

Willingness to Drink as a Function of Peer Offers and Peer Norms in Early Adolescence

KRISTINA M. JACKSON, PH.D.,^{a,*} MEGAN E. ROBERTS, PH.D.,^a SUZANNE M. COLBY, PH.D.,^a
NANCY P. BARNETT, PH.D.,^a CAITLIN C. ABAR, PH.D.,^a AND JENNIFER E. MERRILL, PH.D.^a

^aCenter for Alcohol and Addiction Studies, Brown University, Providence, Rhode Island

ABSTRACT. Objective: The goal of this study was to explore the effect of subjective peer norms on adolescents' willingness to drink and whether this association was moderated by sensitivity to peer approval, prior alcohol use, and gender. **Method:** The sample was 1,023 middle-school students (52% female; 76% White; 12% Hispanic; $M_{\text{age}} = 12.22$ years) enrolled in a prospective study of drinking initiation and progression. Using web-based surveys, participants reported on their willingness to drink alcohol if offered by (a) a best friend or (b) a classmate, peer norms for two referent groups (close friends and classmates), history of sipping or consuming a full drink of alcohol, and sensitivity to peer approval (extreme peer orientation). Items were re-assessed at two follow-ups (administered 6 months apart). **Results:** Multilevel models revealed

that measures of peer norms were significantly associated with both willingness outcomes, with the greatest prediction by descriptive norms. The association between norms and willingness was magnified for girls, those with limited prior experience with alcohol, and youths with low sensitivity to peer approval. **Conclusions:** Social norms appear to play a key role in substance use decisions and are relevant when considering more reactive behaviors that reflect willingness to drink under conducive circumstances. Prevention programs might target individuals with higher willingness, particularly girls who perceive others to be drinking and youths who have not yet sipped alcohol but report a higher perceived prevalence of alcohol consumption among both friends and peers. (*J. Stud. Alcohol Drugs*, 75, 404–414, 2014)

Experimentation with alcohol begins as young as age 9, followed by sharp increases in the prevalence and extent of use (Donovan, 2007; Donovan and Molina, 2011). By eighth grade, nearly one third of U.S. adolescents have consumed more than a few sips of alcohol, and more than one seventh report being drunk at least once (Johnston et al., 2013). The dangers of early alcohol use are both numerous and serious and include increased likelihood of accidents, academic problems, and risky sexual behavior (Boden and Fergusson, 2011; Windle et al., 2008). There is also evidence of long-term consequences, such as a greater risk of problematic use in adulthood and impaired neural development (Zeigler et al., 2005).

Unplanned decision making and willingness

Younger adolescents often make judgments and decisions about engaging in risk behaviors (e.g., drinking) that are inconsistent with their previously reported plans and intentions; instead, it appears that risk-conducive circumstances activate young adolescents' heuristic processing and promote a "hot" experiential mode of thinking (Albert and Steinberg, 2011). This reactive decision making is made explicit in the dual-pathway Prototype-Willingness model (P/W model;

Gibbons et al., 2003). In this model, the reasoned action pathway specifies how prior contemplation engenders behavioral intentions, which, in turn, directly influence behaviors. This pathway adheres to traditional expectancy-value models (e.g., Fishbein and Ajzen, 1975) and is meant to explain behavior that is planned and intentional. In contrast, the social reaction pathway describes unintentional behaviors (i.e., behaviors that occur volitionally but without prior planning or consideration). This latter pathway predicts more reactive behaviors, which are reflective of a person's willingness to engage in a particular behavior under conducive circumstances. Measures of behavioral willingness are designed to assess an individual's curiosity about, or openness to, engaging in a behavior, without any stipulation that intentions have been formed (Gerrard et al., 2008).

Willingness to drink may indicate where an adolescent falls in the process of converting from nondrinker to drinker. Adolescent alcohol involvement tends to have relatively slow progression, with transitions from initiation to regular drinking spanning several years, on average (Jackson, 2010; Ride-nour et al., 2006). Investigating the cognitions and behaviors that cover the range of early drinking-related experiences is critical for understanding the process at work in order to intervene during this protracted period of experimentation. The concept of willingness is similar to other early indicators of substance use uptake, such as alcohol expectancies (Goldman et al., 1999; Jones et al., 2001), implicit cognitions (Thush et al. 2007; Wiers et al., 2007), and smoking susceptibility (Choi et al., 2001; Pierce et al., 1996). Willingness, however, is arguably a more precise measure of uptake than measures of expectancies and susceptibility.

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*Correspondence may be sent to Kristina M. Jackson at the Center for Alcohol and Addiction Studies, Brown University, Box G-S121-4, Providence, RI 02912, or via email at: kristina_jackson@brown.edu.

Behavioral willingness is a strong predictor of future alcohol use in adolescent and preadolescent samples, perhaps even stronger than behavioral intentions (Andrews et al., 2008; 2011; Gerrard et al., 2006). Willingness is, thus, a vital factor to consider when examining young people's alcohol-related experiences. However, questions remain about how individual differences in willingness develop—a crucial issue for determining the most effective ways to intervene in order to reduce alcohol use. Understanding how willingness develops requires an examination of its cognitive antecedents, including perceived social norms.

Social normative influences

Adolescence is characterized by an increase in time spent with peers, along with greater need for peer approval and susceptibility to conform to social norms (Steinberg, 2008). One of the strongest risk factors for adolescent alcohol use is perceived peer approval of alcohol (injunctive norms) and perceived peer alcohol use (descriptive norms; D'Amico and McCarthy, 2006; Kelly et al., 2012; Trucco et al., 2011). Peer norms provide indirect information about what drinking behaviors are appropriate and respected and, accordingly, what behaviors will likely lead to social acceptance (Borsari and Carey, 2001).

Emerging literature provides evidence that social images and norms about drinking shape adolescents' willingness to drink alcohol (Gibbons et al., 2004; Litt et al., 2012; Teunissen et al., 2012). In addition, experimentally manipulated norms about drinking are shown to predict willingness to use alcohol (Litt and Stock, 2011). Consistent with the P/W model, descriptive norms influence actual drinking behavior through the social reaction pathway and, in particular, through willingness (Andrews et al., 2008, 2011). Of note, although norms theory suggests that salient injunctive norms may have a greater impact on behavior than descriptive norms (Cialdini et al., 1990), there is to our knowledge no research on injunctive norms as a predictor of willingness to drink.

Not only is the type of norms (descriptive vs. injunctive) important, but the influence of norms on drinking cognitions and behavior also appears to vary by normative referent (Johnston and White, 2003; Neighbors et al., 2010; Reed et al., 2007). This is consistent with social identity theory (Terry and Hogg, 1996) and reference group theory (Hyman and Singer, 1968), both of which posit that proximal peers (ingroup) are more likely to be a significant reference group than more distal groups (outgroup) and hence will more strongly influence attitudes and behaviors because of greater value placed on the ingroup. Indeed, for both injunctive and descriptive norms, literature supports a stronger prediction by close friends' norms compared with the norms of more distal peer groups (Cho, 2006; Park et al., 2009; Urberg et al., 1997; Yanovitzky et al., 2006). However, findings are

suggestive that the relative influence of descriptive versus injunctive norms may vary as a function of referent (Neighbors et al., 2008; Phua, 2013). Whereas the behavior of others (descriptive norms) is directly observable, especially for proximal referents, the values and approval (injunctive norms) are less apparent for those with whom one does not closely interact. Thus, the association between perceptions of others' approval and one's own alcohol involvement (and willingness to drink) may depend on how "others" is defined (Neighbors et al., 2008).

Social norm prevention approaches aimed at reducing drinking have primarily targeted descriptive norms by altering exaggerated perceptions of the prevalence of consumption and have generally demonstrated significant reductions in alcohol use. As Neighbors et al. (2008) note, interventions that attempt to change injunctive norms have yet to show similar effectiveness, suggesting the need to better understand the role of injunctive norms in the process of becoming a drinker. Such understanding can inform decisions about whether additional efforts to target injunctive norms in the context of intervention will prove fruitful among adolescents. In addition, knowing which normative referent influences one's willingness to drink can provide information about which particular referent groups to consider when targeting normative misperceptions in the context of interventions. The present study examines how the norms of two social referents (friends and classmates) differentially influence willingness to drink alcohol during early adolescence, with consideration of the relative influence of injunctive and descriptive norms. Based on theory (Cialdini et al., 1990) and prior research (e.g., Neighbors et al., 2008; Phua, 2013), we expected normative influences of proximal referents to exert greater influence on behavior than distal referents, with greater prediction by injunctive norms than descriptive norms.

Moderating factors

Prior literature indicates that there is a subset of individuals for whom subjective norms play a more important role in the formation of alcohol-related intentions (e.g., Latimer and Martin, 2005). Beyond examining associations across referent and type of norms, we sought to determine whether there are important subgroup differences in the extent to which individuals use normative information in their judgment making. We examined three factors as potential moderators: sensitivity to peer approval, prior experience with alcohol, and gender.

Sensitivity to peer approval. When examining the impact of normative information on behavior, one contributing factor might be sensitivity to peer approval. Youths who feel the need to belong to a group may be more sensitive to group drinking norms (real or perceived) and thus may be more likely to conform to those norms (Litt et al., 2012). Sensi-

tivity to peer approval is associated with problem behavior, including drinking and other drug use (Bogenschneider et al., 1998; Fuligni et al., 2001), and there is evidence that adolescents are more willing to drink when they want to prevent negative evaluations by peers (Schroeder and Prentice, 1998). This may be particularly true when they perceive their peers to be drinking (i.e., greatest willingness in youths with high perceived norms and high sensitivity).

Litt et al. (2012) examined whether desire for social acceptance moderated the relation between descriptive best friend norms and risk cognitions. This association was magnified for those high in need to belong, who may be particularly influenced by images of peers who engage in a behavior, normative behaviors of their peers, and social consequences of engaging in the behavior. Although Litt et al. examined moderation of descriptive best friend norms using a college sample, no research has examined whether these findings can be replicated in a younger sample. The present study examines the degree to which the association between norms and willingness is elevated among youths with greater need for peer approval using a measure of "extreme peer orientation," a tendency to make sacrifices in order to be popular and have friends. We expected that this individual difference variable would be a significant moderator for both descriptive and injunctive norms; however, we did not make any hypotheses about differences among referent groups.

Drinking experience. Normative influences may be stronger for alcohol-naïve youths, given evidence that higher perceptions of peer drinking are more predictive of initiation than continued drinking in those with drinking experience (Spijkerman et al., 2007) and that the relative predictive abilities of willingness versus intention vary according to age and drinking experience (Gerrard et al., 2008). Pomeroy and colleagues (2009) found willingness to be a better predictor of substance use during early adolescence when youths are more alcohol naïve, but intention was a better predictor by mid-adolescence. The present study examined the role of prior alcohol use in the association between norms and willingness, with the expectation that the association is stronger among alcohol-naïve youths. We explored both sip and full drink, as sipping may be an important early indicator of drinking risk in its own right (Donovan and Molina, 2008).

Gender. The socialization literature suggests that females attribute greater importance to peer group membership than do males (Rose and Rudolph, 2006). Yet, in college students at least, peer influence seems to be especially important for males, with drinking a greater part of the male identity (Prentice and Miller, 1993). Studies examining the degree to which gender moderates the strength of peer socialization processes in drinking are conflicting (Andrews et al., 2011; Elek et al., 2006; Kiuru et al., 2010; LaBrie et al., 2008), which may be in part because females are more likely to conform to the behavior of their close friends, whereas males

are more likely to conform to the larger peer group (Giletta et al., 2012; Steinberg and Monahan, 2007). This points again to the importance of the peer referent group.

Overview

The goal of this study was to gain a better understanding of the role of subjective norms on willingness to drink alcohol if offered by a best friend or a classmate and gain insight into which individuals are most likely to show this association. Norms were examined for two referent groups (close friend, same gender/grade peers), and both injunctive and descriptive norms of close friends were explored. We expected to observe specificity in associations such that norms surrounding close friend alcohol use were more strongly predictive of willingness for best-friend offers and norms surrounding classmate alcohol involvement more strongly predictive for classmate offers.

Method

Participants

The sample was 1,023 students in six Rhode Island middle schools invited to participate in a 3-year study on alcohol initiation and progression. Students were from a mix of rural ($n = 231$), suburban ($n = 508$), and urban ($n = 284$) schools. Participants were equally divided across grade (33%, 32%, and 35% in sixth, seventh, and eighth grades, respectively), with mean age of 12.22 years ($SD = 0.98$, range: 10–15). The majority (75.6%) were White, 4.7% were African American, 7.9% were mixed race/ethnicity, and 11.8% were other race/ethnicity; 12.2% self-identified as Hispanic, and 52.2% were female. The Brown University Institutional Review Board approved all project procedures.

Procedure

On enrollment, participants completed a 2-hour in-person group orientation session held in a classroom after school. This session included the baseline survey (Wave 1 [W1]), completed on laptops provided by study staff. Participants also completed 45-minute semiannual follow-up web surveys. An emphasis was placed on confidentiality and privacy. Students were compensated with a \$20 gift card for each follow-up survey completed and \$25 for the orientation session.

Data from baseline and the first two follow-ups (at 6 months and 12 months) are included here. Retention rates were high (92% at W2, 88% at W3). Using multivariate logistic regression, we examined correlates of 12-month attrition. Those who failed to complete the W3 survey were more likely to be male (odds ratio [OR] = 1.81, $p = .005$), be non-White (OR = 2.13, $p < .001$), and have higher injunc-

tive norms ($OR = 1.43, p = .01$); however, they did not differ from those retained on age, baseline alcohol use, likelihood of accepting alcohol offers, descriptive norms, or extreme peer orientation.

Measures

Willingness-to-drink items were adapted from smoking items from the University of Missouri–St. Louis (2013). Two items assessed willingness-to-drink offers by best friend and by classmate (“If your best friend/classmate offered you an alcoholic beverage, would you drink it?”). Response options were 0 (*definitely not*), 1 (*probably not*), 2 (*probably yes*), and 3 (*definitely yes*). The last two categories were combined because of low endorsement of the latter.

Peer norms were gathered for two referent groups: close friends and classmates. Items were adapted from Wood et al. (2004). For injunctive norms, a mean was taken across two items (“How do most of your close friends feel about kids your age drinking alcohol/getting drunk?”), with response options from *strongly disapprove* to *strongly approve* ($r = .83$). Descriptive norms of close friends were assessed with the item, “When your close friends drink, how much on average does each person drink at a sitting?” Response options ranged from 0 (*they don’t drink*) to 4 (*more than three drinks*), but because of a highly skewed distribution, descriptive norms was coded into a binary item reflecting any drinking. Descriptive norms for classmate alcohol use assessed perceptions about what is normative for others of their grade level and gender: “During the school year, how often do you think that the typical {grade/gender} drinks alcohol?” with response options ranging from 0 (*typical student doesn’t drink during school year*) to 9 (*twice a day or more*). To make this variable parallel to the above descriptive norm item, it was coded as binary.

Four items assessed “extreme peer orientation,” willingness to sacrifice talents, school performance, and parents’ rules in order to have friends (Fulgini and Eccles, 1993): “How much does the amount of time you spend with your

friends keep you away from doing the things you ought to do?”; “Would you act dumber or less talented than you really are in order to make someone like you?”; “It’s okay to let your homework slip or get a lower grade in order to be popular with your friend?”; and “It’s okay to break some of your parents’ rules in order to keep your friends.” Items were on a 7-point scale (endpoints varied); at W1, W2, and W3, $\alpha = .70, \alpha = .77$, and $\alpha = .74$, respectively. A mean was taken across items; as the variable was relatively stable over time (r s from .40 to .50), a mean of scores across all time points was treated as a time-invariant covariate ($M = 2.08, SD = 0.89$).

Drinking behavior was measured by asking participants whether they had ever had a sip or a full drink of alcohol, not including consumption as part of a religious service. Analyses were conducted separately for sip (vs. other) and full drink (vs. other). W1 lifetime prevalence of sipping was 41.9%, and consuming a full drink was 7.7%.

Analytic procedure

Because data were cohort sequential and prospective, we created a person-period data set, in which each person contributed three waves of data (Singer and Willett, 2003). The time variable was age in half-years, as follow-ups were collected on a semiannual basis. We dropped 48 assessments (<2% of 2,861 assessments) corresponding to age 10.5 years and age 16 years, which had few observations and resulted in convergence problems. Thus, the values of (half) age ranged from age 11 to age 15.5.

We used multilevel modeling (Raudenbush and Bryk, 2002; Snijders and Bosker, 1999) to test the prediction of willingness from social norms. These models allow for varying numbers of observations and missing observations. Norms was modeled as a within-person (Level 1) effect, using grand-mean centering; gender, baseline drinking, and extreme peer orientation were treated as fixed between-person (Level 2) variables. Baseline age in half-years (time) was controlled in all analyses. Moderation was tested by

TABLE 1. Descriptive statistics on willingness and norm variables at Waves 1, 2, and 3

Variable	Wave 1	Wave 2	Wave 3
Willingness to drink if offered by a best friend			
Definitely not	76.7%	75.9%	71.6%
Probably not	16.3%	14.0%	17.4%
Probably yes/definitely yes	7.0%	10.0%	11.0%
Willingness to drink if offered by a classmate			
Definitely not	85.2%	83.6%	80.6%
Probably not	11.5%	10.5%	13.6%
Probably yes/definitely yes	3.2%	6.0%	5.8%
Injunctive norms for close friend ^a , $M (SD)$	0.57 (0.81)	0.50 (0.79)	0.57 (0.85)
Descriptive norms, close friend (% who drink)	6.9%	7.9%	9.2%
Descriptive norms, typical peer ^b (% who drink)	30.0%	25.8%	36.2%

Notes: Wave 1 N ranges from 1,016 to 1,023; Wave 2 n ranges from 923 to 929; Wave 3 n ranges from 882 to 887. ^aResponse options ranged from 0 (*strongly disapprove*) to 4 (*strongly approve*); ^bthe item was programmed so respondents were presented with a reference to their own gender and grade (e.g., “typical seventh-grade boy”).

TABLE 2. Descriptive statistics and within-subjects correlations among willingness to drink (if offered a drink by best friend or classmate) injunctive norms, and descriptive norms (for friends and classmates) across person-period data

Variable	Injunctive norms–close friends	Descriptive norms–close friends	Descriptive norms–classmate	Willingness–best friend	M (SD) or proportion
Injunctive norms–close friends					0.55 (0.82)
Descriptive norms–close friends (% drink)	.48				7.8%
Descriptive norms–classmate (% drink)	.28	.29			30.7%
Willingness to drink–best friend	.54	.44	.26		0.34 (0.64)
Willingness to drink–classmate	.48	.39	.22	.79	0.22 (0.52)

Notes: *n* = 2,765–2,778. All correlations are significant at *p* < .001.

forming cross-level interaction terms between the putative moderators and norms and entering these terms into the model (along with the main effects); interactions were probed using recommended graphical and computational techniques (Bauer and Curran, 2005; Preacher et al., 2006). Willingness was modeled as ordinal (0-1-2) using a logit link for the cumulative probabilities that employ penalized quasi-likelihood estimation. Because ordinal models predict the odds for being at or below a cut point, coefficients are typically opposite in sign from typical regression models. We took the inverse of the OR to make findings more interpretable. Models were conducted using HLM Version 7.0 (Raudenbush et al., 2011). The HLM program makes the proportional odds assumption that slopes are constant across all cumulative comparisons (0 to 1, 1 to 2).

Results

Table 1 shows descriptive statistics on measures of willingness and norms at W1–W3. At W1, 23.3% of the sample indicated some level of willingness to drink alcohol if offered by a best friend. By W3, the rate was 28.4%. Rates for classmate offers were 14.7% and 19.4%, respectively.

Correlations between the within-person variables are given in Table 2, and Table 3 shows associations among between-person variables (also including W1 willingness and norms). Norms set by close friends were more strongly associated with both measures of willingness than norms set by classmates, with slightly higher associations for willing-

ness-best-friend offer. Among close-friend norms, injunctive norms showed stronger associations with willingness than descriptive norms (*r* = .54 and *r* = .48 vs. *r* = .44 and *r* = .39 for best friend and classmate offers, respectively).

As shown in Table 4, willingness to drink increased with age and was greater among those who had already sipped or consumed a full drink of alcohol. Extreme peer orientation emerged as a very strong predictor of willingness for both best friend and classmate offers. Gender was not a significant predictor of willingness.

All norms measures were significantly associated with both willingness outcomes (*ps* < .001), with greatest prediction by descriptive norms. The association between descriptive norms–close friends and willingness was substantially higher for offers by a best friend than by a classmate. However, injunctive norms were not more predictive of willingness when offered alcohol by a best friend, and classmate descriptive norms were not more predictive of willingness when offered by a classmate. That is, there did not appear to be differential prediction across friendship context when examining predictors univariately.

To determine the degree to which the norm variables served as unique predictors of willingness, we repeated models controlling for the full set of between-subject factors. When examining each norm variable separately (Table 5, top), parameters were reduced in magnitude but the same pattern was evident, with descriptive norms–close friend again the strongest predictor of willingness, and particularly predictive for best-friend offers. When norm variables were

TABLE 3. Between-subjects correlations among baseline covariates and moderators, and Wave 1 (W1) willingness and norms

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Gender (male)									
2. Age (in half-years)	.04								
3. Baseline sipping	.01	.08*							
4. Baseline full drink	.01	.25***	-.21***						
5. Extreme peer orientation	.08*	.18***	.14***	.16***					
6. W1 injunctive norms–close friend	.07	.24***	.17***	.38***	.30***				
7. W1 descriptive norms–close friend	.004	.20***	-.001	.47***	.22***	.43***			
8. W1 descriptive norms–classmate	.02	.24***	.13***	.34***	.21***	.38***	.31***		
9. W1 willingness–best friend	-.02	.27***	.13***	.50***	.36***	.56***	.43***	.34***	
10. W1 willingness–classmate	-.01	.22***	.08**	.44***	.31***	.52***	.43***	.28***	.77***

Note: *N* ranges from 1,014 to 1,023. **p* < .05; ***p* < .01; ****p* < .001.

TABLE 4. Univariate prediction of willingness to drink by peer norms, age, gender, prior alcohol use, and extreme peer orientation

Predictor variables	Willingness–best-friend offer		Willingness–classmate offer	
	OR	[95% CI]	OR	[95% CI]
Peer norms				
Injunctive norms–close friend	3.75	[3.22, 4.39]	3.54	[3.02, 4.15]
Descriptive norms–close friend	13.12	[8.62, 20.00]	6.86	[4.76, 9.90]
Descriptive norms–classmate	3.60	[2.88, 4.50]	3.52	[2.75, 4.50]
Between-subjects factors				
Age	2.13	[1.81, 2.51]	1.81	[1.53, 2.13]
Gender	0.87	[0.65, 1.18]	0.84	[0.62, 1.13]
Baseline–ever sipped alcohol	2.44	[1.81, 3.30]	2.07	[1.53, 2.81]
Baseline–ever had full drink	17.13	[10.64, 27.78]	10.50	[6.62, 16.67]
Extreme peer orientation	2.66	[2.22, 3.18]	2.56	[2.16, 3.02]

Notes: All models control for baseline age. *N*s from 996 to 997 (between subjects) and 2,758 to 2,772 (within subjects). All values are significant at $p < .001$ with the exception of gender, which was not a significant predictor. OR = odds ratio; 95% CI = 95% confidence interval.

examined concurrently (Table 5, bottom), injunctive norms were predictive for both best friend and classmate offers. However, there was differential prediction for descriptive norms–best friends where the association was larger for best-friend offers, supporting the idea of specificity of social referent as an important factor to consider.

The top panel of Table 6 shows the results of the tests for moderation by gender. There was a significant interaction between gender and injunctive norms for close friends in predicting willingness to use alcohol (best-friend offer). Probing of the interaction indicated that the association between norms and willingness was greater for girls than for boys, although the simple slopes were significant for both genders ($p < .001$), suggesting that perceived approval of peers is associated with willingness for both girls and boys but more strongly for girls.

The middle two panels of Table 6 show results of moderation tests for baseline alcohol use. Sipping and descriptive norms–close friends interacted in predicting willingness to use alcohol (for both best-friend and classmate offers). Figure 1 indicates that youths who reported ever sipping showed

a weaker association between norms (close-friend descriptive) and willingness (best-friend offer), although simple slopes analysis indicated that the slope for sippers was still significant, $p < .001$. Similar findings were observed for descriptive norms of classmates in predicting both willingness outcomes, with a weaker but still significant slope for sippers than for nonsippers ($p < .001$). None of the interactions with full drink was significant.

As shown in Table 6 (bottom panel), extreme peer orientation interacted with descriptive norms–close friends when predicting willingness to drink (best-friend offer). The interaction is presented in Figure 2 for those low, moderate, and high on extreme peer orientation (plotted at $-1 SD$, mean, $+1 SD$). Descriptive norms–close friends had a stronger relation to willingness to drink (best-friend offer) among those low on extreme peer orientation, contrary to expectation. However, again, the simple slopes were significant for all groups ($p < .001$), indicating greater willingness when the participant had a drinking friend, regardless of level of peer orientation. Similar interactions with extreme peer orientation were observed for descriptive norms–close friends in predicting

TABLE 5. Univariate and multivariate prediction of willingness to drink, controlling for between-subjects factors (baseline age, gender, race, ever sipped, ever full drink, extreme peer orientation)

Predictor variables	Willingness–best-friend offer		Willingness–classmate offer	
	OR	[95% CI]	OR	[95% CI]
Univariate				
Injunctive norms–close friend	2.98	[2.56, 3.46]	2.74	[2.34, 3.22]
Descriptive norms–close friend	7.05	[4.52, 10.99]	3.92	[2.68, 5.71]
Descriptive norms–classmate	2.48	[1.96, 3.12]	2.37	[1.82, 3.08]
Multivariate				
Injunctive norms–close friend	2.46	[2.11, 2.88]	2.38	[2.02, 2.81]
Descriptive norms–close friend	2.66	[1.73, 4.08]	1.63	[1.11, 2.38]
Descriptive norms–classmate	1.66	[1.30, 2.12]	1.63	[1.23, 2.16]

Notes: *N* from 987 to 989 (between subjects) and *N* = 2,779 (within subjects). All values are significant at $p < .001$, with the exception of descriptive norms for close friend in the multivariate analysis ($p < .05$). To handle convergence problems in the multivariate models, we removed the random effects for each of the three norms variables. OR = odds ratio; 95% CI = 95% confidence interval.

TABLE 6. Multilevel analyses of moderation of peer norms by drinking status, extreme peer orientation, and gender, controlling for baseline age

Moderator variable	Willingness—best-friend		Willingness—classmate	
	Interaction odds ratio	[95% CI]	Interaction odds ratio	[95% CI]
Gender				
Injunctive norms—close friend	0.73	[0.55, 0.98]*	0.82	[0.60, 1.11]
Descriptive norms—close friend	0.96	[0.43, 2.17]	0.67	[0.32, 1.41]
Descriptive norms—classmate	0.73	[0.47, 1.15]	0.77	[0.47, 1.26]
Baseline alcohol use—ever sip				
Injunctive norms—close friend	0.81	[0.61, 1.09]	0.77	[0.57, 1.05]
Descriptive norms—close friend	0.26	[0.11, 0.58]***	0.26	[0.13, 0.53]***
Descriptive norms—classmate	0.62	[0.39, 0.97]*	0.58	[0.36, 0.95]*
Baseline alcohol use—ever full drink				
Injunctive norms—close friend	1.19	[0.73, 1.93]	1.16	[0.74, 1.80]
Descriptive norms—close friend	1.65	[0.62, 4.39]	1.56	[0.67, 3.64]
Descriptive norms—classmate	0.99	[0.39, 2.54]	1.09	[0.47, 2.54]
Extreme peer orientation				
Injunctive norms—close friend	0.93	[0.81, 1.09]	0.94	[0.81, 1.08]
Descriptive norms—close friend	0.52	[0.33, 0.83]**	0.68	[0.48, 0.98]*
Descriptive norms—classmate	0.70	[0.56, 0.87]**	0.80	[0.64, 1.01]

Notes: Models included a given interaction terms as well as the main effects and the covariate. Ns from 996 to 997 (between subjects) and 2,758 to 2,772 (within subjects). 95% CI = 95% confidence interval. **p* < .05; ***p* < .01; ****p* < .001.

willingness (classmate offer) and descriptive norms—classmate in predicting willingness (best-friend offer).

Discussion

The present study showed that willingness to drink was strongly associated with perceived norms about drinking for two social referents, close friends and classmates. Although some youths obtain information related to alcohol use directly through personal experience, indirect experi-

ences constitute a primary source of learning about alcohol (Dawson, 2000). Socialization of drinking behavior may occur through processes of imitation and modeling (Bandura, 1977), as well as through active persuasion (Giletta et al., 2012). It is clear from this study that social norms not only play a key role in substance use decisions but are relevant when considering those precursors of drinking that support early drinking experiences.

Few participants reported having consumed alcohol (7.7% had consumed a full drink at baseline), making it likely that

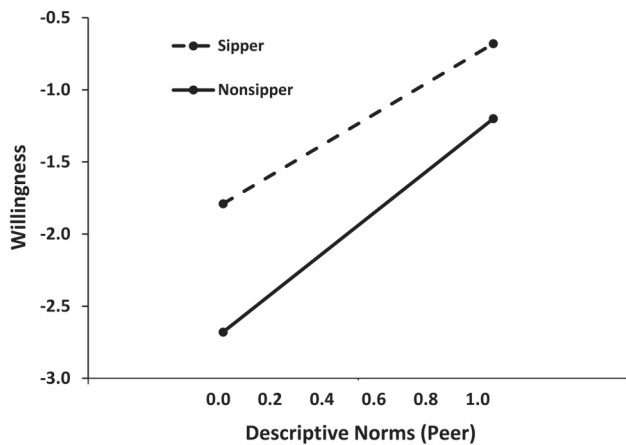


FIGURE 1. Willingness—classmate offer: Interaction between baseline alcohol use (ever sip) and injunctive norms for close friends in predicting willingness to drink if offered by a classmate. The y-axis corresponds to logits (log of the odds of success) corresponding to the ordinal logistic regression. The values plotted represent the first cumulative comparison (0 to 1); because the model makes the proportional odds assumption that slopes are constant across all cumulative comparisons, the slopes for the second cumulative comparison (1 to 2) would be identical (but elevated in level by a threshold value).

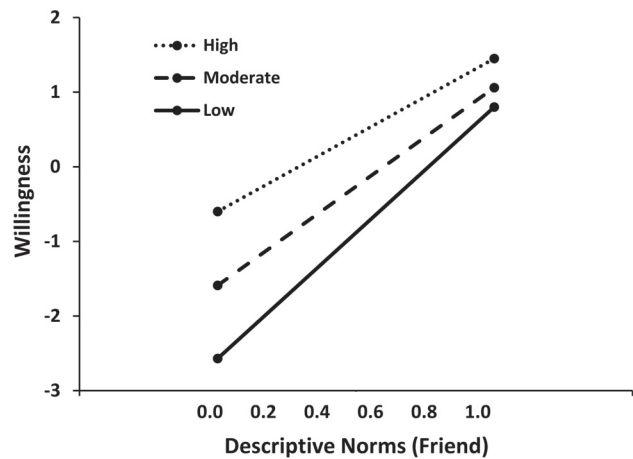


FIGURE 2. Willingness—best friend offer: Interaction between extreme peer orientation and descriptive norms for close friends in predicting willingness to drink if offered by a best friend. The y-axis corresponds to logits (log of the odds of success) corresponding to the ordinal logistic regression. The values plotted represent the first cumulative comparison (0 to 1); because the model makes the proportional odds assumption that slopes are constant across all cumulative comparisons, the slopes for the second cumulative comparison (1 to 2) would be identical (but elevated in level by a threshold value). Values of low, moderate, and high extreme peer orientation correspond to -1 SD, mean, and +1 SD.

most information about alcohol was obtained vicariously and contributed to the formation of alcohol-related beliefs. The strongest association between norms and willingness to drink was for descriptive norms for close friends and willingness to drink alcohol offered by a best friend. This is perhaps not surprising given the high visibility of alcohol consumption of one's closest friends, and it suggests some specificity of referent group.

Moderating factors

Gender. Both boys and girls endorsed willingness to drink if they reported greater alcohol-related peer norms, but this association was magnified for girls, who perceived greater approval by their friends of drinking alcohol and getting drunk. This is consistent with findings that girls are more likely to conform to the behavior of their close friends than the larger peer group, perhaps because females prefer dyadic relationships and report more intimacy and self-disclosure with their closest friends, whereas males are more likely to socialize in larger peer group settings (Giletta et al., 2012; Markovits et al. 2001; McNelles and Connolly 1999).

Prior drinking experience. Sippers had higher average levels of willingness on the whole. Both sippers and nonsippers were more willing to drink if they perceived higher descriptive norms, with a stronger relationship among nonsippers. That is, favorable peer norms contributed to increased risk but less so when willingness was already high (a ceiling effect among sippers). Those who are truly alcohol naive may vicariously obtain information about alcohol through social sources with visible alcohol consumption, in turn increasing their willingness to drink. Although those with some experience with alcohol also are influenced by the behavior of others, they may also rely to some degree on personal experiences; unfortunately, the present study was unable to determine the relative influence of the two. It is important to acknowledge that our measure of willingness will have different meanings for those with versus without experience with alcohol (i.e., "another drinking experience" vs. "first drinking experience"); however, we believe the concept of willingness is still relevant for youths who have sampled alcohol, given their limited range of experience with alcohol.

Sensitivity to peer approval. Our data failed to confirm our expectation that youths prioritizing social acceptance would be more attuned to social cues and information that would help them conform to others' opinions and behaviors (Litt et al., 2012). Youths high in extreme peer orientation were most willing to drink, significantly more so if they perceived others to have alcohol-favorable behavior. However, the effect of norms was magnified among those low on extreme peer orientation. These youths may be playing "catch up" to all the others. That is, as with the interaction with sipping, there may be a ceiling effect in which norma-

tive influences are reduced when willingness is already high (here, among those with extreme peer orientation).

An alternate explanation for this finding may have to do with the referent group: youths estimate peer norms for drinking based on their friends and peer network, but those who report willingness to make sacrifices in order to be popular may place greater importance on the drinking behavior of those they wish to be friends with. In support of this idea, Bot et al. (2005) showed that young adolescents (ages 10–14) were most likely to adopt the drinking behavior of a unilateral peer with higher status. The relation between descriptive norms and alcohol consumption varies across level of identification with the normative referent (Neighbors et al., 2010); the present study suggests that it may be degree of emulation rather than identification.

Willingness when best friends versus classmates are offering

Youths reported greater willingness if offered by a best friend than a classmate. However, contrary to expectation, the influence of social norms did not vary across best friend versus classmate offer. Only estimates of high prevalence of friend drinking showed differential associations with offerer, with a stronger association with best-friend offers; this is consistent with evidence that peer influence is stronger when there is greater identification with the normative referent. Moderation analyses also showed similar magnitude of effects for best friend and classmate. Overall, differences in offerer group as a function of normative referent group were not consistently found.

Strengths and limitations

Our large, diverse sample of youth with limited direct experience with alcohol is an ideal one for studying the powerful influence of social norms on a drinking precursor. The young age of the sample was well suited for studying willingness to drink, which is arguably the earliest milestone along a range of early drinking-related experiences.

Our study has several limitations, many shared with other studies on adolescent substance use. Our measurement of norms and drinking relied on self-report. Youth reports of drinking can be prone to memory/recall bias, comprehension problems, and social desirability, although valid reports can be obtained in the context of good rapport, privacy, and assurances of confidentiality (Stone and Latimer, 2005; Winters et al., 2008), factors that were espoused by our study. Concerns about validity may not apply as strongly to willingness, which can be effectively assessed with explicit items (Gibbons et al., 2012). In addition, our measure of classmate norms did not have a parallel item for injunctive norms. Our measure of willingness was not assessed in the manner recommended by Gibbons and Gerrard (in which

self-reports of willingness follow presentation of a risk-conducive vignette; see Gibbons et al., 2003). The phrasing of our willingness questions may have partially tapped into behavioral expectations or perceived refusal efficacy.

Although the research question was motivated by the idea that perceived norms precede willingness to drink, willingness may influence normative perceptions. This study was not designed to resolve the directionality of this association, but it is likely that both selection and influence operate here as in other studies on peer norms and drinking behavior (Kiuru et al., 2010). In addition, youth involvement with alcohol may lead to involvement in peer drinking networks, which may drive willingness—that is, alcohol use predicts both social norms and willingness. However, our analyses supporting peer norms as strong predictors even when prior drinking is controlled for reduces the likelihood of this alternate explanation.

Implications

Present study findings have implications for who should be prioritized for prevention or intervention programs, as well as what should be targeted within those interventions. Programs may benefit from prioritizing youths with higher willingness, many who have not yet consumed alcohol. These youths likely include girls who perceive others to be accepting of drinking and youths who have not yet sipped alcohol but report a higher perceived prevalence of alcohol consumption among friends and peers. As such, it may be important to directly target normative perceptions as one avenue through which to decrease willingness to drink.

Programs targeting normative perceptions among middle-school youths have been successful in decreasing both onset and continued substance use (D'Amico and Edelen, 2007; Ellickson et al., 2003). Our study suggests that the effect of drinking norms may be contingent on social distance from peers. Although perceived norms for the “typical student” are less accurate (i.e., easier to correct) than norms for more specific/similar referent groups (at least in college students; Larimer et al., 2011), priority should be given to correct misperceptions of similar referent groups given their greater influence on alcohol-related behaviors (Lewis and Neighbors, 2006). Programs targeted to delay age at initiation may be more effective if their focus is on resistance to friend offers rather than more general resistance training. Cho (2006) recommended that future studies focus less on refining the design and implementation of social norms approaches and attend more to features of social norms, including proximity and types of norms.

In sum, the findings support both standard motivational intervention strategies and social marketing approaches that correct normative misperceptions about the broader referent group, as well as refusal-skills training geared toward declining drink offers from friends in particular. As youth

willingness to consume alcohol occurs within a relational context that is further embedded within a broader social environment, future prevention work should reflect this.

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