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The Role of Perceived Injunctive Alcohol Norms in Adolescent Drinking Behavior

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Abstract

Peers have a major influence on youth during adolescence, and perceptions about peer alcohol use (perceived norms) are often associated with personal drinking behavior among youth. Most of the research on perceived norms among adolescents focuses on perceived *descriptive* norms only, or perceptions about peers' behavior, and correcting these perceptions are a major focus of many prevention programs with adolescents. In contrast, perceived *injunctive* norms, which are personal perceptions about peers' attitudes regarding the acceptability of behaviors, have been minimally examined in the adolescent drinking literature. Yet correcting perceptions about these perceived peer attitudes may be an important component to include in prevention programs with youth. Using a sample of 2,493 high school-aged youth (mean age = 17.3), we assessed drinking behavior (past year use; past month frequency, quantity, and peak drinks), drinking consequences, and perceived descriptive and injunctive norms to examine the relationships of perceived injunctive and descriptive norms on adolescent drinking behavior. Findings indicated that although perceived descriptive norms were associated with some drinking outcomes (past year use; past month frequency; past month quantity; peak drinks), perceived injunctive norms were associated with all drinking outcomes, including outcomes of consequences, even after controlling for perceived descriptive norms. Findings suggest that consideration of perceived injunctive norms may be important in models of adolescent drinking. Prevention programs that do not include injunctive norms feedback may miss an important opportunity to enhance effectiveness of such prevention programs targeting adolescent alcohol use.

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Contributors

ERP conceptualized the manuscript, drafted an initial outline and first draft of the paper, and prepared the final version for submission. JNVM and BAE conducted statistical analyses and assisted with drafts of the Method and Results sections. KCO conducted literature searches, drafted portions of the Introduction, and assisted with editing all sections. JST, RAS, and EJD provided editing for all sections. All authors contributed to and have approved the final manuscript.

Conflict of Interest

All authors declare that they have no conflicts of interest.

Keywords

perceived norms; attitudes; injunctive norms; alcohol use; adolescents

Perhaps more than any other developmental period, adolescence is strongly influenced by social norms, which are observed or unspoken behaviors and attitudes that are perceived as prevalent and acceptable within a group or population (Simons-Morton & Farhat, 2010; Steinberg & Monahan, 2007). Perceived norms have been categorized as perceived descriptive norms, or perceptions about what others do (behaviors), and perceived injunctive norms, or perceptions about what other approve and disapprove of (attitudes) (Cialdini et al., 1990; Elek et al., 2006; Lapinski & Rimal, 2005). These are distinct aspects of a common perceived norms entity (Rimal & Real, 2003) and both have an influence on one's own behaviors and attitudes, including use of alcohol and engagement in other risky behaviors (Schulenberg & Maggs, 2002). Perceived descriptive norms (also referenced as "perceived behavioral norms" in the literature) have emerged as one of the most important predictors of drinking among young people (D'Amico & McCarthy, 2006; Neighbors et al., 2007) and several studies have shown that perceived descriptive norms in adolescence, in particular, predict drinking onset, current drinking behavior, drinking escalation over time, and greater intentions to drink in the next six months (D'Amico & McCarthy, 2006; Olds et al., 2005; Page et al., 2002; Reboussin et al., 2006; Song et al., 2012). Targeting the discrepancies between youth perceptions and actual drinking of peers is a common component of interventions with adolescents (Cuijpers, 2002; Komro & Toomey, 2002; Spoth et al., 2008), where youth receive accurate information about the drinking of their peers to correct their overestimations (Caria et al., 2011; D'Amico et al., 2012; Haines et al., 2003; Hansen & Graham, 1991).

Perceived Injunctive Norms

Prevention programs have solely targeted perceived descriptive norms during presentation of normative feedback, yet there is some evidence that perceived *injunctive* norms (also referenced as "perceived attitudinal norms" in the literature) may also be important to target given that they also play a unique role in predicting adolescent drinking (Elek et al., 2006; Kam et al., 2009). However, despite a surplus of studies describing perceived descriptive norms in models of drinking and consequences, only a few studies target perceived injunctive norms, which makes more research on this particular type of perceived norm important for informing future prevention programs with youth. The studies that do discuss perceived injunctive norms are primarily with college student samples, which have shown an important distinction between descriptive and injunctive norms (e.g., Lee et al., 2007). For example, perceived injunctive norms for heavy drinking students, such as those in fraternities and sororities, were stronger predictors of drinking and consequences compared to descriptive norms at one year follow-up (Larimer et al., 2004). Perceived injunctive norms have also been shown to moderate the relationship between perceived descriptive norms and behavioral intention (Rimal & Real, 2003) and predict subsequent alcohol-related consequences even after controlling for actual alcohol consumption (LaBrie et al, 2010).

Evaluating whether perceived injunctive norms are similarly important for high school age youth can help inform future efforts to tailor normative interventions for this population. The few studies with adolescents that include perceived injunctive norms are with younger adolescent samples (i.e., middle school youth). These studies typically find that permissive perceived injunctive norms about peers (e.g., believing your close friends would approve of *you* drinking alcohol occasionally; believing most friends approve of kids your age drinking alcohol or getting drunk) positively associate with concurrent and future drinking (Jackson et al., 2014; Kam et al., 2015; 2009; Kam & Wang, 2015; Meisel et al., 2015; Mrug & McCay, 2013). Perceived *parent* injunctive norms, such as beliefs that parents would disapprove of drinking, have strong preventive effects on problem drinking (Elek et al., 2006; Reboussin et al., 2006; Song et al., 2012; Voisine et al., 2008), as do personal anti-drinking attitudes (i.e., disagreeing that it is okay for someone your age to drink alcohol) (Elek et al., 2006; Prins et al., 2011; Voisine et al., 2008). Many of the studies of perceived injunctive norms that do expand into high school aged youth samples either combine substances in perceived peer injunctive norm measures (e.g., perceptions about alcohol *and* other drug use like cigarette use and marijuana among peers) or limit outcomes to frequency and intention to use in the future. As recent research demonstrates that the influence of perceived injunctive norms on alcohol use increases with grade level for middle school youth (Meisel & Colder, 2015) and given the diversity of prevalence among the specific substance of use in adolescence (Johnston et al., 2015), a closer examination of perceived injunctive norms in high school becomes increasingly important as many youth begin initiating use during this time.

The Present Study

The present study was designed to address gaps in the literature on perceived peer influence on adolescent drinking behavior to better inform programmatic efforts targeted toward reducing and preventing adolescent alcohol use. First, by targeting a large and diverse high school aged sample, we expand on prior work on perceived injunctive norms that has primarily targeted college students or middle school youth. Second, we designed the analyses to specifically examine the associations between perceived injunctive norms and drinking behaviors after controlling for perceived descriptive norms. In doing so, we can provide insights about the role injunctive norms play in drinking outcomes beyond the typical strong association between perceived descriptive norms and drinking. We expand on studies that look at single outcomes of alcohol use to examine how perceived norms are related to multiple drinking outcomes (i.e., any use, frequency, quantity, peak drinks on a single occasion, and consequences). Lastly, we expand on perceived peer injunctive norms research with adolescents, which generally looks at close friends' disapproval of any drinking, by examining perceived peer *acceptability* of seven specific behaviors (playing drinking games, getting drunk, drinking every weekend, drinking under age 21, driving a car after drinking, drinking alone, and never drinking) to determine which perceptions are most strongly related to personal drinking. These analyses are anticipated to greatly enhance understanding of perceived injunctive norms within the high school adolescent population and provide guidance regarding whether interventions might benefit from including injunctive norms presentation in the effort to prevent adolescent alcohol use.

Method

Participants and Procedure

Data for the present study come from a longitudinal study of youth who participated in the evaluation of CHOICE, a voluntary after-school substance use prevention program for middle school students in Southern California. Youth were initially recruited from 16 middle schools, and surveyed annually from 6th grade through high school (D'Amico et al., in press). Details about the recruitment methods and CHOICE program are described in detail elsewhere (D'Amico et al., 2012; D'Amico et al., in press). In brief, schools were randomly assigned to offer CHOICE and 94% of consented students completed a baseline survey (wave 1) in their middle school classroom. Participants in the study were more heavily Hispanic/Latino(a) than participants in other large scale studies of youth, such as Monitoring the Future (MTF) or the National Survey of Drug Use and Health (NSDUH). Given the location of the study, however, demographics are generalizable to these Southern California schools. Rates of use over time by age group are comparable to MTF and NSDUH. Response rates over the course of the study are also described in detail elsewhere (D'Amico et al., in press). In brief, response rates from the first five waves of the study when youth were in middle school ranged from 74% to 90%. During this time, youth completed surveys during PE class. Once students transitioned to over 200 high schools during wave 6, 61% of the youth eligible to receive the wave 6 survey (i.e., they were in 6th–7th grade at wave 1 and could be located and re-consented) completed it. Youth who completed the wave 6 survey did not differ on demographics or on substance use compared to those who did not complete the survey. Retention from wave 6 to wave 7 was 80%. Both wave 6 and 7 surveys were completed online.

The current analyses use data from wave 7, which is the first survey to include items on perceived injunctive norms. Participants in this wave were mostly in 11th and 12th grade. The analytic sample included 2,493 youth with a mean age of 17.3 (SD =0.67). About half (46%) were male, and the sample was mostly Hispanic/Latino(a), with 46% Hispanic, 20% non-Hispanic white, 21% Asian, 2% African American, and 11% Other. All study materials and procedures were approved by the Institutional Review Board, and a Certificate of Confidentiality was obtained from the National Institutes of Health.

Measures

Alcohol use—Alcohol use frequency and quantity were assessed using single-item measures used in the California Healthy Kids Survey (WestEd., 2008) and Project ALERT outcome studies (Ellickson et al., 2003) assessing whether they had ever used more than a few sips of alcohol in the past year, number of days in the past month (30 days) they had used alcohol (seven point scale from 0 days to 20–30 days), and how many drinks they drank on a typical drinking occasion (response options of 0, a few sips, about half a drink, 1 drink, 2 drinks, 3 or more drinks). Participants also indicated how many drinks they had in the past month on the occasion they drank the most, with response options from 0 to 15 drinks. Past month outcomes were assessed for past year drinkers only.

Alcohol-related consequences—Participants responded to a series of six items of how often they experienced negative consequences from alcohol use over the past year (i.e., felt sick, got in trouble, did something they regretted, did not study, got into a fight or argument, missed school or work). Participants responded to a series of six items of how often they experienced negative consequences from alcohol use over the past year (i.e., felt sick, got in trouble, did something they regretted, did not study, got into a fight or argument, missed school or work). Items were adopted from those used in a large-scale longitudinal studies to evaluate the effectiveness of the Project ALERT drug prevention program and to examine patterns of substance use behaviors from adolescence to young adulthood (Ellickson, McCaffrey, Ghost-Dastidar, & Longshore, 2003; Ellickson, Tucker, & Klein, 2001; 2003). Response options ranged from never to 20 or more times. Items were recoded to no versus any consequences and summed to create a total score (range 0–6; $\alpha = 0.75$).

Perceived peer descriptive norms—Participants were asked to think about a group of 100 students (i.e., about the size of about three classrooms) in their grade and indicate how many students they believed had drank alcohol at least once per month. Response options ranged from 0 to 100 with multiples of 10 as anchors (WestEd., 2008).

Perceived peer injunctive norms—Participants responded to seven injunctive norms items modified from perceived injunctive norms work with college students (Lewis et al., 2010) that were developmentally appropriate for our high school aged sample. Participants were asked “How acceptable (or unacceptable) do you think the typical student in your grade finds each of the following behaviors?” and responded to each item from (1) unacceptable to (7) acceptable. See Table 1 for items.

Analytic Plan

The focus of this study was on examining the relationships of perceived injunctive and descriptive norms on adolescent drinking behavior. First, to ensure that the measure of injunctive norms we modified from the college student literature (Lewis et al., 2010) was psychometrically sound, we ran a confirmatory factor analysis to determine if the seven injunctive norms items held together as a single injunctive norms construct. We used the robust maximum likelihood (MLR) correction to generate the maximum likelihood estimator and correct the model fit and standard errors for non-normality. All models were fitted with the lavaan package (Rosseel, 2012) within the R statistical environment. This approach allowed for use of the latent variable to determine the association between the injunctive norms construct and the alcohol outcomes.

We then ran a multivariate regression model within a structural equation modeling framework with three sets of predictors – the latent variable of injunctive norms, the descriptive norm item, and the covariates age, gender, race/ethnicity, and a proxy for socioeconomic status (mother’s level of education). We were also interested in looking at associations of each of the injunctive norms items individually on drinking outcomes, controlling for overall level of the latent injunctive norms variable. This approach is equivalent to a test of differential item functioning in measurement models and provides information about which specific norms may be most strongly associated with drinking

above and beyond the effects of the latent variable injunctive norms. We then ran a path model to examine the direct effects of injunctive norms (as a construct and for individual items) and descriptive norms on drinking outcomes. To examine diverse drinking outcomes, we specified drinking outcomes of past year alcohol use (any versus none), number of past year consequences, past month alcohol use frequency, quantity consumed per occasion in the past month, and peak number of drinks consumed in the past month. Given that other work with perceived injunctive norms has included gender and race/ethnicity in the models of drinking (e.g., Kam et al., 2009; Kam & Wang, 2015; Mrug & McCay, 2013), we first explored whether associations of injunctive and descriptive norms with drinking outcomes varied between males and females and between participants of varying race/ethnicities. As gender and race/ethnicity did not moderate these associations, we present the model without moderation below.

Results

Sample Description

Descriptive information about the sample is found in Table 1. On average, the sample reported drinking about one time in the past year and a mean of 0.57 (of a possible value between 0 and 6) on the consequences measure. Of those who drank in the past year, participants reported drinking on average between 2 and 3–5 days per month; drinking an average of about 1 drink per occasion. Participants reported a mean of 4.61 drinks during their peak occasion in the past month. On average, participants believed that 46.8 of their peers out of 100 drank alcohol at least once per month. Means of perceived injunctive norms varied depending on specific items.

Confirmatory Factor Analyses

We ran a confirmatory factor analysis to determine whether the seven injunctive norms could be considered as indicators of a single latent variable. The initial model provided a poor fit to the data (χ^2 (14) = 631, RMSEA = 0.134, CFI = 0.899). Examining loadings and modification indices, we found that dropping two of the items (“never drinking” and “driving a car after drinking”) that loaded poorly on the CFA and adding a correlation between the items that correlated at $r = 0.85$ or higher (i.e., playing drinking games and drinking to get drunk, playing drinking games and drinking under the age of 21, drinking to get drunk and drinking under the age of 21) provided an adequate fit to the data (χ^2 (10) = 7050, RMSEA = 0.036, CFI = 0.999). The loadings for the perceived injunctive norms factors were all statistically significant, with four of the standardized loadings very high (0.83 or higher) and one (drinking alone) lower, but still statistically significant (0.57). For subsequent path model analyses, the injunctive norms construct was composed of the five remaining perceived injunctive norms items in addition to correlated errors.

Path Model for Perceived Injunctive and Descriptive Norms Effects

We estimated a multivariate regression model with the five correlated outcome variables, and the main predictors of perceived injunctive norms (represented as a latent variable) and descriptive norms (a measured variable), as shown in Figure 1. This model fit the data well χ^2 (50) = 308, RMSEA = 0.046, CFI = 0.982).

We then tested whether or not there were direct effects between the five indicator variables for perceived injunctive norms and the five outcomes; that is, whether a particular aspect of perceived injunctive norms had a stronger (or weaker) effect on the outcome than would be predicted, based on the relationship between that indicator and the latent variable. We tested each possible direct effect for five predictors and five outcomes (25 tests). Given the large number of significance tests and the potential for inflated Type I errors, we used the Benjamini and Hochberg (Benjamini & Hochberg, 1995) false discovery rate (FDR) correction to adjust *p*-values, as recommended by Cribbie (Cribbie, 2007). The effects for perceived descriptive norms revealed that these perceptions were associated with four of the five drinking outcomes (see Table 2): alcohol use in the past year (standardized estimate =0.08, p =0.001), frequency of use in the past month (standardized estimate =0.10, p =0.002), typical quantity consumed per occasion in the past month (standardized estimate =0.09, p =0.017), and peak drinks in the past month (standardized estimate = 0.08, p = .047). After controlling for covariates and perceived descriptive norms, the effects for perceived injunctive norms on each of the five drinking outcomes were all highly significant (p <0.001): any alcohol use in the past year (standardized estimate =0.25), number of alcohol consequences in the past year (standardized estimate =0.23), frequency of use in the past month (standardized estimate =0.33), typical quantity consumed per occasion in the past month (standardized estimate =0.37), and peak drinks in the past month (standardized estimate =0.34). The magnitudes of these standardized estimates were all comparatively larger than corresponding estimates of perceived descriptive norms.

We then examined the direct effects between perceived norms indicators and outcomes. These effects inform us about the effect of these indicators, controlling for the overall perceived norm effect. Table 2 contains the seven statistically significant direct effects of perceived injunctive norms. Three of the perceived injunctive norms indicators had statistically significant direct effects to any alcohol use (past year): playing drinking games, with a standard estimate of 0.16; drinking to get drunk, with a standardized estimate of 0.11; and drinking alone, with a standardized estimate of −0.13. Four of the perceived injunctive norms indicators had statistically significant direct effects to quantity (past month): playing drinking games, with a standardized effect of 0.18; drinking to get drunk, with a standardized estimate of 0.23; drinking alcohol every weekend, with a standardized estimate of −0.03; and drinking alone, with a standardized effect of −0.06. The positive effects indicate that the norm indicator had a greater effect than would be expected given its relationship with the perceived injunctive norm latent variable. The negative effects indicate that the perceived injunctive norms indicator had a reduced effect on the outcome compared to what would be expected given the outcome's relationship with the perceived injunctive norm latent variable.

Discussion

The present study adds to the sparse literature on perceived peer injunctive norms influence and suggests these perceptions are important correlates of drinking behavior among high school students. Our aim was to examine the relationships of perceived injunctive and descriptive norms on adolescent drinking behavior in a high school sample, and to examine whether perceived injunctive norms associated with drinking behavior after controlling for

perceived descriptive norms. Perceived descriptive norms, which have been shown to be strong predictors of adolescent drinking (e.g., D'Amico & McCarthy, 2006; Olds et al., 2005; Page et al., 2002) and are frequently targets of intervention and prevention programs with youth (Cuijpers, 2002; Komro & Toomey, 2002; Spoth et al., 2008), were associated with alcohol use in the past year, past month frequency of alcohol use, and past month typical number of drinks consumed. Findings mirror those from other studies with adolescents and young adults; however, there were no significant direct effects of perceived descriptive norms on alcohol consequences or peak drinks in the past month. We found that perceived injunctive norms were associated with all measures of drinking, even after controlling for demographic covariates and perceived descriptive norms. Only perceived injunctive norms were associated with past year consequences from drinking. Findings fit with college student research showing that perceived injunctive norms are powerful predictors of problem drinking (LaBrie et al., 2010; Larimer et al., 2004; Lee et al., 2007), perhaps even more so than perceived descriptive norms for youth.

Perceived injunctive norms as a whole were important correlates of problem alcohol use like consequences and peak drinks, but the effects for any alcohol use and quantity (i.e., another type of problem drinking considering that this could include typical heavy drinking levels) appeared to be driven by perceptions that others are accepting of playing drinking games (i.e., a high-risk heavy drinking activity; Zamboanga et al., 2016) and drinking to the point of drunkenness. The effects for any alcohol use and quantity were less driven by the specific perceived injunctive norm of drinking alone. In addition, the perception that peers found drinking alcohol every weekend acceptable had a less than expected direct effect on quantity. These direct effects of particular perceived injunctive norms items indicate the importance of multifaceted measures of perceived injunctive norms. It is likely that drinking alone and drinking every weekend are seen by youth as infrequent behaviors, simply given that in order to engage in these activities one would require regular access to alcohol. In addition, never drinking and driving after drinking did not fit together well with the other five perceived injunctive norms we assessed and perceptions of peer acceptability of this (lack of) behavior did not appear to be a strong driver of personal drinking. Consideration of specific perceived injunctive norms items appears important in models of adolescent drinking.

Given these findings, it is possible that adding correction of perceived injunctive norms (e.g., by informing students that most others in their grade do not approve of drinking to get drunk) may enhance the effectiveness of school-based prevention programs that already include challenges to youth's perceived descriptive norms; particularly for those youth experiencing alcohol-related problems or drinking in excess. Interventions that do not incorporate actual attitudinal norms into feedback may be missing an important mediating mechanism of behavior change. That is, correcting students' perceptions that most peers find drinking alcohol acceptable could be an important component to add to existing effective prevention programs with high school students. It will be important to evaluate the extent that changing perceived injunctive norms is effective for adolescents involved in intervention studies targeting norms.

Limitations

Several limitations of this study should be noted. First, although data were obtained from a larger longitudinal study, the measures of interest for this study were examined at a single assessment period. Longitudinal research is needed to test for the directional association between perceived injunctive norms and adolescent drinking, such as whether heavy drinkers adjust their perceptions of peers' attitudes about drinking to match their own behavior or whether they self-select into peer groups that indeed do have more permissive attitudes about drinking. Longitudinal research with perceived descriptive and injunctive norms among college students has reported such reciprocal findings (Lewis, Litt, & Neighbors, 2015; Wardell & Read, 2013), but this has yet to be examined with high school students. Second, although it is common to examine multi-item measures of perceived injunctive norms in models that include single perceived descriptive norms items (Larimer & Neighbors, 2003; Lewis et al., 2010), it is possible the differences in measurement of the two constructs partially accounted for the observed findings. That is, descriptive norms were assessed with a single item (a measured variable), while injunctive norms were assessed with five items (a latent variable without measurement error). Future studies should use multi-item descriptive norms measures that target specific behaviors such as how many of one's peers drink alone, how much peers consume on a typical occasion, and perceived frequency of problems among peers. Doing so would provide support that our observed findings here are not attributed to differences in construct measurement, as well as expand on our findings to draw firmer conclusions about the relative predictive value of injunctive versus descriptive norms. Third, although we found moderate direct effects of perceived injunctive norms on drinking behavior that were comparatively stronger than the direct effects observed for descriptive norms, we did not assess actual attitudes about the behaviors which limits ability to determine if perceptions matched one's own attitude regarding the acceptability of a specific behavior. In addition, since there are no population-level estimates of adolescents' actual attitudes, we cannot determine if the perceptions participants reported in our sample were overestimations. While numerous studies of descriptive norms indicate that in nearly all instances individuals overestimate the extent that peers engage in drinking behavior, it is not yet known if this relationship exists to such a degree for perceived and actual injunctive norms. This represents an important area for future work as researchers and program designers consider inclusion of actual injunctive norms in prevention programs with youth.

Conclusion

Overall, findings suggest that perceived injunctive norms regarding beliefs about how acceptable or unacceptable peers find certain drinking behaviors are an important correlate of adolescent drinking outcomes. This is evident even after considering perceived descriptive norms, which are frequently included in models of adolescent alcohol use and are often targeted in prevention work with youth. Thus, targeting perceived injunctive norms in prevention programs with youth may be important given the association between these perceptions and multiple drinking outcomes such as consequences and heavy drinking. Future work is needed, however, to empirically test how inclusion of actual injunctive normative information in prevention programs with youth can add to their effectiveness.

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Research Highlights

- Little work has examined perceived injunctive norms among high school youth
- Injunctive norms associated with all five alcohol outcomes
- Perceived descriptive norms associated with four of the five alcohol outcomes
- Including injunctive norms in youth prevention programs may be important

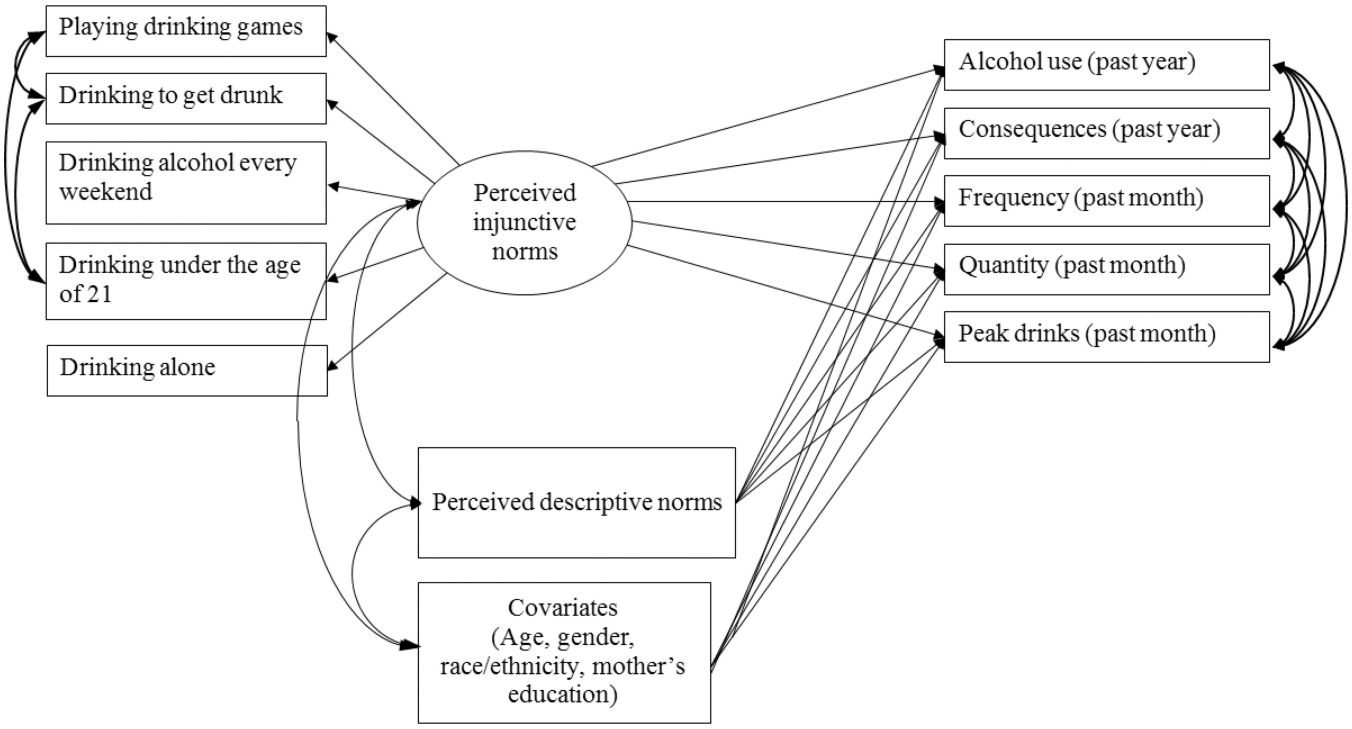

Figure 1.
Full model not including direct perceived injunctive norm effects on each of the five drinking outcomes

Table 1

Sample Descriptive Information

	Total sample (*N* = 2493)	
	***Mean*/%**	***SD***
Demographics		
Age (range 14–18)	17.31	0.67
Race/ethnicity		
Asian	20.54	--
Hispanic/Latino(a)	45.97	--
Black/African-American	2.29	--
Multiracial/Other	11.06	--
White (reference)	20.14	--
Gender		
Female (reference)	54.19	--
Male	45.81	--
Alcohol Use		
Past year use[1]	0.87	1.72
Consequences (past year)[2]	0.57	1.10
Frequency (past month)[3]	2.65	1.58
Quantity (past month)[4]	2.48	1.99
Peak drinks (past month)[5]	4.61	3.67
Perceived Descriptive Norms		
Perceived prevalence	46.77	28.70
Perceived Injunctive Norms[6]		
Playing drinking games	4.62	2.28
Drinking to get drunk	4.17	2.31
Drinking alcohol every weekend	3.63	2.16
Drinking under the age of 21	4.35	2.33
Drinking alone	2.90	1.82
Never drinking[7]	3.29	2.01
Driving after drinking	1.83	1.49

[1] Mean represents value between binary response of 0 (none) and 1 (at least 1 time).

[2] Mean represents experiencing between 0 and 1 consequence on scale ranging from 0 to 6.

[3] Mean represents value between response options 2 (2 days) and 3 (3–5 days).

[4] Mean represents value between response options 2 (a few sips) and 3 (about ½ a drink).

[5] Mean represents actual value.

[6] Mean values represent scale responses: 1 (unacceptable), 2 (moderately unacceptable), 3 (slightly unacceptable), 4 (neither acceptable nor unacceptable), 5 (slightly acceptable), 6 (moderately acceptable), 7 (acceptable).

[7] item is reversed coded.

Table 2

Estimates for perceived descriptive and injunctive norms effects from models

	Unstandardized Estimate	Standard Error	*p*-value	Standardized Estimate
Loadings for Individual Perceived Injunctive Norms Items				
Playing drinking games	1.00			083
Drinking to get drunk	1.09	0.01	<0.001	0.89
Drinking alcohol every weekend	1.08	0.03	<0.001	0.95
Drinking under the age of 21	1.07	0.01	<0.001	0.87
Drinking alone	0.55	0.02	<0.001	0.57
Perceived Injunctive Norm Effects				
Alcohol use (past year)	0.20	0.02	< .001	0.25
Consequences (past year)	0.06	0.01	< .001	0.23
Frequency (past month)	0.25	0.03	< .001	0.33
Quantity (past month)	0.27	0.04	< .001	0.37
Peak drinks (past month)	0.63	0.09	< .001	0.34
Perceived Descriptive Norms Effects				
Alcohol use (past year)	0.05	0.01	0.001	0.08
Consequences (past year)	0.004	0.01	0.645	0.02
Frequency (past month)	0.06	0.02	0.002	0.10
Quantity (past month)	0.05	0.02	0.017	0.09
Peak drinks (past month)	0.11	0.06	0.047	0.08
Direct Perceived Injunctive Norms Effects[1]				
Playing drinking games > alcohol use (past year)	0.14	0.03	<.001	0.16
Drinking to get drunk > alcohol use (past year)	0.16	0.05	.006	0.11
Drinking alone -> alcohol use (past year)	−0.13	0.03	<.001	−0.13
Playing drinking games > quantity (past month)	0.16	0.04	.001	0.18
Drinking to get drunk > quantity (past month)	0.22	0.04	<.001	0.23
Drinking alcohol every weekend -> quantity (past month)	−0.20	0.06	.002	−0.03
Drinking alone -> quantity (past month)	−0.07	0.02	0.016	−0.06

[1]Significant direct effects after Benjamini-Hochberg False Discovery Rate correction are reported.