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The Role of Gender and Friends' Gender on Peer Socialization of Adolescent Drinking: A Prospective Multilevel Social Network Analysis

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Abstract

Although socializing effects of friends' drinking on adolescent drinking behavior have been firmly established in previous literature, study results on the importance of gender, as well as the specific role that gender may play in peer socialization, are very mixed. Given the increasing importance of gender in friendships (particularly opposite-sex friendships) during adolescence, it is necessary to better understand the nuanced roles that gender can play in peer socialization effects on alcohol use. In addition, previous studies focusing on the interplay between individual gender and friends' gender have been largely dyadic; less is known about potential gendered effects of broader social networks. The current study sought to further investigate potential effects of gender on friends' influence on adolescent drinking behavior with particular emphasis on the number of same-sex and opposite-sex friends within one's friendship network, as well as closeness to these friends. Using Waves I and II of the saturated sample of the National Longitudinal Study of Adolescent Health (Add Health), adolescent friendship networks were used to calculate the mean drinking behaviors of adolescent friends. Multi-level models estimated the effects of individual drinking behaviors, friend drinking behaviors, and school-level drinking behaviors on adolescent drinking 1 year later, as well as moderating effects of gender composition of friendship groups and male and female friend closeness on the relationship between friends' drinking behaviors and adolescent drinking behavior. Results documented that gender composition of friendship groups did not influence the effect of friends' drinking on individual drinking 1 year later. However, closeness to friends did influence this relationship. As closeness to male friends decreased, the influence of

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their drinking behavior increased, for both boys and girls. A similar effect was found for female friends, but only for boys. Female friend closeness did not affect the relationship between peer alcohol socialization and girls' alcohol use. The findings indicate that the role of gender on alcohol socialization may be more complex than previously thought, particularly when examining the potential role that alcohol use may play as a mechanism for social bonding within opposite-sex friendships and same-sex male friendships.

Keywords

Alcohol use; Gender; Peer influence; Social networks

Introduction

Adolescent alcohol use is strongly related to associating with peers who drink (Hawkins et al. 1992; Windle 2000). One mechanism underlying this relationship is peer socialization, such that individuals are socialized to behave more like their peers. In other words, peers may socialize (through encouragement or reinforcement) adolescents to engage in alcohol use. Although previous research has indicated that this process may be important regarding friendship influence on individual alcohol drinking behavior, there is less research regarding ways in which specific characteristics may lead some individuals to be more influenced by these processes compared to others.

One characteristic that has been examined is gender; studies examining the role of gender on socialization processes have yielded mixed results. Some studies have documented that gender does not play a role in the influence of socialization effects on adolescent drinking behavior (e.g., Burk et al. 2012; Jaccard et al. 2005), whereas other studies find that gender may be important (e.g., Dick et al. 2007; Gaughan 2006; Schulenberg et al. 1999). Given these mixed results, it is evident that more research is needed in determining the importance of gender on peer drinking socialization processes. Furthermore, previous researchers have failed to take into account the potential importance of the relationship between individual gender and the gender of friends. Research indicates that male and female friends may have differential influences on individual adolescents regarding alcohol socialization, especially depending on the individual adolescent's gender. Thus, the gender composition of one's friendship network (whether one associates more with same-sex or opposite-sex peers), as well as how close an adolescent is to their same-sex or opposite-sex peers, may moderate socialization processes. The purpose of the current study is to further clarify the role of gender in alcohol socialization processes by taking into account potential gender effects of both the individual and their overall friendship network.

The Influence of Peers on Adolescent Alcohol Use

Affiliating with peers who drink is prospectively related to higher levels of drinking (e.g., Kiuru et al. 2010; Sieving et al. 2000; Simons-Morton 2007). For example, Simons-Morton and Chen (2006) documented that, after accounting for selection factors (such that adolescents who drink will be more likely to choose peers who have similar levels of drinking behavior), socialization effects were still significant in predicting later drinking

behavior. Other studies have indicated that socialization effects are more important than selection effects on adolescent substance use (e.g., Bot et al. 2005; Steglich et al. 2010). There are many processes by which this socialization occurs (see Brechwald and Prinstein 2011, for review). For example, the social development model (e.g., Lonczak et al. 2001) proposes that bonding to individuals who engage in drinking and have positive attitudes towards drinking will increase adolescents' own adherence to these behaviors and attitudes. The effects of socialization also seem to change over adolescence, such that adolescents may be most vulnerable to socialization effects at ages in which identity formation becomes particularly important, such as middle adolescence (e.g., Burk et al. 2012). Larger social contexts like classrooms or schools may also serve as important influences by establishing broader social norms that, in turn, influence the smaller social groups, or may give individuals more availability to form ties with substance-using peers. School-level drinking norms are also documented to have influences on individuals, even when accounting for peer-level drinking (Cleveland and Weibe 2003).

One previous limitation within research on socialization influences is that most research uses reports of target adolescents' perceptions of their friends' drinking behavior. Many studies ask adolescents how much their friends drink (e.g., Dick et al. 2007; Simons-Morton 2007). Such an approach may be biased due to a false consensus effect: respondents misperceive that their friends engage in behaviors or hold attitudes that are more similar to their own. Researchers have documented discrepancies between perceptions of substance use behavior norms and actual levels of substance use within peer environments (Martens et al. 2006). In addition to evaluation of the behavior of general peer populations, the false consensus effect also applies to behavior evaluations of close friends. Prinstein and Wang (2005) documented that adolescents who engage in higher levels of risk behavior tend to overestimate their friends' risk behavior. Therefore, perceptions of friends' behavior may be biased, and may not accurately represent true socialization effects. One strategy to bypass this difficulty is to link adolescents through friendship nominations, allowing for estimation of self-reported behaviors from both the individual and the friends he or she nominates. Some researchers focus on dyadic pairs (e.g., Gaughan 2006; Jaccard et al. 2005). Other researchers utilize social network analysis approaches (see Valente et al. 2004 for a review) to estimate broader friendship networks (e.g., Burk et al. 2012; Cleveland and Weibe 2003; Ennett et al. 2006) within specific, bounded networks (e.g., schools). Peer groups networks can have considerable influence on adolescents, particularly as adolescents can be socially rewarded or punished for conforming to group norms (Balasa et al. 2011), and as adolescents use peers' influence in order to help develop their own burgeoning self-identities. Although peer network influence may dissipate over time, close friends and romantic partners become more influential in later adolescence and young adulthood. These earlier contexts, as well as their influence on individual adolescents, may in turn influence who they choose as close friends or romantic partners (Brechwald and Prinstein 2011). Furthermore, other research indicates that the larger peer network can moderate closer friends' influences on adolescent substance use (Hussong 2002). Therefore, social network analyses can provide both more accurate measurements of peers' alcohol use compared to self reports, and provide unique information beyond best-friend dyads. The following study uses social network analysis techniques to examine the relationship between adolescents and

their ego networks (individuals that adolescents nominate as friends). The use of multi-level modeling also allows for examining contextual effects of school-level drinking. Based on previous results, we predicted (*hypothesis 1*) that the average of friends' (those who adolescents nominate as friends) drinking would have a positive effect on individual adolescent drinking 1 year later.

Gender, Alcohol Consumption, and Socialization

Studies are mixed regarding the importance of gender as a moderator of peer socialization. Whereas some studies indicate that gender has no effect on socialization processes for adolescent alcohol use (e.g., Burk et al. 2012; Jaccard et al. 2005; Light et al. 2013), others have found that gender is a potentially important moderator (e.g., Dick et al. 2007; Gaughan 2006; Schulenberg et al. 1999). Furthermore, studies on broader gender differences in alcohol consumption and norms, as well as gender differences in peer relationship styles, indicate that gender may play an important role in socialization processes.

Most research indicates that boys consume more alcohol than girls. Although this may be in part due to differences in relative size and weight, boys are more at risk for initiating alcohol use and consuming alcohol at greater quantities due to both societal and physiological factors. Schulte et al. (2009) review many of the factors that can promote divergent drinking trajectories due to gender. Alcohol use—even to the point of misuse—is more culturally acceptable (and sometimes more culturally supported) for boys compared to girls, which fosters a more permissive drinking environment for boys. Boys are also typically monitored less by their parents compared to girls, allowing for boys to have more opportunities to engage in deviant behavior. Together, these factors promote a higher-risk drinking trajectory for boys, which may be in part due to socialization through cultural and gender norms. These factors may not only foster higher levels of drinking in boys individually, but also reinforce peer socialization practices. Particularly, same-sex friends of boys may reinforce these ideas of drinking as a masculine trait, which in turn may increase adolescent boys' drinking levels.

However, other studies indicate that girls are more susceptible to alcohol socialization effects compared to boys (e.g., Dick et al. 2007). For example, Simons-Morton et al. (2001) documented that, while problem behavior levels of friends were influential for both boys and girls, perceived pressure to drink influenced individual drinking behavior for girls only. Girls also are susceptible to more general deviant peer influence compared to boys when parental monitoring is low (e.g., Svensson 2003). This gender difference may be influenced by socialization of gender roles; girls are instructed to be more cooperative and compliant compared to boys, which fosters a higher pre-occupation with social approval and abandonment (Rose and Rudolph 2006). In turn, girls may feel more pressure to comply with group norms than boys. Taken together, this literature indicates that, while girls may be less likely to drink (and less likely to have friends that drink), they may be more susceptible to peer alcohol socialization from friends that do drink. Based on these previous studies, we predicted that (*hypothesis 2*) girls would be more susceptible to peer socialization effects compared to boys.

Socialization effects for deviant behavior such as adolescent alcohol use may be especially salient for girls within mixed-sex peer groups. Although girls and boys have mostly same-sex friends in childhood, they start to gain more mixed-sex peer networks throughout adolescence (Poulin and Pedersen 2007). These mixed-sex friendships may be riskier for girls than for boys; research has indicated that girls tend to be influenced more by their male friends than are boys by their female friends regarding behaviors such as antisocial activity and drinking behavior (e.g., Arndorfer and Stormshak 2008; Gaughan 2006). However, findings regarding female friend influence on male adolescents are mixed. Some research indicates boys and girls do not differ in their susceptibility to socialization effects by their opposite-sex peers, such that opposite-sex friends tend to be more influential than same-sex friends regarding alcohol socialization for both boys and girls (Dick et al. 2007). Other studies (e.g., Gaughan 2006) document that boys are not affected by their female friends as much as girls are affected by their male friends. Regardless, evidence is more solid regarding the strong impact of opposite-sex friends on girls' susceptibility to peer alcohol socialization.

In addition, gender differences in alcohol use may influence overall group norms for a friendship group. Having more boys in a friendship group may shift group norms to more endorsement of drinking behavior, while having more girls in a friendship group may reduce group norms that promote drinking behavior. Alternatively, low-drinking boys or high-drinking girls may select friendship groups that match their drinking behavior, leading to a friendship group that has higher proportions of opposite-sex peers. For example, Kiuru et al. (2010) documents that girls in particular select peers based on similarity of drinking behavior. In turn, this group may socialize adolescents through reinforcement of group norms regarding drinking behavior. Taking this together, girls may be more susceptible to alcohol socialization effects compared to boys in general, but girls who have more opposite-sex friends may be particularly susceptible to socialization effects.

However, this effect of opposite-sex friends may not have the same effects for adolescent boys. As the overall peer network can influence and shape dyads within the network (Brechwald and Prinstein 2011), the gender composition of an adolescents' friendship network may in turn influence the specific peer norms and behaviors that are supported within this network, as well as shared/group activities engaged in. Therefore, a peer group that consists of mostly male adolescents may foster higher tolerance and approval norms for drinking alcohol; both girls and boys within these groups may therefore be more inclined to conform to these norms and engage in these shared activities, particularly if the (outnumbered) girls feel more pressure to conform. However, in a peer group that consists mostly of female adolescents, there may either be a lower level of promoting alcohol use as a group norm, or, as female friends may be less influential on boys, boys may not feel as pressured to conform to group norms. Based on this line of reasoning, we predicted that (*hypothesis 3*) the gender composition of friends would moderate peer socialization such that higher proportions of male friends should increase socialization effects for both boys and girls.

Meanings of friendships and attitudes towards mixed-sex and same-sex friendships tend to differ for boys and girls. Girls tend to emphasize more cooperation, dependence, and social

approval within their relationships compared to boys (Rose and Rudolph 2006) making them potentially more susceptible to be influenced by friends. Girls are also more likely to emphasize intimacy and commitment when describing friendships, whereas boys are more likely to emphasize common activities and companionship (McDougall and Hymel 2007). However, these differ as a function of same- or mixed-sex friendship; both boys and girls are more likely to emphasize the importance of shared activities when discussing friendships with boys compared to girls. Girls are also less likely to be concerned with shared intimacy and commitment in friendships with boys than in friendships with girls, whereas boys do not differ in importance of intimacy and commitment for friendships with boys or girls. Furthermore, boys tend to emphasize shared activities as a mechanism through which intimacy is achieved, whereas girls tend to emphasize self-disclosure (McNelles and Connolly 1999). This emphasis on shared activities for friendships with boys, for either gender, may also explain gender differences in socialization effects for deviant behaviors, as both boys and girls may see engaging in shared activities as an important bonding experience with male friends. Alcohol is typically seen as a shared activity that is important for social bonding in adolescence (Kuntsche et al. 2006), especially among males, due to its ties with masculinity and male gender roles (Schulte et al. 2009). Girls may engage in this bonding activity with their male friends in order to form closer bonds as well. For girls who have close male friends, an emphasis on shared activities as a means for forming closer bonds with these friends, as well as girls' higher desire to be socially accepted by these male friends, may lead to higher levels of drinking behavior. Given males' typically higher consumption rates, this may be particularly problematic, especially if girls desire to "keep up" with their male friends. Therefore, the closer adolescents (especially girls) are to their male friends, the more likely they may be to engage in shared mutual activities, even when those activities are risky. Closeness to female friends may not have the same effect. Although alcohol peer influence is seen in female same-sex friendships (e.g., Gaughan 2006), it is possible that the close relationship itself may not influence peer socialization as much, particularly as closeness is related more to sharing and emotional intimacy rather than shared activities. Furthermore, closeness to female friends may impact boys as their friendship may be built more on sharing activities; however, since the influence of opposite-sex friends on boys' alcohol use is reportedly weaker than same-sex friend influence, closeness to female friends may not influence boys as much as closeness to male friends. Therefore, based on previous literature implicating the potential importance of alcohol use to male social bonding, we expected that (*hypothesis 4*) closeness to male friends, but not female friends, may moderate alcohol peer socialization. Furthermore, given the potential differences in susceptibility to peer socialization influences for boys and girls, we expected (*hypothesis 5*) that this interaction may be especially strong for girls compared to boys.

Current Study

Taken together, the above studies indicate that there may be gender differences regarding effects on individual drinking behavior and peer socialization. However, previous studies' reliance on target adolescents' reports of their peers' drinking and failing to attend to the gender of adolescents' friends (or using crude measures of the gender composition of the friendship groups) and specific qualities of these friendships leaves an incomplete picture of

the complex ways in which gender may influence alcohol peer socialization. Girls and boys may differ in their susceptibility to peer effects, but this may not be the only way in which gender influences peer socialization effects. Socialization effects may also be influenced by closeness to male friends and female friends, as well as the overall gender composition of one's friendship group. As the meaning of friendship differs between genders, and the ways in which intimacy and closeness are cultivated in these friendships differ between genders (and between same- and mixed-sex relationships), gender composition and closeness to same-or opposite-sex friends may be important moderators regarding peer socialization. In particular, emphasis on shared activities for creating intimacy with male friends, as well as the potential role of alcohol as a social bonding activity, may indicate that closer male friendships have an important effect on alcohol use socialization. Finally, given the fact that opposite-sex friendships typically start to form in adolescence, these opposite-sex friendships may increase underlying risk for drinking in adolescence for girls.

Based on this previous literature, we examined five hypotheses within this study. First, we expected that the average of friends' (those who adolescents nominate as friends) drinking would have a positive effect on individual adolescent drinking 1 year later (*hypothesis 1*). Second, drawing on the mixed research examining gender as a moderator of alcohol socialization, as well as literature regarding gender differences in alcohol use and peer relationship styles, we expected that girls would be more susceptible to peer socialization effects compared to boys (*hypothesis 2*). Third, we predicted that the gender composition of friends would moderate peer socialization: having a higher proportion of male friends would increase peer socialization effects for both boys and girls (*hypothesis 3*). We also predicted that, based on previous literature implicating the potential importance of alcohol use to male social bonding we expected that (*hypothesis 4*) closeness to male friends, but not female friends, would moderate alcohol peer socialization, such that alcohol peer socialization would be particularly influential for people who reported high closeness to their male friends, but not female friends. Furthermore, given the potential differences in susceptibility to peer socialization influences for boys and girls, we expected (*hypothesis 5*) that this interaction may be especially strong for girls compared to boys. By examining these hypotheses, the current study can contribute to the mixed body of literature on the role of gender in alcohol peer socialization by accounting for multiple facets of gender (gender of individual, gender composition of peer group, and closeness to peers of both genders), as well as extend previous literature by examining the broader peer group context in which overall norms are formed, that in turn influence individual friendship dyads.

Methods

Participants

Participants were from Waves I and II of the saturated school sample of the National Longitudinal Study of Adolescent Health (Add Health). Add Health uses a complex data sampling design, in which a nationally representative sample of students from grades 7–12 from 132 middle and high schools was selected with unequal probability, and stratified by enrollment, region, urbanicity, type of school, and racial/ethnic mix to be representative of U.S. schools (Blum et al. 2000). A representative sub-sample of participants from the initial

school survey was selected for an in-depth, in-home component. Students in grades 7–11 at Wave I in the home survey were followed up approximately 1 year later (Wave II). The present study used participants from the saturated subsample, which interviewed all students within 16 schools, carefully selected for representativeness, in order to obtain complete network information for friendship nominations. The complete first-wave saturated sample (N = 3,702) was used to estimate factor scores, school-level drinking (level-2) means, and friend drinking averages. For the multilevel model analyses, the sample was restricted to students who completed both Wave I and II interviews (full second wave sample N = 2,776). This eliminated all participants who were in 12th grade at Wave I (22 % of Wave I sample). Adolescents who only nominated friends who were not part of the dataset (i.e., friends not enrolled in a sample school) were also removed from the sample as their friends' influence could not be accounted for (14.64 % of remaining sample). Those who were removed from the sample due to nominated friends were more likely to be in a school that had lower mean levels of ever drinking and alcohol consumption, but there were no mean differences on individual alcohol variables. After excluding adolescents who were in grade 12 at Wave 1, and those who nominated only friends who were not part of the dataset, 11.05 % (292) adolescents who were part of the eligible Wave I sample did not complete Wave II. These adolescents reported a higher alcohol consumption rate at Wave I, but no higher rate of ever having had a drink, and were slightly older. There were no other significant differences between groups. There were 2,350 adolescents in the final dataset.

Measures

Alcohol Consumption—An alcohol consumption latent factor score variable was composed of four questions concerning typical drinking frequency and quantity in the past 12 months, and frequency of heavy drinking and drunkenness in the past 12 months. Latent factors using such items have previously been used in other studies (e.g., Agrawal et al. 2011). These questions were measured at both Waves I and II. All questions were asked only if the adolescent reported “yes” to ever having had a drink (either “ever” at Wave I, or in the past 12 months at Wave II). All scales for the four questions were therefore modified to add a separate “never” category. Adolescents who reported “no” to the ever drinking question were subsequently scored as “0” (never) for all four alcohol consumption questions at both waves. Typical frequency of drinking over the past year was measured with the question “During the past 12 months, on how many days did you drink alcohol?”. This variable was scored using a 7-point scale (6 initial points, with an added “never” category) from 0 (*never*), 1 (*1 or 2 days in the past 12 months*), 2 (*once a month or less [3–12 times in the past 12 months]*), 3 (*2 or 3 days a month*) 4 (*1 or 2 days a week*) 5 (*3–5 days a week*) or 6 (*every day or almost every day*). Typical quantity of drinking over the past year was measured with the question “Think of all the times you have had a drink during the past 12 months. How many drinks did you usually have each time? A drink is a glass of wine, a can of beer, a wine cooler, a shot glass of liquor, or a mixed drink.”. The item was originally measured using an open-ended count variable, and was re-coded into a 6-point scale where “0” indicated “never drank”, scores “1” through “4” equaled 1 through four drinks respectively, and “5” equaled five or more drinks. Frequency of heavy drinking was measured with the question “Over the past 12 months, on how many days did you drink five or more drinks in a row?”. The same scale used to measure typical frequency of drinking

was used to measure heavy drinking frequency. Finally, frequency of drunkenness was assessed with the question “Over the past 12 months, on how many days have you gotten drunk or “very, very high” on alcohol?”. The same scale used to measure the frequencies of typical and heavy drinking was used for this question as well. Fit statistics for the latent factor of alcohol consumption indicated good fit (Hu and Bentler 1999): Wave I alcohol consumption latent factor, $\chi^2 (2) = 39.01$, CFI = .997, RMSEA = .07, SRMR = .02, and Wave II alcohol consumption latent factor, $\chi^2 (2) = 25.71$, CFI = .998, RMSEA = .07, SRMR = .02.

Friend Nomination (Number of Friends Nominated)—All participants were asked to nominate up to five male and five female friends (i.e., their ego network), starting with their “best friend” at Wave I. Individuals who reported having a boyfriend or girlfriend were asked to list that individual first (as the first friend nominee), and were specifically coded as such. Respondents who nominated individuals who were not in the sample schools were also specially coded. The social network data within Add Health does not count these individuals, both romantic partners and individuals from other schools, in each participant’s ego network (such individuals do not have a corresponding identification number for the nomination variable, for example, if the first friend nominated was also a romantic partner, this person was coded with a “555555” instead of the corresponding ID number in the dataset). Friendship nominations were used to calculate the outdegree (i.e., how many friends each person nominated).

Average Friends’ Alcohol Use and Average Male and Female Friends’ Alcohol Use—Friends’ alcohol use average was calculated by averaging the self-reported factor score of alcohol consumption for all members of each adolescents’ ego network. For the male and female friend models, alcohol use was calculated by averaging the self-reported factor score of alcohol consumption for all male friends or all female friends in each adolescents’ ego network.

Romantic Partner Status—To account for the removal of the dating partners from ego networks within the Add Health dataset, individuals who reported a dating partner were coded with a “1” (yes partner) while those who did not report a dating partner were coded with a “0” (no partner).

Percent of Opposite-Sex Friends—The proportion of opposite-sex friends was calculated as the number of opposite-sex friends nominated divided by the total number of friends nominated. This estimate was multiplied by 100 in order to express the proportion as a percentage. Although there was some concern that the proportion of opposite-sex friends may not reflect the true number of opposite sex friends if youth nominated 10 friends, given that they were forced to nominate five friends of each gender. However, the number of respondents who nominated 10 friends (0.55 % of sample), or those who nominated 9 friends and a romantic partner (1.26 % of sample) was minimal. These individuals were removed from the analytic sample.

School Average of Drinking Behaviors—The average of reported typical frequency, quantity, and frequency of heavy drinking was calculated for each school at Wave I.

Because all students were assessed at Wave I in each of the saturated schools, the school mean of each of the three drinking behaviors could be accurately represented.

Male and Female Friend Closeness—Respondents reported for each friend if they had met after school to hang out, spent time over the weekend, discussed a problem, or talked on the phone in the past 7 days. The four binary items were summed for each individual friend, and then summed for all male and all female friends separately (male friendship closeness $\alpha = .70$; female friendship closeness $\alpha = .72$). These summed scores (the total reported friend closeness for male friends and female friends) were divided by the number of reported friends (again, separately by gender). Participants who reported they had either no male or female friends were scored with a “0” for their respective male or female friend closeness score.

Race—Race was added as a control variable. There were six categories: (1) white/nonhispanic (58.60 %), (2) black (8.85 %), (3) Latino (7.08 %), (4) Asian American (13.74 %), (5) Native American (1.01 %) and (6) “other” (e.g., biracial) (10.71 %).

Analytic Plan—To assess average drinking behavior of individual friendship groups, we first converted the friendship nomination data into a matrix dataset, and then used the R package *statnet* (Handcock et al. 2003) to assess ego networks. We based networks on self-reported perception of friendship (who each individual nominated) and therefore the ties did not have to be reciprocated (where both the nominee and the nominator mutually report friendship). This was due to findings indicating that even non-reciprocated, perceived friendships can have socializing effects (Bot et al. 2005). Calculating ego network level covariates (e.g., such as how much an individual’s friends drink) were computed by multiplying the original binary social network matrix, A , with the variable of interest, v , to obtain the sum vector Av (note: since A is an $n \times n$ matrix of binary relationships and v is an $n \times 1$ variable vector, Av will be an $n \times 1$ vector of sums).

The latent factor scores and all regression models were estimated using Mplus 7. Type COMPLEX was used to estimate latent factor alcohol consumption scores, to account for clustering and weighting for national representativeness, and type TWOLEVEL COMPLEX RANDOM was used for the regression models to account for the multilevel, clustered, and weighted nature of the data. Robust maximum likelihood (MLR) was used as the estimator to account for missing data. Multilevel regression was used for all models, in which the individual-level variables were nested within the school-level context effect. Due to high skewness of the outcome variable (55 % of the sample obtained the lowest factor score, $-.67$), the outcome was log-transformed to approximate normality. Individual alcohol consumption at Wave I was group-mean centered (Raudenbush and Bryk 2002) to estimate Level-1 (individual) and Level-2 (school mean alcohol consumption) effects simultaneously.

Hypotheses 1–3 were tested using a separate model than hypotheses 4 and 5, as the first three hypotheses focus on the gender composition for the overall social network, and its effects on the overall average friends’ drinking behavior. Hypotheses 4 and 5, which test moderating effects of male or female friends’ closeness, use male and female friends’ average alcohol consumption respectively in order to aid interpretation of results.

Hypotheses 1–3 were tested with a two-step model. The first step examined main effects, including the main effect of overall friends' average alcohol consumption (hypothesis 1). The second step tested a three-way interaction that examined gender differences for the interaction between percentage of opposite-sex peers and friends' alcohol socialization (gender \times percentage of opposite-sex peers \times friends' average drinking). The purpose of this three-way interaction was to test hypothesis 2, as it included a two-way interaction between gender and friends' average drinking behavior, and hypothesis 3, that having a higher proportion of male friends would increase socialization effects for both girls and boys.

Hypotheses 4 and 5 were tested with a three-step model. The first step tested the main effects, including the effects of male and female friends' average alcohol consumption. The second step tested hypotheses 4 and 5 by examining a three-way interaction between gender, male friends' closeness, and male friends' alcohol consumption. This examined if male friend closeness moderated the impact of male friends' alcohol use on individual use, and whether this interaction differed by gender. Finally, the third step tested hypotheses 4 and 5 by examining a three-way interaction between gender, female friends' closeness and female friends' alcohol consumption.

The primary motivation for keeping the smaller models (i.e., estimating the two three-way interactions between friend closeness, friend alcohol consumption, and gender in two separate models) was the introduction of multicollinearity when moving to models with numerous interactions. Covariances were examined in a "full model" that included both three-way interactions, and variance inflation factors were estimated for potential high collinearity. When moving from the reduced model (a model estimating one three-way interaction) to the full model, the average variance inflation factor increased by about a quarter (going from 3.31 to 4.67) and the median variance inflation factor nearly doubled (going from 2.80 to 5.50). Perhaps more problematic is that the full model contained two variance inflation factors greater than 8, and while not more than the conventional cutoff of 10 that indicates "a poor model", multiple predictors with a VIF greater than 8 causes concerns about the fidelity of the final standard errors in the overall regression models. This casts doubt on any of the subsequent significance tests. The doubling of the median VIF supports this conclusion by indicating that there are numerous predictors that are now approaching "problematic VIF" scores.

Finally, the quadratic effect of proportion of opposite-sex friends was tested, in case the effect of proportion of opposite-sex friends was non-linear. For example, the proportion of opposite sex friends may have a threshold effect, such that after a specific percentage of opposite-sex friends (e.g., 60 %) the effect remains the same (such that a proportion of 70 or 80 % opposite-sex friends would have the same effect as a proportion of 60 % opposite-sex friends). The quadratic effect was not significant and therefore was not included in any of the models.

Results

Descriptive Statistics

The overall sample was evenly split by gender, with an overall mean age of 15.79 (SD = 1.37) at Wave I. Means and correlations for all variables by gender are displayed in Table 1. ANOVA tests indicated that there were significant mean differences between genders on almost all drinking variables, such that boys reported higher levels of personal drinking and overall average friend drinking scores and male friend average drinking scores compared to girls. However, girls reported higher female friend average drinking scores compared to boys. Boys and girls also reported being closer to same-sex friends compared to opposite-sex friends, and had similar percentages of opposite-sex peers within their friendship networks (Table 2).

Percentage of Opposite-Sex Peers

Table 3 displays results for the main model predicting the effect of opposite-sex peers on alcohol consumption. Hypothesis 1 was supported, such that there was a positive relationship between friends' average alcohol consumption and individual consumption 1 year later. There were also positive relationships between Wave II alcohol consumption and individual alcohol consumption at Wave I (Level-1), school-mean alcohol consumption (Level 2), closeness with male friends, and the number of friends nominated. Hypothesis 2 was not supported, in that the effect of friends' drinking was not stronger for girls than for boys. Hypothesis 3 was also not supported; the proportion of opposite-sex peers did not significantly moderate the effect of friends' average alcohol consumption on adolescent alcohol consumption, and this interaction did not differ for boys and girls.

Friend Closeness on Alcohol Consumption

Table 4 displays the results for the model predicting the effect of friends' closeness on alcohol consumption. Hypothesis 4 was partially supported. While the interaction between male friend closeness and male friends' alcohol consumption approached significance when the 3-way interaction was included (see Table 4, Model 2), this effect was significant when the 3-way interaction was removed ($b = -0.09, p < .05$). However, this effect was in the opposite direction of what was expected. Figure 1 displays the interaction between male friends' alcohol consumption and male friends' closeness on individual alcohol consumption 1 year later. As seen in Fig. 1, contrary to hypothesis 4, closeness to male friends moderated the effect of male friends' alcohol consumption on individual alcohol consumption 1 year later such that a lower level of closeness seemed to be more influential. While there was a positive relationship between male friend closeness and alcohol consumption, and individuals who reported closer relationships to their male friends also had higher alcohol consumption rates 1 year later, male friends alcohol consumption was more influential if individuals reported lower levels of closeness to these friends. Hypothesis 5 was not supported, as the interaction between male friend alcohol consumption and closeness to male friends was not stronger for girls compared to boys (Table 4, Model 2).

Contrary to hypothesis 4, there was also a significant interaction between female friend closeness and friends' mean alcohol consumption (Table 4, Model 3). This interaction

additionally differed by gender, contrary to hypothesis 5. Figure 2 shows the interaction between female friend closeness and friends' alcohol consumption on adolescent alcohol consumption for boys. For adolescent boys, there was a stronger positive relationship between friends' drinking and individual alcohol consumption when female friend closeness was low. When female friend closeness was high, there was a negative relationship between friends' alcohol use and individual alcohol consumption. Figure 3 shows the interaction between female friend closeness and friends' alcohol consumption on adolescent alcohol consumption for girls. As seen in Fig. 3, female friend closeness did not moderate female friends' alcohol consumption. In addition female friends' alcohol consumption (i.e., the x-axis) seems to have little effect on individual alcohol consumption 1 year later (i.e., the y-axis).

Discussion

The purpose of this study was to examine the nuanced roles that gender can play on the effect of peer socialization on alcohol use, given the mixed results in the extant literature. We also extended the previous literature by examining the broader peer context in which alcohol norms can form, in comparison to most studies that examine gender influences in peer socialization, which typically examine best-friend dyads (e.g., Jaccard et al. 2005; Gaughan 2006). In particular, we were interested in examining if the gender composition of peer groups and closeness to female and male friends would moderate socialization effects, and if moderation would depend on gender. We expected, based on previous empirical studies examining the effects of gender on peer socialization, and theoretical literature highlighting gender differences in styles of friendship, that girls would be more influenced by peer socialization, and that male friends, via density and closeness, would be more influential on promoting or enhancing peer socialization effects. Although there was only minor support for one of the hypotheses (hypothesis 4, that male friend closeness would moderate male friend alcohol consumption, but not in the direction that was hypothesized), results indicated that gender can play an important role in peer alcohol socialization. In addition, results indicated that gender "quantity" (i.e., the number of same-sex or opposite-sex peers with which adolescents are friends) does not seem to be as important as gender "quality" (i.e., overall closeness to male or female friends). Closeness to friends, both male and female, appears to be an important context in which peer socialization can be facilitated.

Socialization and Moderation by Gender

Friends' average alcohol consumption had a positive relationship with individual alcohol consumption 1 year later, supporting hypothesis 1. The finding that friends' overall alcohol consumption is a socializing agent for individual adolescent alcohol consumption is supported by previous studies (e.g., Kiuru et al. 2010; Simons-Morton 2007). However, this relationship was not moderated by gender, as proposed by hypothesis 2. We expected that girls would be more susceptible to socialization influences based on empirical work documenting that alcohol socialization effects girls more than boys (Dick et al. 2007; Simons-Morton et al. 2001), as well as theoretical literature highlighting girls' desire to cooperate and conform, and fear of disapproval due to socialization of gender roles (e.g., Rose and Rudolph 2006). However, other studies have reported that socialization influences

adolescent boys and girls similarly (e.g., Burk et al. 2012; Jaccard et al. 2005; Light et al. 2013). Given that girls tend to select peers who are more similar on their drinking behaviors compared to boys (Kiuru et al. 2010), this higher similarity may minimize girls' desire to conform due to fear of relationship loss. If girls select peers who match their own drinking behavior, there is no need to modify this behavior.

Gender Composition of Friendship Networks

The percentage of opposite-sex peers did not moderate socialization effects on adolescent alcohol consumption. Furthermore, this interaction was not significant for either boys or girls, contrary to hypothesis 3. It was expected that having a higher percentage of male friends in adolescent girls' social networks would increase susceptibility to peer influence, while having a higher percentage of female friends in adolescent boys' social networks would decrease susceptibility. This was based on both research documenting effects of opposite-sex peers on alcohol use (e.g., Dick et al. 2007; Gaughan 2006), as well as research indicating that peer groups have unique peer socialization influences (e.g., Brechwald and Prinstein 2011; Hussong 2002), and girls' higher desire to conform to peers (e.g., Rose and Rudolph 2006; Simons-Morton et al. 2001). Little research has been done on the actual effects of the quantity of same and opposite sex friends. While Dick et al. (2007) documented that associating with more opposite-sex friends may increase susceptibility to peer socialization effects of alcohol use, this study relied on the perception of friends' drinking, and only accounted for the number of friends who drank, rather than the level of consumption. It is possible that gender and friends' gender is more important regarding socialization effects of best friend/ close friend dyads, while gender composition of the group itself is less important (e.g., Gaughan 2006). In addition, a relationship between having more opposite-sex friends and level of drinking behavior may be due to selection, rather than socialization factors. While adolescents are more likely to pick friends who are of the same gender (e.g., homogeneity principle; McPhearson et al. 2001), the importance of gender homogeneity may be less important as adolescents age and mixed-sex friendships become more common. Instead, importance may be placed more on drinking similarity, especially for heavier drinkers (e.g., Knecht et al. 2010).

Male and Female Friend Closeness as a Moderator

We also hypothesized that male closeness, but not female closeness, would moderate the relationship between peer alcohol use and individual use 1 year later, such that higher closeness should increase socialization effects. In addition, we predicted that this interaction would be especially strong for girls compared to boys. Although male closeness did moderate the effect of friends' use on individual use, the moderation was opposite of what was predicted, such that socialization effects were stronger when male friend closeness was *lower*. This interaction was not significantly different between boys and girls. Furthermore, female friend closeness moderated the effect of peer socialization, and this effect was significantly different for boys and girls. Female friend closeness had little impact on the relationship between friend use and individual use for girls. For boys, however, less closeness to female friends was associated with a positive relationship between peer alcohol use and individual alcohol use, while greater closeness to female friends was associated with a negative relationship between peer use and individual use. Although hypotheses 4 and 5

were not supported, these effects indicate that, for girls, male friends may have stronger peer socialization effects on alcohol use compared to female friends.

Even though we expected that closer friends would have a stronger socializing influence on adolescent drinking, there is research indicating that more distant friends may have a stronger socializing influence. For example, Bot et al. (2005) documented that higher-status peers who did not reciprocate friendships had more influence on adolescent drinking behavior. Incidentally, drinking peers tend to be more attractive (i.e., higher-status) friends compared to non-drinkers (Osgood et al. 2013). Thus, adolescents may have a stronger desire to create new bonds with peers who drink more. This desire to become friends with heavier drinking peers may, in turn, influence adolescents to conform to their peers' drinking levels. While this interpretation is speculative, and more research is necessary in order to understand the mechanisms behind this relationship, research focusing on the role of alcohol use as a social bonding behavior, as well as research on authenticity in friendships, may help explain these results. One of the strongest motivations for drinking in adolescence is for social reasons (e.g., social facilitation, conformity, *cama-radarie*), and most adolescents drink in social contexts with other peers (e.g., Kuntsche et al. 2005, 2006). Given that adolescents may want to establish stronger friendships with higher-drinking peers, adolescents may see drinking with these peers as a good opportunity to bond. Furthermore, adolescents may feel more pressured to drink in these weaker relationships; a lack of relationship authenticity (e.g., a lack of accurately representing oneself within a relationship context) may prompt adolescents to feel more pressure to conform to this desired peer's behaviors. Authenticity is a concept primarily seen in research with girls, as it was developed from a feminist psychology perspective (e.g., Impett et al. 2008). Nonetheless, similar relational patterns are seen in research with boys (e.g., Chu 2005). For both boys and girls, a lack of authenticity is related to lower wellbeing and higher feelings of pressure to conform.

Although it was expected that male friend closeness would influence alcohol socialization effects, it was unexpected that, at least for boys, a similar pattern would be found for female friend closeness. If female friends were less close to boys, there was a positive relationship between female friends' average alcohol consumption and boys' alcohol consumption 1 year later. This result supports the idea that opposite-sex friends have similar socializing effects on boys and girls (Dick et al. 2007), at least regarding more distant friends. Additionally, these results support the idea that drinking, particularly for boys, may be used as a shared activity to promote social bonding (e.g., Rose and Rudolph 2006). As boys are more likely to use shared activities to promote closeness, drinking may be a particularly attractive activity for both boys and girls for getting to know male friends to whom they would like to be closer. Boys also may use drinking as a shared activity to get to know female friends better. In addition, boys may feel additional pressure to drink due to gender role norms that relate alcohol use to masculinity (Schulte et al. 2009). This pressure may be exacerbated in weaker friendships, where boys feel pressure to assert masculinity (Chu 2005), especially in friendships with heavier drinking girls, whose behavior may be seen as a challenge to boys' masculinity. In contrast, closer female friends had a *negative* socializing effect on boys' drinking behavior. This effect is more puzzling, given that drinking appeared to be highest

for boys who had close relationships with female friends who had a lower average of alcohol consumption. It is possible that boys may match close female friends' drinking behavior if they mutually drink, while boys may seek other friends to drink with (potentially friends who are not as close) if their close female friends do not drink. Replication of these unanticipated results is clearly needed, and further research is necessary to understand the mechanisms behind this relationship.

Finally, the finding that female friends alcohol consumption, regardless of closeness, did not have a substantial impact on girls' alcohol consumption 1 year later, is consistent with literature on female friendship styles. Girls typically build same-sex relationships through disclosure and sharing intimacy (e.g., Rose and Rudolph 2006). Therefore, in contrast to ways in which girls may build relationships with male friends, drinking may not be seen as a way to build a closer relationship for female friends.

Limitations and Implications

This study has some limitations. Like all studies utilizing social network analyses, due to the bounded nature of the data, ego networks may have been biased (i.e., not complete representations of friendship groups) for some individuals, as some participants nominated peers that fell outside of the bounded network (i.e., the saturated schools). Furthermore, the way in which adolescents were instructed to nominate peers may have biased the networks. By specifically asking for equal amounts (five nominations) of opposite-sex and same-sex peers, adolescents may have felt prompted to nominate a similar number of people of both genders. In fact, adolescents were more likely to nominate the same number of same and opposite-sex peers (17.70 %) than any other gender proportion (e.g., all same sex, two-thirds same sex). Had the adolescents been instructed to simply nominate as many friends as they wanted of either gender (i.e., one list), their ego networks may have been slightly different. However, the potentially biased nature of this data collection was accounted for by assessing the closeness of these relationships, as well as eliminating anyone who potentially had different gender proportions within their peer networks than were indicated in their ego network (the "maxed out" individuals).

As friends' alcohol use was an average score, this may not reflect differing levels of influential dyads within the network. This could be problematic if friends within an adolescents' network substantially differ on their drinking behaviors, and these friends also differ in their influence over the individual adolescent. The male and female friend closeness measures also did not account for more long-term closeness, as closeness was only assessed for the past week. Closeness was also primarily measured by assessing time spent together, and only one question that focused on intimacy (i.e., discussing problems). Including more intimacy or emotional disclosure related items may have produced different results.

Finally, as this study focused specifically on the socialization influences, potential selection effects at Wave I (i.e., effects of selecting the Wave I peers), or potential changes in the ego network in between the two time points, were not taken into account. While some studies have argued that socialization effects are stronger than selection effects (e.g., Bot et al. 2005; Steglich et al. 2010), other studies have documented that selection effects may be more important. For example, Knecht et al. (2010) argued that these differences in study

results may be due to differences in the measurement and methodology of studies. The authors' own study tested both socialization and selection effects on adolescent alcohol use, and documented that while both effects were significant predictors of later adolescent alcohol use, selection effects appeared to be stronger. Furthermore, as peer networks are dynamic constructs that tend to undergo change throughout adolescence, it is possible that adolescents changed the members of their ego networks to those who were more similar in their drinking behaviors, which was not tested in this study.

The findings of this study have implications for future research. In particular, while previous research has focused on socialization influences of close friends, it may be important to examine a variety of dyadic relationships nested within a broader social network, including weaker or unreciprocated friendships. The role of gender in peer socialization could also potentially be better understood by examining drinking motives and contexts. For example, reasons for drinking and motivation to drink may differ based on the social environment (e.g., who an adolescent is with). These differences, in turn, may also depend on gender of the adolescent and their peers within this specific context. Such studies would benefit from a longitudinal perspective, as researchers would be able to examine the dynamic changes within adolescents' social networks, and how these changes may, in turn, influence motives, contexts, and individual drinking behaviors.

This study also has implication for policy and intervention. As closeness seems to be influential for facilitating socialization effects, prevention programs that emphasize ways in which drinking can be replaced by other social bonding activities that can enhance closeness between adolescents may be beneficial. In addition, programs that de-emphasize drinking as a masculine behavior (or way of asserting masculinity) may also allow boys to feel less pressure to conform to either heavier-drinking female friends or to use alcohol as a form of social bonding. Emphasis on fostering friendships, particularly opposite-sex friendships, in healthier (i.e., without alcohol) ways may give adolescents alternatives to more "traditional" ways of building these relationships, even when building friendships with friends who may already be heavier drinkers.

Conclusion

Peer influence is a well documented predictor of adolescent drinking. Due to the importance of peers and the critical role they play in adolescent development, it is well known that peers can have a powerful effect on adolescent risk taking behaviors. However, the importance of gender in these relationships is debatable; research gives mixed results regarding the effects of gender (both individuals' gender and friends' gender) on peer socialization effects. The current findings add to this literature, emphasizing the potential importance of friendship closeness (or lack thereof), and are consistent with previous studies suggesting the importance of opposite-sex friends (e.g., Dick et al. 2007; Gaughan 2006). Gender of the individual may not necessarily influence socialization processes; most findings were similar for boys and girls. However, gender of friends, and by extension, whether these friends are same- or opposite-sex friends, may influence how socialization occurs, especially when other relationship qualities, such as closeness, are accounted for. The ways in which gender may be an important influence on peer socialization are not always directly apparent;

however, this study shows the need for more in-depth understanding regarding the contexts in which adolescents drink, and their motivations for drinking. Although researchers have built a strong body of literature on peer socialization effects on alcohol use, it is evident from our findings that more nuanced details regarding the contexts in which socialization may be impacted (e.g., gender, quality of friendship) are necessary in order to build a sophisticated understanding of these socialization processes.

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Fig. 1. Moderation of closeness to male friends on the relation between friends' average alcohol consumption and individual adolescent alcohol consumption 1 year later

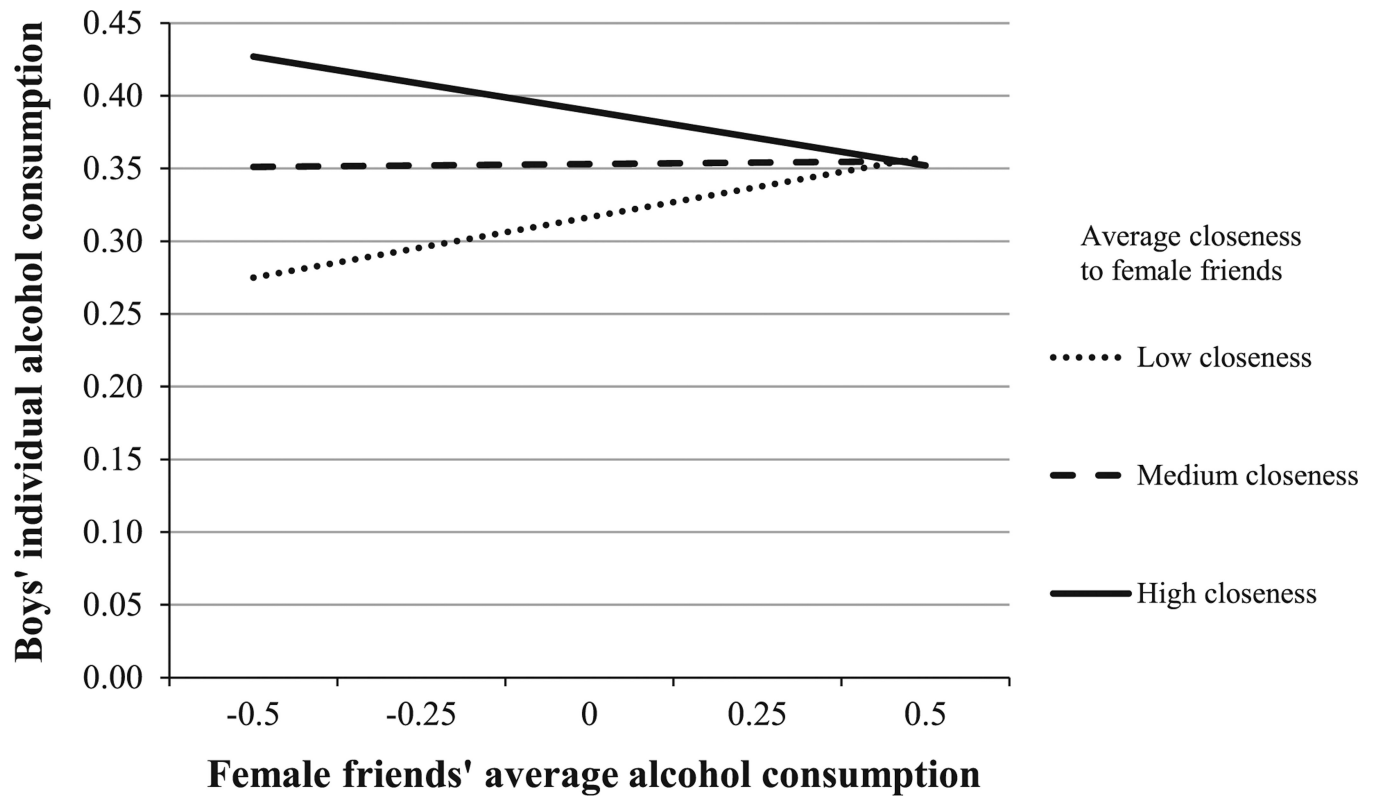


Fig. 2. Moderation of closeness to female friends on the relationship between friends' average alcohol consumption and individual adolescent alcohol consumption 1 year later for boys

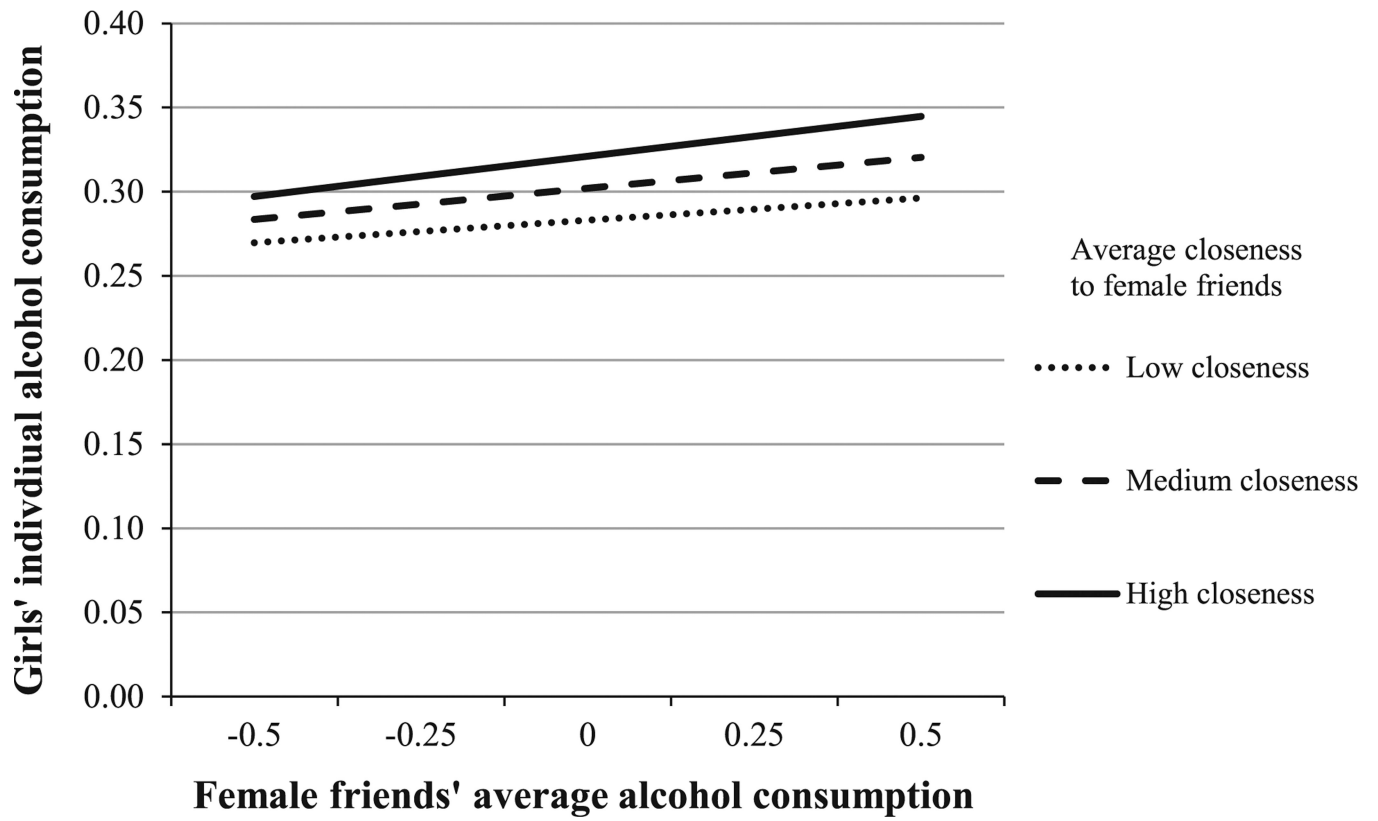


Fig. 3. Moderation of closeness to female friends on the relation between friends' average alcohol consumption and individual adolescent alcohol consumption 1 year later for girls

Table 1

Correlations for all model variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1—Alcohol involvement WI	—	.57**	.31**	.04	.38**	.18**	.38**	-.02	.15**	.13**	.18**	-.01	.05
2—Alcohol involvement WI	.58**	—	.26**	.11**	.33**	.18**	.31**	-.02	.14**	.12**	.13**	-.02	.03
3—School-level alcohol involvement	.29**	.29**	—	.28**	.40**	.28**	.38**	.10**	.20**	.10**	.40**	-.08**	.16**
4—Number of friends nominated	.06*	.08**	.26**	—	.22**	.37**	.18**	.40**	.29**	.04	.03	-.07*	.13**
5—Average of friends' alcohol involvement	.38**	.34**	.38**	.17**	—	.63**	.80**	.16**	.18**	.11**	.19**	-.08**	.08**
6—Average of male friends' alcohol consumption	.37**	.33**	.35**	.21**	.90**	—	.21**	.37**	.38**	.04	.09**	-.11**	.09**
7—Average of female friends' alcohol consumption	.23**	.19**	.30**	.35**	.47**	.28**	—	-.02	.05	.16**	.19**	-.04	.10**
8—Percentage of opposite sex peers	-.01	-.02	-.03	.33**	-.01	-.06*	.35**	—	.45**	-.11**	-.06*	-.09**	.02
9—Male friend closeness	.16**	.14**	.17**	.03	.16**	.22**	.04	-.24**	—	.19**	.07*	-.05	.05
10—Female friend closeness	.11**	.08**	.05	.26**	.03	.02	.37**	.51**	.07*	—	.06*	.01	.03
11—Age	.29**	.27**	.37**	.02	.28**	.26**	.14**	-.05	.15*	.12**	—	.30**	.05
12—Race	-.01	.03	-.18**	-.08**	-.05	-.04	-.07*	-.02	-.03	.01	.25**	—	-.10**
13—Romantic partner status	.10**	.05	.14**	.08**	.10**	.09**	.07*	.01	.06*	-.18**	.13**	-.09**	—

Boys' results are presented on the bottom diagonal, girls' results are presented on the top diagonal

10' > d'
**
'50' > d'
*

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Table 2

Means and standard deviations of all model variables by gender

	Boys	Girls	F
Alcohol involvement WI	.16 (1.08)	-.04 (.86)	24.86**
Alcohol involvement WII	.17 (1.11)	-.10 (.85)	44.05**
School-level alcohol consumption	.13 (.28)	.10 (.29)	10.01**
Number of friends nominated	3.07 (2.36)	3.07 (2.29)	.01
Average of friends' alcohol consumption	.10 (.81)	.01 (.72)	7.89*
Average of male friends' alcohol consumption	.12(.93)	-.06 (.92)	22.07**
Average of female friends' alcohol consumption	-.22 (.67)	-.10 (.69)	18.54**
Percentage of opposite sex peers	30.87 (31.10)	28.53 (28.33)	3.65
Male friend closeness	.53 (.40)	.25 (.32)	325.13**
Female friend closeness	.24 (.30)	.62 (.40)	585.81**
Age	15.84 (1.47)	15.58 (1.49)	17.53**
Race	2.32 (1.74)	2.21 (1.63)	2.38
Romantic partner status	.12 (.33)	.14 (.34)	1.38

Romantic partner status coded as 0 (no romantic partner)/1 (yes romantic partner). Race coded as 1 (White/European American) 2 (Black/ African American) 3 (Hispanic/Latino) 4 (Asian American) 5 (Native American) 6 (other/biracial)

* $p < .05$;

** $p < .01$

Table 3

Multilevel regression model for percentage of opposite-sex peers predicting alcohol consumption 1 year later

Variable	M1	M2
Level 2 (school-level) variables		
School mean alcohol consumption	.47**	.47**
Level 1 (person-level) variables		
Age	.02	.02
Race	.02*	.02
Gender	-.03	.01
Number of friends nominated	.02*	.03*
Percentage of opposite-sex friends	-.01	.01
Romantic relationship status	-.04	-.04
Male friend closeness	.18**	.20**
Female friend closeness	.04	.01
Alcohol consumption (AC) at Wave I	.44**	.44**
Friend average alcohol consumption	.12**	.14**
Gender × friend AC	–	-.04
Gender × % opposite sex friends	–	-.01
% Opposite sex friends × friend AC	–	.01
% Opposite sex friends × friend AC × gender	–	-.01

Gender coded as 0 = boys, 1 = girls. Romantic partner status coded as 0 = no romantic partner, 1 = yes romantic partner. Race coded as 1 = White/European American, 2 = Black/African American, 3 = Hispanic/Latino, 4 = Asian American, 5 = Native American, 6 = other/biracial)

*
 $p < .05$;

**
 $p < .01$

Table 4

Multilevel regression model for male and female friend closeness predicting alcohol consumption 1 year later

Variable	M1	M2	M3
Level 2 (school-level) variables			
School mean alcohol consumption	.65**	.65**	.64**
Level 1 (person-level) variables			
Age	.02*	.02	.02*
Race	.02*	.02	.02*
Gender	-.03	-.03	-.05
Number of friends nominated	.02*	.02	.02
Percentage of opposite-sex friends	-.01	-.01	-.01
Romantic relationship status	-.04	-.04	-.04
Male friend closeness	.17**	.12	.17*
Female friend closeness	.04	.04	.07*
Alcohol consumption (AC) at Wave I	.45**	.45**	.46**
Average AC for male friends	.06 [×]	.12*	.07 [×]
Average AC for female friends	.03	.03	.01
Gender × male friend closeness	–	.13*	–
Male friend closeness × male friend AC	–	-.15 [×]	–
Gender × male friend AC	–	-.09**	–
Male friend closeness × male friend AC × gender	–	.12	–
Gender × female friend closeness	–	–	-.04
Female friend closeness × female friend AC	–	–	-.16*
Gender × female friend AC	–	–	.03
Female friend closeness × female friend AC × gender	–	–	.18**

Gender coded as 0 = boys, 1 = girls. Romantic partner status coded as 0 = no romantic partner, 1 = yes romantic partner. Race coded as 1 = White/European American, 2 = Black/African American, 3 = Hispanic/Latino, 4 = Asian American, 5 = Native American, 6 = other/biracial)

[×] $p < .07$;

* $p < .05$;

** $p < .01$