongly and negatively indirectly predict depression at low levels of relational aggression due to a stronger positive association between popularity and receive provisions.

**Hypothesis 3d)** Popularity will more strongly and positively indirectly predict depression at high levels of relational aggression due to a stronger negative association between popularity and treated meanly.

**Hypothesis 4)** Prosocial behavior and relational aggression will more strongly moderate the associations between popularity and friendships qualities for girls than for boys.

**Hypothesis 4a)** Prosocial behavior and relational aggression will more strongly moderate the positive association between popularity and receive provisions for girls than boys.

**Hypothesis 4b)** Prosocial behavior and relational aggression will more strongly moderate the associations between popularity and treated meanly for girls than boys.

**Hypothesis 5)** Prosocial behavior and relational aggression will more strongly moderate the indirect effect of popularity on depression for girls than for boys.

## **Method**

### **Participants**

Data for the current study came from the North Dakota State University Youth Development study, which included 366 children ( $M_{age} = 9.34$  years,  $SD = .07$ ; 196 girls) who participated in the longitudinal study during the fall and spring of their third and fourth grade academic year. All children attending five public elementary schools were invited to participate in the study, and 74.1% of these children received written parental consent. The participating children identified as 87.7% Caucasian, 4.6% Native American, 3.8% mixed ethnicities, and 3.9% other ethnicities. Based on reports submitted by parents, 13 (3.6%) children came from families earning less than \$20,000, 39 (10.7%) came from families earning between \$20,000 and \$40,000, 184 (50.3%) came from families earning above \$40,000, and 130 (35.4%) of the parents did not report on income.

### **Measures**

**Popularity.** Assessment of popularity in the fall was based on children's rating of their classmates as to how "popular" they perceived each one to be. *Popularity* was defined for the

children using wording consistent with previous studies of popularity (Bowker et al., 2010; Farmer et al., 2003; Rodkin & Berger, 2008; Rose & Swenson, 2009; Ryan & Shim, 2008). Specifically, children were told that popularity referred to being “respected by other children, seen as being ‘cool’, and [having] many kids want to be friends with [the child]” (see Troop-Gordon et al., 2011). Children rated each of their participating classmates using a 3-point scale from 1 = *not at all* to 3 = *a lot*. Children’s popularity score was based on the average rating received from classmates.

**Friendship Quality.** A revised version of Parker and Asher’s (1993) Friendship Quality Questionnaire (FQQ) was used to measure friendship quality in the fall. Whereas the original assessment asked about a friendship with one specific peer, the revised version asked children to think of those classmates (up to five) who they had nominated as their friends. Items were also reworded to separate how they were treated by their friends and how they treated their friends. Five items were used to measure received provisions, and three were used to measure being treated meanly. Examples for received provisions included “My friends stick up for me if others talk behind my back” and “I can count on my friends to keep promises” whereas examples of being treated meanly included “My friends don’t listen to me” or “My friends sometimes say mean things about me to other kids.” Subscale scores were computed by averaging across items (for received provisions,  $\alpha = .79$  and for treated meanly  $\alpha = .61$ ; see Appendix A1).

**Depression.** An adapted version of Radloff’s (1977) Center for Epidemiological Studies Depression Scale for Children (CES-DC) was used to assess self-reported depression. Using a 4-point scale (1 = *Never*, 4 = *A lot*), children rated four items as to the extent to which they “felt like crying”, “were unhappy”, “were sad in school”, and “were happy” (reverse-scored). A

composite score was by averaging the item scores ( $\alpha$ s = .72 and .76, for Waves 1 and 2, respectively).

**Prosocial behavior and relational aggression.** A peer-report measure was used to assess prosocial behavior and relational aggression in the fall. Children rated the frequency at which each of their participating classmates would “share and act nice” and “told other kids they can’t play with them or won’t be friends with them” on a scale from 1 (*Never*) to 4 (*A lot*). Final prosocial and relational aggression scores will be computed for these behaviors by averaging the ratings received from classmates on each item.

### **Procedures**

Data collection occurred during the fall and spring of the children’s third and fourth-grade school year (2005-2006). Before data were collected, children received information about the purpose of the study as well as their rights as study participants. Self-reports and peer-reports were completed by children as a research assistant read questions aloud over a course of 30 to 45 minutes. Two other assistants were available to provide help. The questionnaires assessed a variety of topics, but for this study, only peer-reports of popularity, prosocial behaviors, relational aggression, and self-reports of depression and friendship quality will be used.

### **Data Analytic Plan**

Preliminary analyses included calculations of means, standard deviations, and bivariate correlations. In order to identify gender differences, independent samples *t*-tests were conducted. *T*-tests were also conducted to determine if children missing data differed from those without missing data on measures of popularity, prosocial and relationally aggressive behaviors, friendship quality, and depression. To account for any missing data, full information maximum likelihood (i.e., FIML) was used (Muthén & Muthén, 1998-2017).

The theoretical model was tested using four multi-group path models (Figures 1-4) and estimated using Mplus version 8 (Muthén & Muthén, 1998-2017). Model fit was examined using a chi-square test of model fit, as well as other commonly used fit statistics (i.e., RMSEA < .08, CFI  $\geq$  .95; SRMR < .08, Henselert et al., 2016; Schreiber et al., 2006). In all models, fall depression was included as a predictor of spring depression. To test for gender differences, multi-group analyses were estimated by constraining all coefficients and variable means to be equal for girls and boys. These coefficients and means were also freely tested using an unconstrained model. To compare model fit between these two models, a  $\Delta\chi^2$  test was used, with a significant result indicating the presence of at least one gender difference. If these differences existed, specific gender differences were identified by testing each parameter individually. Results of a significant  $\Delta\chi^2$  indicated if these parameters were significantly different for boys and girls. All path coefficients and means were constrained in a final model to be equal for both genders, excluding constraints for those parameters for which a gender difference was detected.

Path coefficients were used to assess if the hypothesized direct and moderated associations were supported. To estimate the indirect effect through receive provisions and treated meanly at low (-1 *SD*), average (0 *SD*), and high (1 *SD*) levels of prosocial and relationally aggressive behavior, as well as the direct effect and total effect, bootstrapping was used (see Preacher & Hayes, 2004). Procedures outlined by Preacher and colleagues (2006), were used to interpret the significance of interactions by estimating and plotting simple slopes at low, average, and high levels of prosocial and relationally aggressive behaviors.

## **Results**

### **Preliminary Analyses**

Descriptive statistics are presented in Table 1. Children's popularity and depression scores were relatively low. Friendship quality scores indicated higher levels of received provisions and lower levels of treated meanly. Behavior scores were moderate, with children evidencing more prosocial behaviors than relationally aggressive behaviors. Popularity had a positive correlation with received provision and a negative correlation with treated meanly, and these associations were stronger for boys than for girls. Popularity was only slightly negatively correlated with depression at Fall and Spring for both girls and boys. Popularity was strongly and positively correlated with prosocial behavior for boys, but not for girls. Interestingly, popularity had a negative association with relation aggression for boys, but a slight positive association for girls. As expected, received provisions and treated meanly were inversely related, as was prosocial behavior and relational aggression. Depression remained moderately stable from fall to spring. Also to be expected, the relation between receive provisions and depression indicated negative associations, whereas the associations were positive for treated mean and depression. Interestingly, prosocial behaviors had a slight negative association with depression for boys, but a slight positive association for girls. Additionally, the positive relation between relational aggression and depression was stronger for boys than girls.

Independent-samples *t*-tests revealed that boys reported slightly lower levels of depression ( $M = 1.52, SD = .58$ ) than girls [ $M = 1.76, SD = .72; t(357) = -3.45, p < .001$ ]. Moreover, girls reported being treated more meanly by their friends ( $M = 1.55, SD = .61$ ) than boys [ $M = 1.39, SD = .57; t(354) = -2.56, p = .005$ ]. Boys exhibited less prosocial behaviors ( $M = 2.98, SD = .43$ ) than girls [ $M = 1.52, SD = .58; t(362) = -5.55, p < .001$ ] and more relationally aggressive behaviors ( $M = 1.45, SD = .33$ ) than girls [ $M = 1.36, SD = .29; t(362) = 2.95, p = .001$ ]. Missing data ranged across study variables from 0.5% to 2.7%. Only 4.4% of all

participants were missing data. Independent-samples *t*-tests revealed there were no significant differences between children with missing data and children with no missing data (all *ps*  $\geq$  .06).

### **Testing the Proposed Moderated Mediation Models**

Four path models were estimated to test the theoretical model for friendship quality and behavioral characteristics.

**Received Provisions and Prosocial Behavior.** An initial multi-group path model was estimated to test for gender differences. A model in which all path coefficients and variable means were constrained to be equal for boys and girls did not fit the model well,  $\chi^2(16) = 68.02$ ,  $p < .001$ , CFI = 0.01, RMSEA = .133, SRMR = .092, and, unconstraining all path coefficients and variable means significantly improved model fit,  $\Delta\chi^2(12) = 67.42$ ,  $p < .001$ . Gender differences were detected for the means of the interaction between popularity and prosocial behavior [ $\Delta\chi^2(1) = 16.20$ ,  $p < .001$ ], as well as prosocial behavior [ $\Delta\chi^2(1) = 35.31$ ,  $p < .001$ ] and fall depression [ $\Delta\chi^2(1) = 12.33$ ,  $p < .001$ ]. Additionally, gender differences were found on the paths regressing spring depression on receive provisions [ $\Delta\chi^2(1) = 10.24$ ,  $p = .001$ ] and spring depression on fall depression [ $\Delta\chi^2(1) = 12.92$ ,  $p < .001$ ].

A final model was estimated constraining all means and paths excepts those for which a gender difference was identified. The final model evidenced good model fit,  $\chi^2(11) = 7.32$ ,  $p = .77$ , CFI = 1.00, RMSEA = .00, SRMR = .034. Table 2 presents the unstandardized and standardized path coefficients and the raw estimates of the direct, indirect, and total effect of fall popularity on spring depression. For both boys and girls, fall depression predicted significantly higher levels of depression in the spring. In addition, for boys and girls, prosocial behavior was associated with higher levels of fall receive provisions, and there was a significant and negative



fall popularity  $\times$  prosocial behavior interaction. Moreover, higher levels of fall receive provisions predicted significantly lower levels of spring depression for girls, but not for boys.

The plotted simple slopes of the fall popularity  $\times$  prosocial behavior interaction is presented in Figure 2a. Popularity predicted higher levels of received provisions at low levels of prosocial behavior but not at moderate or high levels of prosocial behavior (low prosocial:  $b = .18$ ,  $t(362) = 2.29$ ,  $p = .02$ ; moderate prosocial:  $b = .05$ ,  $t(362) = .66$ ,  $p = .51$ ; high = prosocial:  $b = -.09$ ,  $t(362) = .89$ ,  $p = .37$ ). Thus, popularity was predictive of received provisions only when prosocial behavior was low. As can be seen in Figure 2a, at low levels of prosocial behavior, low levels of popularity were predictive of lower levels of receiving provisions. Interestingly, there was no association between received provisions and levels of prosocial behaviors at levels of high popularity.

Indirect and total effects are shown in Table 2. There were no significant associations between fall popularity and spring depression through received provisions at low, moderate, and high levels of prosocial behavior, and there were no significant total effects. To further investigate, the model was tested using two standard deviations below the mean at which point the indirect effect approached significance at low levels of prosocial behavior for girls ( $b = -.05$ ,  $p = .09$ ). This indicates that, for girls, at very low levels of prosocial behavior, popularity is associated with less depression through higher levels of received provisions.

**Treated Mean and Prosocial Behavior.** An initial multi-group path model was estimated to test for gender differences. A model in which all path coefficients and variable means were constrained to be equal for boys and girls did not fit the model well.  $\chi^2(16) = 77.06$ ,  $p < .001$ , CFI = 0.11, RMSEA = .144, SRMR = .095, and unconstraining all path coefficients and variable means significantly improved model fit,  $\Delta\chi^2(12) = 76.49$ ,  $p < .001$ . Gender

differences were detected for the mean of the interaction between popularity and prosocial behavior [ $\Delta\chi^2(1) = 15.51, p < .001$ ], as well as prosocial behavior [ $\Delta\chi^2(1) = 33.42, p < .001$ ] and fall treated mean [ $\Delta\chi^2(1) = 9.93, p = .002$ ]. Additionally, gender differences were found on the paths regressing spring depression on treated mean [ $\Delta\chi^2(1) = 14.04, p < .001$ ] and spring depression on fall depression [ $\Delta\chi^2(1) = 10.198, p = .001$ ].

A final model was estimated constraining all means and paths excepts those for which a gender difference was identified. The final model evidenced good model fit,  $\chi^2(11) = 8.49, p = .67, CFI = 1.00, RMSEA = .00, SRMR = .030$ . Table 3 presents the unstandardized and standardized path coefficients and the raw estimates of the direct, indirect, and total effect of spring popularity on fall depression. For both boys and girls, high popularity and high prosocial behavior was associated with being treated less meanly in the fall. Interestingly, higher levels of fall treated mean predicted more depression in girls, but not for boys. The interaction between popularity and prosocial behavior on treated mean was marginally significant for boys and girls ( $b = .20, p = .08$ ).

To further investigate, the plotted simple slopes of this interaction is presented in Figure 2b. Popularity predicted higher levels of treated mean at low and moderate levels of prosocial behavior but not at high levels of prosocial behavior (low prosocial:  $b = -.21, t(362) = -2.90, p = .004$ ; moderate prosocial:  $b = -.13, t(362) = -1.95, p = .05$ ; high = prosocial:  $b = -.05, t(362) = -0.51, p = .61$ ). Thus, popularity was predictive of treated mean only when prosocial behavior was at low and moderate levels. As can be seen in Figure 2c, at low levels of prosocial behavior, low levels of popularity were predictive of higher levels of treated mean. Interestingly, there was no association between treated mean and levels of prosocial behaviors at levels of high popularity.

Indirect and total effects are shown in Table 3. For boys, there were no significant associations between fall popularity and spring depression through treated meanly at low, moderate, and high levels of prosocial behavior, and there were no significant total effects. However, the indirect effect was marginally significant at low levels of prosocial behavior for girls ( $b = -.04, p = .07$ ). The model was retested using two standard deviations below the mean at which point significance for the indirect effect remained marginal ( $b = -.05, p = .07$ ) This indicates that, for girls, at low levels of prosocial behavior, popularity is associated with less depression through lower levels of being treated meanly.

**Received Provisions and Relational Aggression.** An initial multi-group path model was estimated to test for gender differences. A model in which all path coefficients and variable means were constrained to be equal for boys and girls was a poor model fit.  $\chi^2(16) = 45.59, p < .001$ , CFI = 0.47, RMSEA = .101, SRMR = .068, and unconstraining all path coefficients and variable means significantly improved model fit,  $\Delta\chi^2(12) = 44.56, p < .001$ . Gender differences were detected for the means of the interaction between popularity and relational aggression [ $\Delta\chi^2(1) = 7.17, p < .01$ ], as well as relational aggression [ $\Delta\chi^2(1) = 8.92, p = .003$ ], spring depression [ $\Delta\chi^2(1) = 12.33, p < .001$ ], and fall depression [ $\Delta\chi^2(1) = 5.60, p = .018$ ]. Additionally, gender differences were found on the paths regressing receive provisions on relational aggression [ $\Delta\chi^2(1) = 4.106, p = .043$ ], spring depression on received provisions [ $\Delta\chi^2(1) = 12.25, p < .001$ ] and spring depression on fall depression [ $\Delta\chi^2(1) = 12.92, p < .001$ ].

A final model was estimated constraining all means and paths excepts those for which a gender difference was identified. The final model evidenced good model fit,  $\chi^2(9) = 8.317, p = .50$ , CFI = 1.00, RMSEA = 0.00, SRMR = .037. Table 4 presents the unstandardized and standardized path coefficients and the raw estimates of the direct, indirect, and total effect of

received provisions on spring depression. Interestingly, higher levels of relational aggression was associated with lower levels of received provisions for girls, but not for boys. For both boys and girls, fall depression predicted significantly higher levels of depression in the spring, although this association was stronger for girls than for boys. Higher levels of fall receive provisions predicted significantly lower levels of spring depression for girls, but not for boys.

Moreover, there was a significant interaction between popularity and relational aggression in the prediction of received provisions for boys and for girls. The plotted simple slopes of this interaction is presented in Figure 2c. Popularity predicted higher levels of received provisions at high levels of relational aggression but not at low or moderate levels of relational aggression [low aggression:  $b = .004$ ,  $t(362) = 0.04$ ,  $p = .97$ ; moderate aggression:  $b = .11$ ,  $t(362) = 1.56$ ,  $p = .12$ ; high aggression:  $b = .22$ ,  $t(362) = 2.75$ ,  $p = .006$ ]. Thus, popularity was predictive of received provisions only when relational aggression was high. As can be seen in Figure 2b, high levels of popularity were associated with high levels of received provision only at high levels of relational aggression. Interestingly, low levels of popularity were associated with low levels of received provisions regardless of level of relational aggression.

Indirect and total effects are shown in Table 4. There were no significant associations between fall popularity and spring depression through through received provisions at low, moderate, and high levels of relational aggression, and there were no significant total effects. However, the indirect effect reached marginal significance at high levels of relational aggression for girls ( $b = -.035$ ,  $p = .097$ ). The model was retested using two standard deviations above the mean at which point significance for the indirect effect remained marginal ( $b = -.05$ ,  $p = .092$ ) This indicates that, for girls, at very high levels of relational aggression, popularity is associated with less depression through higher levels of received provisions.

**Treated Mean and Relational Aggression.** An initial multi-group path model was estimated to test for gender differences. A model in which all path coefficients and variable means were constrained to be equal for boys and girls did not fit the model well.  $\chi^2(16) = 45.88$ ,  $p < .001$ , CFI = 0.56, RMSEA = .103, SRMR = .072, and unconstraining all path coefficients and variable means significantly improved model fit,  $\Delta\chi^2(12) = 44.56$ ,  $p < .001$ . Gender differences were detected for the means of the interaction between popularity and relational aggression [ $\Delta\chi^2(1) = 6.47$ ,  $p = .012$ ], as well as relational aggression [ $\Delta\chi^2(1) = 7.66$ ,  $p = .006$ ], treated mean [ $\Delta\chi^2(1) = 7.15$ ,  $p = .007$ ], and spring depression [ $\Delta\chi^2(1) = 9.94$ ,  $p = .05$ ]. Additionally, gender differences were found on the path regressing spring depression on treated mean [ $\Delta\chi^2(1) = 14.06$ ,  $p < .001$ ] and spring depression on fall depression [ $\Delta\chi^2(1) = 10.21$ ,  $p = .001$ ]. A final model was estimated constraining all means and paths excepts those for which a gender difference was identified.

The final model evidenced good model fit,  $\chi^2(10) = 8.542$ ,  $p = .58$ , CFI = 1.00, RMSEA = 0.00, SRMR = .027. Table 5 presents the unstandardized and standardized path coefficients and the raw estimates of the direct, indirect, and total effect of treated mean on spring depression. For both boys and girls, treated mean was negatively associated with popularity and positively associated with relational aggression. Fall depression predicted significantly higher levels of depression in the spring, although this association was stronger for boys than girls. Interestingly, higher levels of fall treated mean predicted significantly higher levels of spring depression for girls, but not for boys. There was no significant interaction effect between popularity and relational aggression on treated mean, and therefore, no simple slopes were computed.

Indirect and total effects are shown in Table 5. There were no significant associations between fall popularity and spring depression through through treated mean at low, moderate, and high levels of relationally aggressive behavior for boys, and there were no significant total effects for boys or girls. In addition, the indirect effect at low levels of relational aggression was not significant ( $b = -.03, p = .17$ ). Interestingly, for girls, there was a marginally significant indirect effect at moderate levels ( $b = -.03, p = .08$ ) and high levels of relational aggression ( $b = -.04, p = .08$ ). The model was retested using two standard deviations below the mean at which point the indirect effect became insignificant at high levels (high:  $b = -.04, p = .127$ , moderate:  $b = -.03, p = .08$ , low:  $b = -.03, p = .35$ ), which indicates that the standard of error became too large. This discrepancy at low, medium, and high levels of relational aggression is due to the negative interaction between popularity and relational aggression on treated meanly. Although this interaction was not statistically significant, it was sufficient to lead to small indirect effects at moderate and high levels of relational aggression for girls. This indicates that, for girls, at moderate and high levels of relational aggression, popularity is associated with less depression through lower levels of being treated meanly.

### **Discussion**

Due to the role that peer relationships play in the development of childrens' emotional, behavioral, and social skills (Parker & Asher, 1987), it is crucial to understand the connection between the quality of these relationships and their effects on emotional well-being. The degree to which popularity protects against or exacerbrates depression is of particular importance given the value adolscents place on social status (Lafontana & Cillessen, 2010) and heightening rates of depression during early adolescence, particularly among girls (Kandel & Davies, 1982; Petersen et. al., 1991). The findings suggest that popularity is associated with better friendships

for children that display low levels of prosocial behaviors and high levels of relational aggression. Furthermore, opposite to what was expected, but consistent with previous research (Kornienko & Santos, 2012; Martin et al., 2003), popularity was protective against depression through higher quality friendships, but only for girls at low levels of prosocial behavior and high levels of relational aggression.

### **Popularity and Prosocial Behavior**

I hypothesized that popularity would have a stronger positive association with receiving friendship provisions, and a stronger negative association with being treated meanly by friends, at higher levels of prosocial behavior. Instead, the findings showed that popularity had stronger associations with friendship quality, both receiving more provisions and being treated less meanly, at lower levels of prosocial behavior. More precisely, decomposition of the popularity  $\times$  prosocial behavior interaction showed that at high levels of popularity, children reported receiving high levels of provisions and low levels of mean treatment from their friends regardless of how prosocial they were. However, at low levels of popularity, children reported receiving provisions less frequently, and being treated meanly more often, if they were reported to exhibit low levels of prosocial behavior. Therefore, although my hypothesis was not supported, the findings give insight into the ways in which popularity may benefit children who may otherwise be at risk for developing low quality friendships.

These findings were consistent with those of Poorthuis et al. (2011) who found that popular children tended to have high quality friendships regardless of how prosocial they were. According to Hawley et al. (2007), popular children with lower prosocial characteristics are still provided with support, validation, and aid by their peers, contributing to better friendships. It is possible that popular children have other, more appealing features, that compensate for

exhibiting less prosocial behaviors, and thus receive provisions and are treated kindly by their friends regardless of how prosocial they are. For instance, the high visibility, leadership, social control, and attractiveness associated with being popular (Lease et. al, 2002) may be enough for popular children's friends to be motivated to maintain their relationships with them (i.e., give more provisions, treat them less meanly), regardless of how prosocial their popular friends are.

The findings further showed that children who were low in popularity had better friendships only when they displayed high levels of prosocial behavior. McDonald et al. (2011) found that children who possess prosocial characteristics are likely to have higher quality friendships, particularly because they offer more provisions to their friends (i.e, emotional support and reciprocity) than less prosocial children. Given the research behind reciprocity of behaviors within friendships (Barry & Wentzel, 2006), it is likely that even children with low popularity have higher quality friendships if they are highly prosocial, consistent with the current findings. Therefore, as popularity may not be necessary for forming high quality friendships among highly prosocial children, it is protective for children who lack prosocial behaviors.

### **Popularity and Relational Aggression**

I hypothesized that popularity would have a stronger positive association with receiving provisions by friends and a stronger positive association with being treated meanly at higher levels of relational aggression. Consistent with this hypothesis, my findings showed that popularity had a stronger positive association with received provisions at higher levels of relational aggression. Specifically, decomposition of the popularity  $\times$  relational aggression interaction showed that at high levels of popularity children reported higher levels of receiving provisions at average or high levels of relational aggression. However, at low levels of



popularity, children reported higher levels of receiving provisions at lower levels of relational aggression.

Thus, findings indicated that popularity serves as a protective measure for children who are high in relational aggression. Due to their nature, relationally aggressive behaviors can occur within more private and secretive interactions (i.e., gossiping about someone, spreading rumors, and excluding others), potentially fostering feelings of being in a highly close relationship. Indeed, multiple studies have found an association between intimacy and relational aggression (Banny et al., 2011; Grotmeter & Crick 1996; Hawley et al., 2007; Murray-Close et al., 2007; Rose et al., 2004), as well as associations between negative gossip and closeness between friends (McDonald et al., 2007). Furthermore, the level of trust built between friends sharing valued information may contribute to more instances of self-disclosure in the future (McDonald et al., 2007). Popular children may be particularly skilled at using relational aggression to strengthen friendship bonds (Archer, 2001). Alternatively, because relational aggression is associated with friendship conflict (Hawley et al., 2007), there is a possibility that friends of popular children are fearful these behaviors will be used against them, (e.g., divulging their own private information with others; Underwood, 2003), thus further enforcing the likelihood they will provide provisions to stay on their popular friend's "good side".

The findings further showed that children who were low in popularity received less provisions when they displayed high levels of relational aggression. This could be due to the manipulative and threatening nature of relational aggression (Crick & Grotmeter, 1995). Thus, without the added appeal of being popular, those who are low in popularity but display high levels of aggression may develop lower quality friendships. It could be that children low in popularity have fewer redeeming qualities (e.g., attractiveness, sense of humor, social

competence; Dodge et al., 1986; Hymel et al., 1990), that amplifies friends' desire to provide them with provisions. It could also be that these less popular children are less strategic with their use of their relational aggression, and cause damage to their friendships by using relational aggression against their friends (Nelson & Crick, 2002), leading to receiving less support and validation from their friends. Given the association between relational aggression and peer rejection and loneliness (Crick et al., 1999), this further supports the idea that popularity would be protective for highly relationally aggressive children.

My findings revealed a negative association between popularity and treated meanly. Inconsistent with my hypothesis, this main effect was not moderated by relational aggression. In a qualitative study conducted by Crothers and colleagues (2005), peers capitalized on their friends' fears of social abandonment to obtain power. Children may fear retaliation (e.g., spreading their secrets, being socially excluded) if they treat more socially powerful friends meanly. Thus, the risk of losing association with popular peers may prevent children from treating their popular friends meanly, regardless of how relationally aggressive they are. At the same time, popular children low in relational aggression may be treated less meanly because they elicit less conflict from others (Bagwell & Coi, 2004). It should be noted that the results here contrast Rose and colleagues' (2004) findings that popularity is associated with less negative treatment from friends specifically at high levels of aggression. However, while the current study examines a population of third and fourth-grade children, Rose and colleagues' studied third through 9<sup>th</sup> grade students (2004). Thus, it could be that older children become more skilled at the use of their relational aggressive behaviors in ways that fosters less negative treatment from friends.

### **Popularity and Depression: Indirect Effects through Friendship Quality**

It was hypothesized that popularity would negatively predict depression through receiving more provisions and being treated less meanly. Further, it was hypothesized that gender would moderate the association between friendship quality and depression. Specifically, it was expected that better friendship quality would be more predictive of less depression for girls than boys. The findings revealed that popularity was predictive of lower levels of depression through more received provisions and less treated meanly for those demonstrating low levels of prosocial behavior and high levels of relational aggression, but only for girls. Overall, the findings were consistent with my predictions, with the exception that I predicted popularity to be predictive of depression through friendship quality at high levels of prosocial behavior, but rather found this to be the case at low levels of prosocial behavior.

The current findings revealed that friendship quality was associated with less depression for girls, but not boys. Research indicates that girls have more connection-oriented goals within their friendships, and value more closeness and dependency often reflected in higher levels of self-disclosure (Rose & Rudolph, 2006). In contrast, boys have more status-oriented and individualized goals for their friendships, including maintaining privacy and promoting self-interest (Rose & Asher, 1999). Additionally, girls are more likely to fear abandonment in their relationships than boys (Rose & Rudolph, 2006). Thus, it would seem that girls who receive more provisions (e.g., support and intimacy) from their friendships may be less susceptible to developing depression, whereas experiencing more conflict in their friendships may contribute to fears of abandonment, making them more susceptible to depression.

The current study showed popularity to be protective against depression through friendship quality, specifically for girls who exhibit low levels of prosocial behaviors and high levels of relational aggression. Although previous research on the effects of popularity on

depression for girls is mixed, these findings also align closely with previous research in which the protection against depression is attributed to friendship-related processes. For instance, using the same data as the current study, Troop-Gordon and Ranney (2014) found popularity to predict less depression for girls indirectly through having more friends. Martin and colleagues (2003) found popularity to protect against depression for girls, but only if they valued friendships. Thus, for girls high in relational aggression and low in prosocial behaviors, popularity may be protective against depression by providing them with the supportive, high-quality friendships they might otherwise not have. The question remains, however, as to why a handful of studies have found popularity can be a risk factor for depression for girls. It could be that, for some girls, popularity engenders risks not studied here. Kornienko and Santos (2014) found popularity to be predictive of depression for girls if they feared evaluation. Further, Troop-Gordon and Ranney (2014) found same-sex popularity to be associated with more depression for girls, which could be due to a fear of competition for status or being compared to other popular girls.

Additionally, the current study found weaker protective effects compared to studies that looked at older children, and no protective effects were found for boys. Age differences in the samples studied could account for these differences. For instance, Litwack and colleagues (2012) found popularity to be predictive of less depression for eighth grade girls and boys, and Sandstrom and Cillessen (2006) found popularity in fifth grade to be protective against internalizing problems in eighth grade, but for boys only. Stronger popularity-depression linkages at older ages could be due to the fact that friendship quality increases during middle childhood and adolescence (Berndt, 2004), as does the value youth place on popularity (LaFontana & Cillessen, 2010). Further, it is possible that there are other contributing factors that determine the extent to which popularity is associated with depression (i.e., fear of evaluation, value of

friendship, degree of self-esteem; Kornienko & Santos, 2014; Martin et al., 2003;). It should be noted that Troop-Gordon and Ranney (2014) found popularity to be protective against depression from boys using the same data, which may be due to differences in the covariates included in the analyses. These differences also speak to the moderate magnitude of the effects that were found in the Troop-Gordon and Ranney analysis.

### **Limitations, Future Directions, and Conclusion**

The current study presented an opportunity to address the existing gap in the literature regarding the unclear relationship between popularity and depression, as well as conflicting results in studies addressing gender differences in these associations. A strength of the study was the longitudinal design used to gather data during the fall and spring of students' third or fourth grade academic year, in order to better understand the short-term effects of popularity on children's emotional development. The current study also examined characteristics of friendship quality as mediators of this association, as well as included prosocial and relationally aggressive characteristics as moderators of the association between popularity and friendship quality. Therefore, this study not only contributed to the explanation of the impact of popularity on depression via avenues of positive and friendship friendship qualities, but also the role in which behavioral characteristics shape the potential influence of popularity on the quality of these friendships.

One of the limitations of this study was the use of a sample of younger children opposed to studying a later developmental period. This limitation can be addressed in future studies by the incorporation of older children in the sample. Research shows that adolescence is a crucial developmental period due to advancing neurobiological functions that contribute to changes in their social and emotional behavior (Todd, 2007). Further, research shows that internalizing

problems increase with age (Costello et al., 2003) and, therefore, may lead to stronger associations between popularity and depression. Additionally, the association between being popular and being liked decreases during adolescence (Cillessen & Marks, 2011), which may indicate that popularity becomes less protective as kids age. Thus, studying friendship as a mediator of the link between popularity and depression with older samples may give further insights into the effect popularity has on depression over time. Further, Troop-Gordon and Ranney (2014), used the same data set found evidence of popularity predicting less depression, which could be a result of using cross-sex and same-sex variables when studying popularity. Future studies may consider using a similar approach in examining gender differences in popularity when studying the impact on depression.

Given the existing literature studying the link between friendship quality and mental health (Erdley et al., 2001; Troop-Gordon, et al., 2019), this study examined friendship quality specifically with regard to the extent to which children receive provisions from friends and are treated meanly by their friends. An added strength to this study was the measurement of friendship quality in terms of the children's perceptions of their friendships, which likely has a larger impact on their emotional well-being than measurements of friendship quality that incorporate perceptions from both friends or from the perspective of an observer. However, the differences between using measures of perceived friendship quality in contrast to what others may say about the quality of the friendship is unclear. For instance, comparing measures based on how the child views the quality of their friendships versus their friends' perspectives could add to our understanding. Therefore, future studies may consider using multi-reporter assessments of friendship quality in order to further our understanding of the relation between popularity and depression.

It should also be noted, that, the presentation of depression symptoms tend to differ between men and women. For instance, a study examining gender differences in the expression of depressive symptoms found small differences in symptoms related to substance use and impulse control (Cavanaguh et. al., 2017). Therefore, it could be that the measure of depression for the current study focuses more on symptoms of depression predominantly expressed by girls, potentially explaining the lack of findings for boys. Future studies should include depression measures that encompass symptoms characteristic of both boys and girls.

Results of the current study have important implications for intervention regarding children's social and emotional development. My findings show that children who are popular are likely to have better quality friendships regardless of their levels of prosocial and relationally aggressive behaviors and, therefore, may be at less of a risk for developing depression. However, it was found that children low in popularity were more at risk for developing low quality friendships if they displayed high levels of relational aggression and low levels of prosocial behavior, putting girls, at least, at a greater risk for developing depressive symptoms. This suggests that a greater focus on the development of social skills from teachers and parents may be of benefit for children who are lower in popularity. In fact, extensive research shows effectiveness of school-based social-emotional learning interventions, resulting in enhanced social adjustment (Durlak et al., 2011; Taylor et al., 2017; Sklad et al., 2011). Further, given the prospect that children may provide their popular friends with more provisions or treat them less meanly as a means of preserving their association with popular status, it could be that these popular children are not actually well-liked by their friends. This suggests an importance that parents should place on the development of genuine and meaningful friendships in contrast to friendships built on the concept of visibility and status. At the same time, parents may also want

to foster those characteristics that increase popularity (i.e., being athletic, having self-confidence, being a leader, making good grades, being fashionable and physically attractive; Parkhurst & Hopmeyer, 1998).

In conclusion, findings indicated popularity to be a protective factor against depression through friendship quality, but only for girls. Given the mixed findings throughout literature on the association between popularity and depression, as well as the marginal significance found in the current study, this suggests that popularity has the potential of serving as both a risk factor and protective factor for children. Findings further revealed that children who were low in popularity had better friendships only when they displayed high levels of prosocial behavior, and lower quality friendships when they displayed high levels of relational aggression, indicating popularity to be particularly protective for children with poor social skills. This suggests a greater need not only to develop socially adept behaviors, but to also foster those characteristics that may increase popularity.



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Table 1

*Descriptive Statistics and Bivariate Correlations.*

Variable	Boys		Girls		Bivariate correlations						
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Popularity	1.88	.52	1.96	.48	-	.03	-.05	-.13**	-.09	.05	.12*
2. Receive provisions	3.27	.66	3.39	.64	.17**	-	-.46	-.11*	-.18***	.06	-.15**
3. Treated mean	1.39	.57	1.54	.61	-.26***	-.31***	-	.27	.25	-.09	.16**
4. Depression W1	1.62	.61	1.68	.63	-.11*	-.29***	.29***	-	.32***	.12*	.07
5. Depression W2	1.52	.58	1.76	.72	-.04	-.14**	.06	.31***	-	-.04	.03
6. Prosocial behavior	2.98	.43	3.22	.38	.47***	.21***	-.17**	-.26***	-.08	-	-.62***
7. Relational aggression	1.45	.32	1.36	.29	-.27***	-.05	.15**	.32***	.07	-.60***	-

\*  $p < .05$ . \*\*  $p < .01$ 

Boys below dotted line, girls above dotted line

Table 2  
*Path Coefficients and Decomposition of Effects for the Receive Provisions and Prosocial Behaviors Model*

Predictor	Fall receive provisions				Spring depression			
	Boys		Girls		Boys		Girls	
	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$
Fall popularity	0.05	0.04	0.05	0.04	-.03	-.03	-.03	-.02
Fall prosocial behavior	0.26**	0.17**	0.26**	0.15**	---	---	---	---
Popularity $\times$ prosocial behavior	-0.33**	-0.12**	-0.33**	-0.15**	---	---	---	---
Fall receive provisions	---	---	---	---	-0.04	-0.05	-0.16	-0.15*
Fall depression	---	---	---	---	0.28***	0.29***	0.35***	0.30***

Decomposition of effects							
	Low Prosocial		Average Prosocial		High Prosocial		
	Boys	Girls	Boys	Girls	Boys	Girls	
Indirect effect	-.007	-.029	-.002	-.007	.003	.014	
Total effect	-.034	-.055	-.028	-.034	-.023	-.012	

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 3  
*Path Coefficients and Decomposition of Effects for the Treated Mean and Prosocial Behaviors Model*

Predictor	Fall treated mean				Spring depression			
	Boys		Girls		Boys		Girls	
	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$
Fall popularity	-0.13*	-0.12*	-0.13*	-0.10*	-0.04	-0.03	-0.04	-0.03
Fall prosocial behavior	-0.16*	-0.12*	-0.16*	-0.10*	---	---	---	---
Popularity $\times$ prosocial behavior	.20	0.09 <sup>†</sup>	0.20	0.10	---	---	---	---
Fall treated mean	---	---	---	---	-0.03	-0.03	0.18*	0.15*
Fall depression	---	---	---	---	0.33***	0.34***	0.28***	0.25***

Decomposition of effects							
	Low Prosocial		Average Prosocial		High Prosocial		
	Boys	Girls	Boys	Girls	Boys	Girls	
Indirect effect	.006	-.037	.004	-.023	.001	-.008	
Total effect	-.031	-.074	-.033	-.060	-.036	-.045	

<sup>†</sup>  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 4  
*Path Coefficients and Decomposition of Effects for the Receive Provisions and Relational Aggression Model*

Predictor	Fall receive provisions				Spring depression			
	Boys		Girls		Boys		Girls	
	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$
Fall popularity	0.11	0.09	0.11	0.08	-0.03	-0.02	-0.03	-0.02
Fall relational aggression	0.02	0.01	-0.46**	-0.20**	---	---	---	---
Popularity $\times$ relational aggression	0.35*	0.09*	0.35*	0.13*	---	---	---	---
Fall receive provisions	---	---	---	---	-0.04	-0.05	-0.16*	-0.15*
Fall depression	---	---	---	---	0.28***	0.29***	0.34***	0.30***

Decomposition of effects							
	Low Relational Aggression		Average Relational Aggression		High Relational Aggression		
	Boys	Girls	Boys	Girls	Boys	Girls	
Indirect effect	0.00	0.00	-.004	-.018	-.009	-.035	
Total effect	-.026	-.026	-.031	-.044	-.035	-.061	

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

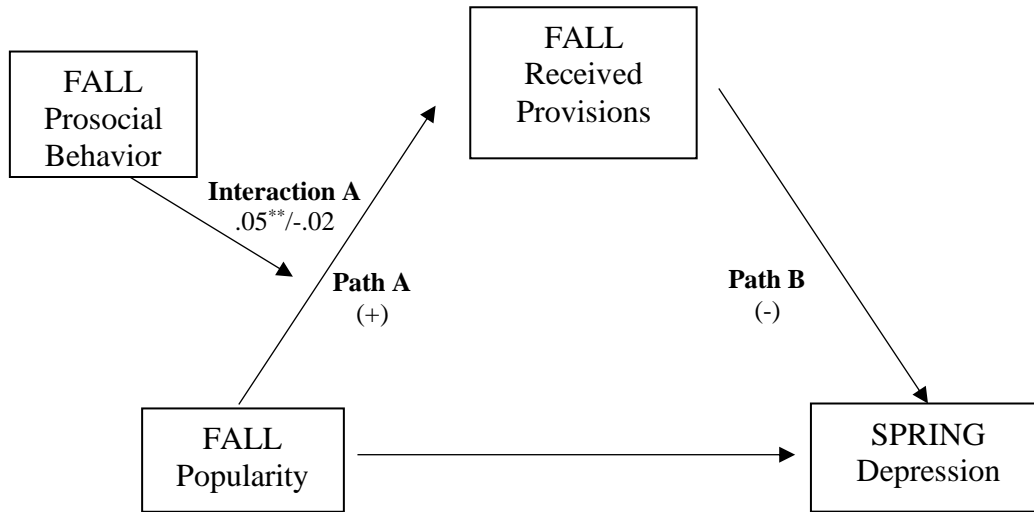
Table 5  
*Path Coefficients and Decomposition of Effects for the Treated Mean and Relational Aggression Model*

Predictor	Fall treated mean				Spring depression			
	Boys		Girls		Boys		Girls	
	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$	<i>b</i>	$\beta$
Fall popularity	-0.16*	-0.15*	-0.16*	-0.13*	-0.04	-0.04	-0.03	-0.01
Fall relational aggression	0.28**	0.16**	0.28**	0.13**	---	---	---	---
Popularity $\times$ relational aggression	-0.06	-0.02	-0.06	-0.02	---	---	---	---
Fall treated mean	---	---	---	---	-0.05	-0.05	0.17*	0.20*
Fall depression	---	---	---	---	0.30***	0.32***	0.27***	0.31***

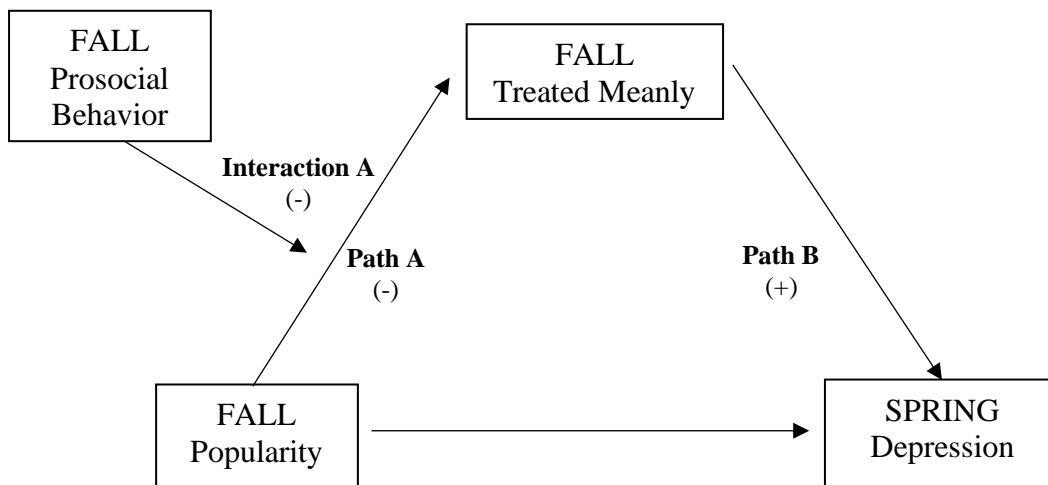
Decomposition of effects							
	Low Relational Aggression		Average Relational Aggression		High Relational Aggression		
	Boys	Girls	Boys	Girls	Boys	Girls	
Indirect effect	0.01	-0.03	0.01	-0.03	0.01	-0.04	
Total effect	-0.03	-0.08	-0.03	-0.07	-0.03	-0.06	

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

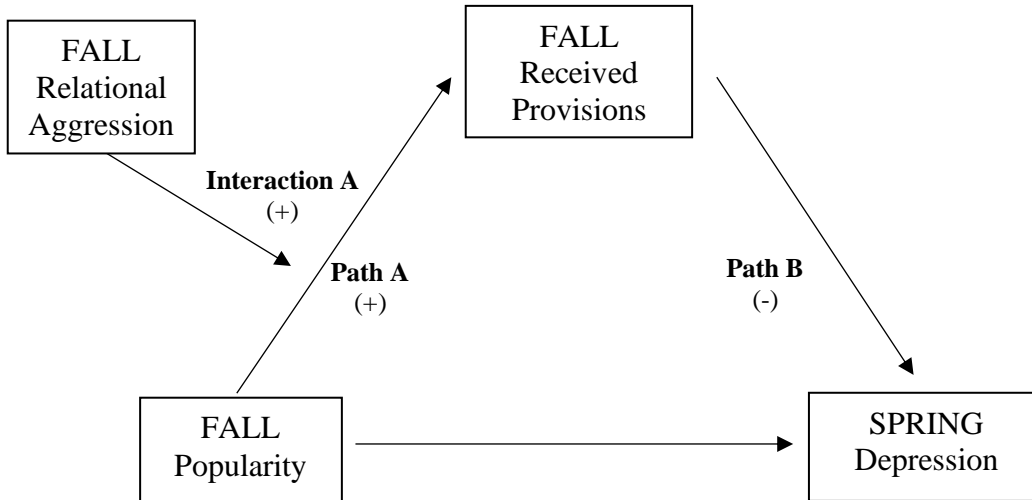




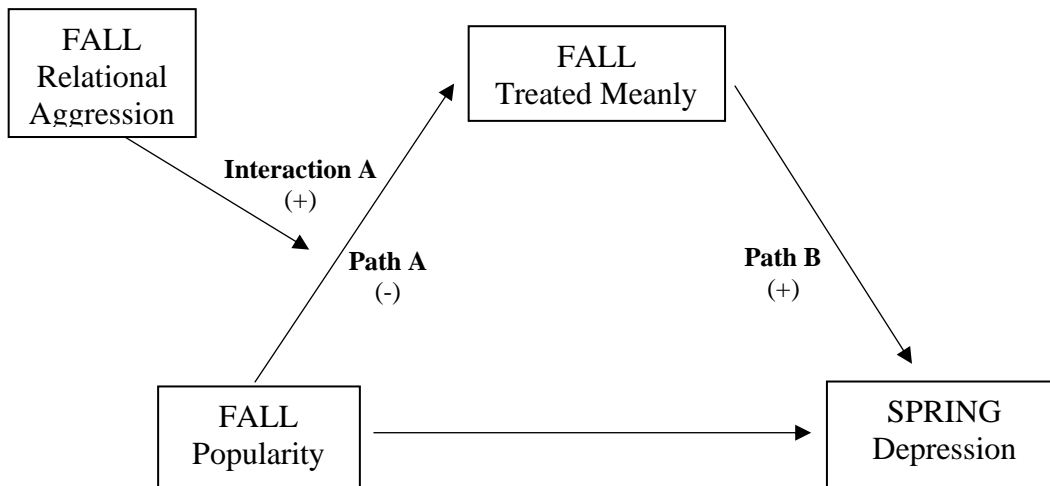
a) Mediation through received provisions, moderated by prosocial behavior



b) Mediation through treated meanly, moderated by prosocial behavior

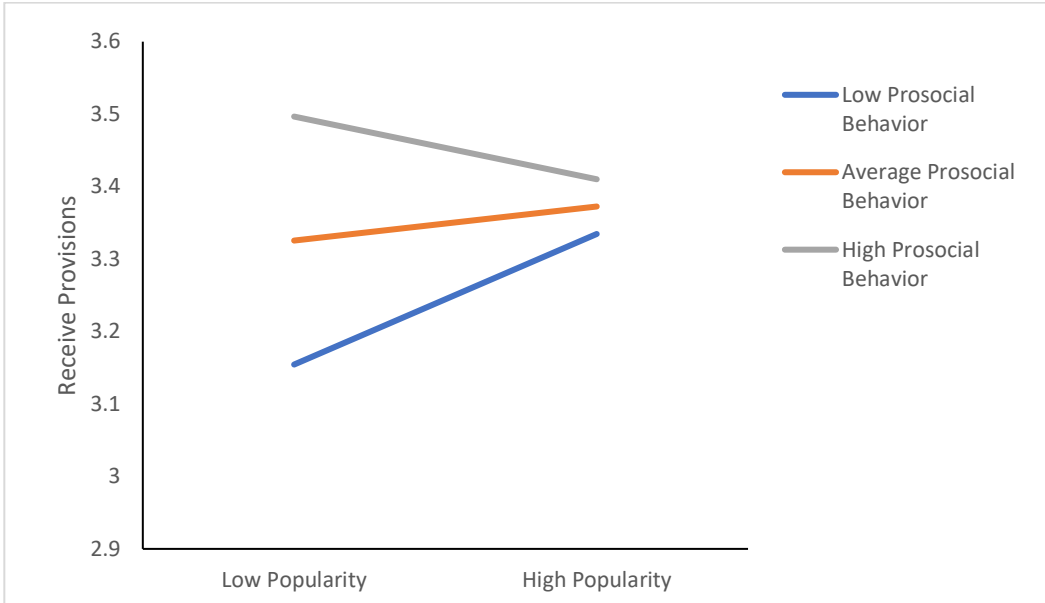


c) Mediation through received provisions, moderated by aggressive behavior

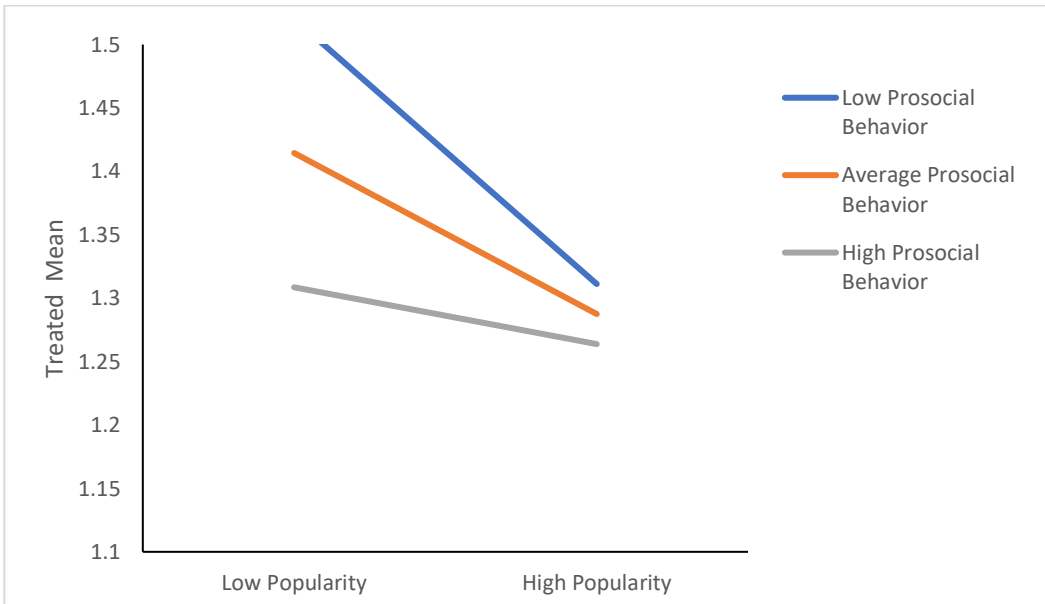


d) Mediation through treated meanly, moderated by aggressive behavior

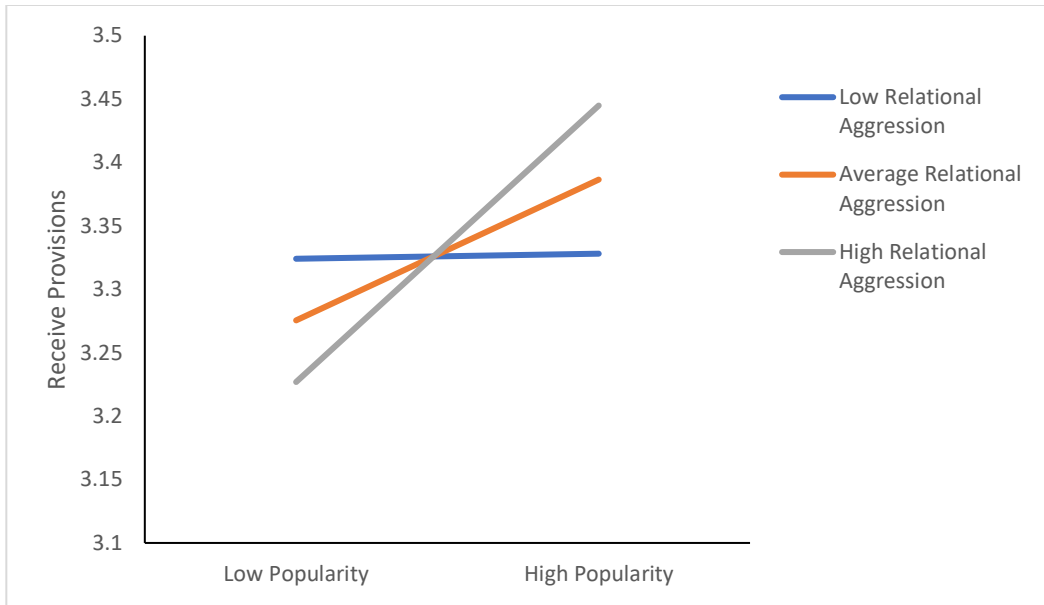
*Figure 1.* A theoretical mediated moderation model in which the path between popularity and depression The link between popularity and measures of friendship quality is theorized to be more salient at high levels of prosocial or relationally aggressive behaviors . Expected directions of proposed significant main and interactive effects are indicated (i.e., +, -).



a) Popularity × prosocial behavior predicting receive provisions



b) Popularity × prosocial behavior predicting treated mean



c) Popularity × aggressive behavior predicting receive provisions

*Figure 2.* The plotted interactions for the a) interactive effect of popularity and prosocial behavior on receive provisions b) interactive effect of popularity and relational aggression on receive provisions and c) interactive effect of popularity and prosocial behavior on treated mean.

## **Appendix A1**

### **Friendship Quality Questionnaire (Parker & Asher, 1993)**

1. My friends make me feel good about my ideas.
2. My friends stick up for me if others talk behind my back.
3. My friends tell me I am good at things.
4. My friends would like me even if others didn't.
5. I can count on my friends to keep promises.
6. My friends get mad at me a lot.
7. My friends don't listen to me.
8. My friends sometimes say mean things about me to other kids.