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Perceptions of alcohol use by friends compared to peers: Associations with middle adolescents' own use

Jonathon J. Beckmeyer, PhD^a and Elizabeth H. Weybright, PhD^b

^aDepartment of Applied Health Science, Indiana University School of Public Health-Bloomington, Bloomington, Indiana, USA

^bDepartment of Human Development, Washington State University, Pullman, Washington, USA

Abstract

Background—In this study, the authors (a) distinguished between adolescents' perceptions of their peers' and friends' alcohol use to examine the unique associations these perceptions have on adolescents' own alcohol use and (b) tested if the ability to resist peer influence moderated those associations.

Methods—Data were from the Study of Early Child Care and Youth Development ($N = 876$, all aged 15). Adolescents reported (a) perceptions of alcohol use by their peers, (b) perceptions of alcohol use by their friends, (c) their own alcohol use in the last year, and (d) a measure of their ability to resist peer influence. Data were analyzed with hierarchical logistic regression (HLR), controlling for demographic variables and parental knowledge.

Results—Three HLR models were computed: 1 for the full sample, 1 for only males, and 1 for only females. In all models, perceptions of alcohol use by friends (odds ratios [ORs]: $OR_{Full} = 10.17$, $OR_{Female} = 15.51$, $OR_{Male} = 7.25$) were associated with a greater likelihood of adolescents using alcohol themselves. Perceptions of alcohol use by peers ($OR_{Full} = 1.13$, $OR_{Female} = 1.11$, $OR_{Male} = 1.14$) were not significantly associated with adolescents' own alcohol use. The ability to resist peer influence did not moderate any of those associations.

Conclusions—It appears that when adolescents perceive more of their friends, but not their peers, consume alcohol, they themselves are at greater risk for alcohol use, and those associations do not depend upon their ability to resist peer influence.

Keywords

Adolescence; alcohol use; peers; friends; social norms

Contact Jonathon J. Beckmeyer, PhD, jbeckmey@indiana.edu, Department of Applied Health Science, Indiana University School of Public Health-Bloomington, School of Public Health Building, Room 144, 1027 E. Seventh Street, Bloomington, IN 47405, USA.

Author contributions: Dr. Beckmeyer designed the study's research questions, developed the literature review, methods, and results, and conducted all statistical analyses. Dr. Weybright developed the discussion and assisted with the literature review. Both authors collaborated in editing and revising the manuscript in its final form.

Introduction

Peers and friends are separate, albeit connected, components of adolescents' social ecologies^{1,2} that influence their alcohol use.^{3,4} Prior research on adolescent alcohol use has not consistently distinguished between or compared the influence of peers and friends. However, doing so may be particularly important when studying adolescents' perceptions of how normal and frequent alcohol use is in their social networks (i.e., descriptive norms) and how perceptions of use are associated with their own use. Specifically, the association between adolescents' descriptive norms and their own alcohol use likely vary depending upon who (e.g., classmates, peers, or friends) is referenced.^{5,6} Relatedly, there have been few attempts to identify individual factors (e.g., one's ability to resist peer influence) that can attenuate the associations between descriptive alcohol norms and adolescents' own alcohol use.^{7,8} Such moderators would provide important targets for alcohol prevention, particularly those that target beliefs about the prevalence of alcohol use in adolescents' social networks.⁹ In this study, we used data on 15-year-old adolescents to (a) compare the associations of perceived alcohol use by friends and peers with self-reported alcohol use, (b) test if resistance to peer influence moderated either association, and (c) examine if results differed between males and females.

Peer and friend influences on alcohol use

Peers and friends are important influences on adolescent alcohol use.^{3,10,11} For example, adolescents are more likely to use alcohol when they perceive that drinking is common among peers and friends and when their friends report drinking.^{12–16} Peers and friends may influence adolescents' alcohol use directly through pressure and suggestion and indirectly by modeling proalcohol attitudes and norms.¹⁷ Descriptive norms in particular are believed to promote adolescents' willingness to use alcohol in order to conform to perceived social expectations to be accepted by peers and friends.^{5,18}

Prior studies have not consistently distinguished between *peers* and *friends*. Rather, they have used the terms interchangeably by combining items measuring peer and friend alcohol use together, and/or focusing on peers or friends but not comparing their differential associations with adolescents' own alcohol use.^{12–14,18,19} Peers represent a broader network of individuals who are in the same developmental stage, whereas friendships are ongoing, mutually recognized, and chosen relationships that feature support, intimacy, shared interests, and spending time together.^{1,2,20} The differentiation between peers and friends occurs during preadolescence when friendships become more intimate.²¹ Friendships are the primary social context, outside of the family, in which adolescents spend their leisure and recreational time; therefore, beliefs regarding friends' alcohol use may have a stronger influence on adolescents' own alcohol use than their perceptions of the alcohol use of peers.^{6,22}

Resistance to peer influence

The ability to resist peer influence may act as a protective factor for adolescents when alcohol use is prevalent among their peers and friends. For example Allen and colleagues⁸ found that susceptibility to peer influence moderated the association between greater drug

and alcohol use by peers and adolescents' own substance use, such that those who were less susceptible to peer influence did not engage in greater substance use when it was common among their peers. The ability to resist peer influence may also ameliorate the associations between perceptions of alcohol use by peers and friends and adolescents' own use by reducing their conformity to perceptions that alcohol use is common and expected by peers and friends. However, it may be easier to resist conforming beliefs about peers than friends, due to adolescents' greater investment in their friendships. Thus, resistance to peer influence may have a stronger moderating effect for perceived peer than friend use.

Current study

In this study, we compared the associations of adolescents' perceptions of alcohol use (i.e., descriptive norms) by their friends (i.e., the kids they hang out with) and peers (i.e., other teens their age) with their own alcohol use. We expected that adolescents' own alcohol use would be more strongly associated with perceptions of friend compared with peer alcohol use. We next tested if resistance to peer influence moderated the associations of either perceived friend or peer alcohol use and adolescents' own alcohol use. We hypothesized that resistance to peer influence would ameliorate (i.e., buffer) the effect of perceiving that alcohol use is common by friends and peers. Lastly, because past research has shown sex differences in drinking patterns,¹⁹ relational socialization,²³ and the ability to resist peer influence,²⁴ we conducted analyses for the whole sample and then separately for males and females to explore sex differences.

Methods

We conducted a secondary analysis of data from the fourth phase of the National Institute of Child Health and Human Development's (NICHD) Study of Early Child Care and Youth Development (SECCYD), a longitudinal panel study of children and their families born in the United States.^{25,26} This research was approved by the Indiana University Institutional Review Board.

Measures

Perceived friend and peer alcohol use—Perceived friend alcohol use was assessed by the item “How many of the kids you hang out with have ever drunk a bottle or glass of beer or other alcohol?” from the Things my Friends Do scale created for the SECCYD. Response categories were none = 0, one or a few of them = 1, or almost all of them = 2. *Perceived peer alcohol use* was assessed by 2 items: “Out of 100 teens your age, how many do you think have tried alcohol?” and “Out of 100 teens your age, how many do you think drink alcohol on a regular basis (every day)?” Adolescents rated each item using a 5-point scale (1 = fewer than 20, 2 = 20-39, 3 = 40-59, 4 = 60-79, and 5 = 80 or more). We created a total perceived peer use score by summing the 2 items where higher scores reflected perceiving alcohol use as more common among peers.

Resistance to peer influence—Resistance to peer influence was assessed using the Resistance to Peer Influence scale²⁴ (RPI; 9 items; $\alpha = .69$). The SECCYD reformatted the RPI so that adolescents rated statements on a 4-point scale (1 = not at all true to 4 = very

true) rather than presenting adolescents with 2 opposing statements and having them choose which was most like them and how much it was like them (see Steinberg and Monahan²⁴ for information on the original format). Resistance to peer influence scores were created by summing across the items, with higher scores reflecting a greater ability to resistance to peer influence.

Past-year alcohol use—Adolescents responded to the item “In the past year how many times have you drunk a bottle or glass of beer or other alcohol?” using a 3-point scale (0 = none, 1 = once or twice, 2 = more than twice). Adolescents who reported that they had not consumed alcohol were assigned a score of 0 and those who reported that they had drunk alcohol once or more were assigned a score of 1.

Control variables—Analyses controlled for demographic, family, and parent-adolescent relationship factors associated with adolescent alcohol use.^{3,27,28} Specifically, analyses controlled for *adolescent sex* (male = 1), *race/ethnicity* (white non-Hispanic = 1, others = 0), *family structure* (living with both biological parents = 1, others = 0), *income-to-needs ratio* (<1 = income is below needs, >1 = income is at or greater than needs), and adolescents' reports of how much their parents' know about their whereabouts, activities, and peers (i.e., *parental knowledge*; 6 items created for the SECCYD; $\alpha = .83$; range: 1-4).

Analysis plan

Due to the dichotomous alcohol use outcome, hierarchical logistic regression (HLR) models were used to determine if perceptions of friend versus peer alcohol use differed in their associations with adolescents' self-reported use and if resistance to peer influence moderated either of those associations. Models were estimated with SPSS version 22 (IBM, Armonk, NY). We first conducted analyses on the full sample. To test for potential sex differences, we then conducted analyses separately for males and females. We chose to run models separately by sex rather than including sex interaction terms for each predictor because a priori hypotheses, derived from prior literature,^{19,23,24} anticipated differences in the models. Additionally, the sample had balanced sex subgroups ($n_{\text{females}} = 436$; $n_{\text{males}} = 440$) with adequate power. The use of multiple interaction terms could have reduced power to detect significant interactions due to predictor variable measurement error (see Aiken and West²⁹). Finally, our approach is more parsimonious. Including sex interaction terms would have led to testing 3-way interactions. To probe those interactions, we would need to examine the 2-way interactions separately by sex (which is also an approach to examining 2-way sex interactions). Therefore, by running models separately by sex, we achieved the same end result as if we had included sex interactions for all predictors.

Each HLR model contained 3 steps: (1) a step containing the control variables, (2) a step that added the perceptions of alcohol use by friends and peers and resistance to peer influence, and (3) a step that added the interaction terms to test the moderating effect of resistance to peer influence. To determine if each step improved the model fit, we compared the differences in the -2 (log likelihood) for step 1 with step 2 (and step 2 vs. 3) using a χ^2 test. A significant difference (using differences in step degrees of freedom) indicated that the inclusion of additional predictor (s) provided a better fit to the data than the previous model.

Results

Of the original 1364 target children enrolled in the study, 954 completed the measure of past year alcohol use at the age 15 assessment, reflecting the potential sample for this study. The sample was further restricted to those with complete data on all study variables, resulting in a final sample of 876 15-year-old adolescents. The sample (see Table 1) was nearly evenly split between males and females. Most adolescents were white non-Hispanic, living with both of their biological parents, and had an income-to-needs ratio of 5.26.

Descriptive and bivariate statistics

Approximately one quarter ($n = 210$) of adolescents had consumed alcohol within the past year. Compared with adolescents who had not used alcohol in the past year, those who had used alcohol perceived drinking as more common among their peers, $M_{\text{Nonuser}} = 5.50$ vs. $M_{\text{User}} = 6.46$, $t = -7.75$, $P < .000$, and friends, $M_{\text{Nonuser}} = .52$ vs. $M_{\text{User}} = 1.43$, $t = -20.27$, $P < .000$, and reported less ability to resist peer influence, $M_{\text{Nonuser}} = 29.09$ vs. $M_{\text{User}} = 27.58$, $t = 5.34$, $P < .000$. This pattern of results was the same for both females and males.

Logistic regression models

Full sample—Compared with when the model only included the control variables, adding the perceptions of friend and peer alcohol use and resistance to peer influence variables significantly improved model fit, $\chi^2(3) = 257.85$, $P < .000$ (see Table 2). Specifically, perceiving that more friends use alcohol was associated with an increased likelihood of having used alcohol in the past year (odds ratio [OR] = 10.17, $P < .000$); however, perceptions of alcohol use by peers was not (OR = 1.13, nonsignificant [ns]). The ability to resist peer influence was associated with a decreased likelihood of having used alcohol in the last year (OR = .93, $P < .05$). The third step, adding interactions between perceived alcohol use of peers/friends and resistance to peer influence, did not significantly improve model fit, $\chi^2(2) = 1.43$, ns. Therefore, the ability to resist peer influence did not moderate the associations between either perceived alcohol use by friends or peers with adolescents' own alcohol use.

Female sample—Similar to the full sample, adding the perceptions of friend and peer alcohol use and resistance to peer influence variables significantly improved model fit, $\chi^2(3) = 157.51$, $P < .000$, for female adolescents (see Table 3). Perceiving more friends use alcohol was associated with an increased likelihood of having used alcohol in the past year (OR = 15.51, $P < .000$); however, perceptions of alcohol use by peers was not (OR = 1.11, ns). Being less susceptible to peer influence was associated with a decreased likelihood of having used alcohol in the past year (OR = .90, $P < .05$). The third step did not significantly improve model fit, $\chi^2(2) = .39$, ns. As with the full sample, the ability to resist peer influence did not moderate the associations between either perceived alcohol use by friends or peers with adolescents' own alcohol use.

Male sample—As in the full and female sample models, adding the perceptions of friend and peer alcohol use and resistance to peer influence variables improved model fit, $\chi^2(3) = 103.45$, $P < .000$ (see Table 4). Similar to female adolescents, perceiving more friends use

alcohol was associated with an increased likelihood of having used alcohol in the past year (OR = 7.25, $P < .000$) but perceptions of alcohol use by peers was not (OR = 1.14, ns). Unlike the female model, the ability to resist peer influence was not associated with past year alcohol use, OR = .96, ns. The third step did not significantly improve model fit, $\chi^2(2) = 5.65$, ns, finding the ability to resist peer influence did not moderate the associations between perceived alcohol use by either friends or peers with adolescents' own alcohol use.

Discussion

By distinguishing between peers and friends we find that adolescents, both males and females, are at greater risk for having used alcohol themselves when they perceive alcohol use is common by friends (i.e., those individuals who they regularly hung out with). However, their alcohol use is unrelated to perceptions of alcohol use by peers (i.e., other teens their age). Perceived alcohol use by friends is more strongly associated with female than male adolescents' own alcohol use (OR about double for females than males), potentially reflecting differences in how males and females are socialized regarding intimate relationships.²³ Lastly, although the ability to resist peer influence is associated with a reduced likelihood of alcohol use in the full and female samples, it is not a significant moderator. Overall, adolescents' alcohol use decision-making appears to be more strongly associated with what they believe their friends are doing rather than what is occurring more broadly among their peers.

Perceptions of alcohol use by others are believed to influence adolescents' own use by conveying a sense that drinking is acceptable and expected, leading to a willingness to drink in order to conform to social expectations.^{5,18} Our results support recent suggestions that these norms are more closely tied to adolescent behavior when they reference individuals who they identify with (e.g., their friendship group) compared with more distal social relationships (e.g., peers).⁶ In the context of our results, we believe this phenomenon may reflect (a) the greater centrality of friendships, (b) adolescents being better able to estimate the behavior of friends compared with peers, and/or (c) friendship homophily.

Adolescents spend much of their free time with and invest significant psychological and emotional resources (e.g., seeking and providing support and disclosing personal information) in friendships.^{1,30,31} These investments may make adolescents susceptible to internalizing proalcohol beliefs, expectancies, and intentions. For example, adolescents are more willing to drink if the offer comes from a best friend compared with a class-mate,⁵ and alcohol use by friends is positively and prospectively associated with alcohol use initiation.^{3,32} Adolescents may also be more accurate estimating friend rather than their peer alcohol use. Although adolescents typically misperceive and overestimate risk-taking by their peers,³³ they may more accurately perceive friends' risk-taking due to firsthand experience. For example, adolescent alcohol use commonly takes place at their friends' homes and at parties they attend with friends.³⁴ If adolescents directly observe their friends' alcohol use, their perceptions may be quite accurate. Therefore, they may be conforming to actual rather than hypothesized behavior by friends, particularly if they believe their friends expect them to engage in the same behavior. However, adolescents in lower-quality friendships may be less accurate when estimating friends' risk-taking.³⁵ Future research should incorporate data

from multiple members of friendship networks to assess the accuracy of perceptions of friends' behaviors.

Finally, homophily³⁶ reflects that adolescents select friends with characteristics (e.g., alcohol use intentions, attitudes, and practices) that are similar to their own.^{14,37,38} Therefore, the observed associations between adolescents' descriptive norms regarding their friends' alcohol use and their own use may reflect a process whereby adolescents with similar patterns of alcohol use form friendships with each other.³⁷ However, additional research using prospective designs has demonstrated friendship socialization effects for adolescent alcohol and tobacco use,^{37–40} suggesting that socialization and selection processes are likely both involved.^{14,32}

Although resistance to peer influence is negatively associated with adolescents' alcohol use in the full sample, when the sample is separated by sex, it is only associated with females' alcohol use. This may reflect that female adolescents are better able to resist peer influence than males.²⁴ Resistance to peer influence does not moderate the associations between perceptions of alcohol use by friends or peers and adolescents' own use. Therefore, other factors outside of the peer and friendship arena (e.g., parental monitoring and disapproval of alcohol⁴¹) may be more appropriate moderators.

The results of this study must be considered in the context of its limitations. First, the study is cross-sectional. Although our assumption is that perceptions lead to alcohol use,⁵ it may be that adolescents who drink experience a false consensus³⁵ (i.e., projecting their own behavior onto their friends). However, we are unable to test for such a pattern with these data. Our measures of adolescents' perceptions of alcohol use by their peers and friends are distinct from measures of friend and peer actual alcohol use; thus, we are unable to determine if adolescents' friends are actually drinking alcohol. Lastly, the study sample is predominately white non-Hispanic, which may limit the generalizability of these findings. Future studies should use longitudinal designs that incorporate data from more diverse samples of adolescents and their friends and peers. Such studies will allow researchers to test the direction of these associations over time, account for individual perceptions and actual use by friends and peers, and examine cultural or developmental differences.

In this study, we found that perceptions of alcohol use by friends rather than peers is associated with both female and male adolescents' own alcohol use and this association does not depend upon their ability to resist peer influence. Future research should continue to distinguish between specific types of social relationships in order to help elucidate how intimate relationships outside of the family are associated with adolescent alcohol use. Although we are unable to determine if perception of friends alcohol use is associated with adolescents' own use via selection or socialization processes, friendship groups may be an important context for alcohol prevention interventions.

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Table 1

Demographic and descriptive statistics.

Variable	Full sample (<i>N</i> = 876) % or <i>M</i> (SD)	Females (<i>n</i> = 436) % or <i>M</i> (SD)	Males (<i>n</i> = 440) % or <i>M</i> (SD)
Male	50.2%		
Race			
White non-Hispanic	77.5%	79.4%	75.7%
African American	11.8%	11.5%	12.0%
Hispanic	5.7%	4.1%	7.3%
Asian	1.3%	1.8%	0.7%
Other	3.8%	3.2%	4.3%
Lives with both biological parents	64.5%	64.7%	64.3%
Income-to-needs ratio	5.26 (5.80)	5.34 (5.49)	5.18 (6.10)
Parental knowledge	2.99 (0.55)	3.03 (0.55)	2.99 (0.54)
Perceived alcohol use by friends	0.74 (0.69)	0.78 (0.69)	0.70 (0.68)
None	40.3%	37.8%	42.7%
One or a few of them	45.8%	46.8%	44.8%
Almost all friends	13.9%	15.4%	12.5%
Perceived alcohol use by peers	5.73 (1.74)	5.99 (1.62)	5.48 (1.81)
Resistance to peer influence	28.72 (3.63)	29.54 (3.36)	27.91 (3.71)
Used alcohol in last year	24.0%	25.7%	22.3%

Table 2

Logistic regression model for the full sample ($N = 876$).

Variable	Step 1			Step 2		
	<i>b</i> (SE)	OR	95% CI	<i>b</i> (SE)	OR	95% CI
Male	−0.29 (0.17)	0.74	0.53–1.04	−0.23 (0.21)	0.80	0.53–1.21
White non-Hispanic	0.15 (0.17)	1.17	0.78–1.74	0.09 (0.25)	1.09	0.67–1.79
Living with both biological parents	−0.76 (0.18)	0.47***	0.33–0.66	−0.51 (0.21)	0.60*	0.40–0.90
Income-to-needs ratio	0.03 (0.01)	1.03*	1.01–1.06	0.04 (0.02)	1.04**	1.01–1.08
Parental knowledge	−1.03 (0.16)	0.36	0.26–0.48	−0.30 (0.20)	0.79	0.50–1.09
Perceived alcohol use—friends				2.32 (0.20)	10.17	6.85–15.12
Perceived alcohol use—peers				0.12 (0.07)	1.13	1.00–1.28
Resistance to peer influence				0.07 (0.03)	0.93*	0.88–0.99
χ^2 (df) step	74.22(5)***		257.85(3)***			
χ^2 (df) model	74.22(5)***		332.08(8)***			

Note. OR = odds ratio; CI = confidence interval. Step 3 was not significant and therefore not included in the table.

* $P < .05$

** $P < .01$

*** $P < .000$.

Table 3 Logistic regression model for female adolescents ($n = 436$).

Variable	Step 1			Step 2		
	<i>b</i> (SE)	OR	95% CI	<i>b</i> (SE)	OR	95% CI
White non-Hispanic	0.44 (0.31)	1.55	0.85–2.82	0.29 (0.41)	1.53	0.69–3.39
Living with both biological parents	–1.01 (0.25)	0.36***	0.23–0.59	–0.76 (0.32)	0.47*	0.25–0.86
Income-to-needs ratio	0.01 (0.02)	1.01	0.97–1.06	0.04 (0.03)	1.04	0.99–1.09
Parental knowledge	–1.03 (0.21)	0.36***	0.24–0.54	–0.24 (0.29)	0.79	0.45–1.39
Perceived alcohol use—friends				2.74 (0.32)	15.51***	8.21–29.29
Perceived alcohol use—peers				–0.11 (0.10)	1.11	0.92–1.36
Resistance to peer influence				–0.11 (0.05)	0.90*	0.82–0.98
χ^2 (df) step	45.26(4)***		157.51(3)***			
χ^2 (df) model	45.26(4)***		202.77(7)***			

Note. OR = odds ratio; CI = confidence interval. Step 3 was not significant and therefore not included in the table.

* $P < .05$ ** $P < .01$ *** $P < .000$.

Table 4 Logistic regression model for male adolescents ($n = 440$).

Variable	Step 1			Step 2		
	<i>b</i> (SE)	OR	95% CI	<i>b</i> (SE)	OR	95% CI
White non-Hispanic	−0.06 (0.28)	0.95	0.55–1.63	−0.17 (0.33)	0.85	0.44–1.61
Living with both biological parents	−0.48 (0.25)	0.62	0.38–1.01	−0.25 (0.29)	0.78	0.44–1.39
Income-to-needs ratio	0.04 (0.02)	1.04	1.01–1.08	0.04 (0.02)	1.05	1.10–1.09
Parental knowledge	−1.03 (0.23)	0.36***	0.23–0.56	−0.34 (0.28)	0.71	0.41–1.23
Perceived alcohol use—friends				1.98 (0.26)	7.25	4.32–12.16
Perceived alcohol use—peers				0.14 (0.09)	1.14	0.97–1.35
Resistance to peer influence				−0.04 (0.04)	0.96	0.89–1.04
χ^2 (df) step		32.32(4)***			103.45(3)***	
χ^2 (df) model		32.32(4)***			135.77(7)***	

Note. OR = odds ratio; CI = confidence interval. Step 3 was not significant and therefore not included in the table.

* $P < .05$ ** $P < .01$ *** $P < .000$.