Research Article

Inbound College Students Drink Heavily during the Summer before Their Freshman Year: Implications for Education and Prevention Efforts

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ABSTRACT

Background: *Alcohol misuse among college students remains a pervasive problem. Relatively little is known about alcohol consumption by incoming students during the summer between high school graduation and the start of the freshman year. It is possible that many students bring unhealthy drinking habits with them to college.* ***Purpose:*** *The present study examined patterns of alcohol use and related consequences among incoming college students during the summer before their freshman year.* ***Methods:*** *The dataset consisted of self-reported two-week drinking histories from 4,539 incoming freshmen at three universities during the summer of 2003. An average of 80% of all incoming students at the schools was surveyed. In the present study, drinking patterns, risk and protective factors, and alcohol-related consequences were examined.* ***Results:*** *Roughly 50% of college-bound students consumed alcohol in the two weeks before the survey. Nearly 30% of all students met or exceeded the threshold for binge drinking (4+ drinks for females; 5+ drinks for males). Among those who drank during the two weeks before the survey, roughly 50% of males and females consumed shots, 50% played drinking games, and 36% suffered hangovers. More than one in ten males and females experienced memory blackouts during the two-week period. Fourteen percent of males and 10% of females drove after drinking. Females were twice as likely as males to drink on an empty stomach to get drunk faster (8.2% and 4.1%) and four times as likely to drink on an empty stomach to save calories (12.8% and 2.9%).* ***Discussion:*** *Many students bring unhealthy drinking habits with them to college and experience blackouts, hangovers, and other consequences during the summer before they arrive on campus.* ***Translation to Health Education Practice:*** *Alcohol education and prevention programs should target students prior to their arrival on college campuses.*

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BACKGROUND

Colleges have struggled in recent years to find effective means of combating problems with alcohol on their campuses. Progress is certainly being made.[1] However, alcohol misuse on American college campuses remains a significant problem. College students tend to drink more heavily than their non-college peers, though the difference is relatively small.[2] College students are also more likely to meet criteria for DSM-IV diagnoses of alcohol use disorders. By one estimate, nearly one in five college students suffers from clinically significant alcohol-related problems.[3] Even schools that consider themselves substance free now face significant issues related to alcohol misuse among their students.[4] Heavy drinking is also common among students at community colleges, a population comprising 44% of all undergraduates.[5] By some estimates, thousands of students are killed or injured in alcohol-related incidents each year and vandalism, riots, and sexual assaults on college campuses, all linked to alcohol, frequently make national headlines.[6]

The causes of alcohol misuse among college students have been topics of extensive

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research. Longitudinal data suggest that during high school college-bound seniors drink less than their peers prior to college, but then quickly outpace their peers once they arrive at college.[7] Further, for many students drinking levels tend to increase during the first semester of the freshmen year.[8] Several important environmental variables are known to influence how often and how heavily students drink.[9] Membership in a fraternity or sorority, being Caucasian, being male, and involvement in athletics are known risk factors for heavy drinking.[10] Further, students who attend schools with a high density of alcohol outlets, particularly those offering cheap drinks, are more likely to drink heavily than those at schools where alcohol policies are strictly enforced and access to alcohol is limited.[1]

It is possible that the significant increase in alcohol consumption that occurs between high school and college is largely attributable to environmental factors on college campuses. However, it is also conceivable that some portion of the jump in drinking levels actually occurs during the summer months prior to the beginning of the freshman year and that schools often inherit students with unhealthy drinking habits. Currently, very little is known about levels of alcohol use and the prevalence of drinking-related consequences during the summer before students depart for college. A better understanding of these issues could prove crucial in the battle against alcohol misuse on college campuses. Knowing more about the drinking habits of students prior to their arrival at college could yield key insights into specific issues that need to be addressed during the first semester of the freshman year, or perhaps as part of freshman orientation programs. Addressing these issues early could help prevent alcohol-related problems at colleges from escalating to the levels currently seen nationwide.

PURPOSE

The purpose of the current project is to characterize the drinking habits of students in the summer months prior to their arrival on college campuses and to determine the prevalence of risky behaviors and alcohol-related consequences in this group. Data from 4,539 students representing the incoming freshmen classes at three private universities were analyzed. Gender comparisons were made. The findings strongly suggest that college alcohol education and prevention initiatives need to focus on students prior to their arrival at schools, as many students arrive on campus having already established risky drinking habits.

METHODS

Subjects and data collection

Self-reported drinking histories were collected from college bound students during the summer before their freshman year. Data were collected via an online survey administered to students prior to their participation in an alcohol education and prevention course. Universities utilized the course, AlcoholEdu, for educational purposes and therefore did not require students to sign a research consent form. When logging onto the course for the first time, each student was provided with the confidentiality policy of the online course provider, which included a guarantee of full anonymity. The use of the data in the current manuscript is consistent with that policy and all analyses were made retrospectively on fully anonymous aggregate data. Subjects were not compensated for their participation. The project was approved by the Institutional Review Board at the researchers' institution.

More than a dozen schools used the educational course for matriculating students in 2003. All students planning to attend the schools were instructed by their respective institutions to complete the survey and the course prior to their arrival on campus in the fall. In this study, we chose to examine data from only those schools at which at least 50% of all students completed the course before the beginning of the fall term. The resulting sample consisted of the incoming classes at three schools. The survey was completed by students between July 14, 2003, and September 23, 2003. Response rates at the schools ranged from 68% of all students to 94% of all students with an average response rate of 80% of all students. Altogether, surveys were completed by 4,539 out of 5,757 incoming students. By geographic region, two schools were located in the Northeast and one in the Midwest. All of the schools were private institutions.

Fifty-two percent of the students in the sample were female. Caucasian students represented 79.5% of the sample, 4.7% of students were African-American, 13.9% Asian or Pacific Islanders, 5.1% Hispanic or Latino, and 0.7% Native American Indian. The average age was 18.14 (SD = 0.53). All but 100 students (2.2%) were 18 or 19 years old. In addition to demographic questions, students were asked to indicate how much alcohol they consumed during each day of the previous two weeks and what consequences they experienced. Those data were the focus of the analyses in the current paper. A drink was defined as a 12 oz 5% beer, 5 oz of 12% wine, or 1.5 oz of 40% liquor in a shot or mixed drink. Because students were able to complete the survey on their own time, the two-week period preceding the survey was not the same for all students.

Variables and statistical analyses

The number of students who reached the binge drinking threshold as defined in the Harvard College Alcohol Study (4+ drinks per evening for females; 5+ drinks per evening for males) was calculated. Frequency of binge drinking was calculated, as was the maximum number of drinks consumed by students during a single night. The percentages of students whose maximum drinking levels exceeded two (8+ for females; 10+ for males) and three (12+ for females; 15+ for males) times the binge threshold were calculated.[11]

Logistic regression analyses were performed to determine relationships between drinking habits and alcohol-related consequences. Categorical independent measures consisted of gender, how frequently subjects binged, whether subjects did shots, chugged alcohol, skipped meals to save calories, skipped meals to get drunk faster, played drinking games, vomited on purpose to drink more. Given the predominance of Caucasian students in the sample, ethnicity

was collapsed into two groups for analyses, Caucasian and Non-Caucasian. Odds ratios (OR) and 95% confidence intervals (CI) based upon the models are reported, as well as both the Model X^2 and Hosmer and Lemeshow Goodness-of-fit X^2 values. In the Hosmer and Lemeshow analyses, the model was considered to adequately account for the variance in the dependent measure if the p-value was > 0.05.

All analyses were performed using SPSS 12.0 (SPSS, Chicago, IL) with an alpha level of 0.05 for significance.

RESULTS

Fifty-one percent of all students drank alcohol in the two-weeks prior to the survey. Among those students, the average number of drinking occasions was 3.62 (SD = 2.75) for males and 3.27 (SD = 2.42) for females [t (2295) = 3.23, $P < 0.001$; see Table 1 for more details]. Males drank an average of 4.49 (SD = 3.14) drinks per occasion whereas females consumed an average of 3.17 (SD = 2.14) drinks per occasion [t (2295) = 10.36, $P < 0.001$]. The average maximum number of drinks during any single drinking occasion was 6.18 (SD = 4.41) for males and 4.26 (SD = 3.21) for females [t (2295) = 11.95, $P < 0.001$].

Roughly one-third of all males and females met or exceeded the threshold for binge drinking at least once in the two weeks before the survey. As detailed in Table 1, males were more likely than females to drink at levels two times (10.2% and 5.3% respectively) and three times (2.4% and 0.8% respectively) the binge threshold (P-values < 0.05).

The percentages of male and female students reporting various alcohol-related behaviors or consequences are listed in Table 2, along with the outcomes of statistical comparisons between males and females.

Logistic regression analyses (see Table 3 for details) indicated that the likelihood of experiencing a memory blackout increased with both the maximum number of drinks consumed in an evening and the frequency of binge drinking. The odds of blacking out were also higher among those that consumed shots, chugged alcohol, and skipped meals to get drunk faster. The likelihood of having a one-night stand with a casual sex partner increased with the frequency of binge drinking and was higher among those that drank shots, chugged alcohol, played drinking games, and vomited on purpose in order to drink more. Being male resulted in a marginally significant (P= 0.050) increase in the likelihood of engaging in casual sex. Frequency of binge drinking, maximum levels of consumption, and vomiting on purpose in order to drink more were all positively associated with the likelihood of being injured while intoxicated. Frequency of binge drinking, skipping meals to get drunk faster, vomiting on purpose to drink more, and being male, were all predictors of drinking and driving.

DISCUSSION

Binge drinking episodes, blackouts, vomiting, and hangovers were all common experiences among college-bound students during the summer prior to their arrival on campus. Roughly half of all students drank alcohol in the two weeks before being surveyed. Importantly, the data reflect a two-week snapshot of each student's drinking habits over the summer, and not the entire summer itself. As such, while roughly 50% of all students drank within the two weeks preceding their completion of the survey,

Table 1. Alcohol Use among Male and Female Incoming Freshmen during the Summer before their First Semester at College (N = 4539)

Alcohol use in past 2 wks	Males (%)[1]	Females (%)[1]	Chi Square	*P*-value
Did not drink	48.9	49.0	0.49	> 0.250
Drank but no binge	20.3	21.8	1.55	> 0.100
Binge drinkers				
≥1X binge-threshold[2]	30.9	28.3	3.53	= 0.060
≥2X binge-threshold[3]	10.2	5.3	38.07	< 0.000
≥3X binge-threshold[4]	2.4	0.8	19.57	< 0.000
Drinking pattern past 2 wks	**Males (Ave)[5]**	**Females (Ave)[5]**	**t-value**	***P*-value**
Drinking occasions	3.62	3.27	3.23	< 0.001
Drinks per occasion	4.49	3.17	11.84	< 0.001
Maximum number of drinks	6.18	4.26	11.95	< 0.001
Number of binges	1.63	0.84	10.36	< 0.001

Note. OR = Odds Ratio, CI = Confidence Interval. [1]Each percentage, including percentage of binge drinkers, is relative to the entire sample of males (N = 2182) or females (N = 2357). [2]Equals 4+ drinks at a time for females or 5+ for males. [3]Equals 8+ drinks at a time for females or 10+ for males. [4]Equals 12+ drinks at a time for females or 15+ for males. [5]Each average is based on data from male (N = 1116) and female (N = 1181) drinkers only.

Table 2. Alcohol-related Risk Factors and Consequences among Male and Female Inbound College Students that Drank during the Two-weeks Prior to Being Surveyed (N = 2297)

Variable	Males' %[1]	Females %[1]	OR[2] (95% CI)	Chi Square	*P*-value
Drink shots of liquor	52.0	50.6	1.06 (0.90, 1.25)	0.47	> 0.250
Play drinking games	49.0	50.7	1.05 (0.89, 1.24)	0.39	> 0.500
Chug alcohol	40.1	25.7	1.91 (1.62, 2.31)	53.33	< 0.001
Have a hangover	36.1	36.6	0.98 (0.83, 1.16)	0.06	> 0.500
Worry that you might drink too much	30.0	34.4	0.82 (0.68, 0.97)	5.10	< 0.025
Pace your drinks to one or fewer per hour	23.6	32.7	0.64 (0.53, 0.77)	23.14	< 0.001
Think about your BAC when you drink	23.3	18.5	1.34 (1.09, 1.64)	7.85	< 0.010
Drive after drinking	13.6	9.6	1.48 (1.14, 1.92)	8.84	< 0.005
Blackout	12.0	11.1	1.09 (0.84, 1.41)	0.44	> 0.500
Vomit in public	7.0	5.8	1.20 (0.87, 1.70)	1.25	> 0.250
One night stand	6.9	4.3	1.65 (1.14, 2.38)	7.29	< 0.010
Injure yourself	4.7	4.6	1.02 (0.69, 1.51)	0.01	> 0.500
Drink on empty stomach to get drunk faster	4.1	8.2	0.47 (0.33, 0.68)	16.78	< 0.001
Get into a physical fight	3.2	0.7	4.72 (2.18, 10.22)	18.73	< 0.001
Drink on empty stomach to save calories	2.9	12.8	0.20 (0.14, 0.30)	76.27	< 0.001
Vomit in order to drink more	2.7	2.7	1.02 (0.61, 1.70)	0.01	> 0.500

Note. OR = Odds Ratio, CI = Confidence Interval. [1]Each percentage value is relative to the number of males (N = 1116) or females (N = 1181) that drank alcohol in the two weeks before the survey. [2]Values significantly greater than one indicate a higher likelihood for males while values significantly less than one indicate a higher likelihood for females. For coding purposes in analyses, NO = 0 and YES = 1.

the overall percentage of students that drank over the summer, in its entirety, was likely much higher.

Of those who drank in the two weeks preceding their completion of the survey, more than half of all males and females met or exceeded the binge threshold (4+ drinks for females and 5+ drinks for males) at least once during a two-week period. Those who drank shots, chugged alcohol, played drinking games, skipped meals before drinking to save calories, and vomited in order to drink more were at greater risk of outcomes such as memory blackouts and engaging in one-night stands.

Skipping meals prior to drinking was common among subjects in the sample, particularly for females. Females were twice as likely as males to skip meals in order to get drunk faster, and they were four times as likely to skip meals to save calories. These findings are troubling for several reasons. Females tend to weigh less than males and reach higher blood alcohol concentrations with each drink.[12] They also tend to consume wine and liquor rather than beer.[13,14] When asked to pour drinks of different types, students tend to significantly over-pour wine and liquor, meaning that each drink they consume might contain far more than a standard serving.[13,14] In a study examining the prevalence of alcohol-induced memory blackouts among college students, females and males were found to experience blackouts at similar rates despite the fact that males drank more often and more heavily than females.[10] Further, being around alcohol is always a risk factor for female sexual assaults regardless of whether, or how much, the female is drinking.[15] Added together, these findings paint a troubling picture of the risks that college-bound females face when drinking. Because of differences in the risks faced by male and female students, the potential benefits of providing gender-specific prevention programs should be explored.

The general observation that many college-bound students drink heavily prior to their freshman year is not new. Numerous reports have suggested that heavy-drinking college students were once heavy-drinking high school students.[10] What is unique about the current study is that it examines data from students during a two-week period of the summer between high school and the start of college. The data reflect drinking habits of students shortly before their departure for campus. An understanding of drinking habits during the summer before the freshman year could help parents and colleges prepare students to make wise decisions regarding alcohol once they arrive on campus. For instance, knowing that a sizeable percentage of college-bound females have already adopted a habit of skipping meals prior to drinking provides the opportunity to intervene and correct this habit before students leave for college. Resolving this issue while students still live at home with caregivers would remove a considerable burden from colleges already struggling to minimize the harm that students do to themselves and others by drinking irresponsibly.

Table 3. Relationships between Drinking Behaviors and Alcohol-related Outcomes as Determined by Logistic Regression (N = 2297)

Variable	Blackout OR[1,2] (95% CI)	Casual sex OR[1,3] (95% CI)	Injuries OR[1,4] (95% CI)	Drinking and driving OR[1,5] (95% CI)
Maximum drinks per occasion	1.79***	1.17	1.73**	1.06
(1, 2 or 3 times the binge threshold)[6]	(1.42, 2.24)	(0.86, 1.59)	(1.26, 2.38)	(0.83, 1.35)
Binge frequency	1.31**	1.42**	1.41*	1.34***
(1, 2 or 3 times in a two week period)	(1.10, 1.56)	(1.12, 1.79)	(1.09, 1.83)	(1.15, 1.63)
Drink shots	2.98***	2.87***	1.56	0.95
(Yes = 1)	(1.49, 2.90)	(1.73, 4.78)	(0.95, 2.56)	(0.71, 1.27)
Chug alcohol	1.71**	1.73*	1.42	1.38
(Yes = 1)	(1.22, 2.38)	(1.09, 2.76)	(0.86, 2.36)	(1.00, 1.92)
Skip meal to save calories	1.53	1.79	1.83	1.04
(Yes = 1)	(0.96, 2.42)	(0.96, 3.34)	(0.99, 3.34)	(0.64, 1.70)
Skip meal to get drunk faster	1.85**	0.82	1.79	1.95**
(Yes = 1)	(1.17, 2.91)	(0.42, 1.60)	(0.97, 3.29)	(1.22, 3.12)
Play drinking games	1.10	1.92*	1.21	1.29
(Yes = 1)	(0.78, 1.57)	(1.12, 3.28)	(0.70, 2.11)	(0.92, 1.80)
Vomit on purpose to drink more	1.73	3.33***	3.58***	2.22**
(Yes = 1)	(0.95, 3.15)	(1.75, 6.34)	(1.85, 6.94)	(1.11, 3.69)
Ethnicity	0.99	0.93	1.00	1.11
(Caucasian = 1)	(0.83, 1.17)	(0.72, 1.19)	(0.78, 1.23)	(0.96, 1.28)
Gender	0.91	1.51	0.87	1.39*
(Male = 1)	(0.68, 1.23)	(1.00, 2.28)	(0.56, 1.36)	(1.05, 1.84)

Note. OR = Odds Ratio, CI = Confidence Interval. [1]Values significantly greater than one indicate a higher likelihood of the event for those exhibiting the behavior listed to the left.

[2]Logistic regression [Model X^2 (10) = 278.28***, Hosmer and Lemeshow X^2 (8) = 11.58, $p > 0.05$]

[3]Logistic regression [Model X^2 (10) = 166.13***, Hosmer and Lemeshow X^2 (8) = 6.65, $p > 0.05$]

[4]Logistic regression [Model X^2 (10) = 140.44***, Hosmer and Lemeshow X^2 (8) = 4.19, $p > 0.05$]

[5]Logistic regression [Model X^2 (10) = 113.53***, Hosmer and Lemeshow X^2 (8) = 8.16, $p > 0.05$]

[6]1, 2 and 3 times the binge threshold was defined as a maximum of 5-9, 10-14 and 15+ drinks for males and 4-7, 8-11 and 12+ drinks for females.

Analyses based upon data from those students that drank in the two weeks before the survey ($N = 2297$). $^*P < 0.05$. $^{**}P < 0.01$. $^{***}P < 0.001$.

The percentage of college-bound students engaging in risky drinking practices during the summer appears to be lower than the percentage of students engaging in such practices during the first semester of their freshman year. White and colleagues[11] recently examined the drinking habits of roughly 14,000 first-semester freshmen. Data were collected via the same survey instrument as the one used in the current study. Some general comparisons between the datasets are worth noting. In the former study, 55% of freshmen consumed alcohol in the two weeks prior to the survey compared to 51% of students in the current project. Thus, the overall percentages of students consuming alcohol do not appear to change much between the summer prior to the first semester and the first semester itself. However, general comparisons do suggest that drinking levels, particularly levels of consumption well beyond the binge threshold, might increase appreciably during the first semester at college. For instance, in the current study, one in ten college-bound males met or exceeded twice the binge threshold (10+ drinks) in the two weeks before the survey compared to one in five freshmen males in the previous study. Thus, while colleges clearly inherit alcohol use among many students, levels of use appear to increase once students arrive at college.

Limitations

The sample consisted of students from three universities, all of which were private schools. As such, it is unclear whether students heading to public institutions are represented accurately by the data. It is entirely possible that comparisons between data collected from public and private institutions would reveal differences in drinking habits during the summer months prior to matriculation to campus. Whether these differences exist over the summer months is important to know and is being evaluated

currently in a follow-up study including a wider range of schools. The study will also examine longitudinal data from schools to see if the drinking levels and alcohol-related consequences of incoming students have changed since the data examined in the current study were collected in 2003.

Following groundbreaking research on college drinking conducted by Henry Wechsler and colleagues in the late 1980s and early 1990s, it has become quite common for surveys to include assessments of how many students reach the criteria for *binge drinking*, typically defined as having 4+ drinks if one is a female or 5+ drinks if one is a male.[9] The utility of the term comes from the fact that the 4+/5+ threshold represents a statistical threshold for an increased likelihood that students will suffer alcohol-related consequences such as injuries, sexual assaults, arrests, and so forth. There are at least three limitations related to the use of such terms to assess students' drinking levels. When measuring binge drinking, the assumption is that students consume their 4+/5+ drinks during a single episode, such as an evening at a party. However, the specific length of time taken to cross the 4+/5+ drink threshold is not typically assessed in surveys. It is possible for students to be categorized as binge drinkers after consuming their drinks in one hour or across an entire day. Clearly, the impact that alcohol has on behavior and brain function varies considerably based upon how rapidly an individual drinks, and thus would affect the likelihood that negative consequences would follow.

Because of the way the term binge is defined, all students that cross the 4+/5+ drink threshold are grouped into the same category, regardless if the total number of drinks the individual consumes hovers close to the binge threshold or exceeds it by a long shot. White and colleagues[11] reported that among college freshmen males that cross the binge threshold, roughly 40% consumed a total of 5-10 drinks during the evening in question, 37% consumed a total of 11-15 drinks, and 23% of students had a total of 16 or more drinks. As such, students characterized as binge drinkers vary significantly with regard to their actual drinking levels.

Finally, when using thresholds to group students into categories based upon how many beverages they consume, the assumption must be made that students and researchers share common definitions of what constitutes single servings of alcohol. Several studies suggest this is not the case, leaving open the possibility that students could fall above or below the binge threshold spuriously and thus be grouped incorrectly. White and colleagues[13,14] reported that college students tend to over-pour drinks and therefore underestimate their true levels of consumption. Despite these limitations, the strategy of grouping students into binge and non-binge categories based upon survey responses is still extremely common and useful.

TRANSLATION TO HEALTH EDUCATION PRACTICE

The finding that many students bring their heavy drinking habits with them to school raises important questions about the exact role of the university in combating underage drinking. Many students come from towns only a fraction the size of the institutions they choose to attend. If their parents and the surrounding community are unable to prevent them from drinking during the summer before their freshman year, it is difficult to imagine how a university could prevent them from drinking once they arrive. It seems quite reasonable to suggest that further progress could be made in the battle against underage drinking if students were required to complete education and prevention programs *prior to* their arrival on campus. A study by Turrisi et al [16] suggests that simply having the parents of college-bound students complete an alcohol education program leads those students to drink less than their peers once they arrive at college.

The current data reveal that long before students arrive on campus many have already established unhealthy drinking habits that include such risky behaviors as driving after drinking, drinking to the point of producing memory blackouts, engaging in one-night stands, vomiting in order to drink more alcohol and so forth. Waiting until students show up for classes to discuss these issues could make the eventual task of combating underage drinking problems much more difficult for colleges. Once students arrive on campus and are allowed to exercise their already established unhealthy habits or to establish new unhealthy habits, the task of altering their behavior in the right direction will be more challenging. Addressing these issues before students arrive on campus should, theoretically, help some students avoid falling into the trap of overindulging in alcohol and suffering from alcohol-related consequences once the semester starts. Regardless of whether schools choose to use pre-established courses or develop their own, the earlier schools arm students with knowledge regarding the risks and realities of drinking, as well as knowledge about the specific institution's alcohol policies, the better.

AlcoholEdu, the course from which data used in the current study were gleaned, serves as one example of how schools can educate students about drinking and the risks involved prior to their arrival on campus. After students complete a survey and enter demographic information they are taken through several different chapters, or modules, each addressing different aspects of drinking, the potential consequences that can follow, and ways in which students, both drinkers and non-drinkers, can keep themselves safe in environments in which drinking occurs. Students are taught how to define standard, single-servings of alcoholic beverages and are taught about the effects that occur at different levels of consumption. The course includes interactive exercises that allow students to see how their own drinking levels impact brain function, decision-making, motor coordination, and so forth. The course includes detailed information about factors that influence blood alcohol concentrations and resulting impairments, including the presence or absence of food in the stomach prior to drinking, body weight, gender, and how rapidly beverages are consumed. Information is presented using a

non-judgmental, science-based approach.

Early data suggest that AlcoholEdu succeeds in helping students make better choices about drinking. Wall[17] examined drinking-related survey data from 20,150 students, many of whom completed AlcoholEdu and many of whom had begun the course but not yet completed it. Students that completed the course reported fewer alcohol-related consequences and lower drinking levels than those yet to complete it. Such data bode well for the use of web-based education programs to help inoculate incoming students from the negative impact that excessive alcohol use at college can have on their lives. AlcohoEdu is not the only web-based prevention program available to schools. Other programs include MyStudentBody and CollegeAlc.

Findings from the current study also have implications for education and prevention efforts beyond those programs focused exclusively on alcohol. It is well known that drinking is associated with a host of psychopathologies, including eating disorders. Gadalla and Piran[18] reported that women, including college students, who binge drink are also more likely to engage in unhealthy eating patterns. Data from the current study indicate that, for many young females, alcohol use is associated with unhealthy eating habits prior to the beginning of their college experience. Of those inbound female students who drank during the two-week period preceding the survey, roughly 13% skipped meals to save calories and 9% percent reported skipping meals to get drunk faster during that two-week period. This is particularly troubling as young females are already more likely than males to suffer a range of negative consequences from drinking and reach higher blood alcohol levels more quickly than males even if they weigh the same and drink the same amount. Knowing that such unhealthy associations already exist for many young females prior to their arrival on campus should allow for the tailoring of alcohol education and prevention efforts. They should include discussions about the importance of having food in the stomach, if one is planning to drink, as well as the tailoring of efforts to combat eating disorders to cover warnings about the potential consequences of skipping meals before drinking; which include increased odds of blacking out and dying from an alcohol overdose.[19]

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