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A Research Update on Correlates of Heavy Episodic Drinking Among Undergraduate College Students

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Background: Despite prevention efforts of colleges and universities across the nation, there have been no substantial decreases in heavy episodic drinking among undergraduates over the past 2 decades. **Purpose:** This study provides an update on correlates of heavy episodic drinking for a recent cohort of undergraduate college students. **Methods:** A cross-sectional survey design was utilized. Participants were randomly selected undergraduate students from a public 4-year university located in the Northeast. **Results:** Heavy episodic drinking was associated with male gender, white race, having a family history of drug or alcohol abuse, smoking cigarettes, and using marijuana. Age, athlete status, completion of an alcohol education program, condom use, depression, anxiety, and financial stress were not associated. After controlling for gender and race, marijuana use and smoking cigarettes were found to increase predictability of heavy episodic drinking. **Discussion:** Rates of heavy episodic drinking remain high but correlates may be shifting for this cohort of college students. Opportunities to address heavy episodic drinking concurrently with cigarette smoking and marijuana use should be explored. **Translation to Health Education Practice:** Qualitative research methods are needed to gain insight into reasons for heavy episodic drinking; information that could inform the creation of more effective programming.

BACKGROUND

Alcohol consumption among adults is not unusual behavior. Recent data have shown that only 33% of adults have abstained from alcohol within the past year¹ and almost 51% of adults over the age of 18 are regular drinkers.² Regular consumption of alcohol is common and widely accepted but excessive consumption is of great concern because of related harms. Data from the 2010 Behavioral Risk Factor Surveillance System showed that 17.1% of adults engaged in heavy drinking within the past 30 days³ and the National Institute on Alcohol Abuse and Alcoholism estimates that 35% of adults have engaged in heavy drinking at least once in the past year.¹

Heavy episodic drinking has been a persistent concern on college campuses for several decades⁴⁻⁶ and goals to

decrease this behavior are included in both Healthy People 2020⁷ and Healthy Campus 2020.⁸ Excessive drinking is associated with several health risks for young adults, including serious injuries, violence, and difficulty recalling events that occurred while under the influence of alcohol.^{5,9} Alcohol consumption is also associated with many health problems, including hypertension, ischemic heart disease, cirrhosis of the liver, and cancer.¹⁰ College students who drink excessively may face other problems, such as academic consequences, social issues, legal issues, or developing patterns of addiction or abuse. Studies from multiple surveys have found that students who engage in heavy episodic drinking often experience more negative health, social, legal, and psychological outcomes than students who drink but do not do so excessively.^{4,11-13}

Despite several decades of effort on the part of college administrators and officials, there has been little to no change in the percentage of college students engaging in heavy episodic drinking,¹⁴ and the behavior remains a significant problem on college campuses. The College Alcohol Study (CAS), first conducted in 1993, found that

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approximately 44% of students enrolled in 4-year colleges or universities engaged in heavy episodic drinking,¹⁵ and subsequent CAS surveys found that between 1993 and 2001, rates remained fairly stable.^{4,5,12-16} Surveys administered in more recent years have shown drinking rates among college students to be similar to CAS results. The CORE Survey has shown consistently that between 2006 and 2010, almost 2 decades after the CAS was first administered, heavy episodic drinking is still practiced by about 45% of the college student population.¹⁷ Data from the National Survey on Drug Use and Health¹⁸ aligns with CORE Survey results, also finding that slightly more than 40% of full-time college students engaged in heavy episodic drinking in 2010.

In order to develop and implement effective strategies to reduce heavy episodic drinking among college students, it is important to identify those who are most at risk for this behavior. Past research has shown that being white, single, male, age 23 or younger, participating in collegiate sports, smoking cigarettes, or using marijuana is associated with, or predictive of, heavy episodic drinking.^{4,19-25} Though several of these studies are recent, a comprehensive analysis of correlates of heavy episodic drinking has not been completed in more than a decade. Additionally, these studies have not examined associations between heavy episodic drinking and other potentially important variables such as a student's financial stress, family history of alcohol problems, symptoms of depression or anxiety, sexual protective behaviors, and completion of alcohol education programs. Though previous research does exist for these other variables, there is a lack of consensus in the literature as to whether these variables have a relationship to heavy drinking patterns.

PURPOSE

The purpose of this study was to provide an update on correlates of heavy episodic drinking among undergraduate college students, explore associations with other variables that are lacking consensus, and examine whether associated variables remain significant predictors of heavy episodic drinking when confounding variables are controlled.

METHODS

Study Design

This study was cross-sectional in nature and used data that were collected during administration of the CORE Drug and Alcohol Survey in combination with an additional custom questionnaire. The dependent variable for this study was heavy episodic drinking and independent variables included gender, age, race, participation in athletics, completion of an online alcohol education program, previous family history of drug or alcohol abuse, condom use, smoking cigarettes,

using marijuana, perceived financial stress, depression diagnosis, and anxiety diagnosis. Prior to conducting this study, approval was obtained from the Southern Connecticut State University's Institutional Review Board. To ensure that participants were protected, no identifying markers were obtained during data collection.

Sampling Procedures

This study included full-time undergraduate students enrolled in a mid-size, public 4-year university located in an urban area of the Northeast. Participants were required to be 18 years of age or older and a full-time undergraduate student. The researchers randomly selected courses from the spring 2012 course schedule, stratified into 100, 200, 300, and 400 levels. Oversampling was done among the 100-level courses to ensure adequate representation of the freshmen population.

Sixty-two percent of professors whose courses were randomly selected allowed data collection to occur. To allow for analysis based on multiple variable categories, the researchers calculated that 850 surveys would be required but selected a sample of 1500 students in order to account for student absences on data collection dates or the possibility of the same students being enrolled in more than one randomly selected course. In total, 1012 completed surveys were returned to the researcher from 1100 students given the opportunity to participate, yielding a 92% response rate. A total of 898 students met the inclusion criteria and were used in this study. Primary reasons for exclusion were part-time enrollment and graduate student status.

Instrumentation

There were 2 survey instruments used to collect data for this study. The first instrument was the CORE Alcohol and Drug Survey short form, originally developed by the United States Department of Education and currently administered by the CORE Institute to measure attitudes, perceptions, and behaviors of college students related to alcohol and other drug use. This survey is commonly used at 2- and 4-year universities across the United States. In 2012, 138 colleges and universities utilized either the short or long form of this instrument for data collection on alcohol and drug use.¹⁷ Heavy episodic drinking was measured with the question: "Think back over the past two weeks. How many times have you had 5 or more drinks in one sitting?" A definition of a *drink* was provided on the survey and described as "a bottle of beer, a glass of wine, a wine cooler, a shot glass of liquor, or a mixed drink." Respondents were given answer choices of *none*, *once*, *twice*, *3-5 times*, *6-9 times*, or *10 or more times*. Any student indicating one time or more was identified as engaging in "heavy episodic drinking" for this study. This question is widely accepted as a valid measure of heavy episodic drinking.^{26,27} Reliability was established for

measures of alcohol consumption with the Spearman-Brown split-half test of internal consistency (0.81) and Cronbach's alpha (.84). Additionally, the CORE Survey was used to obtain information on gender, age, race, marital status, student classification, residence, employment status, marijuana use, and having a family history of drug or alcohol abuse.

A custom survey was developed to gather data on all other independent variables in this study. A panel of experts currently working in college health promotion developed the survey. Content validity was established through use of Delphi technique to reach consensus on wording of questions and answer choices.²⁸ Reliability on the custom survey was established for measures of alcohol consumption with the Spearman-Brown split-half test of internal consistency (0.80) and for measures of mental health with Cronbach's alpha (.82).

Data Collection Procedures

The 4-week period selected for data collection occurred during the spring semester, before the university's midterm exams or spring break. An e-mail inquiry was sent from the researchers to each professor whose class had been selected. Students in participating courses were informed that participation was anonymous and voluntary, directed to place completed surveys in an envelope at the front of the room, and provided with an opportunity to enter a raffle for one of 10 \$25 gift cards to the campus bookstore. Surveys were mailed to the CORE Institute for processing and the creation of an SPSS data file.

Data Analysis

Data were analyzed using version 17.1 of the Statistical Package for Social Sciences (SPSS, Version 17.1; SPSS Inc., Chicago, IL). Prior to analysis, the researchers cleaned the data and removed participants who did not meet inclusion criteria. Missing data were defined as nonresponders, and in cases where cell size was inadequate, data from multiple answer categories were collapsed to allow for further analysis. Chi-square analysis was conducted at $P < .025$ to test for associations with heavy episodic drinking. Bivariate logistical regressions were performed to determine the degree to which associated variables were predictive of heavy episodic drinking at the $P < .05$ level after controlling for gender and race.

RESULTS

Sample Characteristics

The final sample was composed of 898 students; however, all students did not answer all questions from the 2 survey instruments. More than half (66.4%) of the respondents

were female, and the majority (69.7%) of students were white. The sample was evenly distributed between traditional undergraduate ages with 56.7% between the ages of 18 and 20 years. More than half (57.2%) of the respondents resided off campus, and the majority of the sample (68.2%) worked either full- or part-time. The demographic characteristics of the sample were closely aligned with those of the larger population of undergraduate students at this university (62.0% female, 63.0% white, and 62.0% residing off campus), indicating that the sample was an appropriate representation of the sampling frame.

With regard to alcohol-related measures, just under half of the total sample (47.0%) reported heavy episodic drinking in the past 2 weeks, 54.9% reported having a family history of alcohol or drug abuse, and 39.4% of the sample had completed AlcoholEDU or another online alcohol education program. All descriptive data for the sample are provided in [Table 1](#).

Differences in Heavy Episodic Drinking Based on Demographic Characteristics

[Table 2](#) provides results of chi-square analysis for demographic characteristics and alcohol related measures based on heavy episodic drinking over the past 2 weeks. Statistical significance was found for the demographic variables of gender, race, and having a family history of drug or alcohol abuse. A significantly higher percentage of males ($P < .001$), white students ($P < .001$), and those with a family history of drug or alcohol abuse ($P = .021$) reported heavy episodic drinking in the past 2 weeks compared to their counterparts. Analysis showed no significant differences in heavy episodic drinking based on age, participation in collegiate athletics, or completion of AlcoholEDU or another online alcohol education program.

Differences in Heavy Episodic Drinking Based on Health Behaviors

[Table 3](#) shows results of chi-square analysis for differences in heavy episodic drinking over the past 2 weeks based on the health behaviors of cigarette smoking, marijuana use, and condom use. A significantly higher percentage of students who smoked cigarettes in the past 30 days ($P < .001$) or used marijuana ($P < .001$) reported heavy episodic drinking over the past 2 weeks compared to those students who did not engage in these behaviors. There was no statistically significant difference in heavy episodic drinking based on condom use during sexual intercourse. For the subset of students who indicated that they had had sexual intercourse during the past 30 days ($n = 630$), those who indicated that they did not use a condom every time they had sexual intercourse were no more likely to engage in heavy episodic drinking during the past 2 weeks than those who indicated they had used condoms.

TABLE 1
Demographic Characteristics of the Sample ($N = 898$)^a

Characteristic	f	%
Gender		
Male	284	33.6
Female	560	66.4
Age (years)		
18–20	509	56.7
21 and over	389	43.3
Race		
White	594	69.7
African American	123	14.4
Hispanic	60	7.1
Asian/Pacific Islander	29	3.4
Other race	46	5.4
Marital status		
Single	863	96.7
Married	29	3.3
Classification		
Freshman	227	25.2
Sophomore	225	25.1
Junior	251	28.0
Senior	195	21.7
Heavy episodic drinking in the past 2 weeks		
Yes	420	47.0
No	473	53.0
Family history of drug or alcohol abuse		
Yes	493	54.9
No	405	45.1
Completed AlcoholEDU or similar program		
Yes	327	39.4
No	503	60.6
Residence		
On campus	331	42.8
Off campus	442	57.2
Employment status		
Full time	92	10.4
Part time	510	57.8
Not working	281	31.8
Collegiate athlete		
Yes	103	12.0
No	758	88.0

^a Overall $N = 898$; however, some questions were not answered by all students.

Differences in Heavy Episodic Drinking Based on Emotional Health

Table 4 summarizes results of chi-square analysis for differences in heavy episodic drinking over the past 2 weeks based on emotional health measures. No significant differences in heavy episodic drinking were found based on perception of financial situation, depression diagnosis, or anxiety diagnosis.

Predictors of Heavy Episodic Drinking in the Past 2 Weeks

Logistic regression was performed to determine whether any of the statistically significant variables in the bivariate analysis

TABLE 2
Demographic Correlates of Heavy Episodic Drinking in the Past 2 Weeks^a

Characteristic	HED Past 2 Weeks		No HED Past 2 Weeks		P Value
	f	%	f	%	
Gender					<.001**
Male	163	57.6	120	42.4	
Female	232	41.7	324	58.3	
Age (years)					.157
Under 21	228	45.0	279	55.0	
21 and older	192	49.7	194	50.3	
Race					<.001**
White	307	51.9	285	48.1	
Non-white	93	36.3	163	63.7	
Athlete					.083
Yes	56	54.4	47	45.6	
No	401	52.9	357	47.1	
Completed AlcoholEDU					.769
Yes	153	47.4	170	52.6	
No	233	46.3	270	53.7	
Family history of drug or alcohol abuse					.021*
Family history	248	50.5	243	49.5	
No family history	172	42.8	230	57.2	

* $P < .025$. ** $P < .001$.

^a Includes only students who answered all questions in the analysis. HED indicates heavy episodic drinking.

would provide predictability of heavy episodic drinking. Three independent variables were used in a binary logistic regression analysis to predict heavy episodic drinking: cigarette use, marijuana use, and family history of drug or alcohol abuse. The criterion for significance was set at $P < .05$. The results of this analysis are presented in Table 5.

In block 1 of the model, in which gender and race were entered as control variables, omnibus tests of model coefficients showed that the control variables of gender and race had a significant relationship with the dependent variable, heavy episodic drinking. In block 2, independent variables of cigarette use, marijuana use, and family history of drug or alcohol abuse were added. A significant difference was found between the model with only the control variables of gender and race and the model with the predictive independent variables.

After determining that the overall model of the 3 independent variables was a significant predictor of heavy episodic drinking, the variables were analyzed individually. On an individual level, marijuana use ($P < .001$) and cigarette use ($P = .05$) significantly predicted heavy episodic drinking within the past 2 weeks.

DISCUSSION

Although colleges and universities across the nation have worked aggressively during the past several decades to

TABLE 3
Health Behavior Correlates of Heavy Episodic Drinking in the Past 2 Weeks^a

Characteristic	Total Sample		HED Past 2 Weeks		No HED Past 2 Weeks		P Value
	f	%	f	%	f	%	
Use condoms every time sexual intercourse occurs ^b							.102
Did not use a condom	334	53.0	182	54.5	152	45.5	
Used a condom	296	47.0	142	48.0	154	52.0	
Cigarette use past 30 days ^c							<.001*
Did not use cigarettes	680	76.1	277	40.7	403	59.3	
Used cigarettes past 30 days	213	23.9	143	67.1	70	32.9	
Marijuana use past 30 days ^c							<.001*
Did not use	627	71.8	218	34.8	409	65.2	
Used 1–2 days	85	9.7	66	77.6	19	22.4	
3 or more days	161	18.5	127	78.9	34	21.1	

* $P < .001$.

^aHED indicates Heavy episodic drinking.

^bOnly sexually active students included.

^cIncludes only students who answered all questions in the analysis.

combat heavy episodic drinking, the results of this study suggest that rates of heavy drinking among college students remain high. In this study, 47% of undergraduate college students at an urban, public university in New England reported heavy episodic drinking within the past 2 weeks. In 1993, when the first CAS was administered, 44% of college students nationwide engaged in heavy episodic drinking, and that rate remained stable through other CAS surveys conducted between 1993 and 2001.^{4,5,12,14,16} More recent results from the CORE Alcohol and Drug Survey show that approximately 45% of college students engage in heavy episodic drinking,¹⁷ a result that is consistent with the rate found among the sample in this study.

Correlates of Heavy Episodic Drinking

The main focus of this study was to update the literature on the correlates of heavy episodic drinking among college students, specifically focusing on demographics, health

behaviors, and mental health variables. Earlier studies found that being white, male, age 23 or younger, participating in collegiate sports, smoking cigarettes, or using marijuana showed associations with heavy alcohol consumption.^{4,19-25}

This study was able to corroborate findings of earlier research for several variables. In this study, being male, white, smoking cigarettes, and using marijuana were all significantly associated with heavy episodic drinking. Gender- and race-specific factors related to college drinking should be explored in greater depth so that these long-standing correlates can be better understood. If colleges and universities can gain an increased understanding of why these gender and race differences are occurring, that knowledge can be used to design programming and prevention efforts that more effectively target and engage those students. Further, the simplicity of analysis with white and non-white students provides limited insight and merits deeper exploration. In this study, as in many within the published literature, specific minority groups were

TABLE 4
Emotional Health Correlates of Heavy Episodic Drinking in the Past 2 Weeks^a

Characteristic	Total Sample		HED Past 2 Weeks		No HED Past 2 Weeks		P Value
	f	%	f	%	f	%	
Perception of financial situation							.626
Rarely or sometimes stressful	494	57.9	234	47.4	260	52.6	
Always or often stressful	359	42.1	164	45.7	195	54.3	
Diagnosed with depression							.256
No	719	86.2	341	47.4	378	52.6	
Yes	115	13.8	48	41.7	67	58.3	
Diagnosed with anxiety							.688
No	696	83.8	322	46.3	374	53.7	
Yes	135	16.2	65	48.1	70	51.9	

^aIncludes only students who answered all questions in the analysis. HED indicates heavy episodic drinking.

TABLE 5
Binary Logistic Regression Analysis Summary for Predictors of
Heavy Episodic Drinking in the Past 2 Weeks ($N = 778$)^a

Variable	B	Wald	Sig.
Race	-.280	2.653	.103
Gender	-.456	7.140	.006*
Marijuana use past 30 days	.907	58.306	.000**
Family history of drug or alcohol abuse	.227	2.033	.154
Cigarette use past 30 days	.399	3.848	.050*

* $P < .05$. ** $P < .001$.

^a Includes only students who answered all questions in the analysis.

collapsed for the purpose of analysis due to small sample sizes. It is essential that each racial and ethnic group be studied separately and in greater depth to better understand the complexity and underlying reasons behind differences in rates of heavy episodic drinking among those students.

Also consistent with previous literature, this study found a statistically significant relationship between heavy episodic drinking and drug use, specifically cigarette smoking and marijuana use. The cooccurrence of heavy episodic drinking and cigarette smoking in particular has implications for college health programming. Smoking cessation programs can be seen as gateways for interventions related to high-risk alcohol use and vice versa. The approach of integrating smoking cessation into substance abuse treatment programs, and vice versa, has been done previously and produced successful reductions in both behaviors.^{29,30} Additionally, students who present with drug and alcohol issues to a campus resource center should be screened for cigarette and marijuana use and provided with access to relevant educational materials and programs. This approach will provide a counselor with a more complete picture of a student's drug and alcohol lifestyle and allow for multiple health risks to be addressed if necessary. The finding that marijuana use was associated with heavy alcohol use is also important because rates of marijuana use among college students are on the rise nationally.¹⁷ Approximately 28% of the sample in this study reported using marijuana in the past 30 days, and 13% reported doing so an average of 3 times per week or more. These percentages were highest among men at 38% and 21%, respectively. As states continue to decriminalize possession of small amounts of marijuana, as was recently done in the state of Connecticut,³¹ it is possible that marijuana use will increase on college campuses. The finding that heavy episodic drinking was associated with marijuana use is troubling because it demonstrates that marijuana is not a substitute for this behavior and if marijuana use increases, additional increases in heavy episodic drinking may also occur.

This study did not find any association between condom use and heavy episodic drinking, which is an encouraging finding. Those sexually active students who engaged in heavy episodic drinking were no more likely than non-heavy

drinkers to neglect use of condoms during sexual intercourse. Previous studies have provided conflicting results and this study adds to the literature. It is disconcerting, however, that condom use was so low in this sample of students. Less than half of the students who indicated that they were sexually active reported using a condom every time they had sexual intercourse. Such low rates of condom use among all students, whether engaging in heavy episodic drinking or not, indicate that many students are at risk for contracting and spreading sexually transmitted diseases.

For the variables of age and participation in collegiate athletics, these study results differed from previous literature. In this study, younger students were no more likely to engage in heavy episodic drinking than older students. This difference may be due to a change in drinking behaviors in the current generation of college students, with younger students drinking less or older students drinking more. For this particular sample, rates of alcohol use in residence halls was up nearly 15% among legal age students but remained stable among underage students. It is also possible that the manner in which ages were categorized influenced results. Many prior studies have categorized older students as 23 years and over, whereas this study grouped students according to legal access to alcohol and identified older students as 21 years and over. It has been suggested that younger students engage in heavy episodic drinking more frequently because limited access encourages overconsumption when alcohol is available. It is important to continue tracking students based on legal access to alcohol because many campuses have invested in programs focused on reducing access to alcohol for underage students. Unless students under 21 years of age are tracked separately from their legal-aged counterparts, it will not be possible to assess the effectiveness of these types of interventions.

Also different from previous literature, this study found no relationship between participation in collegiate sports and excessive alcohol consumption.^{32,33} This is also an encouraging finding because previous studies have identified athletes as an at-risk group for heavy episodic drinking. It is important to note that the campus in this study was classified as a NCAA Division II athletic program. Previous research has shown that athletes in Division II and Division III athletic programs have fewer high-risk drinking behaviors than athletes in Division I programs.³⁴ Also important, this study did not differentiate the sport of the athlete or timing of their competitive season. Previous research has shown particular sports and out-of-season athletes tend to consume alcohol more often and at higher volumes.^{34,35}

Another major focus of this study was to examine the association of heavy episodic drinking with other variables that had not been adequately researched in previous studies, specifically, family history of drug or alcohol use, depression, anxiety, financial stress, and participation in an online alcohol education program. From this list, the only variable found to be associated with heavy drinking was

family history of drug or alcohol abuse; however, once data were controlled for gender and race, this association was no longer present. The exploration of family history is an important variable that merits further research. For this sample, approximately 55% of students indicated that they had a history of drug or alcohol abuse in their family. If this variable is related to heavy episodic drinking, it may be possible to target students who indicate this history and engage them in ways that are proactive. It is important to note that the question about family history used in this study was not specific enough to allow for analysis of potential differences based on types of familial relationships that relate to heavy episodic drinking. It is possible that parents, siblings, or other family relationships differ in their impact.

Although other variables in this study did not show a statistically significant association with heavy episodic drinking, the nonsignificant findings do have implications for college campuses. In the case of online alcohol education, this study found no association between completing AlcoholEdu or a similar online program and heavy episodic drinking. Previous research has provided mixed results on the benefits of online alcohol education, with some studies demonstrating no benefits related to college alcohol behaviors^{36,37} and other studies showing benefits among incoming freshmen students who have a previous history of alcohol use.³⁸ Many colleges and universities have invested resources in implementing some version of online alcohol education for incoming students. This study supports the need for thorough evaluations of online alcohol education programs using rigorous randomized controlled trials to determine effectiveness of each specific type of program.

This study did not find a relationship between heavy episodic drinking and depression or anxiety. According to Pratt et al.,³⁹ prescriptions for antidepressants have increased by 400% in the United States since 1988, and 6.1% of those persons taking antidepressants are ages 18 to 39. It is possible that no associations were found between heavy episodic drinking and depression or anxiety due to an increased number of college students taking antidepressants. Alcohol is contraindicated while taking these medications and if more students are being prescribed medication for depression or anxiety it may result in less heavy drinking among those students. It is also possible that depressed or anxious students are not using alcohol as a coping mechanism. Roberts et al.⁴⁰ found depression rates to be high among college students who reported using cigarettes, marijuana, cocaine, and other psychostimulants but found no relationship between depression and heavy drinking.

Strengths and Limitations

Strengths of this study include the use of a large, randomly selected sample and reliable and valid instrumentation. Due to the cross-sectional study design, causality of relationships between the independent and dependent variables cannot be

inferred from any significant findings. Data were self-reported, and students were asked to recall their behaviors from the past 2 weeks, past 30 days, and past year. These data may not be as accurate as data that are obtained through observational methods or in real time. Random selection of a large number of participants produced a sample with demographic characteristics similar to the larger population of undergraduates from this campus; however, inclusion of only full-time undergraduate participants from one public university campus limits generalizability. Finally, all minority participants were collapsed into a single category, limiting interpretation pertaining to race.

There also are limitations of this study due to instrumentation. The CORE Survey does not use a gender-specific measure of heavy episodic drinking, contrary to Wechsler et al.,⁴¹ whose research suggests that what constitutes “binge drinking” among college students is different for men and women. Because the CORE Survey uses the 5-drink measure to define heavy episodic drinking for both genders, it is possible that this study does not accurately capture the entire population of women who engage in heavy episodic drinking. Lastly, although statistical models controlled for some confounding variables during analyses, data for all possible confounding variables were not controlled in this study.

TRANSLATION TO HEALTH EDUCATION PRACTICE

It is clear that excessive alcohol use on college campuses remains a problem that merits continued focus by college and university administrators. Two decades of research have shown that current programming efforts and educational approaches have been largely ineffective. In order to effect change, it is necessary to gain a deeper understanding of the perspectives and motivations of college students who consistently engage in heavy episodic drinking. Quantitative data provide limited insight into reasons for college alcohol consumption, experiences with heavy drinking, and associated risks and consequences. Community-based research approaches using mixed methods should be explored as a way of gaining additional insights that can be translated into more effective programming and educational approaches. It is also important that colleges and universities continually evaluate their harm reduction programs and interventions related to student drinking and include student feedback as a key evaluation component.

The results of this study may be of use to health educators in several areas of professional responsibility as defined by the National Commission for Health Education Credentialing.⁴² The correlates of heavy episodic drinking observed in this population of college students can be used as secondary data when completing needs assessments to inform the planning process for alcohol programming. Additionally, these data reinforce the need for rigorous program

evaluation and research studies on college alcohol programs. Heavy episodic drinking remains a persistent problem on college campuses across the United States, suggesting that 2 decades of alcohol programming on college campuses have had a limited impact. Health educators must be careful to avoid the trap of repeating the same annual calendar of alcohol prevention programs without evidence of effectiveness.

In conclusion, this study found that rates of heavy episodic drinking remain high and correlates of heavy episodic drinking may be shifting for the current cohort of college students. This information can assist college health educators in identifying target groups and planning appropriate alcohol prevention and harm reduction programs. Community-based research methods and the collection of qualitative data are needed to gain additional insight into reasons for heavy episodic drinking, information that may inform the creation of more effective health promotion programming.

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