

# Endorsed reasons for not drinking alcohol: a comparison of college student drinkers and abstainers

Jiun-Hau Huang · William DeJong ·  
Shari K. Schneider · Laura G. Towvim

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**Abstract** Little is known about how the reasons that college student drinkers and abstainers have for choosing not to drink might differ. The present study examined this issue among a sample of 2,500 U.S. college students from 18 colleges and universities. Abstainers endorsed significantly more reasons for not drinking than drinkers, and among drinkers, light drinkers endorsed more reasons than heavy drinkers. Abstainers' decision not to drink appeared to be a lifestyle choice that was supported by multiple reasons, including personal values, religious beliefs, not wanting the image of a drinker, and beliefs about alcohol's effect on behavior. Heavy drinkers were more likely to endorse situational reasons such as having to drive home later or being concerned about school work or weight gain from drinking. Implications of these findings for alcohol prevention work on college and university campuses are discussed.

**Keywords** College students · Reasons for not drinking · Drinkers · Abstainers · Alcohol consumption · Alcohol abstinence

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J.-H. Huang (✉)  
Institute of Health Policy and Management, College of Public Health, National Taiwan University, 17 Xu-Zhou Road, Taipei 10055, Taiwan  
e-mail: jhuang@ntu.edu.tw

W. DeJong  
Department of Community Health Sciences, Boston University School of Public Health, Boston, MA 02118, USA

S. K. Schneider · L. G. Towvim  
Center for College Health and Safety, Education Development Center, Inc., Newton, MA 02158, USA

## Introduction

Most college and university administrators state that alcohol-related problems are their chief concern about student life (DeJong and Langford 2002). By one estimate, approximately 1,825 students (18–24 years old) enrolled in 2- and 4-year institutions die each year from alcohol-related causes, mostly due to motor vehicle crashes; nearly 700,000 students are hit or assaulted by another drinking student each year, while 97,000 are victims of alcohol-related sexual assault or date rape (Hingson et al. 2009).

Researchers concerned about this social problem have examined a variety of individual-level factors associated with student drinking, including drinking motives and alcohol expectancies (Baer 2002). Drinking motives are related to the psychological function that alcohol use fulfills. Research suggests that drinkers consume alcohol for three distinct reasons: *social*—to facilitate affiliation with other people; *mood enhancement*—to induce positive emotions; and *coping*—to mitigate or avoid negative emotional states (Cooper et al. 1992; Cronin 1997; Stewart et al. 1996). Some researchers studying college student drinking have added a fourth factor, *conformity to social norms* (Cooper 1994).

Other research has examined a related concept: alcohol expectancies, defined as the expectancy-value beliefs that people have about alcohol's behavioral, emotional, and cognitive effects (Baer 2002). In general, positive alcohol expectancies are consistently related to heavy alcohol consumption and problem drinking among both adults and adolescents (Brown 1985; Brown et al. 1987; Carey 1995; LaBrie et al. 2007; Werner et al. 1995). Factor-analysis research on alcohol expectancies has identified domains similar to those for drinking motives—namely, social lubrication, activity and performance enhancement, and tension reduction (Sher et al. 1996).

This body of research has also demonstrated that negative alcohol expectancies give rise to motives for not drinking (Cox and Klinger 1988). Indeed, some studies have shown that negative expectancies are more important than positive expectancies in predicting alcohol consumption (Barnes 1981; Grube et al. 1995). These findings suggest that alcohol prevention programs, including those targeting college students, would benefit from a deeper understanding of the primary reasons students have for limiting their alcohol consumption or abstaining.

Surprisingly few studies have investigated reasons for not drinking alcohol. An early study, now more than two decades old, examined a sample of 196 high school students in the U.S. Reasons not to drink related to health, self-esteem/self-control, and parental disapproval stood out as the most important (Reeves and Draper 1984). A more recent study of 171 high school students in Western Australia identified fear of negative consequences, family constraints, and indifference to alcohol as the most strongly endorsed reasons for not consuming alcohol, and all three were associated with less alcohol use (Stritzke and Butt 2001). In a study among Israeli high school abstainers, “Alcohol damages health,” “Do not like the taste/smell,” and “Do not care for it” were reported as the most common reasons for not drinking; in addition, the Moslem and Druze students noted that their religion is intolerant of alcohol use (Moore and Weiss 1995).

A factor-analysis study of U.S. college student drinkers identified four main rationales for not drinking: self-control, upbringing, self-reform, and performance (Greenfield et al. 1989). Notably, intention to drive was rated as the most important reason for reducing alcohol consumption, yet it did not load onto any of the identified factors. Another U.S. study using a sample of 147 college students identified the following six reasons for not drinking: health concerns, risks and negative effects, loss of control, social responsibility, disapproval of drinking, and lack of availability (Johnson and Cohen 2004).

Unfortunately, much of this prior research has been saddled with methodological limitations—e.g., small samples (Johnson and Cohen 2004; Reeves and Draper 1984; Stritzke and Butt 2001), inclusion of drinkers only (Greenfield et al. 1989) or abstainers only (Moore and Weiss 1995). To address these limitations, the present study examined reasons for choosing not to drink alcohol among a large sample of U.S. college students from 18 colleges and universities, including both drinkers and abstainers.

The primary objective of this study was to identify the reasons most strongly endorsed by drinkers and abstainers, noting reasons unique to each group, and also those they share in common. Of particular interest was the possibility of discovering a set of reasons that might be highly endorsed by students who drink, especially those who drink

heavily. Comparing drinkers and abstainers in their motives for not drinking can help illuminate the differential psychosocial profiles and provide insights into the cognitive processes and possible mechanisms through which college students make their decisions regarding alcohol consumption. From a practical standpoint, knowing what motivates drinkers versus abstainers to limit their alcohol use could inform new prevention initiatives on campus, including both tailored prevention campaign messages and targeted environmental management strategies designed to motivate decreased alcohol use (DeJong et al. 2009).

## Methods

The Survey of College Alcohol Norms and Behavior (SCANB) was administered annually each spring to randomly selected students from 32 4-year institutions of higher education (IHEs) that participated in the Social Norms Marketing Research Project (SNMRP), a project to assess the effectiveness of social norms marketing campaigns in reducing high-risk drinking (DeJong et al. 2006). The SCANB is a self-administered, voluntary, and anonymous mail survey that asks about students' alcohol-related attitudes, perceptions, and behaviors, including alcohol use and reasons for limiting drinking or abstaining. Detailed descriptions of the survey methodology have been published elsewhere (DeJong et al. 2006, 2007; Huang et al. 2006). The analyses reported here use baseline data collected in 2000 from the initial cohort of 18 colleges and universities. The human subjects committees at Education Development Center, Inc., and all 18 IHEs approved the study procedure.

## Participants

The participating IHEs came from all four U.S. census regions (Northeast, North Central, West, and South). They ranged in size from approximately 3,000–31,000 undergraduates and varied in terms of sector (private vs. public), percentage of residential students, and student body demographics. The reported analyses are based on responses from 2,500 students. Sample sizes for particular variables differed slightly due to missing values. The final response rate was 53.1%, which is comparable to the response rates of other recent national studies, such as the Harvard School of Public Health College Alcohol Study (CAS), which had a response rate of 52% for its most recent survey (Wechsler et al. 2002).

The student sample had more females (59.8%) than males (40.2%). There were slightly more juniors (25.7%) and seniors (29.7%) than freshmen (21.8%) and sopho-

mores (22.7%), with a mean age of 22.3 years (SD = 6.2). Over three-fourths of the students (77.0%) were Caucasian; other racial/ethnic groups included: African American/Black—7.5%; Asian—9.5%; Hispanic/Latino—5.1%; and Other—4.8% (note that students could select multiple categories). These student characteristics approximate those seen in recent national studies such as the CAS (Wechsler and Nelson 2008).

## Measures

### Alcohol consumption

The SCANB defined a drink as “a bottle of beer (12 oz.), a glass of wine (4 oz.), a wine cooler (12 oz.), or a shot of liquor (1 oz.) served straight or in a mixed drink.” Participants answered four key questions about alcohol use: (1) “During the past 30 days, on how many occasions did you use each of the following substances—alcohol (beer, wine, liquor)?” The response options (scored 1–7) were Never, 1–2 times, 3–5 times, 6–9 times, 10–19 times, 20–39 times, and 40 or more times. For the other three questions, a numerical fill-in response box allowed students to enter 00–99 drinks: (2) “What is the average number of drinks you consume in a week?” (3) “When you party, how many drinks do you usually have?” (4) “Think back over the last 2 weeks. What was the greatest number of drinks you consumed at one sitting?” To be classified as an *abstainer*, students had to report no alcohol use in response to these consumption questions; those reporting any alco-

hol use in response to these questions were classified as a *drinker*.

### Composite Drinking Scale

Each drinker’s responses to the four consumption questions were normalized and added to create a continuous Composite Drinking Scale (CDS) score. The distribution of all drinkers’ continuous CDS scores was then divided into quartiles, and each drinker was assigned a drinking status (CDS/Q1–Q4) on that basis, with CDS/Q1 indicating the lightest drinkers and CDS/Q4 the heaviest. The CDS has demonstrated satisfactory psychometric properties (Huang et al. 2006). Table 1 shows the means, standard deviations, and response ranges on the individual CDS items for each of the CDS/Q1–Q4 groups.

### Reasons for not drinking alcohol

The SCANB asked students, “When you choose to limit your alcohol consumption or to abstain, how important are the following reasons?” The students rated each of 23 reasons as very, somewhat, or not at all important, scored as 2, 1, and 0, respectively. The list of reasons (see Table 2) was inspired by focus groups and previous studies, with adaptations made for use with U.S. college students. As described below, in the interest of parsimony and conceptual clarity, exploratory factor analysis was employed as a data reduction method to examine the underlying structure of these data. Accordingly, for each

**Table 1** Profiles of CDS/Q1–Q4 college student drinkers: distributions of individual CDS items

CDS item description <sup>a</sup>	Mean (SD) <sup>b</sup> [Min, Max]			
	Q1 drinkers	Q2 drinkers	Q3 drinkers	Q4 drinkers
Frequency of alcohol use in the past 30 days <sup>c</sup>	1.8 (0.5) [1, 4]	2.7 (0.7) [1, 5]	3.8 (0.9) [1, 7]	4.8 (1.1) [1, 7]
Average number of drinks consumed in a week	0.6 (0.8) [0, 5]	2.4 (1.6) [0, 12]	6.2 (3.0) [0, 22]	17.9 (11.3) [0, 80]
Greatest number of drinks consumed at 1 sitting in last 2 weeks	0.7 (1.1) [0, 6]	3.0 (1.9) [0, 10]	5.8 (2.3) [0, 17]	11.3 (4.8) [0, 30]
Average number of drinks consumed when partying	1.7 (1.3) [0, 6]	3.5 (1.6) [0, 10]	4.9 (1.7) [0, 17]	8.8 (3.3) [3, 24]

SD standard deviation

<sup>a</sup> The Composite Drinking Scale (CDS) consists of the four items listed in the table. See “Methods” for details on CDS and the classification of CDS/Q1–Q4 drinkers

<sup>b</sup> ANOVA pairwise comparisons of the means across CDS/Q1–Q4 drinkers for each item, using Scheffe’s Method, are all significant at the  $P < .05$  level

<sup>c</sup> Question asked, “During the past 30 days, on how many occasions did you use each of the following substances: alcohol (beer, wine, liquor)?” The response options (scored 1–7) were: never, 1–2 times, 3–5 times, 6–9 times, 10–19 times, 20–39 times, and 40 or more times

**Table 2** Reasons for not drinking alcohol and corresponding factor loadings from the rotated factor pattern matrix

Reason for not drinking alcohol	Factor					
	I	II	III	IV	V	VI
<i>(I) Lifestyle/personal values (Cronbach's <math>\alpha = .85</math>)</i>						
1. Your personal values are against alcohol use	.92					
2. Your religion forbids or discourages alcohol use	.68					
3. You don't like being around others who are drinking	.68					
4. You don't like the way you act when drinking	.44					
5. You don't want the image of a drinker	.44					
6. You don't want to lose control	.43					
<i>(II) Peer disapproval/norm (Cronbach's <math>\alpha = .79</math>)</i>						
7. Your friends would disapprove		.94				
8. Your steady boyfriend/girlfriend, partner, or spouse would disapprove		.71				
9. Your friends aren't drinking		.50				
10. You want to fit in with a group you like		.42				
<i>(III) Interference/weight (Cronbach's <math>\alpha = .66</math>)</i>						
11. Drinking interferes with your school work			.67			
12. You don't want to gain weight			.54			
13. Drinking interferes with your athletic activities			.50			
14. You have to drive home later			.44			
<i>(IV) Legal concern (Cronbach's <math>\alpha = .83</math>)</i>						
15. You are worried about being caught by local authorities				.88		
16. You are worried about being caught by college authorities				.82		
17. You are not of legal age to drink				.52		
<i>(V) Alcohol nonessential (Cronbach's <math>\alpha = .91</math>)</i>						
18. You don't have to drink to have a good time					.92	
19. You don't have to drink to fit in					.88	
<i>(VI) Problem drinking history (Cronbach's <math>\alpha = .68</math>)</i>						
20. You are in recovery from alcohol use						.87
21. You have a parent or a close relative who is an alcoholic or is in recovery						.44
22. You are worried about the negative effects on your health	.46		.51			
23. You don't like the taste						

Only meaningful factor loadings (i.e., loadings greater than .40) are shown in the table. "You are worried about the negative effects on your health" cross-loaded on both Factors 1 and 3. "You don't like the taste" did not load on any factor with a loading greater than .40

identified factor, a factor-based scale score was created by averaging the scores of items comprising the scale (range 0–2). The statistical analyses focused on these factors rather than individual items.

*Sociodemographic and psychobehavioral control variables*

Multivariate regression models used to examine the relationship between reasons for not drinking and alcohol consumption included the following covariates, all of which have been found to be empirically associated with college student drinking/abstaining (Huang et al. 2009; Wechsler et al. 1995a): (1) male gender; (2) age under 21 years; (3) self-identified race/ethnicity as white; (4)

fraternity/sorority member/resident; (5) closest friend being an abstainer; (6) current (past-month) nonsmoker; (7) current (past-month) non-marijuana user; and (8) abstaining in high school.

Statistical analysis

All statistical analyses were performed using SAS 9.2 (2008). Responses to the 23 items that assessed reasons for not drinking alcohol were subjected to an exploratory factor analysis, using squared multiple correlations as prior communality estimates and the maximum likelihood method for factor extraction, followed by a promax (oblique) rotation. A scree test was also executed to help

determine the number of meaningful factors to retain for rotation to a final solution. As recommended by some researchers, when interpreting the rotated factor pattern, an item was said to load meaningfully on a given factor if the factor loading was .40 or greater for that factor and less than .40 for other factors (Hatcher 1994). If a given item did not have a meaningful loading on any factor, or if it cross-loaded on more than one factor, it was not used in any of the factor-based scales. Above all, the most important criterion in making these decisions was the interpretability of the retained factors.

The scores of the factor-based scales and items of reasons for not drinking alcohol were compared across abstainers and CDS/Q1–Q4 drinkers using ANOVA and Scheffe's Method for pairwise comparisons. Next, a multivariate logistic regression model was estimated to examine the associations of various reasons for not drinking with abstinence, adjusted for the above-listed sociodemographic and psychobehavioral control variables. Finally, to help identify a possible set of reasons associated with heavy drinkers, a parallel multivariate logistic regression model, which included college drinkers only, was estimated to assess the relationships between various reasons for not drinking and CDS/Q4 (the heaviest) drinking, also adjusted for the same set of control variables. Correlation coefficients between the subscales and other covariates in the multivariate models were calculated to test for multicollinearity; these ranged between  $-.19$  and  $.35$ , suggesting that multicollinearity did not exist in these data.

## Results

### Reasons for not drinking alcohol: factor-based scales

Table 2 presents the final results of the exploratory factor analysis. The rotated factor pattern displayed simple structure with 6 interpretable factors: (1) 6 reasons were found to load on the first factor, which was labeled the *lifestyle/personal values* factor; (2) 4 reasons loaded on the *peer disapproval/norm* factor; (3) 4 reasons loaded on the *interference/weight* factor; (4) 3 reasons loaded on the *legal concern* factor; (5) 2 reasons loaded on the *alcohol nonessential* factor; and (6) 2 reasons loaded on the *problem drinking history* factor. Accordingly, 6 factor-based scales were created, with Cronbach's alpha reliability estimates ranging from .66 to .91. Since worrying about negative health effects cross-loaded on both Factor 1 and Factor 3, it was not included in either factor-based scale and was analyzed separately. Not liking the taste did not load meaningfully on any factor and was also analyzed separately.

### Comparisons of factor and item scores across abstainers and CDS/Q1–Q4 drinkers

The mean scores of each of the 6 factors and 2 items of reasons for not drinking alcohol were compared across abstainers and CDS/Q1–Q4 drinkers (Table 3). Abstainers had higher endorsement scores than drinkers on 5 factors, but not on the *interference/weight* factor. Moreover, there was an inverse relationship between drinking level and factor score, with lighter drinkers having higher endorsement scores than heavier drinkers. Worrying about negative health effects showed the same endorsement pattern as the 5 factors. Not liking the taste exhibited a similar pattern, except that CDS/Q1 (the lightest) drinkers seemed to have a slightly higher endorsement score than abstainers, although their Scheffe's pairwise comparison was not statistically significant. Finally, the *interference/weight* factor appeared to be more highly endorsed by drinkers than by abstainers, though the test for differences was not statistically significant.

### Multivariate logistic regression models

Table 4 presents the final results of two multivariate logistic regression models. Model 1, which included all students, estimated the associations of various reasons for not drinking with abstinence. Model 2, which included drinkers only, estimated the associations of various reasons for not drinking with CDS/Q4 (the heaviest) drinking. Controlling for the effects of all covariates, a 1-unit increase in the *lifestyle/personal values* score was found to be associated with a nearly 11-fold increase in the odds of abstinence (OR = 10.80). Among drinkers, it was associated with a 78% decrease in the odds of CDS/Q4 drinking (OR = .22). A 1-unit increase in the *interference/weight* factor score was associated with a 78% decrease in the odds of abstinence (OR = .22), and among drinkers with an approximately twofold increase in the odds of CDS/Q4 drinking (OR = 1.99). The *alcohol nonessential* score was associated with increased odds of abstinence (OR = 1.34). *Problem drinking history* score was negatively associated with abstinence (OR = .71), and among drinkers it was positively associated with CDS/Q4 drinking (OR = 1.48).

Students who indicated that negative health effects were a "very important" reason for not drinking were more than four times as likely to abstain (OR = 4.08), and among drinkers they were 42% less likely to be CDS/Q4 drinkers (OR = .58). Stating that not liking the taste is a "very important" reason was associated with a 47% decrease in the odds of abstinence (OR = .53), and among drinkers with a 37% decrease in the odds of CDS/Q4 drinking (OR = .63). Drinkers who rated this item as a "somewhat important" reason for not drinking were 42% less likely to



**Table 3** Reasons for not drinking alcohol: comparisons of factor and item scores across college student abstainers and CDS/Q1–Q4 drinkers

Reason for not drinking alcohol	Mean (SD)						Test for differences <sup>a</sup>
	Abstainers (n = 602)	Q1 drinkers (n = 550)	Q2 drinkers (n = 460)	Q3 drinkers (n = 455)	Q4 drinkers (n = 419)	Total (n = 2,486)	
(I) Lifestyle/personal values	1.20 (.58)	.75 (.58)	.49 (.48)	.39 (.40)	.26 (.32)	.66 (.60)	$F(4, 2,404) = 290.97, P < .0001$
(II) Peer disapproval/norm	.75 (.68)	.49 (.56)	.46 (.52)	.40 (.44)	.34 (.38)	.50 (.56)	$F(4, 2,402) = 43.05, P < .0001$
(III) Interference/weight	.95 (.67)	1.00 (.60)	1.02 (.54)	1.04 (.48)	1.00 (.47)	1.00 (.57)	$F(4, 2,405) = 1.58, P = .1762$
(IV) Legal concern	.81 (.75)	.59 (.69)	.48 (.61)	.41 (.56)	.35 (.50)	.55 (.66)	$F(4, 2,407) = 41.46, P < .0001$
(V) Alcohol nonessential	1.59 (.69)	1.33 (.79)	1.09 (.82)	.97 (.76)	.78 (.76)	1.18 (.81)	$F(4, 2,388) = 85.14, P < .0001$
(VI) Problem drinking history	.49 (.70)	.38 (.63)	.28 (.54)	.22 (.49)	.20 (.41)	.33 (.59)	$F(4, 2,361) = 22.55, P < .0001$
You are worried about the negative effects on your health	1.46 (.78)	1.04 (.85)	.89 (.78)	.80 (.73)	.64 (.68)	1.00 (.82)	$F(4, 2,407) = 83.31, P < .0001$
You don't like the taste	1.16 (.85)	1.23 (.83)	1.04 (.82)	.81 (.79)	.60 (.80)	.99 (.85)	$F(4, 2,424) = 46.92, P < .0001$

<sup>a</sup> ANOVA pairwise comparisons of the means across abstainers and CDS/Q1–Q4 drinkers, using Scheffe's method

be CDS/Q4 drinkers (OR = .58). Finally, as anticipated, all control variables were significantly associated with abstinence and/or CDS/Q4 drinking, except for race/ethnicity being white, which did not remain statistically significant in the multivariate models.

**Discussion**

The present study investigated reasons for restricting alcohol consumption or abstaining among a sample of US college students attending 18 4-year institutions, including both drinkers and abstainers. Unlike previous research, which was limited to drinkers or abstainers only (Greenfield et al. 1989; Moore and Weiss 1995), this study was able to compare the two groups, revealing broad differences between drinkers and abstainers that can help inform future campus-based prevention efforts.

**Reasons for not drinking alcohol**

Abstainers endorsed a far greater number of reasons for not drinking alcohol than drinkers. An ancillary analysis (data not shown) indicated that, of the 23 reasons for not drinking, abstainers endorsed an average of 13.8 reasons as somewhat or very important, significantly more than drinkers endorsed: CDS/Q1 (11.3), CDS/Q2 (10.1), CDS/Q3 (9.5), and CDS/Q4 (8.1). As demonstrated in the multivariate model for abstinence, the decision not to drink appears to be most strongly linked to a lifestyle choice.

Specifically, not drinking reflects abstainers' personal values against alcohol use, including religious beliefs and not wanting the image of a drinker. Moreover, abstainers believe that alcohol causes people to lose control or act inappropriately. Such *lifestyle/personal values* concerns, albeit not as highly endorsed by drinkers as reasons for not drinking, are also a strong protective factor against heavy drinking among college drinkers.

Abstainers had significantly higher *peer disapproval/norm* scores than drinkers, but this factor was not statistically significant in the multivariate models. On the other hand, having a closest friend who does not drink was associated with a more than fourfold increase in the odds of being an abstainer, as well as a 68% decrease in the likelihood of heavy drinking among drinkers. Thus, while college students may not differentially rate peer disapproval as a significant reason for not drinking alcohol, peer group homogeneity—whether due to peer influence or peer selection—is a strong covariate of alcohol use.

Although *legal concern* was not significantly associated with abstinence in the multivariate model, students under 21 years of age were more than 3 times as likely to abstain as their older counterparts. An auxiliary analysis found that those under 21 did have significantly higher *legal concern* scores than those 21 years or older, indicating that alcohol abstinence among those under 21 could in part be attributed to such legal concern.

Consistent with prior research, the present study also found that, among drinkers, intention to drive and concerns about performance and health were among the most

**Table 4** Multivariate logistic regression models for covariates of abstinence versus CDS/Q4 drinking: comparing various reasons for not drinking alcohol

Variable	Model for abstinence ( $n = 2,012$ )			Model for CDS/Q4 drinking ( $n = 1,605$ ) <sup>a</sup>		
	Beta	Adj. OR	95% CI	Beta	Adj. OR	95% CI
<i>Reasons for not drinking alcohol</i>						
(I) Lifestyle/personal values	2.38	10.80	(6.98, 16.71)****	-1.50	.22	(.13, .38)****
(II) Peer disapproval/norm	-.18	.84	(.59, 1.18)	.20	1.23	(.82, 1.82)
(III) Interference/weight	-1.53	.22	(.15, .32)****	.69	1.99	(1.42, 2.78)****
(IV) Legal concern	-.13	.88	(.65, 1.18)	.05	1.05	(.77, 1.43)
(V) Alcohol nonessential	.29	1.34	(1.04, 1.74)*	-.15	.86	(.71, 1.05)
(VI) Problem drinking history	-.34	.71	(.52, .96)*	.39	1.48	(1.02, 2.14)*
<i>You are worried about the negative effects on your health</i>						
Very important vs. not at all important (ref)	1.41	4.08	(2.43, 6.84)****	-.54	.58	(.35, .96)*
Somewhat important vs. not at all important (ref)	.47	1.60	(1.00, 2.56)	-.09	.91	(.66, 1.26)
<i>You don't like the taste</i>						
Very important vs. not at all important (ref)	-.63	.53	(.35, .82)**	-.46	.63	(.44, .91)*
Somewhat important vs. not at all important (ref)	-.39	.68	(.44, 1.04)	-.55	.58	(.41, .81)**
<i>Control variables</i>						
Male vs. female (ref)	.64	1.89	(1.34, 2.67)***	1.30	3.68	(2.74, 4.94)****
Age under 21 years vs. 21+ (ref)	1.19	3.27	(2.29, 4.68)****	.18	1.20	(.89, 1.62)
White vs. non-white (ref)	-.18	.83	(.58, 1.20)	.34	1.40	(.94, 2.08)
Fraternity/sorority member/resident vs. non-Greek (ref)	-.32	.73	(.44, 1.19)	.81	2.26	(1.60, 3.18)****
Closest friend being an abstainer vs. drinker (ref)	1.54	4.65	(3.28, 6.58)****	-1.15	.32	(.14, .70)**
Current nonsmoker vs. smoker (ref)	.92	2.52	(1.49, 4.26)***	-.53	.59	(.44, .78)***
Current non-marijuana user vs. user (ref)	1.42	4.12	(1.42, 11.97)**	-1.18	.31	(.22, .42)****
Abstaining in high school vs. drinking (ref)	1.28	3.61	(2.49, 5.23)****	-.95	.39	(.28, .55)****

Beta regression coefficient estimate, *adj. OR* adjusted odds ratio, *CI* confidence interval, *ref* reference group

\*  $P < .05$ ; \*\*  $P < .01$ ; \*\*\*  $P < .001$ ; \*\*\*\*  $P < .0001$

<sup>a</sup> Includes drinkers only

important reasons for limiting drinking (Greenfield et al. 1989). The *interference/weight* factor identified in this study consists of 4 reasons for not drinking alcohol that appeared to be more highly rated by CDS/Q4 drinkers than by abstainers, albeit not significantly: having to drive home later, interference with school work, interference with athletic activities, and concern about weight gain. Moreover, the *interference/weight* concern score in the multivariate models was negatively associated with abstainers, but among drinkers was positively associated with CDS/Q4 drinkers. These findings suggest that these reasons may well be the main causes of concern for heavier drinkers when they choose to limit their alcohol consumption. There may be other situational factors that would lead heavier drinkers in particular not to drink, which future research should seek to identify and elucidate.

The high *alcohol nonessential* score among abstainers and the significant positive association of this factor with

abstinence indicate that abstainers do not believe that drinking alcohol is an essential part of having fun. Importantly, these *alcohol nonessential* reasons are the highest-rated reasons for not drinking alcohol endorsed by college abstainers in this study, but to our knowledge, they have never been identified as main reasons for abstinence in prior research. As discussed below, this finding has far-reaching implications for future research and prevention as this factor was also among the top reasons rated by college drinkers.

*Problem drinking history* was the least endorsed factor of all, but it was a statistically significant factor in the multivariate models. Understandably, college students who endorsed higher scores on problem drinking history as an important reason for not drinking may have experienced drinking problems themselves or among relatives, and hence may be less likely to be abstainers and more likely to be heavier drinkers, after controlling for other covariates.

Worrying about negative health effects was among the top reasons rated by both abstainers and drinkers. Of note, its protective effect on abstention and against heavy drinking was statistically significant only when such a reason was rated as “very important,” rather than “somewhat important.” Dislike of the taste was also highly endorsed by college students. Those who rated it as a “very important” reason for not drinking alcohol were found less likely to be abstainers—since abstainers do not drink, it is reasonable to speculate that the taste is not a relevant issue for them. By comparison, not liking the taste was a significant protective factor against heavy drinking among college drinkers, regardless of whether they considered it a “very important” or “somewhat important” reason for not drinking alcohol.

Finally, consistent with previous research, all 8 control variables except race/ethnicity were significantly associated with abstention and/or heavy drinking in the multivariate models. Male college students, in particular, were found to have greater odds of abstention, but also greater odds of heavy drinking among drinkers, indicating a polarized pattern of alcohol use behavior as reported in prior studies (Huang et al. 2009; Wechsler et al. 1995a). Further, a supplementary analysis revealed that male college students endorsed significantly lower scores on all reasons for not drinking alcohol, compared with their female counterparts. Similarly, white college students also had significantly lower scores than their non-white peers on all factors except *interference/weight* concern, signifying the relative importance of this particular reason for not drinking among white college students.

#### Limitations of the study

This study has some limitations that could be addressed in future research. First, relying on cross-sectional data constrains the study’s ability to make causal inferences about the relationships found in this study. Second, the study sample was drawn from 18 colleges and universities, but those institutions were not randomly selected, although the student sample from each participating institution was drawn at random. Additional studies, involving large, national random samples of college students are needed. Third, while the resultant scale from this study on reasons for not drinking alcohol is a satisfactory and viable measure in its current form, it would certainly benefit from additional research to explore other possible reasons and to further develop and validate the scale as in this study. Clearly, to improve campus prevention efforts, more research is needed on why students, especially heavy drinkers, choose not to drink and the factors that lead students to act on those motives at particular times and places.

#### Implications for prevention campaign messages

For abstainers, the decision not to drink appears to be a lifestyle choice with multiple supportive reasons, including their own personal values. These students could have that choice reinforced by prevention messages that echo their own beliefs and concerns about alcohol consumption. Such messages are necessary, as college students are less likely to abstain as they spend more time on campus (Huang et al. 2009).

Any messages directed to abstainers would also be seen or heard by drinkers, including heavy drinkers, who generally endorse far fewer reasons to limit their alcohol consumption or to refrain from drinking. Given that, prevention messages should focus on the beliefs and concerns about alcohol that are shared by many drinkers, not just abstainers. It would be far easier to increase the salience of existing reasons that drinkers have for restricting their alcohol use than to win their endorsement of still additional reasons that are primarily endorsed by abstainers.

Two factors, *alcohol nonessential* and *interference/weight*, plus the item regarding negative health concerns, were among the top-rated reasons for not drinking for both abstainers and various levels of drinkers and therefore may be the most suitable focus for broadly disseminated prevention messages. In addition, considering that elevated *legal concern* was found among college students under 21 years of age, this reason for not drinking alcohol could also be reinforced in prevention campaigns.

In sum, the present study has identified several potential prevention campaign messages that could be effective with both abstainers and drinkers, including: (1) Drinking is not an essential part of having fun. (2) Alcohol can have negative health effects. (3) Drinking can lead to weight gain. (4) Drinking can interfere with your school work. (5) Drinking and driving laws are being strictly enforced. Importantly, all five of these messages would need to be grounded in presentations of facts established through research studies, student surveys, and examinations of student records.

#### Implications for environmental management strategies

Notably, environmental management approaches to prevention (DeJong and Langford 2002) can be designed to reinforce students’ existing reasons for limiting alcohol consumption or abstaining. For example, the idea that drinking is not an essential part of having fun could be made more salient when the college and the surrounding community offer additional alcohol-free alternatives. Offering such alternatives is the most frequently offered response in focus group interviews with college students on how to help decrease alcohol use (Emery et al. 1993).



It was noted previously that college students under 21 years of age were far more likely to abstain and to endorse legal concern reasons for not drinking that are related to external controls—specifically, being worried about getting caught by local or college authorities or not being of legal age to drink. These findings have to be understood in the context of most campus communities providing lax enforcement of school rules and state and local laws (DeJong et al. 1998; Wechsler et al. 1995b). With firmer and more consistent enforcement in place, a higher proportion of students, including heavy drinkers, would be expected to endorse concerns about external controls as a reason for not drinking alcohol.

This line of thinking is reinforced by the fact that the majority of students, including heavy drinkers, already state that having to drive home later is a major reason to limit their drinking. Several states have imposed new anti-drunk driving measures, including administrative license revocation, lower per se limits, “zero tolerance” laws that impose 0.00 or 0.02% BAC per se limits on minors, and sobriety checkpoints. With this general deterrence approach, a combination of new laws, tougher enforcement, and publicity can be used to increase the public’s perceived risk of being arrested and thus discourage driving after drinking (DeJong and Hingson 1998).

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