THE ROLE OF RELATIONSHIP ALTERNATIVES IN SUSCEPTIBILITY TO FRIEND INLUFENCE

by

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ABSTRACT

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In the social world of adolescents, friends play an integral role in shaping adjustment. Little is known about what differentiates those who influence from those who are influenced. The current study examined the role of relationship alternatives to determine whether a relative lack of friends increases susceptibility to influence over adjustment outcomes in a sample of adolescents (N=794). Findings suggest that partners with relatively fewer friends were susceptible to influence from partners with relatively more friends over social anxiety and prosocial behavior. Both partners influenced each other's academic engagement over time. Multiple group analyses indicated that patterns of susceptibility to influence did not differ between partners with fewer relationship alternatives who had no other friends and those who had one or two other friends. The findings of the current study highlight the role of a relative lack of relationship alternatives in susceptibility to friend influence.

DEDICATION

To my family, for always being by my side, supporting and encouraging me. To my husband, Nico, for his unconditional love and patience. To the memory of my mother, whose belief in my abilities has always carried me forward.

THE ROLE OF RELATIONSHIP ALTERNATIVES IN SUSCEPTIBILITY TO FRIEND INFLUENCE

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Peer influence is the process whereby one individual's behavior prompts another to act or think in ways that they would not otherwise act or think (Laursen, 2018). Although we know that friends shape one another's adaptive and maladaptive behaviors, less is known about the characteristics that separate being influential from being susceptible to influence. My focus is on being susceptible. Research indicates that higher accepted friends influence lower accepted friends, but not the reverse (e.g., Nijhof et al., 2010; DeLay et al., 2016a). Is this because better accepted friends are especially influential or because lesser accepted friends are particularly susceptible to influence? We know that being lower on acceptance entails participating in fewer friendships and having fewer prospects for forming new friendships (Zhang et al., 2014), raising the possibility that susceptibility is tied to a perceived need to preserve existing relationships. The present study is designed to test the hypothesis that a relative lack of friends increases susceptibility to influence because children with fewer friends are eager to conform to the wishes of their existing friends, so as not to jeopardize a difficult to replace relationship. To this end, the current study examines the role of relationship alternatives in susceptibility to friend influence over several areas of adjustment.

Friend Influence and Susceptibility to Friend Influence

Peer influence promotes similarity between friends, which is an important contributor to the continuity of a friendship (Hartl et al., 2015). Friend influence occurs when partners change to become more similar over time. Both friends can, conceivably,

change converging near the middle. But in practice, one friend often does most of the changing. The agent of influence is the influential partner, whose behavior promotes changes in the recipient or target of influence. Some individuals are particularly influential by virtue of characteristics that increase their ability to sway others. The recipient of influence refers to the target of influence, whose behavior changes in response to that of the agent of influence. Susceptibility to peer influence describes the extent to which an individual conforms to the behaviors of others (Steinberg & Monahan, 2007). Some individuals are particularly susceptible to influence by virtue of characteristics they possess that increases their likelihood of conformity. Susceptibility comes in many forms but can be divided along the state/trait distinction (Laursen & Faur, in press). Sometimes it is a trait-like characteristic, such as willingness to conform or social anxiety. Sometimes it is a state-like condition, such as a response to exposure to novel circumstances or deficiencies relative to interaction partners.

According to trait models of susceptibility, there are stable, enduring individual differences in characteristics of individuals that make recipients of influence particularly susceptible to influence attempts. For example, some have proposed that being susceptible to peer influence arises from a heightened drive or desire to please others or to fit in (Brown et al., 1986). In contrast, state models of susceptibility propose that there are context-specific individual attributes that make some targets of influence particularly susceptible, but only within a constrained set of circumstances. For example, some have proposed that susceptibility to influence is related to impermanent states that increase the probability of conformity (e.g., knowing less about math than your partner; DeLay et al., 2016a). Herein, intraindividual variation in susceptibility to influence is a function of the

context or state of the target (e.g., overweight children demonstrating conformity to peers' eating and exercise behaviors only when in the company of peers; Salvy et al., 2007). Although the distinction between state and trait operationalizations of susceptibility is not firm, it is helpful in terms of understanding the degree to which the construct being assessed has origins in attributes tied to individual characteristics that do not vary across relationships as opposed to characteristics that depend on the relationship and the partner with whom one is interacting. The present study is designed to test the hypothesis that susceptibility is a state-like condition that varies according to relationship context. In so doing, several trait-related possibilities were considered as alternative explanations.

Conceptual Models Describing Susceptibility to Influence

My study starts from the premise that within a friend dyad, the partner with relatively fewer friends will be susceptible to influence from the partner with more friends, on the assumption that the partner with fewer friend alternatives does not want to risk conflict that might disrupt the only (or one of the only) friendships in which the individual participates. In contrast, the partner with relatively more friends has less incentive to keep the partner with fewer friends happy and is therefore less motivated to conform. Several conceptual models undergird this hypothesis.

Disequilibrium. Disequilibrium is a conceptual model of peer influence that ascribes susceptibility to context-specific internal states of the target of influence. According to disequilibrium theories, individuals conform to the behaviors of others when experiencing internal or external imbalances (Piaget, 1970). Motivations to conform may arise from lack of knowledge in a situation, or from a desire to seek social

approval (Deutsch & Gerard, 1955). Intrapersonal disequilibrium is intrinsically motivating, such that those experiencing a discrepancy between who they really are and who they desire to be are driven to alter behavioral repertoires or beliefs in the pursuit of establishing balance in internal states. Susceptibility to friend influence is heightened for those who fail to achieve desired social goals. Children with few friends, for instance, may experience loneliness, which is a reminder of the gap between a desired social state and the current social state (Laursen & Hartl, 2013). Additionally, interpersonal disequilibrium arises as result of observed or assumed differences between the self and others. Adolescents who compare themselves to others may realize that they lack social status or social resources (Bukowski et al., 2008). Children who are at a social disadvantage, relative to a friend, may be motivated to conform to that friend in order to maintain the friendship and to avoid undesirable intrapersonal states that may arise as a result of the dissolution of the relationship.

Investment. The investment model is a conceptual model of peer influence that ascribes susceptibility to a state-like condition in regards to the investment size and interdependence of partners in a particular relationship. According to investment theories, motivation to conform arises because the friend who places a greater value on the relationship has the most to lose if the relationship were to dissolve (Rusbult & Buunk, 1993). Friends provide resources and rewards that result from sustained interactions. Over time, individuals come to depend on friends for the provision of exclusive resources. Those with few friends and few alternatives to make new friends become reliant on existing friends to provide resources, because they have nowhere else to turn for their provision (Laursen & Jensen-Campbell, 1999). This is particularly evident

during adolescence, as the child's social world shifts from parents to peers, and friends become the primary provider of many key interpersonal resources (Laursen & Hartup, 2002).

Based on interdependence theories, mutuality of dependence refers to the degree to which individuals in a relationship are dependent on one another; the partner who receives more resources, particularly more exclusive resources, from that relationship is the more dependent partner (Rusbult & Van Lange, 2003). Greater dependence fosters a desire to maintain the stability of the relationship, and in order to do so the partner with greater dependence may need to sacrifice previously held beliefs or behaviors and conform to those of their partner (Van Lange et al., 1997). Dependence is also contingent on the availability and quality of alternatives. Among friends, there is interindividual variability in expressions of interdependence; those with more alternatives have a higher standard for evaluating relationships than those with fewer alternatives (Laursen & Jensen-Campbell, 1999). For instance, within married couples, susceptibility to influence varies as a function of partner dependence (Leonard & Mudar, 2004). These findings indicate that wives who scored higher on dependency were more susceptible to influence from husbands, compared to those who scored lower on dependence.

Does the individual participate in other relationships that could replace resources lost when a friendship dissolves? A lack of relationship alternatives implies a greater level of commitment to the relationship, which in turns fosters greater dependence (Rusbult, 1980). For individuals with greater dependence, Van Lange et al. (1997) proposed that, "… they should be more willing to sacrifice direct self-interest to sustain their relationships – the more you have to lose, the more you are willing to give up; to

hold on to what you have." (p. 1375). Research on influence processes in married couples suggests that wives with smaller social networks and fewer friends were most susceptible to influence from their husbands over time, compared to wives with more friends (Leonard & Mudar, 2004). These theories have yet to be tested among friends, but it follows that an adolescent with relatively fewer relationship partners alternatives has more incentive to conform to a friend who has relatively more alternatives.

Dilution. Dilution is a conceptual model of peer influence that ascribes a state-like condition to susceptibility to influence, wherein the salience of a particular relationship is diluted based on characteristics of the constellation of current relationships. According to the social convoy model (Kahn & Antonucci, 1980), personal networks are primary vehicles for the exchange of social support. Social convoys are characterized by structural properties and functional properties, which are related to individual and situational factors. Properties related to the structure of the social convoy include frequency of interaction, composition, and size of a network, whereas properties related to the function of the social convoy include the types of social support given and received. Evidence suggests that adolescents with more sources of support have better adjustment outcomes over time, including a more positive self-concept, and fewer internalizing and externalizing problems, compared to adolescents with fewer sources of support (Levitt et al., 2005). The fewer relationships that one participates in, the more one is dependent on, and shaped by, those relationships. One particular friendship may be less salient for children and adolescents who have many friends and receive support from other companions, which in turn, may decrease the likelihood that any one particular partner is heavily influential; the salience of each friend is diluted by the contributions of

others (Laursen et al., 2012). In contrast, a particular friendship may be more salient for those with few friends, because the significance of the friendship is not diluted by other competing loyalties. It follows that within a friend dyad, on average, the partner with fewer friends should be more likely to conform to the partner with more friends than vice versa, because the friendship is more salient to the partner with fewer friends who is less likely to be subject to competing input from other sources.

Trait Models. Some trait-based models of susceptibility to influence propose that targets of influence are characterized by a heightened sensitivity to peer approval. According to Fuligni and Eccles (1993), susceptibility to influence may be described in terms of an extreme peer orientation. Adolescents who are especially oriented to agemates should express a greater tendency to sacrifice personal interests and responsibilities for the sake of social status and friendships. However, this greater need for the approval of peers does not imply that adolescents universally conform to all peers. Based on the resource control theory, those who are perceived favorably by others tend to control the resources within a peer group (Hawley, 2003). Within a peer group, socially dominant adolescents are influential and those who are viewed less favorably are more susceptible to influence because motivation to conform stems from the desire to acquire scarce resources (Cillessen & Mayeux, 2004) and bask in the reflective glory of higher status counterparts (Cialdini & Richardson, 1980). Other trait-based models of susceptibility to influence propose that certain attributes are disadvantageous in terms of interacting with others; possession of these traits should result in greater susceptibility to influence. For example, susceptibility to peer influence should be high among children and adolescents with low self-esteem (e.g., Bukowski et al., 2008; van Zalk & van Zalk,

2015). Previous findings also indicate that susceptibility to peer influence should be high among adolescents with higher rates of depression (Allen et al., 2006).

Research on Child and Adolescent Susceptibility to Friend Influence

In this section, I will describe empirical studies of susceptibility to friend influence, focusing on the child and adolescent age periods. First, I will describe the methodological techniques utilized to measure susceptibility to peer influence. Subsequently, I will review the existing literature on friend influence over individual adjustment, prosocial behavior, and academic engagement.

Measurement of Susceptibility to Influence

Different strategies have been used to measure influence and, by extension, susceptibility to influence. Performance-based measures are experimental paradigms that address changes in participant responses after exposure to agents of influence. In one version, participants converse in a simulated internet chatroom with same-grade confederates (Cohen & Prinstein, 2006). Here, influence is measured as the difference between the participant's attitude or behavioral endorsement before entering the chatroom and during the chatroom session. The degree to which this technique assesses susceptibility depends on the experimental condition. Paradigms that manipulate characteristics of the confederate (e.g., high or low peer status) speak to traits or conditions that make agents influential, but shed little light on the target of influence or on susceptibility. Other studies, however, manipulate the relative social status of the participant to that of the confederate, which directly speaks to circumstances that promote susceptibility.

Susceptibility to influence is also assessed through self-report questionnaires. The Resistance to Peer Influence Scale (Steinberg & Monahan, 2007) measures susceptibility to influence by asking participants to select one of two contradictory statements about how one would respond to situations. The situations are designed to be neutral in terms of behaviors assessed: "For some people, it's pretty easy for their friends to get them to change their mind BUT For other people, it's pretty hard for their friends to get them to change their mind." A related approach involves assessing susceptibility to influence using hypothetical dilemmas that present antisocial and prosocial behaviors (Berndt, 1979). These and other instruments assume that responses generalize to behavior in a uniform manner, typical of a trait-like view of susceptibility. Like performance-based measures, self-report assessments are then used to predict changes in outcomes, on the assumption that greater susceptibility should lead to greater changes in behavior over time. In this case, however, it is not clear that change can be equated with conformity, because there is no measure of the target to which the child is purportedly conforming.

Other assessment strategies rely on comparing changes in individual scores on a behavior to those of specific friends or networks of friends. Early efforts simply used one friend's initial behavior to predict changes in the other friend's behavior, but these efforts were marred by statistical challenges. Friends are considered interdependent, which violates the assumption of independence that is central to conventional parametric statistical analyses (Kenny, 1995). Recent advances in statistical techniques overcome these previous limitations. Stochastic Actor-Oriented Models estimated using SIENA (Simulation Investigation for Empirical Network Analysis) is a network-based approach designed for nonindependent data. SIENA accounts for structural dependencies in social

networks, allowing selection and influence effects to be estimated simultaneously. The procedure uses longitudinal data to model the evolution of network ties (e.g., friendships) and changes in behaviors as a function of those ties (Snijders et al., 2010). In contrast, Actor-Partner Interdependence Model (APIM; Kenny et al., 2006) analyses are a dyad based approach. The longitudinal APIM (Popp et al., 2008) focuses on the assessment of influence between partners; selection is controlled by measuring change over time in established friend dyads. Distinguishable dyad APIM analyses categorize members of a dyad on the basis of a characteristic that is theoretically and statistically meaningful (e.g., older and younger friends). The longitudinal APIM estimates the effect of one partner's predictor variable on their own outcome variable and on their friend's outcome variable, partitioning the variance that is shared by members of a dyad from the variance that is unique to associations within and between partners. Like network models, distinguishable dyad APIM analyses are useful for identifying actors and targets of influence, making it is possible to determine who influences whom.

The two strategies have different strengths and weaknesses. SIENA appears to have less power to detect influence compared with APIM, in part because influence is usually assessed through two- and three-way interaction terms using scaled variables that must be categorized, which can reduce variance (DeLay et al., 2021). Unlike the APIM, SIENA includes all members of the network in influence estimates, which has the advantage of being more representative of and accounting for competing sources of influence. The disadvantage is that it can be difficult to identify and isolate unique sources of influence. It is important to note that both types of analyses measure influence but do not clearly distinguish change attributable to characteristics of the agent of

influence from change attributable to characteristics of the target of influence. As a consequence, susceptibility can be cumbersome to pinpoint. No clear strategies have been identified to measure susceptibility in SIENA (but see DeLay et al., in press, for first steps in this direction). APIM analyses to measure susceptibility require complex multiple group contrasts that compare dyads according to characteristics of the target of influence, a strategy that adversely impacts power and relies on arbitrary groupings.

Empirical Studies of Susceptibility to Friend Influence on Adjustment Problems

Research on peer influence over anxiety and depression, employing a variety of empirical methods, provides converging evidence of friend influence over internalizing problems. Performance based measures of susceptibility indicate that adolescents with higher susceptibility to influence, represented by change in the target's initial response after learning of a close friend's response, reported greater increases in depressive symptoms over time (Allen et al., 2006). Longitudinal studies examining the spread of depressive symptoms with SIENA consistently report socialization (influence) effects (e.g., Kiuru et al., 2012), particularly among girls (Giletta et al., 2011). Fewer studies have directly examined the spread of social anxiety between friends or within peer group, although there are studies of social anxiety with SIENA that report socialization effects (e.g., van Zalk et al., 2011; Veed et al., 2019). Several studies have also found that co-ruminiation – sympathetic discussion with a friend about problems -- leads to increases in anxiety, an effect that seems to be strongest in high quality relationships (Dirghangi et al., 2015; Schwartz-Mette & Smith, 2018).

Although data on externalizing problems are not available in the current study, results from studies that focus on problem behaviors are instructive. Self-report surveys

of susceptibility indicate that adolescents who report higher susceptibility to influence also report the greatest changes in antisocial behavior over time (Monahan et al., 2009). Similar results have emerged from performance-based measures of influence on deviant behaviors, such that best friend deviant behavior predicted the greatest increases over time for adolescents with higher levels of performance-based assessments of susceptibility to influence (Prinstein et al., 2011). SIENA studies identify friend influence over antisocial behaviors (e.g., Burk et al., 2007; Dijkstra et al., 2010a; Fortuin et al., 2015). Longitudinal APIM studies note friend influence over delinquency and alcohol intoxication (Laursen et al., 2012).

Few studies have attempted to separate being influential from being susceptible to influence. The most noteworthy was a longitudinal study that predated APIM analyses, which found that one friend's initial score on depression served as a predictor of changes in the other friend's depression across a period of 18 months (Prinstein, 2007). Notwithstanding statistical challenges arising from the use of nonindependent data, the results offer insight into trait characteristics associated with influence. High status friends were more apt to influence their partner's depressive symptoms than low status friends, suggesting that being influential varied as a function of the agent of influence's peer status. Peer status scores reflect the total nominations received for some attribute (e.g., acceptance, "someone you talk with, hang out with, and do things with"), which are different from friendship nominations because they are a reflection of liking, not a measure of a reciprocated affiliation. Nevertheless, the two are not unrelated: We know that those who are lower on acceptance tend to have fewer friends (La Greca & Lopez, 1998). Those who have fewer friends may be less skilled and more troubled, which may

increase conformity pressures because the benefits accorded to affiliation outweigh the potential cost of the relationship dissolving as a result of noncompliance.

Empirical Studies of Susceptibility to Friend Influence on Academic Engagement

Different measures of influence yield the same conclusion: Friends shape both academic performance and self-perceptions of academic competence. Self-report surveys indicate that individuals reporting extreme peer orientation also reported the greatest changes in academic engagement and achievement over time (e.g., Fuligni et al., 2001). Performance-based measures of susceptibility to influence, indexed by a disagreement task with close friends, suggest that low susceptibility to influence during a disagreement with a friend is prospectively associated with subsequent increases in GPA and academic attainment in adulthood (e.g., Loeb et al., 2020). Similar findings have been reported in longitudinal studies using SIENA, such that socialization effects are apparent among friends on academic engagement and achievement (e.g., Shin & Ryan, 2014; Gremmen et al., 2017).

Fewer studies have directly examined individual differences in attributes that ascribe being influential and being susceptible to influence on academic-related outcomes. Recent evidence suggests that social status may be an important trait-like determinant of influence over academic engagement. Longitudinal social network analyses indicated that adolescents demonstrated the greatest conformity to the academic engagement behaviors of popular and likeable peers (Zhang et al., 2019). Similar findings emerged for peer acceptance. A network study indicated that high accepted peers exerted stronger influence effects over the academic achievement of classmates than low accepted peers (Rambaran et al., 2017).

Longitudinal APIM studies indicate that intraindividual characteristics of the target and agent of influence speak to the distinction between being influential and being susceptible to influence. Results from one APIM study indicate that relatively lower achieving friends were more susceptible to influence than relatively higher achieving friends, such that the higher achieving friend's mathematical reasoning abilities predicted greater increases in the lower achieving friend's mathematical reasoning abilities (DeLay et al., 2015). In another longitudinal APIM study, maternal affection emerged as a moderator of the effects of school burnout on schoolwork engagement (Marion et al., 2014). The results indicated that the academic engagement of partners with relatively higher school burnout predicted decreases in the academic engagement of partners with relatively lower school burnout, but only when the lower burnout partner also perceived below-average maternal affection. Thus, susceptibility was tied to maternal support among partners who were not burned out on school. In another APIM study, higher accepted friends influenced the math achievement of lower accepted partners, but only when the lower accepted partner reported a high degree of interest in mathematics (DeLay et al., 2016a). Here, being interested in a subject matter appeared to make low ability friends particularly open to influence over achievement in that subject matter.

Empirical Studies of Susceptibility to Friend Influence on Prosocial Behaviors

Prosocial behaviors are characterized by cooperation, compassion and helping with the intention to benefit others (Eisenberg et al., 2006). Friends may motivate each other to engage in prosocial behaviors (Barry & Wentzel, 2006). Self-report surveys indicate that peers yield considerable influence over adolescent prosocial behaviors, such that adolescents shift attitudes about engaging in prosocial behaviors to more closely

align with that of peers (e.g., Berndt, 1979). Longitudinal studies examining the spread of prosocial behaviors with SIENA consistently report socialization (influence) effects (e.g., Berger & Rodkin, 2012; Logis et al., 2013). Performance based measures of susceptibility to influence over prosocial behaviors suggest that individuals who were more susceptible to influence conformed to the prosocial behaviors of peers (e.g., Choukas-Bradley et al., 2015; van Hoorn et al., 2016), and these effects are more pronounced when the agent of influence is a similarly aged peer rather than an adult (Foulkes et al., 2018).

Little is known about individual differences in influence over prosocial behaviors, but some evidence suggests that high peer status is associated with being influential. Performance based measures of influence indicate that adolescents were more strongly influenced by the prosocial behaviors of high-status (popular) as opposed to low status peers (e.g., Choukas-Bradley et al., 2015). Although some network studies also indicate that popular peers are particularly influential over the prosocial behaviors of classmates (Laninga-Wijnen et al., 2020), few studies have examined social status in relation to prosocial influence.

Evidence of intraindividual susceptibility to influence over prosocial behavior has also emerged. Longitudinal APIM results suggest that susceptibility to friend influence on prosocial behavior is related to context-specific parental protectiveness (Laursen et al., 2015); the prosocial behavior of adolescents with relatively lower perceptions of parental protectiveness predicted increases in the prosocial behavior of the partner with greater perceptions of parental protectiveness. In a study of peer group influence, the centrality of the group in a classroom emerged as a moderator of the effects of peer group prosocial

behavior on adolescent prosocial behavior (Ellis & Zarbatany, 2007). The results indicate that the prosocial behavior of the group predicted increases in individual prosocial behavior only when peer group was central in the classroom social structure. In another study, relationship quality emerged as moderator of the effects of a friend's prosocial behavior on an individual's prosocial behavior (Barry & Wentzel, 2006). The prosocial behavior of partners predicted greater increases in adolescent prosocial behavior only when the adolescent only in high affective quality relationships.

The Current Study

The starting point for this study is research indicating that within friend dyads, higher accepted friends influence lower accepted partners. I hypothesized that these results can be explained by the relative number of friends available to each partner. Distinguishing partners on the basis of acceptance makes it difficult to attribute the source of influence to being influential or being susceptible to influence because peer acceptance measures the degree to which an individual is liked by the peer group (Bukowski & Hoza, 1989). Certain attributes that are differentially associated with peer acceptance are also associated with being influential and being susceptible to influence. Higher accepted youth tend to have higher self-esteem than lower accepted youth (e.g., Verschueren et al., 2001). Previous studies have found that the association between self-esteem and the number of reciprocal friends is stronger than the association between self-esteem and peer acceptance (Bishop & Inderbitzen, 1995), suggesting that having friends is more important to self-esteem than is being accepted by peers.

Other factors besides relative relationship alternatives could also drive findings indicating that higher accepted youth influence lower accepted youth. Consider peer

rejection. Previous research indicates that rejection is associated with friendship quantity (Ladd & Troop-Gordon, 2003). Rejected children are known to have poor social skills, so it is reasonable to assume that rejected children may be motivated to conform to peers with greater social skills, who serve as models of prototypical behavior (Gibbons et al., 2003). Similar effects are presumed for popularity. Adolescents may affiliate with more popular peers and emulate the behaviors of these peers with the aim of enhancing their popularity (Dijkstra et al., 2010b).

The main goal of the present study is to isolate influence within friend dyads to the relative number of relationship alternatives available to each partner. In so doing, I test the assertion that adolescents with relatively fewer friends are particularly susceptible to influence because of the need to preserve the friends they have. The analyses are designed to rule out alternative explanations for this pattern of influence, including trait-like differences in actors and targets (such as peer status and self-esteem) and effects arising from the dilution of the salience of other relationships from partners.

Research Questions and Hypotheses

Within a friend dyad, does the partner with more relationship alternatives influence the partner with fewer relationship alternatives?

To answer this research question, stable reciprocated friends were distinguished on the basis of relationship alternatives, such that within each friend dyad, one partner has fewer friends (fewer relationship alternatives) and the other partner has more friends (more relationship alternatives). APIM analyses were utilized to determine the degree to which partners with relatively more and relatively fewer relationship alternatives influence one another's social anxiety, academic engagement, and prosocial behavior. I

hypothesized that the partner with fewer relationship alternatives will be more susceptible to influence than the partner with more relationship alternatives. This prediction is consistent with conceptual models arguing that the partner with fewer relationship alternatives is motivated to conform as a result of a stronger commitment to and investment in the relationship (Rusbult & Buunk, 1993). The prediction is also consistent with dyadic findings that indicate that adolescents lower on peer acceptance are susceptible to influence from their more accepted friends, but not the reverse (Laursen et al., 2012) and that acceptance and the number of friends are inversely associated (Nangle et al., 2003).

Within a friend dyad, are otherwise friendless partners with fewer relationship alternatives more apt to be influenced than those involved in other friendships?

To answer this research question, multiple group APIM analyses compared dyads who differ in terms of the number of relationship alternatives available to the partner with fewer friends. Multiple group analyses, focusing on the partner with fewer friends, contrasted the strength of partner influence over adolescents in exclusive friendships (i.e., individuals with no other friends) with influence over adolescents in nonexclusive friendships (i.e., individuals with one or more other friend). In so doing, the analyses will determine whether susceptibility to influence among adolescents with relatively fewer relationship alternatives is a product of heightened dependency and/or dilution of relationship salience. Specifically, I test whether the strength of influence associations differs for partners with relatively fewer relationship alternatives in exclusive and nonexclusive friend dyads. The analyses test competing conceptual theories of susceptibility, so no predictions are advanced. Results that indicate greater susceptibility

among those in exclusive friendships compared with those in nonexclusive friendships support the idea that influence is a product of the salience of sole friendships in the absence of competing interests. Results that indicate that susceptibility does not vary as a function of the number of friends reported by the partner with fewer relationship alternatives suggests that influence is unrelated to the salience of the friendship and is rather a product of a greater incentive to conform for the partner with relatively more to lose in the dissolution of the relationship.

Is peer status responsible for differences in friend influence between the partner with relatively more relationship alternatives and the partner with relatively fewer relationship alternatives?

To answer this question, relative peer acceptance, relative peer rejection, and relative popularity were included as covariates in distinguishable dyad APIM analyses. The goal of these analyses is to rule out trait-based explanations for results suggesting that the partner with more relationship alternatives influences the partner with fewer relationship alternatives. Evidence suggests that social status is an important distinguishing characteristic of influence in adolescent friendships. Higher acceptance fosters influence, whereas lower acceptance fosters heightened susceptibility to influence (e.g., Laursen et al., 2012; DeLay et al., 2016a). Popular youth are more influential than unpopular youth (e.g., Gommans et al., 2015; Gommans et al., 2017). Associations between peer status and friendship are well established in the literature, which indicate that high status youth participate in more friendships (i.e., Bukowski et al., 1996). Yet, there are conceptual distinctions between peer status and friendship. Peer status reflects a group's perception of an individual and the general experiences of this individual at the

level of the group, while friendship reflects a dyadic relationship between two people and the specific experiences that are shared between members (Bukowski et al., 1993). There are also developmental differences in value of friendship and the value of peer status. Sullivan (1953) proposed that during early adolescence, friendship becomes increasingly more important than peer acceptance. However, previous findings indicate that there is a developmental shift in priorities from childhood to adolescence in which achieving popularity within a peer group becomes more important than maintain a friendship (LaFontana & Cillessen, 2010). Nonetheless, the provisions afforded by friendship and by peer acceptance differ in meaningful ways. Furman and Robins (1985) proposed that friendship offers the provision of socioemotional needs, whereas peer status offers the provision of inclusion and fulfilment of belonging needs. Given the links between the number of friends and peer status, it is necessary to disentangle differences between the two. I predicted that despite correlations between the number of relationship alternatives and these potential confounding variables, a similar pattern of results will emerge such that after controlling for peer status variables, the partner with fewer relationship alternatives will remain susceptible to influence from the partner with more relationship alternatives, but not the reverse.

Taken together, these analyses test a potentially unique contribution to the prediction of susceptibility within a dyad from the number of other friends each member of the dyad has, which reflects individual differences in context-specific roles within friendships. Partners with fewer relationship alternatives may wish to balance intrapersonal and interpersonal states of disequilibrium and strive to become similar to friends with more relationship alternatives to reach internal balance to undesired states.

METHOD

Participants

The participants included 794 adolescents (480 girls and 314 boys) in sixth grade. Participants were drawn from the UCLA Middle School Diversity Project, a large, longitudinal study of adolescent development (Juvonen et al., 2018). Participants attended 26 urban public schools in California that varied in terms of their ethnic composition. Based on self-reported ethnicity in the fall of sixth grade, the current sample was 28% Latino/a, 27% Caucasian/White, 15% East/Southeast Asian, 15% Multiethnic/Biracial, 7% African American/Black, 2% Filipino/Pacific Islander, 2% Middle Eastern, 3% South Asian, and 1% other.

Procedure

During sixth grade recruitment, all students and families received informational letters describing the study. Participation in the study required signed parental consent and written student assent. Across the 26 schools, parent consent rates averaged 81.4% and student assent rates averaged 83.1%. Participants included 5,991 adolescents (3,088 girls, 2,903 boys) enrolled in the 6th grade (M= 11.54 years, SD=0.39). Four waves of data were collected. Participants completed written questionnaires in the Fall of 6th grade, Spring of 6th grade, Spring of 7th grade, and Spring of 8th grade. Instructions and questionnaires were administered and read aloud by researchers as students followed along. Students received monetary compensation for participation.

The present study utilizes teacher ratings and self-report data collected in the Fall and Spring of 6th grade. Because the focus is on stable friendships, participation in both waves of 6th grade data collection was a precondition for inclusion in this investigation. Time 1 represents data collected during the Fall of 6th grade and Time 2 represents data collected during the Spring of 6th grade.

Measures

Self-reported social anxiety. At both time points, students completed six items from the Social Anxiety Scale for Adolescents (La Greca & Lopez, 1998). Responses were rated on a 5-point scale, ranging from 1 (*not at all*) to 5 (*all of the time*). Internal reliability was acceptable (α = .78 to .82).

Teacher-rated prosocial behavior. At both time points, teachers rated each student's prosocial behavior using a two-item subscale from the Interpersonal Competence Scale (Cairns et al., 1995). The items for *prosocial behavior* included "Kind and considerate of others" and "Standing up for others" (α = .50 to .52). Homeroom teachers rated each student on a scale from 1 (*always*) to 7 (*never*). Items were reverse coded so that higher scores represented more prosocial behavior, then averaged to create a composite score.

Teacher-rated academic engagement. At both time points, teachers rated each student's academic engagement using the six-item short form of the Teacher Report of Engagement Questionnaire (Connell & Wellborn, 1991). Homeroom teachers rated each student on a scale from 1 (*never*) to 4 (*always*). Items were averaged to create a composite score. Internal reliability was acceptable (α = .91).

Friendship. At both time points, participants were asked to nominate same-school, same-grade friends by listing the names of all "good friends". Participants could make an unlimited number of same- and other-sex friend nominations. *Reciprocated friends* were defined as dyads in which both partners concurrently nominated each other as friends. *Relationship alternatives* describes the number of reciprocated friendships in which an adolescent participated, separately calculated at time 1 (M=1.38, SD=1.27, range = 1 to 7) and time 2 (M=1.44, SD=1.30, range = 1 to 7). *Stable friends* were defined as dyads in which both partners reciprocally nominated one another as friends at both time points.

A total of 4,185 participants reported at least one reciprocated friendship with another study participant at time 1, creating a total of 4,128 reciprocal friend dyads. Some participants were involved in more than one friendship at a time and some of these friendships were not stable. A total of 1924 friend dyads were stable from time 1 to time 2. On the basis of time 1 relationship alternatives, each partner in each stable friend dyad was classified into distinct roles: one was categorized as the partner with relatively fewer relationship alternatives and the other was categorized as the partner with relatively more relationship alternatives. Of the 1924 stable friend dyads, 292 were omitted from analyses because partners changed roles across the two time points. An additional 611 dyads were omitted from the analyses because both partners had the same number of relationship alternatives at time 1 and 354 stable friend dyads were omitted from the analyses because both partners had the same number of relationship alternatives at Time 2. Thus, there were a total of 667 stable reciprocated friend dyads (n = 1,054 adolescents) in which partners maintained their same role over time. The overwhelming majority (96%) of

stable reciprocated friend dyads were same-gender, so I restricted analyses to these dyads. As a consequence, 29 dyads were omitted.

Many individuals participated in multiple stable reciprocated friendships (*M*=2.30, *SD*=0.58). Participants were restricted to a single same-sex reciprocated friend dyad to prevent unequal contributions to the data. As a consequence, 22% of adolescents involved in stable reciprocated friendships (*n*= 232) were omitted from the analyses because their friends were members of other stable same-gender reciprocated friend dyads. The remaining 397 friend dyads (*n*=794 adolescents) had relationship alternative scores that differed by an average of 1.71 reciprocated friendships (*SD*= 0.98, range = 1 to 6): The friend with more relationship alternatives participated in an average of 2.23 (*SD* = 0.94) stable reciprocated friend dyads and the friend with fewer relationship alternatives participated in an average of 1.24 (*SD* = 0.46) stable reciprocated friend dyads. These stable friend dyads were further divided into two groups on the basis of the number of alternatives for the partner with fewer relationship alternatives: *Exclusive friends* were defined as dyads in which the partner with fewer relationship alternatives has no other friends (*n*=196) and *Nonexclusive friends* were defined as dyads in which the partner with fewer relationship alternatives has one or two other friends (*n*=201). The present study will focus on this sample of 397 unique, stable reciprocated same-sex (*n*=240 female dyads, *n*=157 male dyads) friend dyads in which both partners occupied the same roles at both time points (i.e., one partner had relatively more relationship alternatives and the other had relatively fewer relationship alternatives).

Potential Confounds

Self-reported self-esteem. At time 1, participants completed a six-item subscale from the Self-Perception Profile Scale (Harter, 1982). Participants were asked to choose one of two options for each item (e.g., "Some kids are happy with themselves as a person BUT other kids are often not happy with themselves as a person"). Participants were then asked to indicate the degree to which the chosen statement was 1 (*really true for me*) or 4 (*sort of true for me*). Responses were rated on a 4-point scale, then averaged, with higher scores reflect higher self-esteem ($\alpha = .77$).

Self-reported depression. At time 1, participants completed a 10-item, adapted version of the Center for Epidemiologic Studies Depression Scale (Radloff, 1977). Participants were asked how often they had experienced each item in the past week. Responses were rated on a 4-point scale, from 1 (*rarely or none of the time*) to 4 (*almost all the time*). Items were averaged into a composite score, with higher scores reflecting greater depressive symptoms ($\alpha = .63$).

Teacher-rated popularity. At both time points, teachers rated each student's popularity using a two-item subscale from the Interpersonal Competence Scale (Cairns et al., 1995). The items for *popularity* included "popular with girls" and "popular with boys. Homeroom teachers rated each student on a scale from 1 (*very popular*) to 7 (*not popular*). These items were reverse coded so that higher scores represented higher popularity, then averaged to create a composite score ($\alpha = .71$ to .72).

Peer nominations. At both time points, participants completed a standard sociometric inventory, in which they were asked to nominate same-school, same-grade peers who fit each descriptor. *Rejection* represents the sum of all negative nominations

received (“do not like to hang out with”). *Acceptance* represents the sum of all positive nominations received (“like to hang out with”). Nomination scores were standardized as proportion scores: The number of nominations received divided by the total number of same-school, same-grade participants (minus one).

Plan of Analysis

Path analyses were conducted in a Structural Equation Modeling (SEM) framework with Mplus v8.0 (Muthén & Muthén, 2017). The analyses are designed to compare the influence of friends with relatively fewer relationship alternatives to those with relatively more relationship alternatives, to test the hypothesis that the partner with fewer alternatives is more susceptible to influence than the partner with more alternatives. Three separate sets of univariate longitudinal APIM analyses were conducted to examine friend influence over social anxiety, prosocial behavior, and academic engagement.

The analyses proceeded through four distinct steps. The first step involved a test of distinguishability, comparing the variance/covariance matrices of partners occupying discrete roles to determine whether partners should be distinguished on the basis of relationship alternatives, a prerequisite for conducting distinguishable dyad APIM analyses (Kenny et al., 2006). In the second step, separate longitudinal APIM analyses were conducted to measure the influence of the partner with relatively more relationship alternatives and the influence of the partner with relatively fewer relationship alternatives on three outcome variables: social anxiety, academic engagement, and prosocial behavior. In the third step, multiple-group APIM analyses were conducted using characteristics of the partner with fewer relationship alternatives as moderators, in an

effort to identify factors that exacerbate susceptibility. Time 1 scores on the number of relationship alternatives will examine whether susceptibility is greatest when the partner with fewer friends has no other relationship alternatives. In the fourth step, APIM analyses contrasted the influence of the partner with relatively more relationship alternatives and the influence of the partner with relatively fewer relationship alternatives after controlling for peer acceptance, rejection, and popularity, in order to isolate results to relationship alternatives and rule out peer status as an explanation for the findings. In addition, supplemental multiple group APIM analyses were conducted to examine differences in patterns of association as a function of gender and ethnicity.

Additional supplemental analyses included a series of control variables designed to rule out the possibility that results were driven by individual traits known to contribute to differences between friends in influence over individual adjustment (e.g., self-esteem, depression, age, and number of relationship alternatives).

Test of Distinguishability. The first step in the analyses examines whether the data are suitable for distinguishable dyad APIM analyses. A χ^2 test of distinguishability (Kenny et al., 2006) was conducted to determine whether partners should be distinguished based on relationship alternatives. Herein, equality constraints were placed on the means, variances, and correlations of all study variables. A statistically significant χ^2 value reveals poor fit and indicates that partners within dyads should be distinguished based on relationship alternatives. In addition, chi-square analyses were conducted to determine whether classifications on the basis of relationship alternatives were confounded with individual characteristics that might account for relationship alternatives (i.e., peer status). Within dyads, friends were categorized as either relatively high or

relatively low on acceptance, rejection, and popularity. To determine whether peer status is confounded with relationship alternatives, three separate 2 (relationship alternatives: higher vs. lower) x 2 (relative individual characteristic: higher vs. lower) chi-square analyses were conducted. Cramer's V determined the relative strength of associations between relationship alternatives and each status variable. Cramer's V ranges from 0 to 1, wherein values between .10 and .20 indicate a weak association, values between .20 to .25 indicate a moderate association, and values greater than .25 indicates a strong association (Cramér, 1946). Statistically significant results did not emerge in these chi-square analyses (Cramer's V=0.00 to 0.04), which indicates that the distribution of friends on the basis of relationship alternatives is independent of the distribution of friends on the basis of relative peer status (see Table 1).

Research Question 1: Within a friend dyad, does the partner with more relationship alternatives influence the partner with fewer relationship alternatives? In the second step, separate longitudinal APIMs were conducted to examine friend influence over social anxiety, academic engagement, and prosocial behavior. These analyses test the hypothesis that partners with fewer relationship alternatives are more susceptible to influence than partners with more relationship alternatives. Figure 1 depicts a fully saturated distinguishable dyad APIM for the sample distinguished by relationship alternatives.

Concurrent correlations between partners are included to model statistical non-independence. Concurrent correlations at time 1 represent similarity between partners. Residual correlations at time 2 represent the association that remains after accounting for partner similarity at time 1, individual stability over time, and partner influence towards

behavioral change. Actor paths *a1* and *a2* represent intra-individual stability, or the initial stability of individual behavior over time for each partner on the dependent variable. Partner paths *p1* and *p2* represent the influence that each partner has on the other partner. Partner paths *p1* and *p2* are the primary paths of interest because they indicate the influence that each partner has over changes in the dependent variable of the other partner. A significant *p1* partner path indicates that the initial behavior of the partner with *more friends* predicted changes in the behavior of the partner with *fewer friends*. A significant *p2* partner path indicates that the initial behavior of the partner with *fewer friends* predicted changes in the behavior of the partner with *more friends*. To compare the strength of influence across partners, paths were constrained to be equal and model fit compared. A significant χ^2 value indicates that the partner paths are significantly different, whereas a non- significant χ^2 value indicates that the partner paths are not significantly different.

Research Question 2: Within a friend dyad, are otherwise friendless partners with fewer relationship alternatives more apt to be influenced than those involved in other friendships? In the third step, multiple group APIM analyses were conducted in which specific paths were contrasted between subgroups of dyads. The analyses are designed to shed light on factors that amplify susceptibility in the partner with fewer relationship alternatives. These analyses will also test the dilution hypothesis, namely that the salience of a friendship is greater for partners with no other relationship alternatives than for those with other competing loyalties.

Following procedures outlined by Muthen and Muthen (2002), A Monte Carlo simulation of 1,000 replications was conducted to determine the number of dyads needed

per group to provide adequate power (i.e., 80%) to detect statistically significant medium (i.e., Cohen's *d* = .3) to large (i.e., Cohen's *d* = .5) effect sizes in the proposed multiple groups models. Accordingly, the results suggest that the power to detect a medium to large effect size was sufficiently large such that an effect size of B=.30 and B=.50 was detected in 95% of the models with a group size of 196 dyads and in 94% of models with a group size of 201 dyads. Multiple group analyses compared dyads in which the partner with fewer friends has no other friends (*N*=196) and dyads in which the partner with fewer friends has one (*N*=151) or two (*N*=50) other friends, to determine whether patterns of influence differ between dyads. These analyses determined whether susceptibility is a function of relative differences in relationship alternatives (consistent with the idea that the partner with fewer friends is focused on relationship preservation) or absolute differences in relationship alternatives (consistent with the idea that susceptibility is diluted by the salience of other friendships). Chi-square difference tests determined whether there were statistically significant differences between groups of dyads on influence paths. A statistically significant chi-square difference indicates that the patterns of associations differ between groups of dyads in which the partner with fewer relationship alternatives has no other friends and dyads in which the partner with fewer relationship alternatives has one or more other friends.

Research Question 3: Is peer status responsible for differences in friend influence between the partner with relatively more relationship alternatives and the partner with relatively fewer relationship alternatives? The fourth step in the analyses focused on influence as a function of relationship alternatives after controlling for peer acceptance, peer rejection, and teacher-rated popularity, to disentangle peer status from

relationship alternatives as sources of influence. Three sets of distinguishable dyad analyses were conducted with the inclusion of time 1 peer acceptance, time 1 peer rejection and time 1 teacher-rated popularity as a time 1 covariate. The dependent variables included in these analyses are social anxiety, academic engagement, and prosocial behavior. In these analyses, influence paths were constrained to be equal across models and model fit was examined. Should the same pattern of statistically significant results emerge, I will conclude that differences in friend influence as a function of relationship alternatives are not driven by differences in peer status.

Supplemental Analyses. Finally, separate supplemental multigroup analyses were conducted to examine whether there were differences in patterns of influence between dyads in which the difference score of relationship alternatives between partners (i.e., number of relationship alternatives for the partner with more friends at time 1 – the number of relationship alternatives for the partner with fewer friends at time 1) was equal to 1 (n=226) and dyads in which the difference score of partners was greater than 1 (n=171). Supplemental multigroup analyses were also conducted to examine whether there were differences in patterns of influence between female and male dyads, and between same-ethnicity and different-ethnicity dyads. Chi-square difference tests contrasted partner paths across groups. A significant chi-square difference test indicates that the patterns of associations are significantly different between male and female dyads, or between same-ethnicity and different-ethnicity dyads.

Additionally, to rule out the possibility that results are driven by individual traits that have previously emerged as important indicators of friend influence, APIM analyses were rerun to include control variables at time 1. These control variables included self-

esteem, depression, and number of relationship alternatives. For each control variable, two sets of analyses were conducted. The first set of analyses included correlation paths between each partner's score on the predictor variable at time 1 and his or her time 1 score on the control variable. The second set of analyses included a single score that reflects the difference partners on the control variable (e.g., partner with more relationship alternatives time 1 self-esteem minus partner with fewer relationship alternatives time 1 self-esteem). This difference score will be entered into the APIM model as a correlate of time 1 predictor variables.

Missing Data. There were no missing friend nomination data. An average of 9.30% (range = 6.01% to 16.52%) of the data were missing. Little's MCAR test (Little & Rubin, 1987) revealed that the data were missing completely at random, $\chi^2(869)= 907.80$, $p= .175$. Thus, full information maximum-likelihood estimation (FIML) was applied to wave-level missing data. Missing data at the item level was imputed using an EM algorithm with 25 iterations.

RESULTS

Bivariate correlations are presented in Table 2. Social anxiety was correlated with relationship alternatives at each time point. Academic engagement was correlated with prosocial behavior and relationship alternatives at each time point. Prosocial behavior was correlated with relationship alternatives at each time point. All autocorrelations were statistically significant.

Intraclass correlations (interpreted as r^2) established nonindependence between partners on predictor variables (i.e., time 1 social anxiety and academic engagement), a necessary precondition to APIM analyses (Kenny et al., 2006). Statistically significant within-dyad intraclass correlations emerged for social anxiety (r=.11, p<.05), academic engagement (r=.40, p<.001), and prosocial behavior (r=.33, p<.001).

Test of Distinguishability. A χ^2 test of distinguishability (Kenny et al., 2006) indicated that friends should be distinguished on the basis of relationship alternatives for social anxiety, $\chi^2(6)= 19.96$, $p < .01$, academic engagement, $\chi^2(6)= 15.94$, $p < .05$, and prosocial behavior, $\chi^2(6)= 13.12$, $p < .05$.

Research Question 1: Within a friend dyad, does the partner with more relationship alternatives influence the partner with fewer relationship alternatives?

Social Anxiety. Figure 4 depicts results of the longitudinal APIM analyses of social anxiety among friends distinguished on the basis of relationship alternatives. Results indicate that the initial social anxiety of the partner with more friends predicted changes from time 1 to time 2 in the social anxiety of the partner with fewer friends

(B=.13, p<.001). In contrast, the initial social anxiety of the partner with fewer friends did not predict changes in the social anxiety of the partner with more friends (B=.03, p=.478). There was a statistically significant difference between partners on the influence of social anxiety, $\chi^2(1) = 5.13$, p=.023.

Academic Engagement. Figure 5 depicts results of the longitudinal APIM analyses of academic engagement among friends distinguished on the basis of relationship alternatives. Results indicate that the initial academic engagement of the partner with more friends predicted changes from time 1 to time 2 in the academic engagement of the partner with fewer friends (B=.11, p=.013). In addition, the initial academic engagement of the partner with fewer friends predicted changes from time 1 to time 2 in the academic engagement of the partner with more friends (B=.09, p=.040). Although the magnitude of differences was in the anticipated direction (greater influence from the partner with more friends than from the partner with fewer friends), a χ^2 difference test failed to reveal statistically significant differences between paths, $\chi^2(1) = .13$, p=.715.

Prosocial Behavior. Figure 6 depicts results of the longitudinal APIM analyses of prosocial behavior among friends distinguished on the basis of relationship alternatives. Results indicate that the initial prosocial behavior of the partner with more friends predicted changes from time 1 to time 2 in the prosocial behavior of the partner with fewer friends' (B=.17, p<.001). In contrast, the initial prosocial behavior of the partner with fewer friends did not predict changes in the prosocial behavior of the partner with more friends (B=.08, p=.089). Although the magnitude of differences was in the anticipated direction (greater influence from the partner with more friends than from the

partner with fewer friends), a χ^2 difference test failed to reveal statistically significant differences between paths, $\chi^2(1) = 1.47$, p=.226.

Research Question 2: Within a friend dyad, are otherwise friendless partners with fewer relationship alternatives more apt to be influenced than those involved in other friendships?

Multiple Group Analyses. Three sets of multiple groups analyses contrasted patterns of influence for otherwise friendless partners with fewer relationship alternatives and partners with fewer relationship alternatives involved in other friendships over (a) social anxiety, (b) academic engagement, and (c) prosocial behavior. There were no statistically significant differences between dyads in which the partner with fewer relationship alternatives is otherwise friendless (B=.11) and those involved in other friendships (B=.16) on influence over social anxiety, $\chi^2(1) = 1.10$, p=.294. There were no statistically significant differences between dyads in which the partner with fewer relationship alternatives is otherwise friendless (B=.09) and those involved in other friendships (B=.12) on influence over academic engagement, $\chi^2(1) = 0.86$, p=.793. There were no statistically significant differences between dyads in which the partner with fewer relationship alternatives is otherwise friendless (B=.14) and those involved in other friendships (B=.17) on influence over prosocial behavior, $\chi^2(1) = 0.06$, p=.802. Thus, these results indicate that the patterns of friend influence over social anxiety, academic engagement, and prosocial behavior do not differ between dyads in which partners with fewer relationship alternatives are otherwise friendless and those in which partners with fewer relationship alternatives are involved in other friendships. Put differently, partners

with relatively fewer relationship alternatives were similarly susceptible to influence, regardless of the number of friend alternatives available.

Research Question 3: Is peer status responsible for differences in friend influence between the partner with relatively more relationship alternatives and the partner with relatively fewer relationship alternatives?

Social Anxiety. Figure 7 depicts results of distinguishable dyad APIM analyses on social anxiety with peer acceptance included as a covariate. The same pattern of statistically significant results emerged. After controlling for peer acceptance, partner paths indicate that the partner with more relationship alternatives influenced the friend with fewer relationship alternatives, but not the reverse. Higher levels of initial social anxiety on the part of the partner with more relationship alternatives predicted greater increases from time 1 to time 2 in the social anxiety of the partner with fewer relationship alternatives (B=.13, $p<.001$). The initial social anxiety of the partner with fewer relationship alternatives did not predict changes in levels of social anxiety for the partner with more relationship alternatives (B=.03, $p=.475$). There was a statistically significant difference between partners on the influence of social anxiety, $\chi^2(1) = 5.13$, $p=.024$.

Figure 8 depicts results of distinguishable dyad APIM analyses on social anxiety with popularity included as a covariate. The same pattern of statistically significant results emerged. After controlling for popularity, partner paths indicate that the partner with more relationship alternatives influenced the friend with fewer relationship alternatives, but not the reverse. Higher levels of initial social anxiety on the part of the partner with more relationship alternatives predicted greater increases from time 1 to time 2 in the social anxiety of the partner with fewer relationship alternatives (B=.13, $p<.001$).

The initial social anxiety of the partner with fewer relationship alternatives did not predict changes in levels of social anxiety for the partner with more relationship alternatives (B=.03, *p*=.475). There was a statistically significant difference between partners on the influence of social anxiety, $\chi^2(1) = 5.13$, *p*=.024.

Figure 9 depicts results of distinguishable dyad APIM analyses on social anxiety with peer rejection included as a covariate. The same pattern of statistically significant results emerged. After controlling for peer rejection, partner paths indicate that the partner with more relationship alternatives influenced the friend with fewer relationship alternatives, but not the reverse. Higher levels of initial social anxiety on the part of the partner with more relationship alternatives predicted greater increases from time 1 to time 2 in the social anxiety of the partner with fewer relationship alternatives (B=.13, *p*<.001). The initial social anxiety of the partner with fewer relationship alternatives did not predict changes in levels of social anxiety for the partner with more relationship alternatives (B=.03, *p*=.475). There was a statistically significant difference between partners on the influence of social anxiety, $\chi^2(1) = 5.13$, *p*=.023.

Academic Engagement. Figure 10 depicts results of distinguishable dyad APIM analyses on academic engagement with peer acceptance included as a covariate. The same pattern of statistically significant results emerged. After controlling for peer acceptance, partner paths indicate that the partner with more relationship alternatives influenced the friend with fewer relationship alternatives. Higher levels of initial academic engagement of the partner with more relationship alternatives predicted greater increases from time 1 to time 2 in the academic engagement of the partner with fewer relationship alternatives (B=.11, *p*=.013). In addition, the initial academic engagement of

the partner with fewer relationship alternatives predicted changes in the academic engagement of the partner with more relationship alternatives (B=.09, p=.040). A χ^2 difference test failed to reveal differences between paths, $\chi^2(1) = .13$, p=.719.

Figure 11 depicts results of distinguishable dyad APIM analyses on academic engagement with popularity included as a covariate. The same pattern of statistically significant results emerged. After controlling for popularity, partner paths indicate that the partner with more relationship alternatives influenced the friend with fewer relationship alternatives. Higher levels of initial academic engagement of the partner with more relationship alternatives predicted greater increases from time 1 to time 2 in the academic engagement of the partner with fewer relationship alternatives (B=.11, p=.014). In addition, the initial academic engagement of the partner with fewer relationship alternatives predicted changes in the academic engagement of the partner with more relationship alternatives (B=.09, p=.039). A χ^2 difference test failed to reveal differences between paths, $\chi^2(1) = .12$, p=.727.

Figure 12 depicts results of distinguishable dyad APIM analyses on academic engagement with peer rejection included as a covariate. The same pattern of statistically significant results emerged. After controlling for peer rejection, partner paths indicate that the partner with more relationship alternatives influenced the friend with fewer relationship alternatives. Higher levels of initial academic engagement of the partner with more relationship alternatives predicted greater increases from time 1 to time 2 in the academic engagement of the partner with fewer relationship alternatives (B=.11, p=.013). In addition, the initial academic engagement of the partner with fewer relationship alternatives predicted changes in the academic engagement of the partner with more

relationship alternatives (B=.09, *p*=.040). A χ^2 difference test failed to reveal differences between paths, $\chi^2(1) = .13$, *p*=.714.

Prosocial Behavior. Figure 13 depicts results of distinguishable dyad APIM analyses on prosocial behavior with peer acceptance included as a covariate. The same pattern of statistically significant results emerged. After controlling for peer acceptance, partner paths indicate that the partner with more relationship alternatives influenced the friend with fewer relationship alternatives. Higher levels of initial prosocial behavior of the partner with more relationship alternatives predicted greater increases from time 1 to time 2 in the prosocial behavior for the partner with fewer relationship alternatives (B=.17, *p*=.001). In contrast, the initial prosocial behavior of the partner with fewer relationship alternatives did not predict changes in levels of prosocial behavior for the partner with more relationship alternatives (B=.08, *p*=.082). A χ^2 difference test failed to reveal differences between paths, $\chi^2(1) = 1.47$, *p*=.225.

Figure 14 depicts results of distinguishable dyad APIM analyses on prosocial behavior with popularity included as a covariate. The same pattern of statistically significant results emerged. After controlling for popularity, partner paths indicate that the partner with more relationship alternatives influenced the friend with fewer relationship alternatives. Higher levels of initial prosocial behavior of the partner with more relationship alternatives predicted greater increases from time 1 to time 2 in the prosocial behavior for the partner with fewer relationship alternatives (B=.17, *p*=.001). In contrast, the initial prosocial behavior of the partner with fewer relationship alternatives did not predict changes in levels of prosocial behavior for the partner with more

relationship alternatives (B=.08, *p*=.082). A χ^2 difference test failed to reveal differences between paths, $\chi^2(1) = 1.47$, *p*=.226.

Figure 15 depicts results of distinguishable dyad APIM analyses on prosocial behavior with peer rejection included as a covariate. The same pattern of statistically significant results emerged. After controlling for peer rejection, partner paths indicate that the partner with more relationship alternatives influenced the friend with fewer relationship alternatives. Higher levels of initial prosocial behavior of the partner with more relationship alternatives predicted greater increases from time 1 to time 2 in the prosocial behavior for the partner with fewer relationship alternatives (B=.17, *p*=.001). In contrast, the initial prosocial behavior of the partner with fewer relationship alternatives did not predict changes in levels of prosocial behavior for the partner with more relationship alternatives (B=.08, *p*=.079). A χ^2 difference test failed to reveal differences between paths, $\chi^2(1) = 1.47$, *p*=.226.

Supplemental Analyses

Multigroup models tested differences in patterns of influence between dyads who differed in terms of relationship alternatives, contrasting dyads in which the partner with more alternatives reported 1 more friend than the partner with fewer alternatives, and dyads in which the partner with more alternatives reported at least two more friends than the partner with fewer alternatives. A χ^2 difference test indicated that there were no statistically significant difference on social anxiety influence paths between dyads whose partners differed by 1 relationship alternative and dyads whose partners differed by at least 2 relationship alternatives, $\chi^2(1)=.03$, p=.86. Neither did these dyads differ in terms of influence over academic engagement, $\chi^2(1)=.25$, p=.615, and prosocial behavior

$\chi^2(1)=.52$, p=.469. Next, multigroup models tested differences in patterns of influence between female and male dyads. χ^2 difference tests indicated that there were no statistically significant difference between female and male dyads on influence over social anxiety, $\chi^2(3)=4.86$, $p=.182$, academic engagement, $\chi^2(3)=2.28$, $p=.516$, and prosocial behavior $\chi^2(3)=6.39$, $p=.094$. Finally, multigroup models tested differences in patterns of influence between same-ethnicity and different-ethnicity dyads. χ^2 difference tests indicated that there were no statistically significant difference between same-ethnicity and different-ethnicity dyads on influence over social anxiety, $\chi^2(3)=7.14$, $p=.068$, academic engagement, $\chi^2(3)=1.13$, $p=.770$, and prosocial behavior $\chi^2(3)=3.26$, $p=.353$.

Two additional sets of supplemental analyses were conducted to rule out the possibility that results are driven by individual traits. In the first set, APIM analyses were rerun to include correlation paths between each partner's score on the predictor variable at time 1 and their score on individual traits that have previously emerged as important indicators of friend influence. These individual traits included self-esteem, the number of relationship alternatives, age, and depression. The same pattern of results emerged when each of these variables were included as time 1 covariates. In the second set, APIM analyses were rerun to include correlation paths between each partner's score on the predictor variable at time 1 and the difference score of partners on each of the control variables. The same pattern of results emerged. Thus, these findings suggest that the results are not a product of differences in rejection, acceptance, popularity, self-esteem, age, depression, and the absolute difference between partners in the number of relationship alternatives.

DISCUSSION

Summary of Main Findings

The current study was designed to test the hypothesis that adolescents with relatively few friends are particularly susceptible to influence from those friends they do have, perhaps because such adolescents are eager to conform to the wishes of their existing friends, so as not to jeopardize a difficult to replace relationship. The results indicated that within a friend dyad, the partner with fewer relationship alternatives was susceptible to influence from the partner with more relationship alternatives over adaptive and maladaptive outcomes, including social anxiety, academic engagement, and prosocial behavior. Partners in exclusive friendships were not more susceptible to influence than partners in nonexclusive friendships, suggesting that the findings are not limited to those who have only one friend (i.e., no other friends besides the partner). Further, the findings did not change with the addition of potential confounds (e.g., acceptance, popularity, rejection), suggesting that the findings are not driven by trait-like attributes known to correlate with peer difficulties.

Relationship Alternatives as a Source of Influence

Previous research has highlighted the developmental significance of friendship in shaping adjustment outcomes (e.g., Bagwell et al., 1998). Given the salience of friendship in adolescence, those who lack relationship alternatives are motivated to conform to partners, to better preserve the relationship (Ladd & Troop-Gordon, 2003). Greater dependence by the partner with fewer relationship alternatives on the partner with more

alternatives may also explain the increased likelihood of conformity, because those who have fewer friends are more dependent on existing relationships for the provision of resources and support (Rusbult & Van Lange, 2003). This aligns with previous findings in the marital literature, which indicate that susceptibility to influence is heightened for those who are more dependent on their partners (Leonard & Mudar, 2004).

Previous research on peer influence has focused on discerning who influences whom (Laursen & Veenstra, 2021). Less attention has been given to context-specific features of relationships that promote peer influence processes. We know that lesser accepted friends are more susceptible to influence from better accepted partners, but the mechanisms are unclear because most studies fail to disentangle being influential (i.e., characteristics of the agent of influence) from being susceptible to influence (i.e., characteristics of the target of influence) (Laursen et al., 2012). The current study extends these findings by explicitly considering the number of relationship alternatives as a factor that contributes to susceptibility. To this end, the first goal of the present study was to extend previous findings by examining the role of relationship alternatives as a state-like condition that makes some individuals particularly susceptible to influence, thereby increasing the likelihood of conformity.

Social Anxiety. The current study extends previous social network findings reporting friend influence over social anxiety (e.g., van Zalk et al., 2011). Findings from one study indicated that susceptibility to friend influence over internalizing problems (i.e., depressive symptoms) varies as a function of the popularity of the agent of influence, such that adolescents whose friends are rated as high on popularity are more susceptible to influence than adolescents whose friends are lower on popularity

(Prinstein, 2007). The current study extends these findings by examining the role of relationship alternatives as another source of susceptibility to influence over social anxiety.

Findings from the current study indicate that partners with relatively more friends influenced the social anxiety of partners with fewer friends, but not the reverse. It may be that adolescents with fewer friends are especially susceptible to influence over social anxiety, given that previous findings suggest that adolescents with fewer friends are more vulnerable to social anxiety because being neglected by peers can result in feelings of distress and worry (La Greca & Lopez, 1998). Adolescents with fewer friends may also experience greater social anxiety over time because they become increasingly fearful of negative evaluations that may threaten the stability of the friendship (La Greca, 1999). The findings raise the prospect of individual differences in the consequences of co-rumination (Rose, 2002). It may be that adolescents with fewer relationship alternatives feel the need to empathize with their friend more strongly (i.e., engaging in self-disclosure and discussion of negative emotions) in order to preserve the relationship, which might result in greater emotional adversity for the partner with fewer alternatives.

Academic Engagement. Studies consistently report socialization effects over academic related behaviors, but few have examined individual differences in relative attributes that increase susceptibility to influence. Previous studies indicate that relative peer status and academic achievement are important characteristics in susceptibility to influence over academic related outcomes. Specifically, relatively lower achieving partners are influenced by the mathematical reasoning skills of higher achieving partners (DeLay et al., 2015), and that relatively lower accepted friends who express greater

interest in mathematics are particularly open and susceptible to influence from relatively higher accepted friends over mathematical reasoning (DeLay et al., 2016a). The current study extends these findings by examining the role of relationship alternatives in susceptibility to influence over academic engagement.

Findings from the current study indicate that while the initial academic engagement of the partner with more friends predicted subsequent changes in the academic engagement of the partner with fewer friends, the partner with fewer friends also influenced the academic engagement of the partner with more friends. Findings of mutual influence suggest convergence, where both partners change to resemble the other. There are plausible explanations as to why influence effects over academic engagement are bidirectional. One possibility concerns the prospect of an unexamined moderator. Previous studies suggest that the relative level of academic achievement determine the direction of influence, whereby the higher achieving friend influences the lower achieving friend but not the reverse (DeLay et al., 2015). In the current study, the partner with more friends is not necessarily the higher achieving partner and given that influence is afforded to those who are higher achieving, effect may be strongest (and susceptibility may be greatest) in dyads where the partner with fewer relationship alternatives is also the partner who knows less about the subject. Thus, while the findings suggest that both partners influence the academic engagement of the other, I could not discount the possibility that other academic related characteristics of partners could further moderate these effects.

Prosocial Behavior. Research on influence over prosociality has consistently found that prosocial behaviors spread among friends (e.g., Choukas-Bradley et al., 2015;

Foulkes et al., 2018). Studies have also found that the degree to which an agent influences a target's prosocial behavior depends on attributes of the target, including the degree to which the target perceives greater parental protectiveness (Laursen et al., 2015), and the degree to which the target perceives the relationship quality to be high (Barry & Wentzel, 2006). The current study extends these findings by examining the role of relationship alternatives in susceptibility to influence over prosocial behavior.

Findings from the current study suggest that the partner with more relationship alternatives influences the prosociality of the partner with fewer alternatives. Adolescents with fewer relationship alternatives may be motivated to conform to the prosocial behavior of partners with more friends in order to preserve and enhance the quality of the relationship, because prosocial behavior is associated with friendship stability due to the fact that it promotes friendship quality (Berndt et al., 1999). Adolescents with fewer relationship alternatives may also express greater conformity because partners with more relationship alternatives are engaging in these behaviors and they may view conformity as a way of achieving a similar social standing in the peer group (Gibbons et al., 2008).

Susceptibility in Exclusive and Nonexclusive Friendships

A second goal of this project was to examine whether youth with only one friend are more susceptible to influence from that partner than youth with more than one friend. Adolescents with many friends may be less dependent on any one particular friend for the provision of resources. Adolescents with more friends have denser social networks reflecting greater social embeddedness, which in turn results in a lesser likelihood that the adolescent will depend on one relationship for resources such as social support (Mooney et al., 2007). While an adolescent in an exclusive friendship is more dependent on one

relationship because of a lack of alternatives, an adolescent in a nonexclusive friendship with one or two other alternative relationships can replace a friendship should it dissolve (Van Lange et al., 1997). Adolescents with few friends are heavily reliant on those friends they have because there are fewer relationship contexts available to provide resources (Laursen & Jensen-Campbell, 1999). It follows that adolescents with only one friend receive all of their interpersonal provisions from a single partner, giving greater weight to that relationship as a source of resources (Rusbult & Buunk, 1993). One potential consequence may be that those in exclusive friendship who are the most dependent are more willing to sacrifice to sustain their relationship, because they are the most vulnerable -- dissolution is a greater risk than conformity (Van Lange et al., 1997). Thus, an additional aim of the current study was to determine whether susceptibility to friend influence differed for partners with fewer relationship alternatives who are involved in exclusive friendships (i.e., those with no other friends) and those involved in nonexclusive friendships (i.e., those with one or two other friends).

The findings indicated that susceptibility did not differ for partners in exclusive friendships and those in nonexclusive friendships. These findings are consistent with the idea that those with fewer friends conform to partners with more friends in order to preserve the relationship, and that susceptibility to influence is not restricted to those in exclusive friendships. Thus, the partner with fewer relationship alternatives demonstrated a willingness to conform, regardless of the number of competing ties. The lack of statistically significant differences between exclusive and nonexclusive friendships should be interpreted with caution, as this may have been the result of less than optimal power (i.e., 50% power) to detect the small effect sizes observed in these groups, but the

beta weights suggested no real differences in susceptibility between youth with no other friends and youth with one or more other friends (e.g., B=.09-.14 for exclusive friends; B=.12-.17 for nonexclusive friends).

Null effects must be interpreted with caution. Although the most parsimonious explanation is that youth with relatively fewer friends are more motivated to preserve their friendships than youth with relatively more friends, alternative explanations should be considered. One possibility is that children with no other friends have no other friends because most of their time and energy are devoted to romantic relationships. This would have the effect of diminishing their susceptibility to friends because they were more apt to conform to the wishes of the romantic partner (DeLay et al., 2016b). A related possibility is that children with no other friends prioritize relationships with family members. As a consequence, family members might buffer against pressure to disengage from school (Marion et al., 2014). In sum, it may well be that adolescents with only one friend have other sources of relationship support that compensate for a lack of other friends and make their levels of susceptibility comparable to youth with one or more other friends.

Peer Status as a Potential Source of Susceptibility

A third goal of this research was to examine whether differences in friend influence as a function of relationship alternatives were a product of differences in social status. The present study examined alternative trait-based explanations in influences processes for partners with relatively more and relatively fewer friends. Previous findings implicate peer status as a factor in friend influence, such that better accepted friends influence lesser accepted friends (Laursen et al., 2012) and more popular friends

influence less popular friends (Gommans et al., 2015). These findings raise the possibility that influence attributed to the relative number of relationship alternatives may be driven by differences between partners in social status. Given that peer status and friendship are linked in some ways and yet differ in meaningful ways, it is important to consider whether peer status is responsible for indicating who is influential and who is susceptible within a friendship. The results revealed that peer status was not responsible for influence attributed to relative differences in relationship alternatives. Adolescents with fewer relationship alternatives were not more susceptible as a result of their popularity, their peer acceptance, or their peer rejection.

Prior studies have found that age (Popp et al., 2008), self-esteem (Bukowski et al., 2008), and depressive symptoms (Allen et al., 2006) are associated with patterns of influence in adolescent friendships. The possibility that results were driven by these individual traits was also considered. Findings from the current study suggest that differences between friends in susceptibility to influence on the basis of relationship alternatives are not a product of differences in self-esteem, age, how many friends each partner reported, and depression. Partners with fewer relationship alternatives are not more susceptible simply by virtue of being younger, having low self-esteem or being depressed. Additionally, partners with fewer relationship alternatives are not more susceptible simply by virtue of how many friends each partner reported or how large the difference was in the number of their friendships. Although these attributes are known to contribute to inter-individual differences in friend influence, they did not account for the findings reported herein. In sum, this study ruled out some of the empirically relevant confounds that could be responsible for the findings.

Implications

The present study highlights the critical role of friendship alternatives in shaping maladaptive and adaptive outcomes. The findings suggest that adolescents with fewer relationship alternatives are at heightened risk of susceptibility to influence. Regarding educators, researchers have proposed that the teacher's "invisible hand" -- providing opportunities for social interactions and establishing the norms of what is deemed to be acceptable social behavior in the classroom -- may help children and adolescents develop social skills and form friendships (Farmer et al., 2011). Thus, educators should aim to identify those with fewer friends and integrate class activities that may promote the formation of new friendships in order to intervene on negative peer influence. Additionally, parents should encourage and reinforce behaviors that will enable their children to form more friendships with others, as previous research has indicated that parents use of friendship facilitation strategies promotes friendship formation for adolescents over time (Vernberg et al., 1997). It is worth noting that while adolescents with fewer friends benefited from friend influence over adaptive outcomes, including prosocial behavior and academic engagement, they were also susceptible to influence over social anxiety, which suggests that any interventions targeted at reducing susceptibility to influence must be careful not to also eliminate the benefits derived from positive sources of influence.

Alternatively, individual differences in developmental plasticity may explain why adolescents with fewer friends are more susceptible to the influence of adolescents with more friends. Based on differential susceptibility theory, phenotypic plasticity emphasizes individual differences in susceptibility to environmental stimuli based on

characteristics that heighten sensitivity to environmental context, such that vulnerabilities or previous adverse experiences adapt into higher sensitivity to environmental cues (Belsky & Pluess, 2009). The current study provides evidence that adolescents are shaped in both positive and negative ways, which suggests a form of openness to influence that is not limited to a particular domain. Although the number of relationship alternatives was an important indicator of influence, this may suggest that there is a mechanism related to these influence processes that is more fundamental and trait like. Perhaps, the number of relationship alternatives is a type of phenotypic marker that indexes differential susceptibility to influence and is linked to a form of plasticity in openness to influence for adolescents that have fewer friends.

Additionally, the findings raise important considerations for intervention efforts. Previous studies have suggested that intervention efforts be targeted to unpopular adolescents (Clasen & Brown, 1987). However, the findings of the present study suggest that relationship alternatives are also relevant to friend influence. Adolescents with fewer friends have fewer sources of input and likely do not get the chance to gain insight from others before making decisions about how to behave. Indeed, some previous intervention efforts in teaching adolescents peer resistance skills have led to iatrogenic, or negative effects (Dishion et al., 1999). For example, one study compared the efficacy of four intervention conditions that varied in terms of the inclusion of parents and peers, and the findings revealed that peer focused intervention efforts resulted in exacerbations of tobacco use and delinquency over a three-year period (Dishion & Andrews, 1995). Given the possibility of an intervention's negative effects, consideration of program characteristics is warranted. While these interventions may enhance the ability to resist

peer influence by teaching adolescents' refusal skills for maladaptive behaviors (Wright et al., 2004), these interventions also run the risk of adolescents possibly losing the benefit of positive influence. Given that the findings of the current study suggest that adolescents with fewer friends are susceptible to influence over both maladaptive and adaptive outcomes, it is important for intervention programs to consider teaching peer influence resistance skills in relation to mitigating influence over risky or maladaptive behaviors.

Limitations and Future Directions

The current study is not without limitations. First, I focused on influence processes at the level of the dyad wherein each participant was restricted to a single stable and reciprocated friendship. In contrast to SIENA (Snijders et al., 2010), the APIM strategy I adopted is limited to examining unique influence processes within one friendship rather than across all members of an adolescent's peer network. As a consequence, I was unable to separate variance that is attributable to the peer group from variance that is attributable to the dyad. Thus, it is unclear whether the findings apply to other relationships and whether there are characteristics of the peer group that might account for influence effects. (DeLay et al., 2021). Furthermore, APIM studies typically focus on best friendships, on the assumption that influence is strongest within these relationships. The current study lacked information about friendship ranking, so all friendships had to be treated as if they were of equal importance. Although the findings of the current study may be an underestimation of the role of relationship alternatives in some friendships, exclusive friendships are, by definition, top ranked friendships for the partner with fewer relationship alternatives given that this partner has no other

alternatives, which should strengthen confidence in findings that adolescents with no other friends are not unduly susceptible to influence.

My study was a between-subjects design in that each adolescent was included in one relationship and I compared participants with fewer relationship alternatives to those with more relationship alternatives in the context of one relationship. As a consequence, characteristics of partners were confounded with their role in the relationship. Adolescents with fewer friends differ from those who have more friends on personality and behavioral dimensions that are associated with maladaptive and adaptive outcomes. A within-subjects design would be more powerful. In this scenario, I would examine each participants role across different relationships to examine whether influence processes differ when individuals shifts roles. Unfortunately, in the current study, there were too few adolescents who participated in friendships in which their role differed to examine within person variability in susceptibility to influence, depending on their particular role in a relationship. Of those included in the present study, there were 21 who participated in a friendship as the partner with more relationship alternatives and were all selected for inclusion in relationship as the partner with more friends, but these participants were also involved in different friendships as a partner with fewer relationship alternatives. Thus, the design did not permit examination of within person differences in susceptibility to influence across different relationships as a function of relative differences in relationship alternatives. That is, examining whether an influential partner in one friendship becomes the target of influence in another friendship with a partner who has relatively more friends will clarify whether these findings only apply to a certain subset of individuals and not others. The results of the current study suggest that these individuals should be

susceptible in relationships where they are the partner with fewer friends but not in relationships where they are the partner with more friends. Findings of this sort would add a strong element of support to those observed in the current study.

The lack of information on the timing of friendship formation is also a limitation. Previous studies have found that influence effects are pronounced during the initial phases of friendship formation (e.g., Popp et al., 2008). One alternative solution is to focus exclusive on new friends, dyads in which neither partner nominated the other as a friend in a previous round of data collection. However, in the present study I focused on influence within a school year to avoid the disruption that occurs between school years. Thus, the findings of the current study may have underestimated influence effects given that friend influence is apt to be strongest in newly formed friendships.

Additionally, while the current study extended previous findings by distinguishing friends based on relationship alternatives (Laursen et al., 2012), the findings did not confirm previous findings that higher accepted partners influence lower accepted partners. This is an important limitation because although the findings highlight the uniquely influential role of partners with more relationship alternatives, they cannot be said to fully explain previous findings in which partners were distinguished on the basis of relative acceptance. There are also other factors that may be related to the number of relationship alternatives, which are also predictive of adolescent outcomes. Here, supplemental analyses controlled for the contribution of potential confounds, but this does not eliminate the concern that adolescents with fewer friends or who change friends regularly may differ from adolescents who have many friends and maintain friendships on dimensions that are associated with adaptive and maladaptive outcomes, including

relational aggression (i.e., Sijtsema et al., 2013), victimization (i.e., Hodges et al., 1997), substance use (Valente et al., 2005), and loneliness (i.e., Vanhalst et al., 2014).

Finally, the current study focused on stable reciprocated friendships and did not examine influence processes in unstable friendships. In the current study, only friendships that were reciprocated by both partners at each time point were included. Thus, dyads in which both partners reciprocally nominated one another at time 1, but not at time 2, were excluded from the study. However, previous findings indicate little to no influence between partners across time periods that include the dissolution of the friendship after (i.e., Popp et al., 2008; Hafen et al., 2011).

Conclusion

In conclusion, the findings of the current study demonstrate that friend influence varies as a function of relative relationship alternatives. The partner who is at an apparent social disadvantage is more susceptible to friend influence, in ways that suggest that susceptibility is a state-like condition. Specifically, the findings indicate that a lack of relationship alternatives heightens susceptibility to influence over social anxiety, academic engagement, and prosocial behavior. Those with fewer friends may conform in order to maintain interpersonal equilibrium in the friendship (Bukowski et al., 2008), because conformity reduces the risk of resource loss arising from conflict (Rusbult & Buunk, 1993). This study is unique in finding that relationship alternatives play an important role in friend influence, even after accounting for peer status and trait-based indicators of friend influence.

Table 1

Crosstabulation Between Relative Levels of Peer Status and Relationship Alternatives

		Relationship Alternatives		
		Fewer Friends	More Friends	Cramer's V
Acceptance	Higher	166	166	
	Lower	166	166	
	Same	65	65	
Total		397	397	.00
Popularity	Higher	185	185	
	Lower	114	114	
	Same	98	98	
Total		397	397	.00
Rejection	Higher	111	124	
	Lower	124	111	
	Same	162	162	
Total		397	397	.04

Note. N =794. Participants with identical levels of relative acceptance (*n*=130), popularity (*n*=196), or rejection (*n*=324) as friendship partners were excluded from crosstabulation.

Table 2

Bivariate Correlations, Means and Standard Deviations

Variable	1	2	3	4	5	6	7	*M*	*SD*
1. Time 1 Social Anxiety	--							2.03	0.71
2. Time 2 Social Anxiety	.64**	--						2.12	0.61
3. Time 1 Academic Engagement	-.05	-.05	--					2.87	0.56
4. Time 2 Academic Engagement	-.03	.01	.65**	--				2.83	0.59
5. Time 1 Prosocial Behavior	.01	.04	.20**	.16**	--			5.19	1.15
6. Time 2 Prosocial Behavior	-.03	-.06	.21**	.18**	.55**	--		5.19	1.19
7. Time 1 Relationship Alternatives	-.10**	-.10**	.14**	.11*	.11**	.16**	--	1.49	1.25
8. Time 2 Relationship Alternatives	-.09*	-.08*	.17**	.13**	.12**	.15**	.69**	1.62	1.28

Note. N=794. Individuals participating in stable, mutual friendships. Teacher rated scores of prosocial behaviors ranged from 1 to 7.

Table 3

Crosstabulation of Partners with More Friends as a Partner with Fewer Friends in Other Friendships

Time 1 Relationship Alternatives	Roles maintained at T2	Roles reversed at T2	Equal roles at T2
Two other friends	2	4	5
Three or more other friends	19	27	14
Total	21	31	19

Note. Of a total of 397 partners with relatively more friends, 71 were partners with relatively fewer friends at time 1 in other friendships.

Table 4

Crosstabulation of Partners with Fewer Friends as a Partner with More Friends in Other Friendships

Time 1 Relationship Alternatives	Roles maintained at T2	Roles reversed at T2	Equal roles at T2
Two other friends	0	2	2
Three or more other friends	0	4	3
Total	0	6	5

Note. Of a total of 397 partners with relatively fewer friends, 11 were partners with relatively more friends at time 1 in other friendships.

Table 5

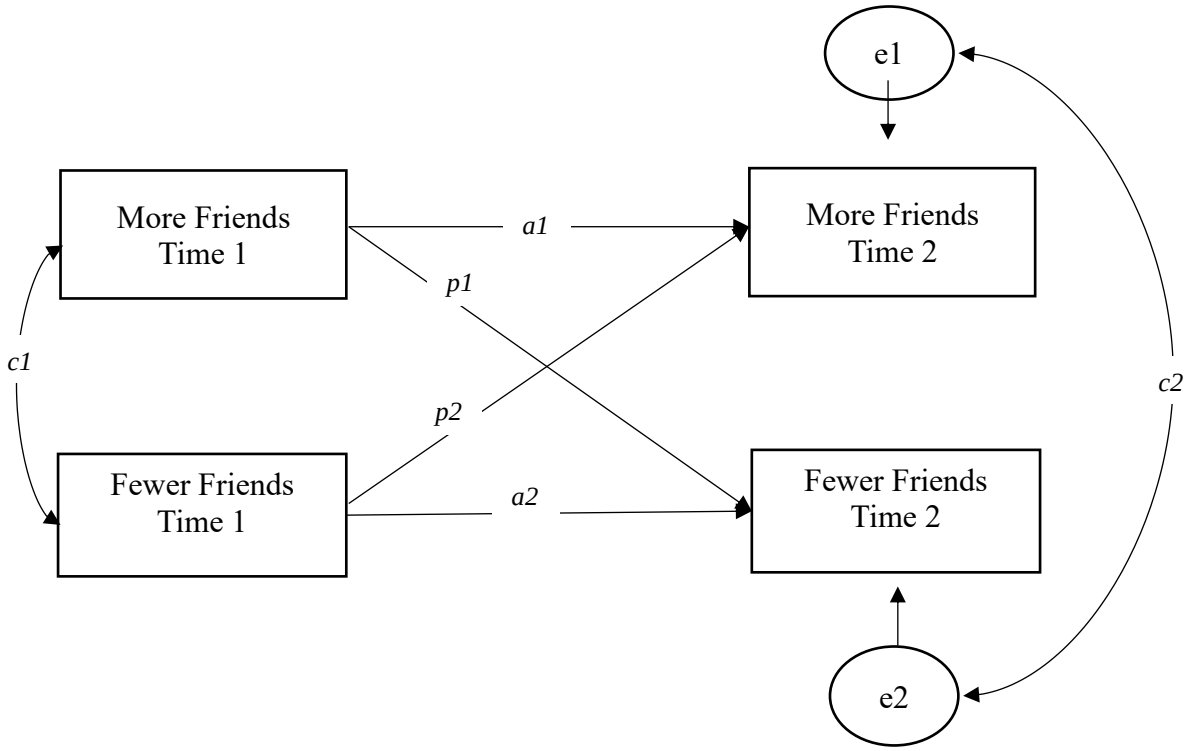
Crosstabulation of Differences between Partners' Number of Relationship Alternatives

	Relationship Alternatives $T1_{morefriends}$ - Relationship Alternatives $T1_{fewerfriends}$	
Relationship Alternatives T1	Difference = 1	Difference >1
Zero other friends	101	95
One other friend	86	65
Two other friends	39	11
Total	226	171

Note. Of a total of 397 dyads, there were 226 dyads in which the difference between partners' relationship alternatives was equal to 1 and 171 dyads in which the difference between partners' relationship alternatives was greater than 1.

Figure 1

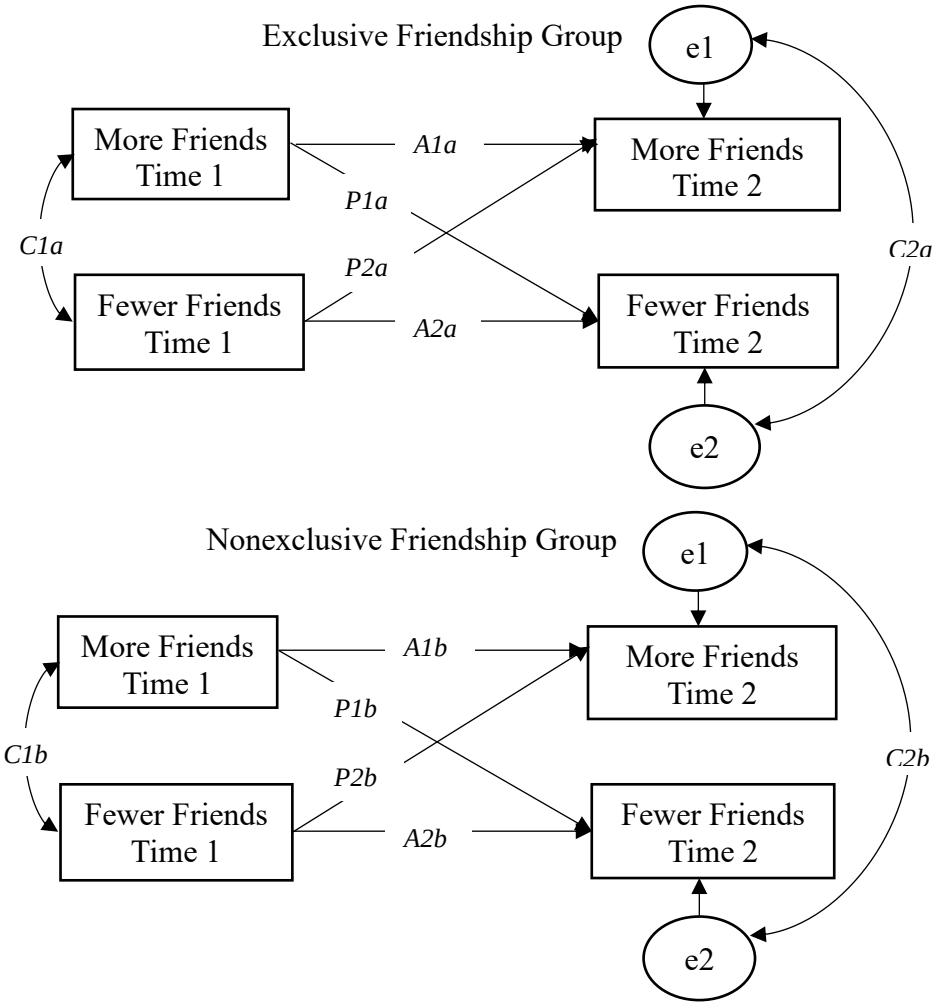
Friend influence over Prosocial Behavior, Academic Engagement, and Social Anxiety: Measurement Model for a Longitudinal Actor-Partner Interdependence Model with Friends Distinguished on the Basis of Relationship Alternatives



Note. Stability (actor) paths=*a1* and *a2*. Influence (partner) paths=*p1* and *p2*. Concurrent correlations=*c1* and *c2*.

Figure 2

Measurement Model for a Multiple-Group Model of Friend Influence as a function of Relationship Alternatives: Dyads Divided into Exclusive Friendships and Nonexclusive Friendships on the Basis of the Partner with Fewer Relationship Alternative's Number of Alternatives



Note. Exclusive friendship group includes friend dyads in which the partner with fewer relationship alternatives is otherwise friendless. Nonexclusive friendship group includes dyads in which the partner with fewer relationship alternatives is involved in other friendships.

Figure 3

Measurement model for a longitudinal Actor-Partner Interdependence Model: Friend influence over prosocial behavior, academic engagement, and social anxiety as a function of relative relationship alternatives, controlling for peer acceptance, rejection, and popularity

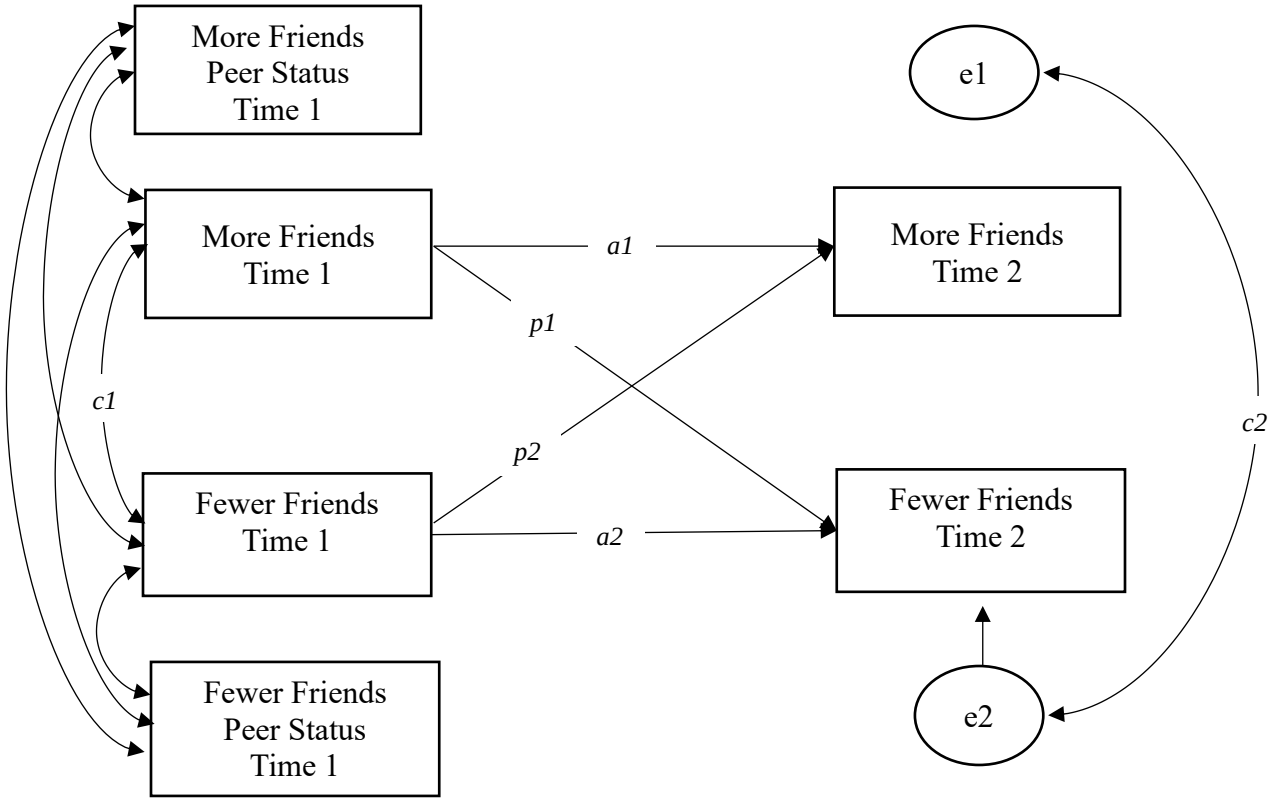
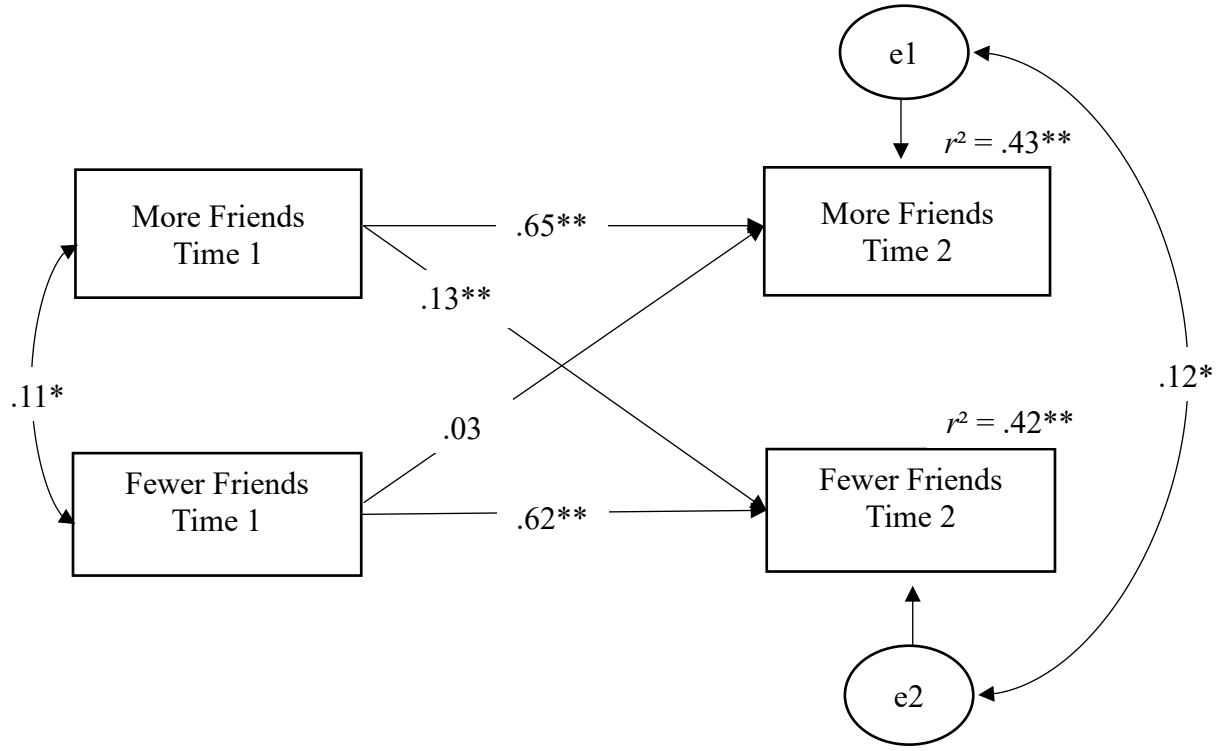


Figure 4

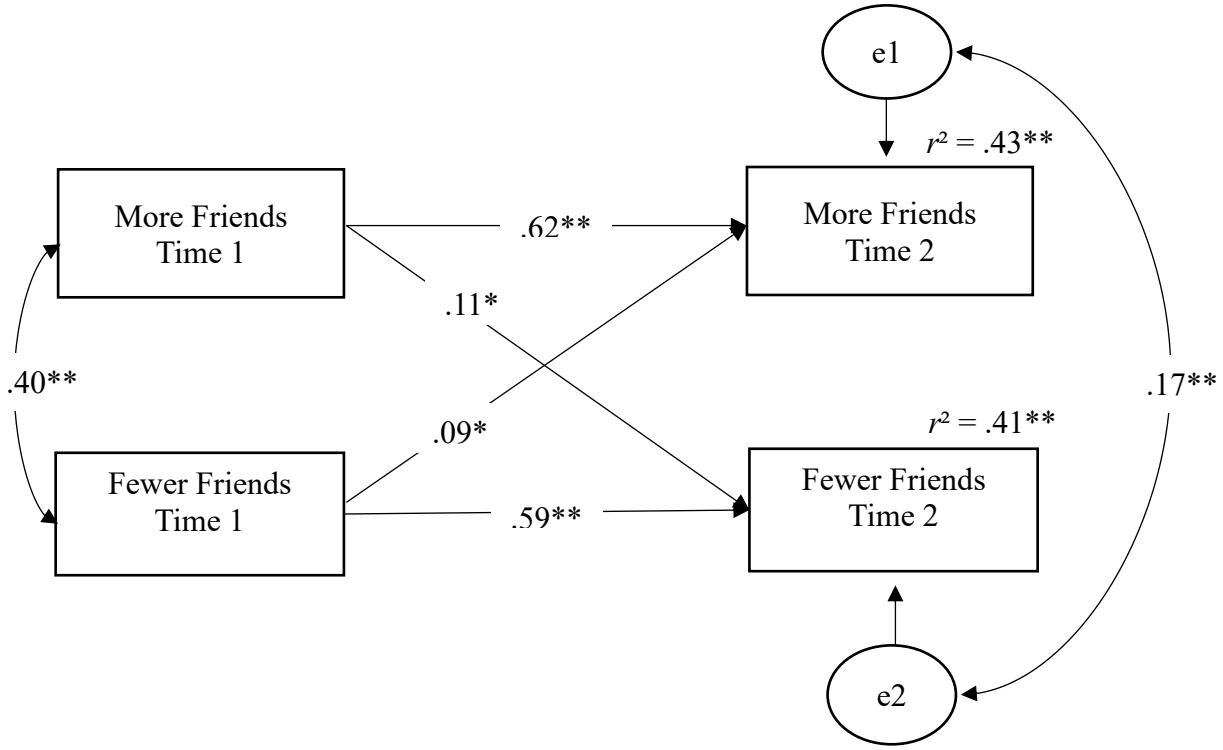
Friend Influence over Social Anxiety: Results from a Longitudinal Actor-Partner Interdependence Model with Friends Distinguished on the Basis of Relationship Alternatives



Note. N=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 5

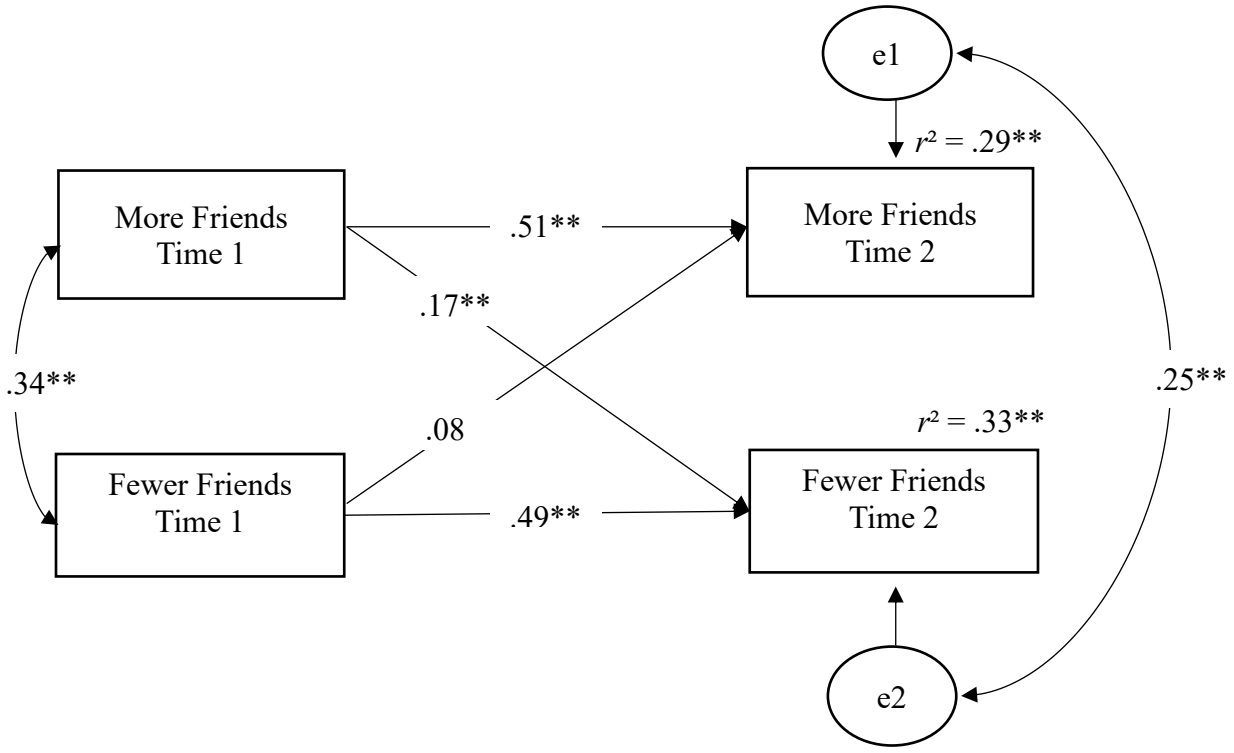
Friend Influence over Academic Engagement: Results from a Longitudinal Actor-Partner Interdependence Model with Friends Distinguished on the Basis of Relationship Alternatives



Note. N=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 6

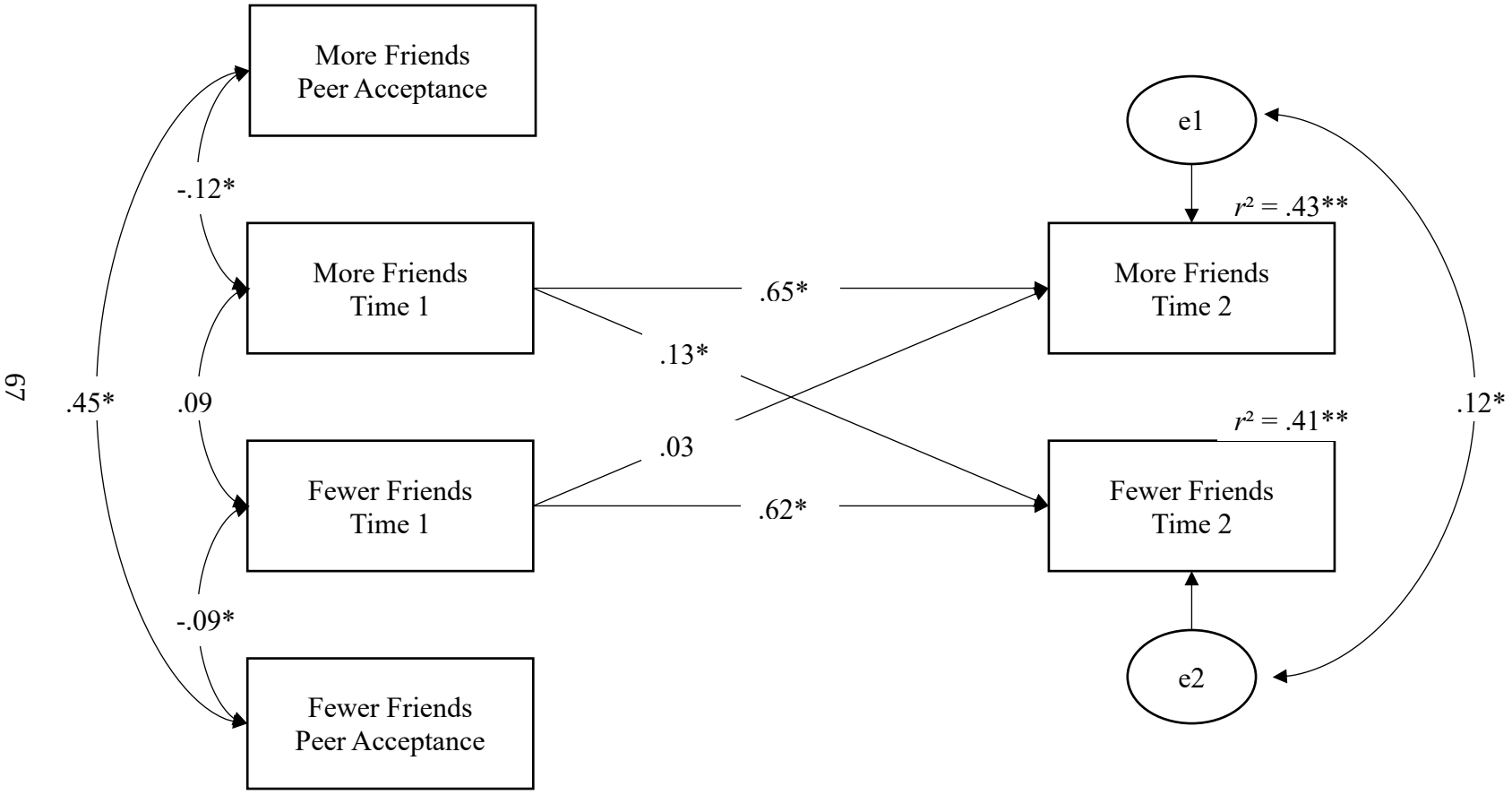
Friend Influence over Prosocial Behavior: Results from a Longitudinal Actor-Partner Interdependence Model with Friends Distinguished on the Basis of Relationship Alternatives



Note. N=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 7

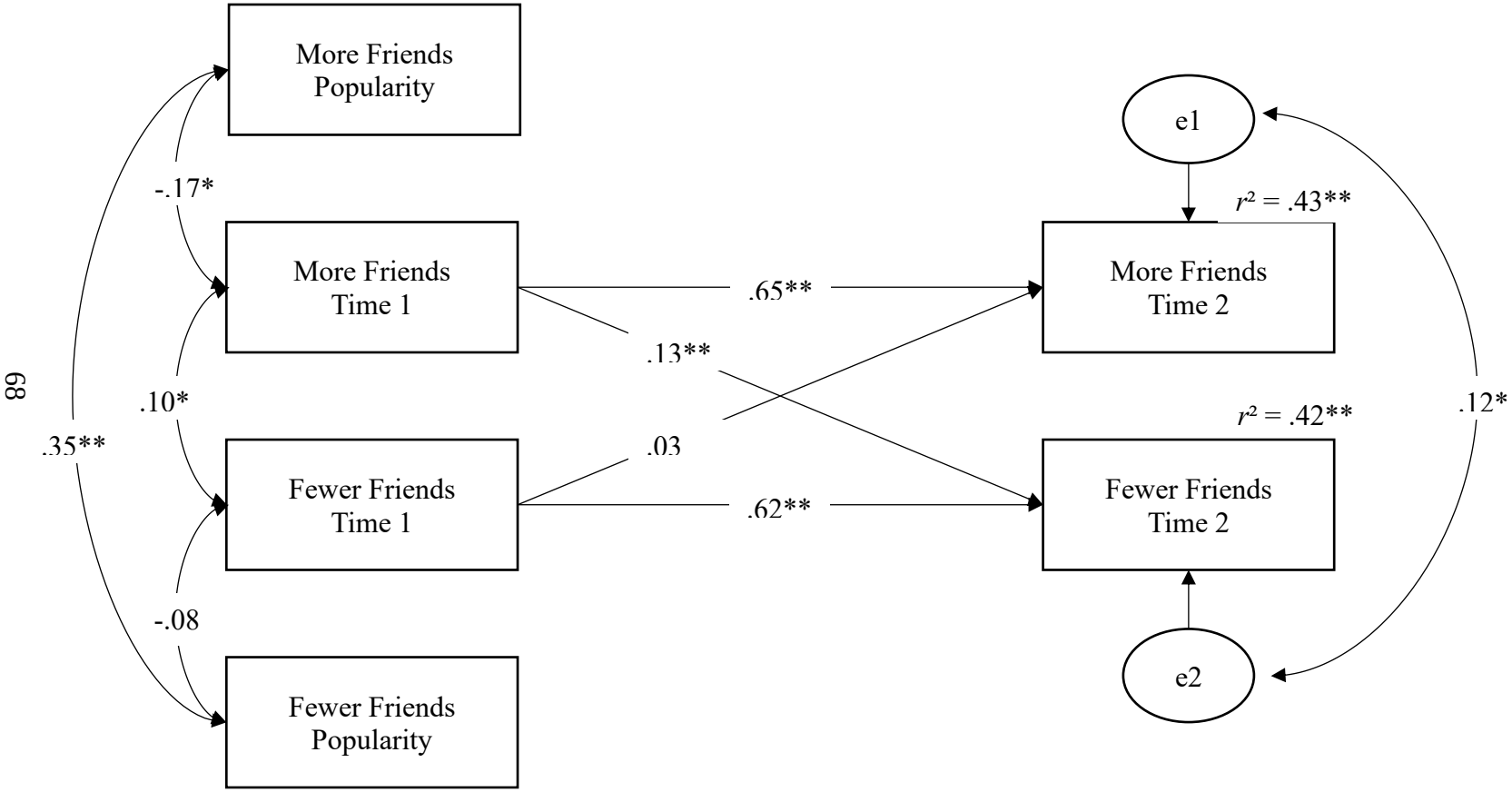
Friend influence over social anxiety as a function of relationship alternatives, controlling for peer acceptance



Note. *N*=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 8

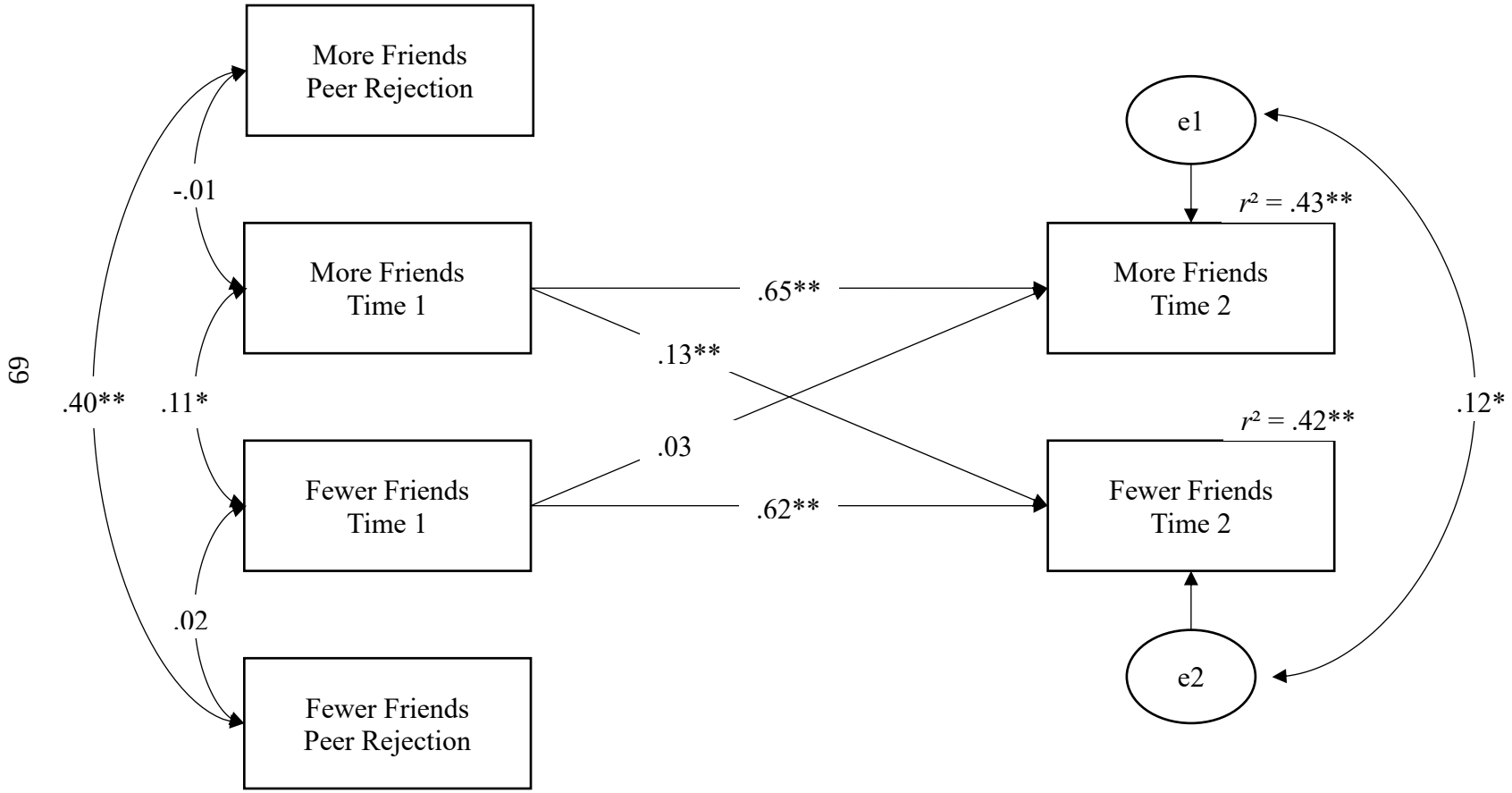
Friend influence over social anxiety as a function of relationship alternatives, controlling for popularity



Note. *N*=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 9

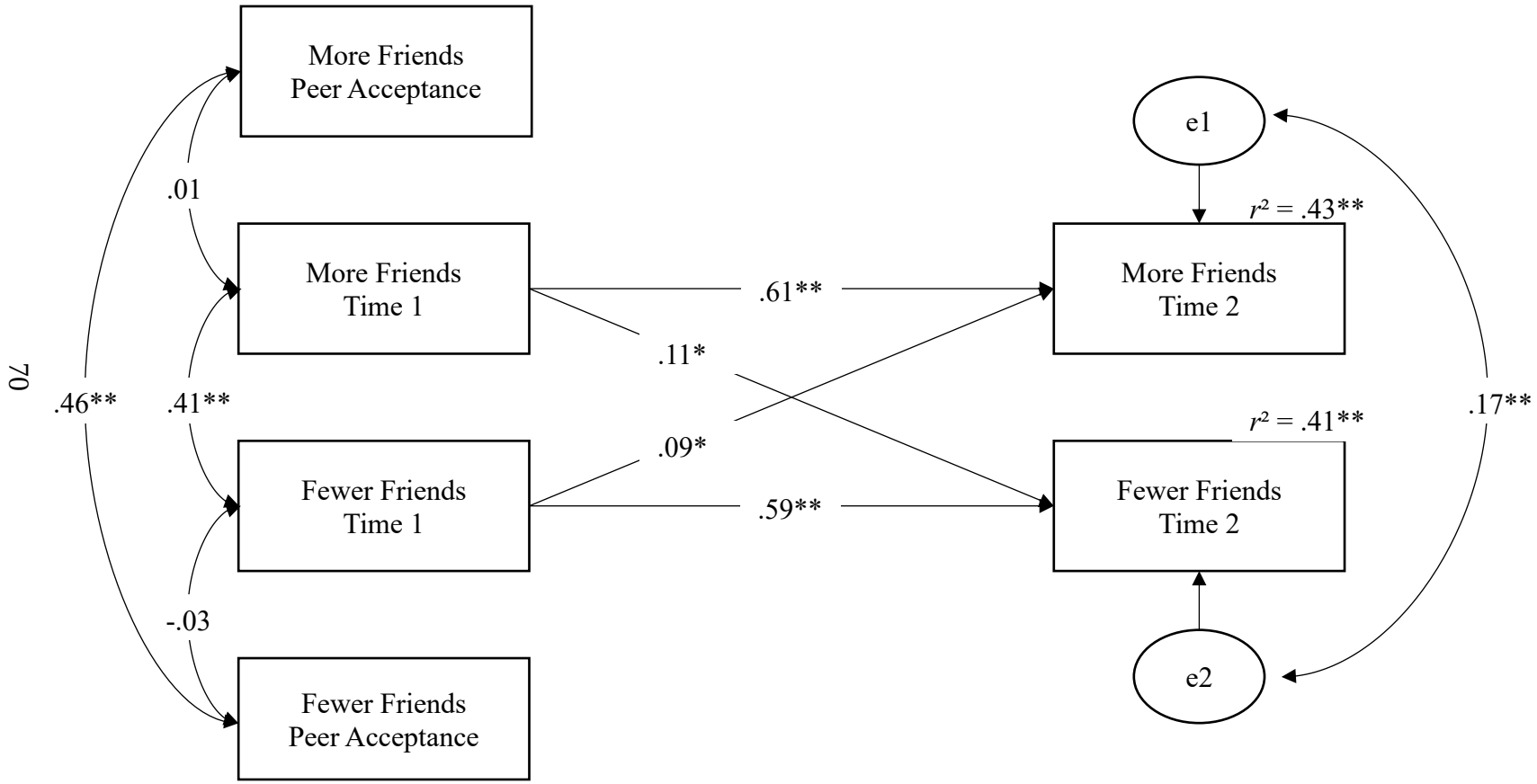
Friend influence over social anxiety as a function of relationship alternatives, controlling for peer rejection



Note. *N*=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 10

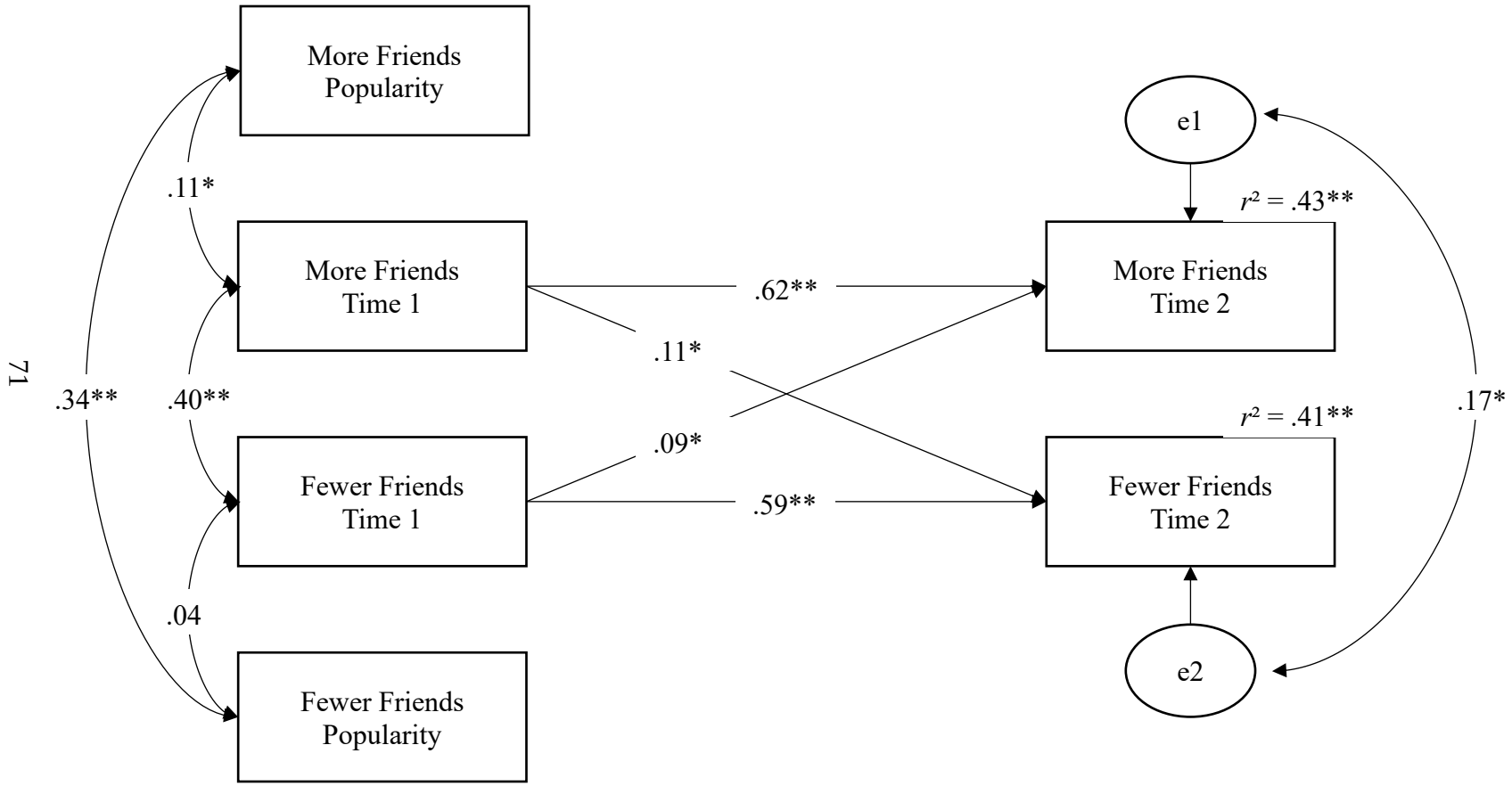
Friend influence over academic engagement as a function of relationship alternatives, controlling for peer acceptance



Note. *N*=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 11

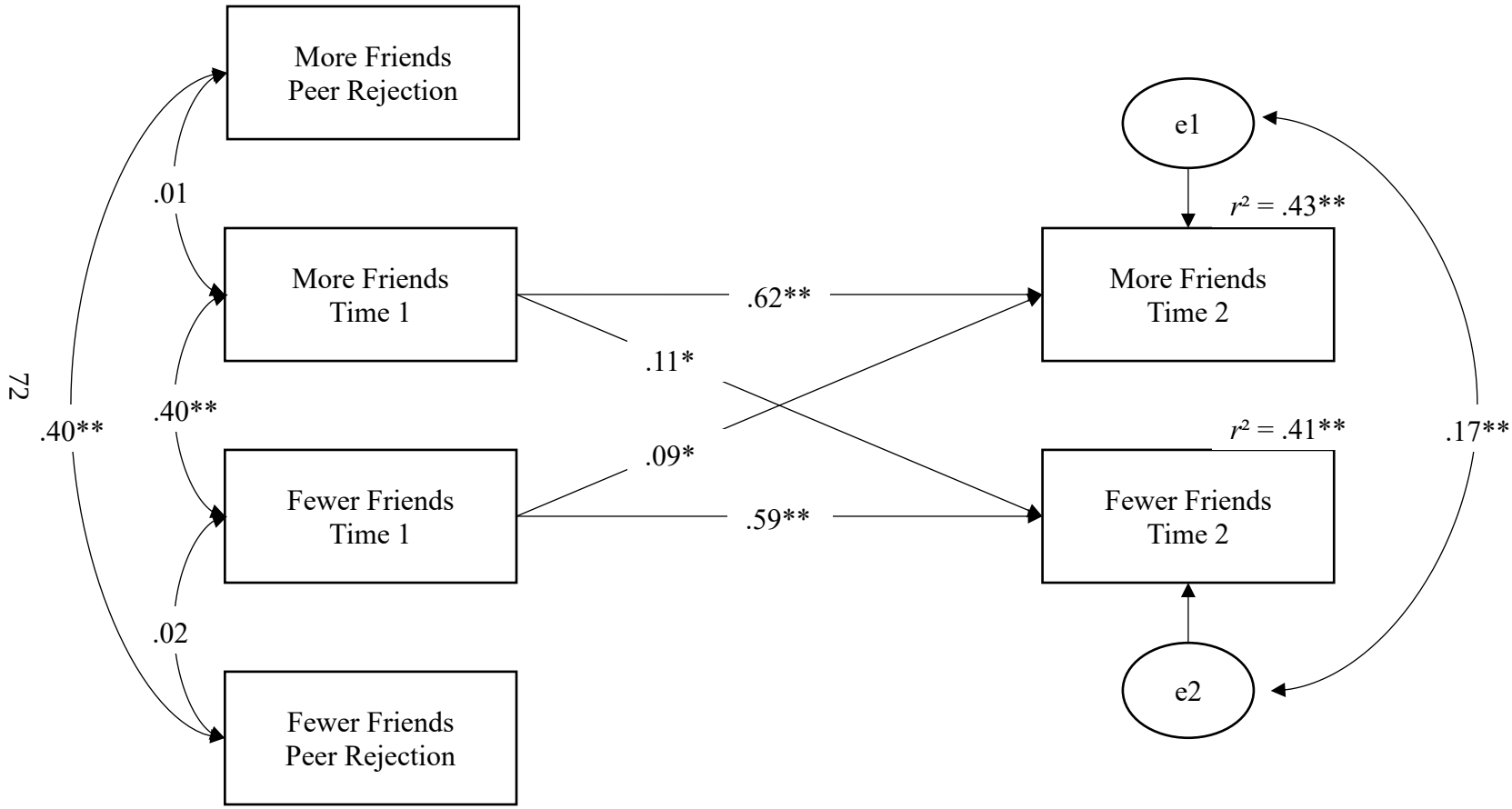
Friend influence over academic engagement as a function of relationship alternatives, controlling for popularity



Note. *N*=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 12

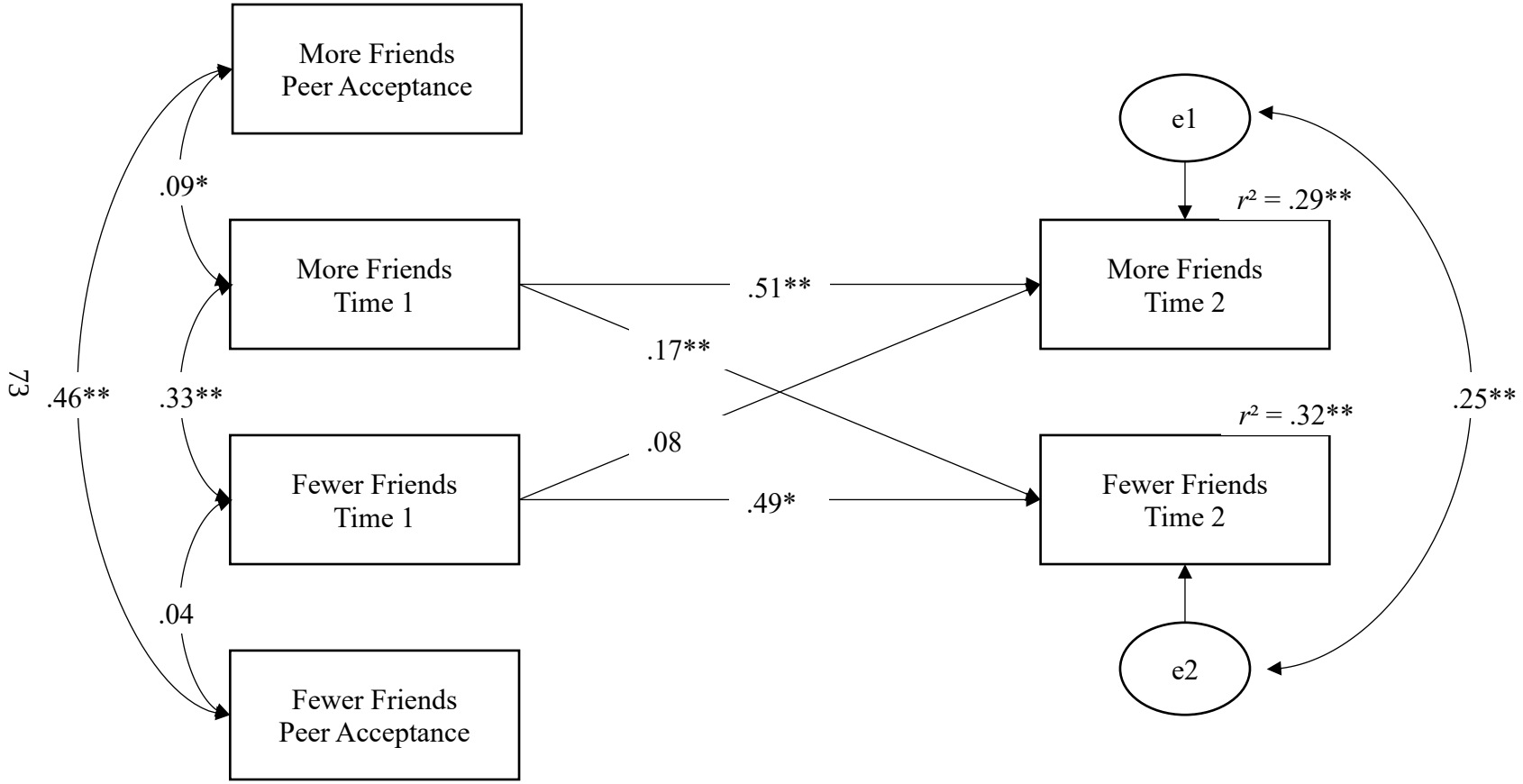
Friend influence over academic engagement as a function of relationship alternatives, controlling for peer rejection



Note. *N*=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 13

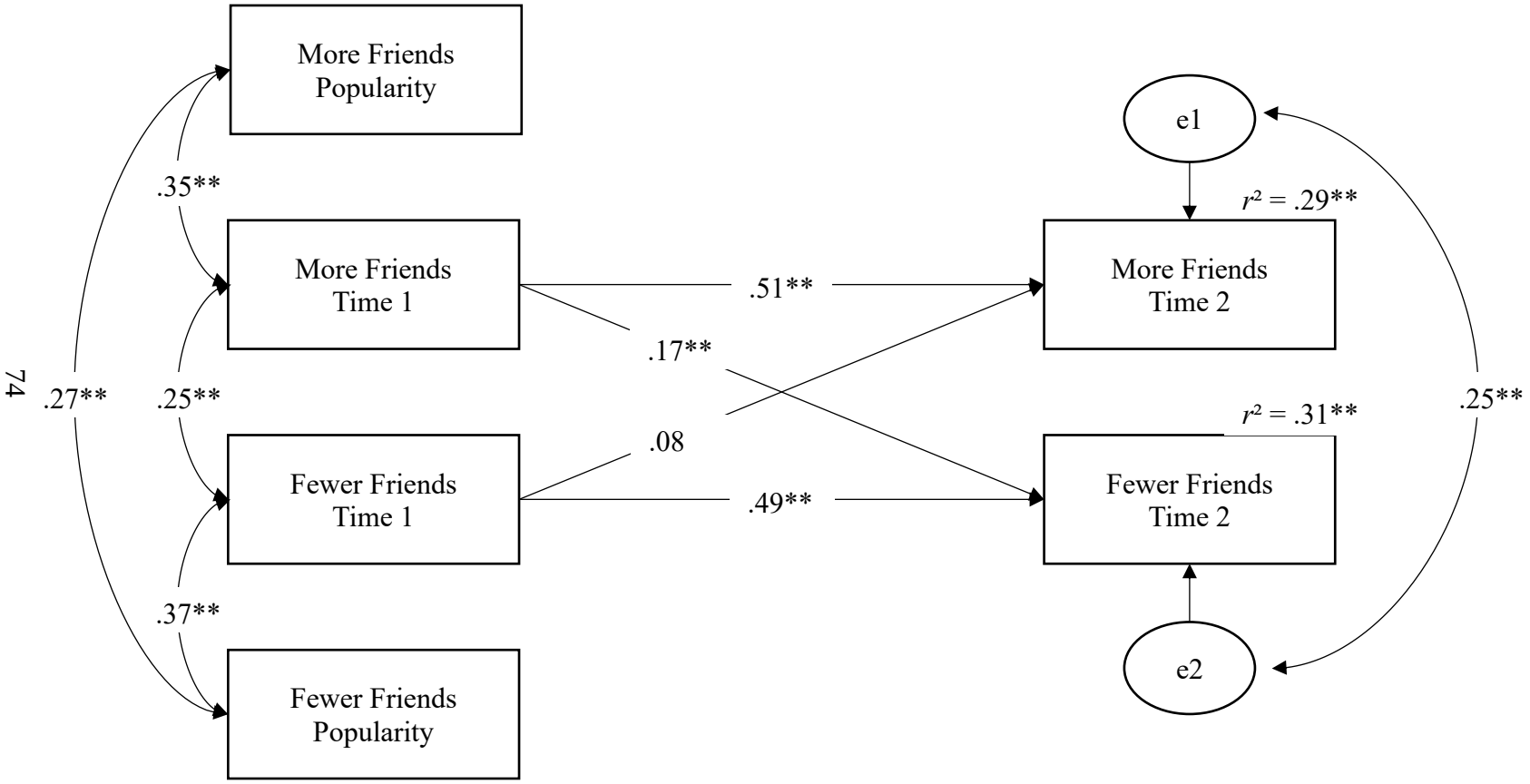
Friend influence over prosocial behavior as a function of relationship alternatives, controlling for peer acceptance



Note. *N*=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 14

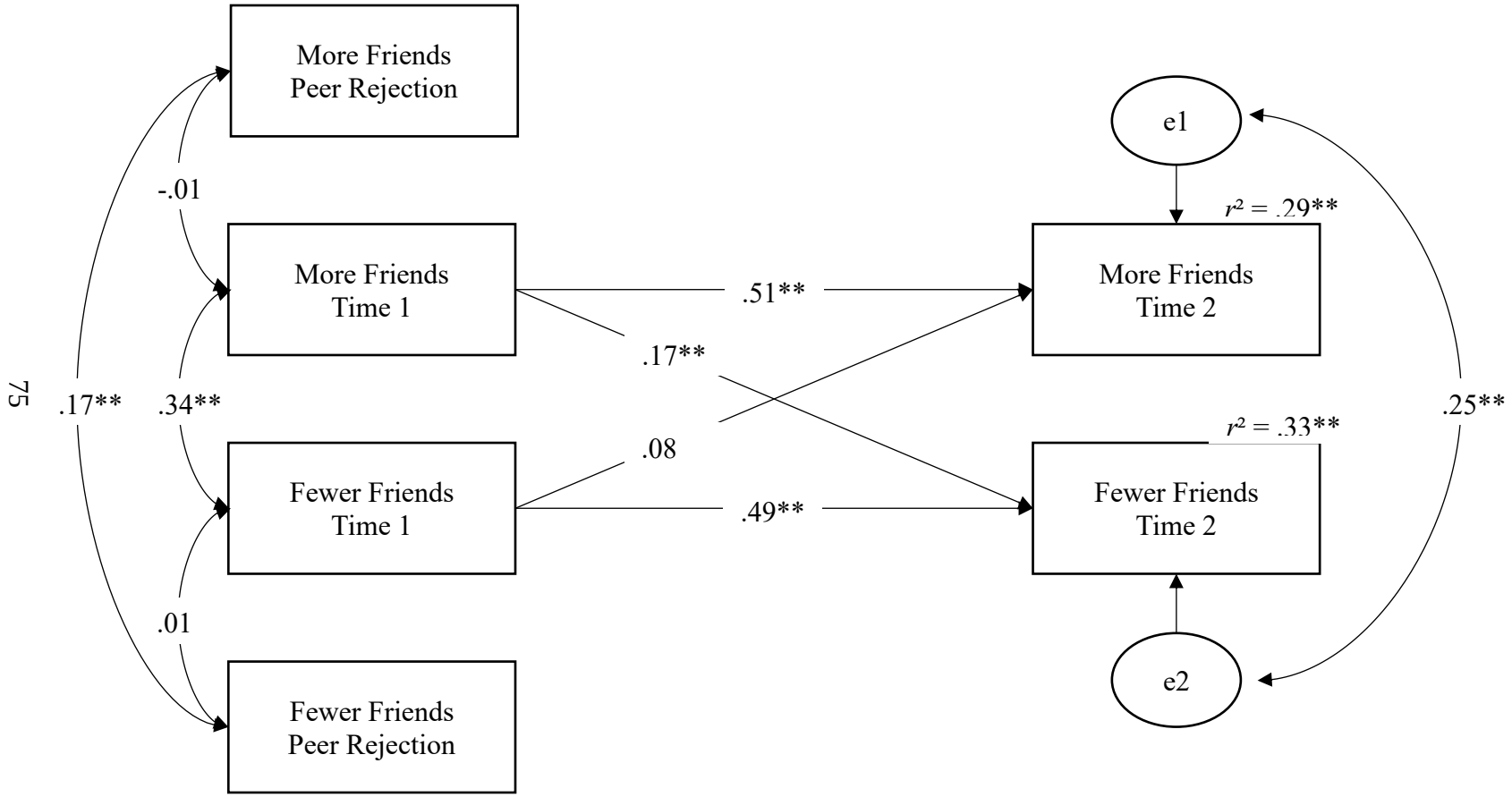
Friend influence over prosocial behavior as a function of relationship alternatives, controlling for popularity



Note. *N*=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

Figure 15

Friend influence over prosocial behavior as a function of relationship alternatives, controlling for peer rejection



Note. *N*=794, 397 dyads. Standardized beta weights are reported. *p<.05. **p<.01.

REFERENCES

Allen, J. P., Porter, M. R., & McFarland, F. C. (2006). Leaders and followers in adolescent close friendships: Susceptibility to peer influence as a predictor of risky behavior, friendship instability, and depression. *Development and Psychopathology*, *18*(1), 155–172. https://doi.org/10.1017/S0954579406060093

Bagwell, C. L., Newcomb, A. F., & Bukowski, W. M. (1998). Preadolescent friendship and peer rejection as predictors of adult adjustment. *Child Development, 69*(1), 140-153. https://doi.org/10.1111/j.1467-8624.1998.tb06139.x

Barry, C. M., & Wentzel, K. R. (2006). Friend influence on prosocial behavior: The role of motivational factors and friendship characteristics. *Developmental Psychology*, *42*(1), 153–163. https://doi.org/10.1037/0012-1649.42.1.153

Belsky, J., & Pluess, M. (2009). Beyond diathesis stress: Differential susceptibility to environmental influences. *Psychological Bulletin, 135*(6), 885–908. https://doi.org/10.1037/a0017376

Berger, C., & Rodkin, P. C. (2012). Group influences on individual aggression and prosociality: Early adolescents who change peer affiliations. *Social Development*, *21*(2), 396–413. https://doi.org/10.1111/j.1467-9507.2011.00628.x

Berndt, T. J. (1979). Developmental changes in conformity to peers and parents. *Developmental Psychology, 15*(6), 608–616. https://doi.org/10.1037/0012-1649.15.6.608

Berndt, T. J. (1999). Friends' influence on students' adjustment to school. *Educational Psychologist, 34*(1), 15–28. https://doi.org/10.1207/s15326985ep3401_2

Bishop, J. A., & Inderbitzen, H. M. (1995). Peer acceptance and friendship: An investigation of their relation to self-esteem. *Journal of Early Adolescence, 15*(4), 476–489. https://doi.org/10.1177/0272431695015004005

Brown, B. B., Clasen, D. R., & Eicher, S. A. (1986). Perceptions of peer pressure, peer conformity dispositions, and self-reported behavior among adolescents. *Developmental Psychology, 22*(4), 521-530. https://doi:10.1037/0012-1649.22.4.521

Bukowski, W. M., & Hoza, B. (1989). Popularity and friendship: Issues in theory, measurement, and outcome. In T. J. Berndt & G. W. Ladd (Eds.), *Peer relationships in child development* (pp. 15–45). Wiley.

Bukowski, W. M., Hoza, B., & Boivin, M. (1993). Popularity, friendship, and emotional adjustment during early adolescence. *New Directions for Child Development, 60*, 23-27. https://doi.org/10.1002/cd.23219936004

Bukowski, W. M., Pizzamiglio, M. T., Newcomb, A. F., & Hoza, B. (1996). Popularity as an affordance for friendship: The link between group and dyadic experience. *Social Development, 5*(2), 189–202. https://doi.org/10.1111/j.1467-9507.1996.tb00080.x

Bukowski, W. M., Velasquez, A. M., & Brendgen, M. (2008). Variations in patterns of peer influence: Considerations of self and others. In M. J. Prinstein & K. A. Dodge (Eds.), *Understanding peer influence in children and adolescents* (pp. 125-140). The Guilford Press.

Burk, W. J., Steglich, C. E. G., & Snijders, T. A. B. (2007). Beyond dyadic interdependence: Actor-oriented models for co-evolving social networks and individual behaviors. *International Journal of Behavioral Development, 31*(4), 397–404. https://doi.org/10.1177/0165025407077762

Cairns, R. B., Leung, M.-C., Gest, S. D., & Cairns, B. D. (1995). A brief method for assessing social development: Structure, reliability, stability, and developmental validity of the Interpersonal Competence Scale. *Behaviour Research and Therapy*, *33*(6), 725–736. https://doi.org/10.1016/0005-7967(95)00004-H

Choukas-Bradley, S., Giletta, M., Cohen, G. L., & Prinstein, M. J. (2015). Peer influence, peer status, and prosocial behavior: An experimental investigation of peer socialization of adolescents' intentions to volunteer. *Journal of Youth and Adolescence*, *44*(12), 2197–2210. https://doi.org/10.1007/s10964-015-0373-2

Cialdini, R. B., & Richardson, K. D. (1980). Two indirect tactics of image management: Basking and blasting. *Journal of Personality and Social Psychology*, *39*(3), 406–415. https://doi.org/10.1037/0022-3514.39.3.406

Cillessen, A. H. N., & Mayeux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development*, *75*(1), 147–163. https://doi.org/10.1111/j.1467-8624.2004.00660.x

Clasen, D. R., & Brown, B. B. (1987). Understanding peer pressure in middle school. *Middle School Research Selected Studies*, *12*(1), 67-75. https://doi.org/10.1080/08851700.1987.11670280

Cohen, G. L., & Prinstein, M. J. (2006). Peer contagion of aggression and health risk behavior among adolescent males: An experimental investigation of effects on public conduct and private attitudes. *Child Development*, *77*(4), 967–983. https://doi.org/10.1111/j.1467-8624.2006.00913.x

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy and relatedness: A motivational analysis of self-system processes. In M. Gunnar & L. A. Sroufe (Eds.), *Minnesota Symposium on Child Psychology, Vol. 23: Self processes in development* (pp. 43-77). University of Chicago Press.

Cramér, H. (1946). *Mathematical methods of statistics*. Princeton University Press.

DeLay, D., Laursen, B., Kiuru, N., Poikkeus, A.-M., Aunola, K., & Nurmi, J.-E. (2015). Stable same-sex friendships with higher achieving partners promote mathematical reasoning in lower achieving primary school children. *British Journal of Developmental Psychology*, *33*(4), 519–532. https://doi.org/10.1111/bjdp.12117

DeLay, D., Laursen, B., Kiuru, N., Poikkeus, A. M., Aunola, K., & Nurmi, J. E. (2016a). Friend influence and susceptibility to influence: Changes in mathematical reasoning as a function of relative peer acceptance and interest in mathematics. *Merrill-Palmer Quarterly, 62*(3), 306-333. https://doi.org/10.13110/merrpalmquar1982.62.3.0306

DeLay, D., Laursen, B., Bukowski, W. M., Kerr, M., & Stattin, H. (2016b). Adolescent friend similarity on alcohol abuse as a function of participation in romantinc relationships: Sometimes a new love comes between old friends. *Developmental Psychology*, *52*(1), 117-129. https://psycnet.apa.org/doi/10.1037/a0039882

DeLay, D., Laursen, B., Kiuru, N., Rogers, A., Kindermann, T., & Nurmi, J. E. (2021). A comparison of dyadic and social network assessments of peer influence. *International Journal of Behavioral Development*, *45*(3), 275-288. https://doi.org/10.1177/0165025421992866

DeLay, D., Burk, W. J., & Laursen, B. (in press). Assessing peer influence and susceptibility to peer influence using individual and dyadic moderators in a social network context: The case of adolescence alcohol misuse. *International Journal of Behavioral Development*.

Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *Journal of Abnormal and Social Psychology*, *51*(3), 629-636. https://doi.org/10.1037/h0046408

Dijkstra, J. K., Lindenberg, S., Veenstra, R., Steglich, C., Isaacs, J., Card, N. A., & Hodges, E. V. E. (2010a). Influence and selection processes in weapon carrying during adolescence: The roles of status, aggression, and vulnerability. *Criminology*, *48*(1), 187–220. https://doi.org/10.1111/j.1745-9125.2010.00183.x

Dijkstra, J. K., Cillessen, A. H. N., Lindenberg, S., & Veenstra, R. (2010b). Basking in reflected glory and its limits: Why adolescents hang out with popular peers. *Journal of Research on Adolescence*, *20*(4), 942–958. https://doi.org/10.1111/j.1532-7795.2010.00671.x

Dirghangi, S., Kahn, G., Laursen, B., Brendgen, M., Vitaro, F., Dionne, G., & Boivin, M. (2015). Co-rumination cultivates anxiety: A genetically informed study of friend influence during early adolescence. *Developmental Psychology*, *51*(4), 564–571. https://doi.org/10.1037/a0038848

Dishion, T. J., & Andrews, D. W. (1995). Preventing escalation in problem behaviors with high-risk young adolescents: Immediate and 1-year outcomes. *Journal of Consulting and Clinical Psychology, 63*(4), 538–548. https://doi.org/10.1037/0022-006X.63.4.538

Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm: Peer groups and problem behavior. *American Psychologist*, *54*(9), 755–764. https://doi.org/10.1037/0003-066X.54.9.755

Eisenberg, N., Fabes, R. A., & Spinard, T. L. (2006). Prosocial development. In N. Eisenberg (Vol. Ed) and W. Damon & R. M. Lerner (Series Eds.), *Handbook of Child Psychology: Social, emotional and personality development* (pp. 646-718). Wiley.

Ellis, W. E., & Zarbatany, L. (2007). Peer group status as a moderator of group influence on children's deviant, aggressive, and prosocial behavior. *Child Development*, *78*(4), 1240–1254. https://doi.org/10.1111/j.1467-8624.2007.01063.x

Farmer, T. W., Lines, M. M., & Hamm, J. V. (2011). Revealing the invisible hand: The role of teachers in children's peer experiences. *Journal of Applied Developmental Psychology*, *32*(5), 247–256. https://doi.org/10.1016/j.appdev.2011.04.006

Fortuin, J., van Geel, M., & Vedder, P. (2015). Peer influences on internalizing and externalizing problems among adolescents: A longitudinal social network analysis. *Journal of Youth and Adolescence*, *44*(4), 887–897. https://doi.org/10.1007/s10964-014-0168-x

Foulkes, L., Leung, J. T., Fuhrmann, D., Knoll, L. J., & Blakemore, S.-J. (2018). Age differences in the prosocial influence effect. *Developmental Science, 21*, e12666. http://doi.org/10.1111/desc.12666

Fuligni, A. J., & Eccles, J. S. (1993). Perceived parent-child relationships and early adolescents' orientation toward peers. *Developmental Psychology, 29*(4), 622-632. https://doi.org/10.1037/0012-1649.29.4.622

Fuligni, A. J., Eccles, J. S., Barber, B. L., & Clements, P. (2001). Early adolescent peer orientation and adjustment during high school. *Developmental Psychology, 37*(1), 28-36. https://doi:10.1037/0012-1649.37.1.28

Furman, W., & Robbins, P. (1985). What's the point? Issues in the selection of treatment objectives. In B. H. Schneider, K. H. Rubin, & J. E. Ledingham (Eds.) *Children's peer relations: Issues in assessment and intervention* (pp. 41-56). Springer.

Gibbons, F. X., Gerrard, M., & Lane, D. J. (2003). A social reaction model of adolescent health risk. In J. Suls & K. A. Wallston (Eds.), *Social psychological foundations of health and illness* (pp. 107–136). Oxford.

Gibbons, F. X., Pomery, E. A., & Gerrard, M. (2008). Cognitive social influence: Moderation, mediation, modification, and...The media. In M. J. Prinstein & K. A. Dodge (Eds.), *Understanding peer influence in children and adolescents* (pp. 45–71). The Guilford Press.

Giletta, M., Scholte, R. H. J., Burk, W. J., Engels, R. C. M. E., Larsen, J. K., Prinstein, M. J., & Ciairano, S. (2011). Similarity in depressive symptoms in adolescents' friendship dyads: Selection or socialization? *Developmental Psychology, 47*(6), 1804–1814. https://doi.org/10.1037/a0023872

Gommans, R., Segers, E., Burk, W. J., & Scholte, R. H. J. (2015). The role of perceived popularity on collaborative learning: A dyadic perspective. *Journal of Educational Psychology*, *107*(2), 599–608. https://doi.org/10.1037/a0037851

Gommans, R., Müller, C. M., Stevens, G. W. J. M., Cillessen, A. H. N., & Ter Bogt, T. F. M. (2017). Individual popularity, peer group popularity composition and adolescents' alcohol consumption. *Journal of Youth and Adolescence*, *46*(8), 1716–1726. https://doi.org/10.1007/s10964-016-0611-2

Gremmen, M. C., Dijkstra, J. K., Steglich, C., & Veenstra, R. (2017). First selection, then influence: Developmental differences in friendship dynamics regarding academic achievement. *Developmental Psychology*, *53*(7), 1356-1370. http://dx.doi.org/10.1037/dev0000314

Hafen, C. A., Laursen, B., Burk, W. J., Kerr, M., & Stattin, H. (2011). Homophily in stable and unstable adolescent friendships: Similarity breeds constancy. *Personality and Individual Differences*, *51*(5), 607–612. https://doi.org/10.1016/j.paid.2011.05.027

Harter, S. (1982). The Perceived Competence Scale for Children. *Child Development*, *53*(1), 87–97. https://doi.org/10.2307/1129640

Hartl, A. C., Laursen, B., & Cillessen, A. H. N. (2015). A survival analysis of adolescent friendships: The downside of dissimilarity. *Psychological Science*, *26*(8), 1304–1315. https://doi.org/10.1177/0956797615588751

Hawley, P. H. (2003). Prosocial and coercive configurations of resource control in early adolescence: A case for the well-adapted machiavellian. *Merrill-Palmer Quarterly*, *49*(3), 279–309. https://doi.org/10.1353/mpq.2003.0013

Hodges, E. V. E., Malone, M. J., & Perry, D. G. (1997). Individual risk and social risk as interacting determinants of victimization in the peer group. *Developmental Psychology*, *33*(6), 1032–1039. https://doi.org/10.1037/0012-1649.33.6.1032

Juvonen, J., Kogachi, K., & Graham, S. (2018). When and how do students benefit from ethnic diversity in middle school? *Child Development*, *89*(4), 1268–1282. https://doi.org/10.1111/cdev.12834

Kahn, R. L., & Antonucci, T. C. (1980). Convoys over the life course: Attachment, roles, and social support. In P. B. Baltes & O. Brim (Eds.), *Life-span development and behavior* (Vol. 3, pp. 253–286). Academic Press.

Kenny, D. A. (1995). The effect of nonindependence on significance testing in dyadic research. *Personal Relationships*, *2*(1), 67–75. https://doi.org/10.1111/j.1475-6811.1995.tb00078.x

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. Guilford Press.

Kiuru, N., Burk, W. J., Laursen, B., Nurmi, J.-E., & Salmela-Aro, K. (2012). Is depression contagious? A test of alternative peer socialization mechanisms of depressive symptoms in adolescent peer networks. *Journal of Adolescent Health*, *50*(3), 250–255. https://doi.org/10.1016/j.jadohealth.2011.06.013

La Greca, A. M., & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Child Psychology*, *26*(2), 83–94. https://doi.org/10.1023/A:1022684520514

La Greca, A. M. (1999). The Social Anxiety Scales for Children and Adolescents. *Behavior Therapist*, *22*(7), 133–136.

Ladd, G. W., & Troop-Gordon, W. (2003). The role of chronic peer difficulties in the development of children's psychological adjustment problems. *Child Development, 74*(5), 1344–1367. https://doi.org/10.1111/1467-8624.00611

LaFontana, K. M., & Cillessen, A. H. N. (2010). Developmental changes in the priority of perceived status in childhood and adolescence. *Social Development, 19*(1), 130–147. https://doi.org/10.1111/j.1467-9507.2008.00522.x

Laninga-Wijnen, L., Steglich, C., Harakeh, Z., Vollebergh, W., Veenstra, R., & Dijkstra, J. K. (2020). The role of prosocial and aggressive popularity norm combinations in prosocial and aggressive friendship processes. *Journal of Youth and Adolescence*, *49*, 645-663. https://doi.org/10.1007/s10964-019-01088-x

Laursen, B., & Jensen-Campbell, L. A. (1999). The nature and functions of social exchange in adolescent romantic relationships. In W. Furman, B. B. Brown, & C. Feiring (Eds.), *The development of romantic relationships in adolescence* (pp. 50–74). Cambridge University Press. https://doi.org/10.1017/CBO9781316182185.004

Laursen, B., & Hartup, W. W. (2002). The origins of reciprocity and social exchange in friendships. *New Directions for Child and Adolescent Development, 95*, 27-40. https://doi.org/10.1002/cd.35

Laursen, B., Hafen, C. A., Kerr, M., & Stattin, H. (2012). Friend influence over adolescent problem behaviors as a function of relative peer acceptance: To be liked is to be emulated. *Journal of Abnormal Psychology*, *121*(1), 88–94. https://doi.org/10.1037/a0024707

Laursen, B., & Hartl, A. C. (2013). Understanding loneliness during adolescence: Developmental changes that increase the risk of perceived social isolation. *Journal of Adolescence, 36*(6), 1261-1268. https://doi.org/10.1016/j.adolescence.2013.06.003

Laursen, B., Žukauskienė, R., Raižienė, S., Hiatt, C., & Dickson, D. J. (2015). Perceived parental protectiveness promotes positive friend influence. *Infant and Child Development, 24*(4), 452–468. https://doi.org/10.1002/icd.1885

Laursen, B. (2018). Peer influence. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships and groups* (pp. 447-469). The Guilford Press.

Laursen, B., & Veenstra, R. (2021). Toward understanding the function of peer influence: A summary and synthesis of recent empirical research. *Journal of Research on Adolescence*. https://doi.org/10.1111/jora.12606

Laursen, B., & Faur, S. (in press). What does it mean to be susceptible to influence? A brief primer on peer conformity and developmental changes that affect it. *International Journal of Behavioral Development*.

Leonard, K. E., & Mudar, P. (2004). Husband's influence on wives' drinking: Testing a relationship motivation model in the early years of marriage. *Psychology of Addictive Behaviors*, *18*(4), 340-349. https://doi.org/10.1037/0893-164X.18.4.340

Levitt, M. J., Levitt, J., Bustos, G. L., Crooks, N. A., Santos, J. D., Telan, P., Hodgetts, J., & Milevsky, A. (2005). Patterns of social support in the middle childhood to early adolescent transition: Implications for adjustment. Social Development, *14*(3), 398–420. https://doi.org/10.1111/j.1467-9507.2005.00308.x

Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data.* Wiley.

Loeb, E. L., Davis, A. A., Costello, M. A., & Allen, J. P. (2020). Autonomy and relatedness in early adolescent friendships as predictors of short- and long-term academic success. *Social Development*, *29*(3), 818-836. https://doi.org/10.1111/sode.12424

Logis, H. A., Rodkin, P. C., Gest, S. D., & Ahn, H. J. (2013). Popularity as an organizing factor of preadolescent friendship networks: Beyond prosocial and aggressive behavior. *Journal of Research on Adolescence*, *23*(3), 413–423. https://doi.org/10.1111/jora.12033

Marion, D., Laursen, B., Kiuru, N., Nurmi, J. E., & Salmela-Aro, K. (2014). Maternal affection moderates friend influence on schoolwork engagement. *Developmental Psychology*, *50*(3), 766-771. https://doi.org/10.1037/a0034295

Monahan, K. C., Steinberg, L., & Cauffman, E. (2009). Affiliation with antisocial peers, susceptibility to peer influence, and antisocial behavior during the transition to adults. *Developmental Psychology*, *45*(6), 1520-1530. https://doi.org/10.1037/a0017417

Mooney, K. S., Laursen, B., & Adams, R. E. (2007). Social support and positive development: Looking on the bright side of adolescent close relationships. In R. K. Silbereisen & R. M. Lerner (Eds.), *Approaches to positive youth development* (pp. 189–203). SAGE Publications.

Muthén, L.K., & Muthén, B.O. (1998-2017). Mplus User's Guide. Eighth Edition. Muthén & Muthén.

Muthén, L. K., & Muthén, B. O. (2002). How to use a Monte Carlo study to decide on sample size and determine power. *Structural Equation Modeling*, *9*(4), 599–620. https://doi.org/10.1207/S15328007SEM0904_8

Nangle, D. W., Erdley, C. A., Newman, J. E., Mason, C. A., & Carpenter, E. M. (2003). Popularity, friendship quantity, and friendship quality: Interactive influences on children's loneliness and depression. *Journal of Clinical Child and Adolescent Psychology*, *32*(4), 546–555. https://doi.org/10.1207/S15374424JCCP3204_7

Nijhof, K. S., Scholte, R. H. J., Overbeek, G., & Engels, R. C. M. E. (2010). Friends' and adolescents' delinquency: The moderating role of social status and reciprocity of friendships. *Criminal Justice and Behavior*, *37*(3), 289–305. https://doi.org/10.1177/0093854809355776

Piaget, J. (1970). *Science of education and the psychology of the child*. Orion.

Popp, D., Laursen, B., Kerr, M., Stattin, H., & Burk, W. K. (2008). Modeling homophily over time with an actor-partner interdependence model. *Developmental Psychology*, *44*(4), 1028–1039. https://doi.org/10.1037/0012-1649.44.4.1028

Prinstein, M. J. (2007). Moderators of peer contagion: A longitudinal examination of depression socialization between adolescents and their best friends. *Journal of Clinical Child and Adolescent Psychology*, *36*(2), 159–170. https://doi.org/10.1080/15374410701274934

Prinstein, M. J., Brechwald, W. A., & Cohen, G. L. (2011). Susceptibility to peer influence: Using a performance-based measure to identify adolescent males at heightened risk for deviant peer socialization. *Developmental Psychology*, *47*(4), 1167-1172. https://doi:10.1037/a0023274

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385–401. https://doi.org/10.1177/014662167700100306

Rambaran, J. A., Hopmeyer, A., Schwartz, D., Steglich, C., Badaly, D., & Veenstra, R. (2017). Academic functioning and peer influences: A short-term longitudinal study of network–behavior dynamics in middle adolescence. *Child Development, 88*(2), 523–543. https://doi.org/10.1111/cdev.12611

Rose, A. J. (2002). Co-rumination in the friendships of girls and boys. *Child Development, 73*(6), 1830–1843. https://doi.org/10.1111/1467-8624.00509

Rusbult, C. E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology, 16*(2), 172–186. https://doi.org/10.1016/0022-1031(80)90007-4

Rusbult, C. E., & Buunk, B. P. (1993). Commitment processes in close relationships: An interdependence analysis. *Journal of Social and Personal Relationships, 10*(2), 175–204. https://doi.org/10.1177/026540759301000202

Rusbult, C. E., & Van Lange, P. A. M. (2003). Interdependence, interaction and relationships. *Annual Review of Psychology, 54*, 351–375. https://doi.org/10.1146/annurev.psych.54.101601.145059

Salvy, S. J., Coelho, J. S., Kieffer, E., & Epstein, L. H. (2007). Effects of social contexts on overweight and normal-weight children's food intake. *Physiology and Behavior, 92*(5), 840–846. https://doi.org/10.1016/j.physbeh.2007.06.014

Schwartz-Mette, R. A., & Smith, R. L. (2018). When does co-rumination facilitate depression contagion in adolescent friendships? Investigating intrapersonal and

interpersonal factors. *Journal of Clinical Child and Adolescent Psychology*, *47*(6), 912–924. https://doi.org/10.1080/15374416.2016.1197837

Shin, H., & Ryan, A. M. (2014). Early adolescent friendships and academic adjustment: Examining selection and influence processes with longitudinal social network analysis. *Developmental Psychology*, *50*(11), 2462-2472. http://dx.doi.org/10.1037/a0037922

Sijtsema, J. J., Rambaran, A. J., & Ojanen, T. J. (2013). Overt and relational victimization and adolescent friendships: Selection, de-selection, and social influence. *Social Influence*, *8*, 177-195. https://doi.org/10.1080/15534510.2012.739097

Snijders, T. A. B., van de Bunt, G. G., & Steglich, C. E. G. (2010). Introduction to stochastic actor-based models for network dynamics. *Social Networks, 32*(1), 44–60. https://doi.org/10.1016/j.socnet.2009.02.004

Steinberg, L., & Monahan, K. C. (2007). Age differences in resistance to peer influence. *Developmental Psychology, 43*(6), 1531–1543. https://doi.org/10.1037/0012-1649.43.6.1531

Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. Norton.

van Hoorn, J., van Dijk, E., Meuwese, R., Rieffe, C., & Crone, E. A. (2016). Peer influence on prosocial behavior in adolescence. *Journal of Research on Adolescence*, *26*(1), 90–100. https://doi.org/10.1111/jora.12173

Van Lange, P. A. M., Rusbult, C. E., Drigotas, S. M., Arriaga, X. B., Witcher, B. S., & Cox, C. L. (1997). Willingness to sacrifice in close relationships. *Journal of*

Personality and Social Psychology, *72*(6), 1373–1395. https://doi.org/10.1037/0022-3514.72.6.1373

van Zalk, N., van Zalk, M., Kerr, M., & Stattin, H. (2011). Social anxiety as a basis for friendship selection and socialization in adolescents' social networks. *Journal of Personality*, *79*(3), 499-525. https://doi.org/10.1111/j.1467-6494.2011.00682.x

van Zalk, M. H. W., & van Zalk, N. (2015). Violent peer influence: The roles of self-esteem and psychopathic traits. *Development and Psychopathology*, *27*, 1077-1088. https://doi.org/10.1017/S0954579415000693

Valente, T. W., Unger, J. B., & Johnson, C. A. (2005). Do popular students smoke? The association between popularity and smoking among middle school students. *Journal of Adolescent Health*, *37*(4), 323–329. https://doi.org/10.1016/j.jadohealth.2004.10.016

Vanhalst, J., Luyckx, K., & Goossens, L. (2014). Experiencing loneliness in adolescence: A matter of individual characteristics, negative peer experiences, or both? *Social Development*, *23*(1), 100–118. https://doi.org/10.1111/sode.12019

Veed, G. J., McGinley, M., & Crockett, L. J. (2019). Friendship network influence on the development of internalizing symptoms during adolescence. *Journal of Applied Developmental Psychology*, *60*, 157-165. https://doi.org/10.1016/j.appdev.2018.09.002

Vernberg, E. M., Beery, S. H., Ewell, K. K., & Absender, D. A. (1993). Parents' use of friendship facilitation strategies and the formation of friendships in early adolescence: A prospective study. *Journal of Family Psychology*, *7*(3), 356–369. https://doi.org/10.1037/0893-3200.7.3.356

Verschueren, K., Buyck, P., & Marcoen, A. (2001). Self-representations and socioemotional competence in young children: A 3-year longitudinal study. *Developmental Psychology, 37*(1), 126–134. https://doi.org/10.1037/0012-1649.37.1.126

Wright, A. J., Nichols, T. R., Graber, J. A., Brooks-Gunn, J., & Botvin, G. J. (2004). It's not what you say, it's how many different ways you can say it: Links between divergent peer resistance skills and delinquency a year later. *Journal of Adolescent Health, 35*(5), 380-391. https://doi.org/10.1016/j.jadohealth.2003.12.008

Zhang, F., You, Z., Fan, C., Gao, C., Cohen, R., Hsueh, Y., & Zhou, Z. (2014). Friendship quality, social preference, proximity prestige, and self-perceived social competence: Interactive influences on children's loneliness. *Journal of School Psychology, 52*(5), 511–526. https://doi.org/10.1016/j.jsp.2014.06.001

Zhang, X., Pomerantz, E. M., Qin, L., Logis, H., Ryan, A. M., & Wang, M. (2019). Early adolescent social status and academic engagement: Selection and influence processes in the United States and China. *Journal of Educational Psychology, 111*(7), 1300–1316. https://doi.org/10.1037/edu0000333