
The Marketing of Alcohol to College Students

The Role of Low Prices and Special Promotions

Meichun Kuo, ScD, Henry Wechsler, PhD, Patty Greenberg, MA, Hang Lee, PhD

Background: Heavy episodic or binge drinking has been recognized as a major problem on American college campuses affecting the health, safety, and education of students. The present study examines the alcohol environment surrounding college campuses and assesses the impact on students' drinking. This environment includes alcohol promotions, price specials, and advertising at drinking establishments that serve beer for on-premise consumption as well as retail outlets that sell beer for off-premise consumption.

Methods: The study used student self-report data from the 2001 College Alcohol Study (CAS) and direct observational assessments by trained observers who visited alcohol establishments in communities where the participating colleges were located. The analytic sample included more than 10,000 students as well as 830 on-premise and 1684 off-premise establishments at 118 colleges.

Results: Alcohol specials, promotions, and advertisements were prevalent in the alcohol outlets around college campuses. Almost three quarters of on-premise establishments offered specials on weekends, and almost one half of the on-premise establishments and more than 60% of off-premise establishments provided at least one type of beer promotion. The availability of large volumes of alcohol (24- and 30-can cases of beer, kegs, party balls), low sale prices, and frequent promotions and advertisements at both on- and off-premise establishments were associated with higher binge drinking rates on the college campuses. In addition, an overall measure of on- and off-premise establishments was positively associated with the total number of drinks consumed.

Conclusions: The regulation of marketing practices such as sale prices, promotions, and advertisements may be important strategies to reduce binge drinking and its accompanying problems. (Am J Prev Med 2003;25(3):204-211) © 2003 American Journal of Preventive Medicine

Introduction

Heavy episodic or "binge" drinking (the consumption of ≥ 5 drinks in a row for men and ≥ 4 for women, at least once in the past 2 weeks) has been recognized as a major problem on American college campuses by college presidents,¹⁻² alcohol researchers,³ the National Institute on Alcohol Abuse and Alcoholism (NIAAA),⁴ and the U.S. Surgeon General.⁵ Several national studies have found that approximately two out of five college students are binge drinkers.⁶⁻¹¹ Binge drinking has been associated with problems such as property damage, physical injuries, unwanted sexual advances, and encounters with po-

lice.^{9,11-13} In addition, binge drinking is associated with secondhand effects such as interruption of study or sleep, having to babysit a drunken student, or being victim of a physical and sexual assault.^{13,14} With regard to any type of alcohol consumption, it is estimated that 1400 college students die each year from alcohol-related injuries.¹⁵

Alcohol availability is associated with increased alcohol consumption among the general population as well as among young adults and older adolescents.¹⁶⁻¹⁹ Heavy alcohol consumption by college students and others is encouraged by a "wet" environment, in which alcohol is prominent and easily accessible.²⁰⁻²¹ Previous studies have documented the effect of price on alcohol consumption in the general population and among young adults and adolescents. In general, as the price of alcohol increases, consumption rates decrease.²²⁻²⁵ Conversely, as the price of alcohol decreases, consumption rates increase. Moreover, young people are more affected by price of alcohol.²⁶⁻²⁸ Alcohol outlets near college campuses commonly use various discounts and promotions to attract students, and alcohol promotions and specials may increase

From the Harvard School of Public Health, Department of Health and Social Behavior (Kuo, Wechsler), Boston, Massachusetts; the Battelle-Centers for Public Health Research and Evaluation (Greenberg), Baltimore, Maryland; and the Harvard Medical School, MGH Biostatistics Center (Lee), Boston, Massachusetts

Address correspondence and reprint requests to: Henry Wechsler, PhD, Department of Health and Social Behavior, Harvard School of Public Health, 677 Huntington Avenue, Boston MA 02115. E-mail: hwechsle@hsph.harvard.edu.

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consumption. For example, Babor et al.²⁹ found that both heavy and light drinkers drank more than twice as much alcohol during simulated “happy hours” as they did during times without such promotions.

Some previous studies of price have used aggregated data of retail price that did not specifically take into account the unique marketing of the sale of alcohol surrounding the college campus.^{23,26} Other studies used “perceived alcohol availability,” obtained directly from the respondents and possibly biased by the respondents’ own drinking status.^{30,31}

The purpose of the present study was to describe the alcohol environment surrounding college campuses. Establishments selling alcohol for on-premise and off-premise consumption, alcohol promotions, price specials, and alcohol advertising were examined, as well as the effects of these environmental factors on students’ drinking. Data from the 2001 Harvard School of Public Health College Alcohol Study (CAS), which gathered drinking information on more than 10,000 students nationwide, were analyzed. In addition, detailed information on prices, specials, and promotions at individual stores surrounding the 119 college campuses was obtained from independent observations.

Methods

Study Design and Population

The 2001 CAS surveyed students at 119 colleges who participated in each of the three previous CAS surveys. The participating schools were located in 38 states and the District of Columbia. Administrators at each participating school provided a list of 215 subjects, who were randomly selected from full-time undergraduate students enrolled during the 2000–2001 school year using the same procedure conducted in previous CAS surveys.

Starting in February 2001, questionnaires were mailed to 25,585 students identified in December 2000 or January 2001 as attending the college. At the time of the mailing, some students were no longer in school due to withdrawal or leave of absence, and some had incorrect mailing addresses, thus reducing the target sample to 21,055 students. The response rate was 52% ($n=10,904$). Since the demographic characteristics of the student sample for each school may not be a perfect reflection of the true demographic characteristics of that school and could bias these results, data were weighted based on gender, age and ethnicity to account for colleges’ varying sampling fractions. Details of the sampling methods and inclusion criteria are described elsewhere.^{9,11}

The sample of 119 colleges represented a national cross-section of students enrolled at 4-year colleges. Sixty-nine percent of the responders attended public colleges and 31% attended private colleges; this approximates the U.S. national distribution of 68% and 32%, respectively, for full-time 4-year college students.³² Forty-seven percent of responders attended large (>10,000 students), 23% medium-sized (5001–10,000 students), and 29% small (<5001 students) colleges. The U.S. national distribution is 37%, 24%, and 40%, respectively.³² The higher percentage of colleges with large enroll-

ments in this sample was due to the sampling procedure of probability proportionate to size. Sixty-nine percent of responders attended schools in large- or medium-sized cities, compared to 71% of students nationwide, and 13% attended religiously-affiliated schools, compared to 16% nationwide.³² Five percent of students attended all-women’s colleges.

Alcohol Environment Assessment

Alcohol environment assessments of neighborhoods surrounding the college campuses were conducted at each of the 119 participating colleges. Battelle Centers for Public Health Research and Evaluation was contracted to conduct the field observations. A marketing systems group was subcontracted to provide a sample of on- and off-premise beer venues within a 2-mile radius of participating colleges using the self-reported Standard Industrial Classification code. The radius was determined using the street address of the campus. Telephone screening of each establishment in the sample was conducted to make sure that they sold or served alcohol. Off-premise establishments were defined as retail outlets that sold beer (e.g., liquor stores, convenience stores, groceries) for off-premise consumption, and on-premise establishments were defined as drinking establishments that served beer (e.g., bars, clubs, restaurants) for on-premise consumption.

Unobtrusive observations were conducted in both on- and off-premise establishments. In the off-premise establishments, the data collectors monitored the availability of a variety of pack configurations of beer (singles, 6-, 12-, 24-, and 30-can packages, party balls [beach-ball-sized beer containers that hold about 55 12-oz glasses of beer or 2.5 cases of 12-oz cans], and kegs); the lowest price of 12- and 24-packs and the brands offering those low prices; beer promotions such as volume discounts, coupons, and special prices; the presence of alcohol protective messages (e.g., age-of-sale warnings and health-related messages); the level of exterior and interior advertising; and other characteristics (including the presence of security or police, the ability to sell beer on Sundays, the availability of delivery, the presence of a drive-up window, and hours of operation). Similarly, with on-premise establishments, data collectors noted serving sizes, prices, and interior and exterior signage in addition to promotions, activities, and events that might attract students.

Due to time constraints, the number of off-premise establishments observed per site was limited to 20, and the number of on-premise establishments observed per site was limited to 8. If there were more establishments than needed, the observers were instructed to visit those closest to campus or frequented by the students. In some areas, it was necessary to expand the radius to capture at least two on- and off-premise establishments. Among 119 schools, a total of 1690 off-premise establishments were observed. On-premise establishment data for three college campuses were not available (two colleges were located in “dry” towns, with the closest on-premise venue was at least 15 miles away, and observers were not able to complete the observations for one college campus due to the late hours at which the establishments opened). A total of 830 on-premise establishments were observed among 116 colleges.

Field data collectors received more than 22 hours of training, including both classroom instruction and supervised practice in the community. In addition, each observer’s

competence in the study protocol was certified before data collection began. Furthermore, an inter-rater reliability study was undertaken as a measure of quality control. The proportion of agreement among observers was assessed using repeated measurements³³ as multiple observers independently collected data in 16 venues. This test demonstrated inter-rater agreement in 1395 out of 1508 items, for an overall level of agreement of 92.5%.

Measures

College binge-drinking rate. Heavy episodic or binge drinking has been defined as the consumption of at least five drinks in a row for men or four drinks in a row for women during the 2 weeks preceding their completion of the questions.^{11,34} A college's binge-drinking rate was the percentage of students classified as binge drinkers on the basis of the aggregated self-report responses of students at that school to the binge drinking questions.

High school binge drinking. Students were asked: "During your last year in high school, how many drinks did you usually have when you drank alcohol?" A high school binge drinker was defined as usually having five drinks for men or four drinks for women.

Past 30-day drinking rate and annual drinking rate. A college's drinking rate for the past 30 days and annual drinking rate was the percentage of students who had a drink in that time period based on the aggregated self-report responses of students to the question: "When did you last have a drink?"

Total number of drinks in the past 30 days. Two variables were used to measure this outcome: (1) the number of occasions the respondent had a drink of alcohol in the 30 days before the survey, and (2) the number of drinks the respondent usually had on those occasions. A drink was defined in the questionnaire as either a 12-oz bottle or can of beer, a 4-oz glass of wine, a 12-oz bottle or can of wine cooler, or a shot of distilled spirits (either straight or in a mixed drink). Possible responses to the number of occasions were 0, 1–2 occasions (coded as 1.5), 3–5 occasions (coded as 4), 6–9 occasions (coded as 7.5), 10–19 occasions (coded as 14.5), 20–39 occasions (coded as 29.5), and 40 or more occasions (coded as 40). Those students who did not drink in the past 30 days were coded as usually drinking zero drinks.

On-premise establishment index score. The on-premise establishment index included the summed score of eight items; each was dichotomized as yes versus no for beer specials, special promotions in the following 30 days, low sale prices (for single drinks, pitchers or the largest volume), interior signage of alcohol promotions, exterior signage of alcohol promotions, no interior signage of alcohol warnings, no exterior signage of alcohol warnings, and any age verification policies.

Off-premise establishment index score. The off-premise establishment index included the sum of a score of five items; each was dichotomized as yes versus no for the sale of kegs or party balls, low sale prices on 12- or 24-packs of beer, any beer promotions, exterior advertisements "all over the place," and interior advertisements covering "all over the place."

Total alcohol environment score. The total alcohol environment (the "wetness") score was the sum of the on- and off-premise establishments' index scores.

Data Analysis

The analytic sample included 10,823 students at 118 colleges. One college for which data about on-premise establishments were not available was dropped. At 118 college sites, 1684 off-premise establishments and 830 on-premise establishments were observed. The percentages of the characteristics for on- and off-premise establishments were reported, and the average percentage of these characteristics for each college campus was calculated. Pearson correlation coefficients were used to examine the association between the average percentage of these characteristics for each college campus and college binge-drinking rates among 118 schools.

Multiple regressions were conducted to examine whether the on- and off-premise establishment index scores and total alcohol environment scores had effects on the total number of drinks consumed by students in the past 30 days. Generalized Estimating Equations (GEE)^{35–36} were used to obtain robust standard errors of the estimated regression coefficients of the multiple regression models fit to the clustered outcomes from the study sampling scheme. Standardized scores (mean=5, SD=2) were used for on- and off-premise establishment index scores and total alcohol environment scores in the regression models. Since the overall response rate to the survey was 52%, the potential for bias from the nonresponse rate may have been introduced in the regression estimates. The association between colleges' response rates and their binge-drinking rates was examined by means of Pearson correlation coefficient, and was not significantly different from zero ($r=0.170$, $p=0.064$). As a precaution, however, the authors controlled for college response rate in the final model.

Results

Off-Premise Establishment Characteristics and College Binge-Drinking Rates

Among 1684 off-premise establishments surrounding 118 college campuses, about half of the establishments sold 24- or 30-can cases, almost a quarter of the off-premise establishments sold kegs, and about 5% of the off-premise establishments sold party balls (Table 1). The availability of large volumes of beer (24- or 30-can cases, party balls, or kegs) was associated with higher binge-drinking rates: Colleges with higher percentages of establishments selling large volumes of beer had higher binge-drinking rates.

Average prices for 12-packs of beer and 24-packs of beer were \$6.08 (\$2.79–\$11.29) and \$11.74 (\$5.89–\$24.00), respectively. The average price of a 24-can case

Table 1. Off-premise characteristics and the association with binge-drinking rate

Variables	% (N=1684)	Correlation ^a (n=118)	<i>p</i> value
Type of beer sold			
6-pk 12 oz cans	97.7	-0.17	0.073
12-pk 12 oz cans	93.6	0.01	0.881
24-can case	55.5	0.28	0.003
30-can case	43.3	0.25	0.006
Party ball	5.3	0.22	0.015
Beer kegs	23.1	0.33	<0.001
Promotions			
Volume discounts	15.3	0.21	0.025
Cents-off coupons	2.6	0.22	0.018
Advertised special price offer	61.3	0.37	<0.001
Freebies (e.g., calendars, mugs)	0.7	0.18	0.047
Mail-in coupons or points	1.7	0.07	0.421
Other	4.0	0.003	0.970
Any of above	63.1	0.35	<0.001
Alcohol protective message			
Alcohol sale warning	45.6	0.13	0.172
Alcohol health-related message	7.6	0.009	0.921
General age-of-sale warning	53.5	0.11	0.218
Any of above	74.2	0.15	0.117
Store interior advertising/logos			
Free from any alcohol advertising/logos	13.5	-0.23	0.0114
Only in sections where items are sold	48.8	-0.12	0.1934
Alcohol ads/logos in other areas of store	22.7	0.06	0.4865
Alcohol ads/logos covering all available space	15.0	0.26	0.0052
Store exterior/property advertising for alcohol			
No advertisement	36.5	-0.29	0.0012
Discreet	22.8	0.13	0.1652
Moderate	22.7	0.09	0.3373
All over the place	18.0	0.16	0.0746
Other store characteristics			
Is alcohol sold on Sunday	62.7	-0.16	0.090
Is delivery available	7.1	0.195	0.035
Off-premise index score (mean score)	1.50 (1.17)	0.39	<0.001

^aPearson correlation coefficients were used to examine the association between college binge-drinking rates and average percentage of off-premise characteristics at 118 colleges.

of beer was negatively associated with binge-drinking rate ($r = -0.24$, $p = 0.009$); that is, the lower the price, the higher the college binge-drinking rate. The same was not found for the average price of a 12-pack of beer.

About 63% of the off-premise establishments offered promotions such as volume discounts, advertised price specials, or coupons. These promotions were significantly correlated with college binge-drinking rates. More than half of the off-premise establishments displayed warnings in the stores, but the correlation of displaying an alcohol protective message with binge-drinking rates was not statistically significant.

Both interior and exterior advertising were correlated with college binge-drinking rates. For campuses with more off-premise establishments that were free from alcohol advertising, the college binge-drinking rates were significantly lower.

The off-premise establishment index score was also significantly related to college binge-drinking rates

($r = 0.39$, $p < 0.001$). The results indicated that campuses with higher off-premise establishment index scores had higher binge-drinking rates.

On-Premise Establishment Characteristics and College Binge-Drinking Rates

Among the 830 on-premise locations surrounding college campuses, the prices for a single drink, pitcher, or the largest volume were significantly correlated with college binge-drinking rates: The lower average alcohol sale price among on-premise establishments surrounding the college campus, the higher the college binge-drinking rate (Table 2).

About 73% of the on-premise locations offered specials on weekends, and about 45% of the on-premise locations were offering promotions in the next 30 days. The presence of weekend beer specials was highly correlated with college binge-drinking rates, and on-premise establishments planning alcohol promotions

Table 2. On-premise characteristics and the association with college binge-drinking rate

Variables	% (n=830)	Correlation ^a (n=116)	p value
Price	Mean Price (range)		
Single	\$1.95 (\$0.25–7.00)	–0.36 ^b	<0.0001
Pitcher	\$5.48 (\$0.01–13.50)	–0.25 ^b	0.01
Largest volume	\$4.47 (\$0.01–13.50)	–0.39 ^b	<0.0001
Beer Specials on Thursday, Friday or Saturday			
Free	1.6	0.07	0.429
Free with purchase of something else	1.8	0.07	0.431
2 or 3 for single price	11.0	0.14	0.129
“All you can eat/drink” at single price	3.3	0.19	0.04
Special price	72.5	0.42	<0.001
Any of above	73.4	0.42	<0.0001
Promotions in next 30 days			
Merchandise promotions	9.1	0.09	0.355
Special price of alcohol	35.3	0.34	0.0002
Sponsored entertainment/event	24.4	0.22	0.015
Other	4.4	0.10	0.31
Any of above	45.0	0.37	<0.0001
Age verification			
Identifications manually checked at door	41.5	0.15	0.105
Identification device checked at door	1.5	–0.0004	0.99
Identifications manually checked at table	78.4	0.13	0.166
Identification device checked at table	1.8	0.04	0.649
Underage prohibited	28.0	–0.09	0.33
Any of above	94.3	0.2	0.02
Exterior alcohol promotion (volume discount, promotion/event, price special)	30.4	0.24	0.011
Exterior age warning (must be age 21 to drink, must be age 21 to enter)	26.1	–0.09	0.3319
Interior alcohol promotion (volume discount, promotion/event, price special)	48.3	0.13	0.16
Interior age warning (must be age 21 to drink, must be age 21 to enter)	49.9	–0.02	0.8110
On-premise index score (mean score)	3.71 (1.80)	0.42	<0.0001

^aPearson correlation coefficients were used to examine the association between college binge drinking rates and average percentage of on-premise characteristics at 118 colleges.

^bCorrelation between mean price and binge-drinking rate.

in the next 30 days were also significantly correlated with college binge-drinking rates. College campuses with more on-premise establishments offering weekend beer specials or special promotions had higher binge-drinking rates.

More than 90% of the on-premise establishments had established policies to verify the age of their patrons. Observed use of age verification policies in the establishments was correlated with higher binge-drinking rates. Likewise, colleges with more exterior advertising of alcohol promotions had higher binge-drinking rates. However, interior alcohol promotion advertising was not correlated with college binge-drinking rates.

The on-premise establishment index score was also significantly related to college binge-drinking rates ($r=0.42$, $p<0.0001$). The results indicated that campuses with higher on-premise establishment index scores had higher binge-drinking rates.

Total Alcohol Environment

The mean total alcohol environment score for the 118 colleges was 5.18 ± 1.76 . The authors examined whether or not the total alcohol environment scores among 118 colleges varied by region, enrollment size, and urban/rural area. The results showed significant regional differences ($F_{(3)} = 6.67$, $p<0.001$). The north-central region had significantly higher scores (mean= 6.12 ± 1.76) than the south (mean= 4.97 ± 1.55) and west (mean= 4.09 ± 1.44), but not the northeast region (mean= 5.13 ± 1.76). The total alcohol environment score did not differ significantly by school size: categorized as <1000 (mean= 4.31 ± 2.05), 1000–5000 (mean= 4.97 ± 1.78), 5000–10,000 (mean= 5.49 ± 1.61), and >10,000 (mean= 5.28 ± 1.77) ($F_{(3)} = 1.21$, $p=0.309$). There was also no significant difference between rural (mean= 5.53 ± 1.77) and urban (mean= 5.06 ± 1.72) areas, ($F_{(1)} = 1.65$, $p=0.202$).

Table 3. Total alcohol environment and colleges' drinking rate ($n=118$)

Variables	Total alcohol environment score	
	Correlation coefficient	<i>p</i> value
Binge-drinking rate	0.49	<0.001
Past 30-days drinking rate	0.41	<0.001
Annual drinking rate	0.35	<0.001

The association between the total alcohol environment score and the student's drinking rate was examined (Table 3). The results showed that the total alcohol environment score was significantly correlated with college binge-drinking rates ($r=0.49$), past 30-day drinking rates ($r=0.41$), and past-year drinking rates ($r=0.35$). The higher the alcohol environment score, the higher the percentage of binge drinkers, past-30-day drinkers, or past-year drinkers on campus.

Alcohol Environment Around College Campuses and Number of Drinks Consumed by Students

The association between the number of drinks consumed by students in the past 30 days and the alcohol environment around college campuses was examined (Table 4). The results showed that the off-premise establishment index score was positively associated with the total number of drinks consumed by the students in the past 30 days, adjusting for gender, underage status, race, and response rate. Students from schools with higher off-premise establishment index scores consumed more drinks in the past 30 days. The effect of the on-premise establishment index score was not significant. The total alcohol environment index score was positively associated with the total number of drinks consumed by the students. To decrease the likelihood that selection bias results in more pre-college binge drinkers attending colleges with higher rates of heavy drinking, the relationship between the total alcohol environment and number of drinks consumed among students who did not binge drink in high school was

examined. The results for high school nonbinge drinkers were similar to the results shown in Table 4 (the estimate of total alcohol environment score was 1.20 [0.35], $p=0.0005$).

Conclusions

In examining the marketing of alcohol in the communities surrounding college campuses, it was found that alcohol specials, promotions, and advertisements were prevalent in the alcohol outlets around college campuses. Approximately three quarters of on-premise establishments offered specials on weekends, and almost half of the on-premise establishments and more than 60% of off-premise establishments offered some type of beer promotion. The results indicated that the "wet" alcohol environment around campuses—including lower sale prices, more promotions, and alcohol advertising at both on- and off-premise establishments—was correlated with higher binge-drinking rates on the college campuses. In addition, the alcohol environment was directly associated with the number of drinks consumed by the students in the past 30 days. Examination of the relationship of the alcohol environment and drinking among high school nonbinge drinkers suggests that it may be the "wet" alcohol environment surrounding the colleges and not the self-selection of students who choose to attend these colleges that is the basis for increased alcohol consumption. The authors found that the lower the price of beer in the surrounding community, the higher the binge-drinking rate at the college. This is consistent with previous findings that alcohol consumption by young people (in this case, college students) is affected by price. In line with this are the findings that alcohol promotions, price specials, and large-volume discounts are associated with higher binge-drinking rates. Surprisingly, a positive association was found between checking identification in on-premise establishments and college binge-drinking rates. There may be two possible explanations. First, since age verification is an enforcement issue, there may be increased enforcement efforts in those communities with higher rates of problem

Table 4. Alcohol environment and total number of drinks

Variables	Model 1		Model 2		Model 3	
	Estimate (SE)	<i>p</i> value	Estimate (SE)	<i>p</i> value	Estimate (SE)	<i>p</i> value
Intercept	-7.68 (7.09)	0.279	-3.72 (5.99)	0.534	-5.48 (5.78)	0.272
Off-premises index score	1.68 (0.51)	<0.0001				
On-premises index score			1.24 (0.72)	0.084		
Total alcohol environment score					1.60 (0.62)	0.009
Gender	15.02 (1.15)	<0.0001	14.96 (1.17)	<0.0001	14.94 (1.16)	<0.0001
Underage	-1.00 (0.99)	0.314	-0.85 (0.99)	0.379	-1.01 (0.95)	0.2882
White	12.24 (1.10)	<0.0001	12.48 (1.27)	<0.0001	11.92 (1.25)	<0.0001
Response rate	0.12 (0.16)	0.434	0.08 (0.16)	0.602	0.09 (0.15)	0.531

drinking among college-aged students. Second, on-premise drinking establishments in low binge-drinking communities may cater to nonstudents, perhaps experiencing less pressure to apply age verification measures.

Efforts to reduce problems associated with college binge drinking have focused primarily on education and changes in behavior. However, the results of this study suggest that the regulation of marketing practices (e.g., sale prices, promotions, and exterior advertisements) may be important strategies.

Previous studies on alcohol pricing have often used broad, aggregate data that did not capture specific environmental factors surrounding college campuses. The current study included more detailed factors, such as weekend price specials, promotions, and large-volume discounts, which specifically target college populations. Others studies have used respondents' perceptions and recall of alcohol marketing practices to describe the alcohol environment.^{30,31} These can be influenced by the respondents' own drinking behaviors. The present study obtained direct observations by trained observers about the marketing practices of alcohol establishments near the college campuses. Thus, the data about students' own drinking and about the marketing practices in the surrounding communities came from two independent sources.

The results of this study must be viewed within the context of its limitations. First, the CAS is subject to the limitations of self-report surveys. However, such surveys have been widely used and are considered generally valid in examining alcohol responses.³⁷⁻³⁸ Second, potential bias may have been introduced through nonresponse. However, several procedures were used to test for this in both surveys, with no evident effect on the findings. While it is not possible to fully eliminate the potential of bias introduced through nonresponse, the authors tried to minimize the impact through weighting procedures. In addition, the impact of the response rate was examined through dichotomized or categorical analyses, and no significant relationship was found. Furthermore, the binge-drinking rates reported in this study were almost identical to those found in other national surveys^{6-8,10} of tobacco use^{6-8,39,40} and illicit drug-use rates.⁸

Finally, since this is a correlational study, causality cannot be determined. Marketing practices that reduce cost may increase drinking levels, and heavy drinking by students may induce bars and restaurants to cater to and compete for their patronage through price lowering promotions. However, it is harder to maintain that high demand lowers prices.

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