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Comparisons of Gambling and Alcohol Use Among College Students and Non-College Students in the U.S.

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Abstract

Objective—The patterns of gambling and alcohol use were compared for college and similarly-aged non-college young adults in the U.S. population.

Participants—Participants were 1,000 respondents aged 18 to 21 in the U.S.

Methods—The data were drawn from a nationally representative household sample of U.S. young people aged 14 to 21 years old. Participants were interviewed by telephone between August 2005 and January 2007.

Results—After taking into account gender, age, race/ethnicity and socioeconomic status, college student status did not predict gambling, heavy gambling or problem gambling. In contrast, being a college student was associated with higher levels of alcohol use and problem drinking. Over and above college student status, being a male was the strongest predictor of both problem gambling and problem drinking. Blacks were less likely than whites to drink heavily; yet they were more likely than whites to gamble heavily.

Conclusion—Young males should be targeted for prevention/intervention efforts for both problem gambling and problem drinking regardless of college student status.

Keywords

gambling; alcohol; college students; U.S. population; young adults

INTRODUCTION

The serious consequences of heavy alcohol consumption among college students has been spotlighted by special federal task force initiatives to address the culture of drinking on college campuses (NIAAA, 2002, 2007).^{1,2} In an ongoing survey of over 14,000 students at 120 four-year colleges in the United States, Wechsler and colleagues³ (2002) reported that approximately 2 of 5 college students (44.4%) were binge drinkers (also called heavy episodic drinkers), defined as consuming at least 5 drinks in a row for men or 4 drinks in a row for women during the two weeks prior to the survey. High rates of binge drinking were reported for both males (48.6%) and females (40.9%) in this college survey. Although rates

of alcohol misuse are undeniably high among college students, it is not clear from college surveys if there are factors unique to the college culture contributing to binge drinking or whether alcohol misuse is a function of young adulthood more generally. The National Survey on Drug Use and Health (NSDUH), a large annual household survey of persons 12 and older in the U.S., showed that the rate of binge drinking (defined as consuming five or more drinks on the same occasion on at least one day in the past 30 days) peaked at the age of 21 with a rate of 49.3% then decreased with advancing age (Substance Abuse and Mental Health Services Administration, 2007).⁴ Because this household sample also included college dormitories, a comparison of same-aged college and non-college young people was possible. Young adults aged 18 to 22 enrolled full-time in college were more likely than their same-aged peers not enrolled full-time to binge drink (45.4% versus 38.4%).⁴ Similarly, another large representative household survey of alcohol consumption in the U.S. [the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)] showed that episodic heavy drinking, i.e., consuming five or more drinks for men and four or more drinks for women in a single day in the past year, was higher among full-time college students (44.3%) than among part-time college students (30.7%) or noncollege young adults (37.4%) (Chen, Dufour, & Yi, 2004/5).⁵ Additionally, Monitoring the Future survey investigators⁶ (Johnston, O'Malley, Bachman, & Schulenberg, 2007) followed respondents from their U.S. national secondary school survey one to four years past high school and found that college students had a significantly higher prevalence of heavy drinking (i.e., five or more drinks in a row in the past two weeks) than their same-age peers (40% versus 35%). Interestingly, in high school, the college-bound students drank *less* than their non-college-bound peers, yet the alcohol consumption of college-bound students *was greater* than that of their noncollege peers during the college years. Thus, with regard to alcohol misuse, there does appear to be evidence of a college context factor which contributes to more drinking in college than would be explained by the young adult age alone.

Alcohol misuse is correlated with other problem behaviors, in particular, frequent and problem gambling; that is, these behaviors co-occur in the same individuals (Barnes, Welte et al., 2009; Welte, Barnes, et al., 2001).^{7,8} Although alcohol misuse among college students has received far greater attention than gambling, there is growing concern about gambling among college students. In a national U.S. survey of gambling among college students, LaBrie, Shaffer, LaPlante, & Wechsler⁹ (2003) asked over 10,000 college students, attending the 119 colleges in the 2001 College Alcohol Study, questions about their gambling behavior. Forty-two percent (42%) of the college students gambled in the last school year, but only 2.6% gambled weekly or more often. Other investigators have carried out gambling surveys within selected colleges. In an early college survey of students from six colleges and universities in five states in the U.S. in 1987–1988, Lesieur and associates¹⁰ (1991) reported that 85% of the students had gambled and 23% gambled once a week or more often. Using a score of 3 or higher on the South Oaks Gambling Screen (SOGS), 15% of the students experienced problems associated with gambling. Another early college survey was carried out in 1995 by Winters and colleagues¹¹ (1998) in two Minnesota universities. Among the sample of 1,361, gambling was common with 87% of the students having gambled once or more often in the past year and 12% reported gambling at least

weekly. Nearly 3% of the participants scored in the probable pathological range (5+ on the SOGS) and an additional 4.4% reported a SOGS score in the potential pathological range of 3 or 4 problem indicators. On four campuses of the Connecticut State University, Engwall, Hunter & Steinberg¹² (2004) reported that 67% of the students had gambled in their lifetime and 11.4% (18.3% of men and 4.4% of women) were classified as problem or pathological gamblers (i.e., 3+ negative consequences) using a shortened version of the SOGS (Lesieur & Blume, 1987);¹³ 5.2% of this sample of college students (8.5% of men and 1.9% women) were classified as pathological gamblers with five or more consequences. Among 995 students at the University of Nevada, Las Vegas, the rate of pathological gambling (5+ items using SOGS) was 9.2% for those under 21 years and 14.9% for those over 21 years old (Platz, Knapp, & Crossman, 2005).¹⁴

Within the college environment, investigators have identified specific groups of students at high risk groups for problem gambling. Rockey and associates¹⁵ (2005) surveyed 954 Greek and non-Greek-affiliated college students who attended nine large state universities in the south-eastern U.S. In the total sample, there were no statistically significant differences in the prevalence of gambling and problem gambling for Greek-affiliated and non-Greek students. However, among males the differences were significant; Greek-affiliated male students had a rate of 14.8% problem gambling as compared with a 5.4% rate among males who were not affiliated with Greek organizations, suggesting the influence of peer pressure and an enabling environment for problem behaviors.

Likewise, there has been concern about gambling among athletes on college campuses. A large national study of gambling among U.S. college athletes (n=20,739) was sponsored by the National Collegiate Athletic Association (NCAA) in 2003 due to concerns about the integrity of intercollegiate sports. This survey showed that 62% of the male athletes and 43% of the female athletes had gambled in the previous year; 4.3% of men and 0.4% of women were classified as problem or pathological gamblers using the American Psychiatric Association's DSM-IV classification (Huang et al., 2007).¹⁶ Although this was a national college survey, non-athletes in colleges were not surveyed and therefore, there is no comparison group. In a study of gambling among student-athletes (n=736) and a comparison cohort of students (n=1,071) at four universities, Weinstock and colleagues¹⁷ (2007) showed that student-athletes reported similar rates of gambling frequency and disordered gambling as other students. These investigators concluded that problems associated with gambling are a university-wide issue warranting improved prevention and intervention efforts on campuses.

There have been no large representative surveys of gambling among college students as compared with their same-aged counterparts in the general population. In addition, there have been no U.S. surveys comparing the patterns of alcohol use and abuse with the patterns of gambling and problem gambling for U.S. college students and the same-aged non-college young adults. The present investigation is the first study to address this lack of comparative information on the prevalence of gambling and alcohol among college and similarly-aged peers in the U.S. population. Furthermore, this study will take into account important socioeconomic factors – age, gender, race/ethnicity, socioeconomic status and living

arrangements – in comparing alcohol and gambling behaviors among young people in college and not in college.

METHODS

Data

The data for the present study are drawn from a nationally-representative household sample of 2,274 U.S. young people aged 14 to 21 years, living in the U.S. Participants were interviewed between August 2005 and January 2007 by trained interviewers using Computer-Assisted Telephone Interviewing. The sample was selected using random-digit-dial telephone sampling procedures. Interviews were conducted in all 50 states and the District of Columbia. Subjects were mailed a check for \$25 for their time participating in the study. The response rate based on completed interviews divided by completed interviews plus refusals was 71%. Weighting adjustments were used to align the sample with the age and race distributions from the U.S. census for 2005. (See Welte et al.¹⁸ 2008 and Barnes, et al.⁷ 2009 for a detailed description of the sampling and interviewing procedures).

The present subsample consists of 1,000 respondents aged 18 to 21 who were not in high school. This subsample is comprised of *college students*, defined as those young people 18 to 21 years old who were currently enrolled in 2-year or 4-year colleges and universities; and *non-college students*, who were 18 to 21 year olds not enrolled in two-year or four-year colleges. The weighted proportion of college students among the 18 to 21 year olds in this sample is 58% ($578 \div 1,000$). The U.S. Census for 2005 shows that the proportion of 18 to 21 year olds in degree-granting institutions is 46% (U.S. Census Bureau, 2006; U.S. Dept. of Education, 2006).^{19,20} Thus, college students are well-represented in this household sample.

Dependent Measures

Gambling—Participants were asked whether or not they had ever gambled for money on each of 15 types of gambling, for example: participated in office pools, raffles, or charitable small stakes gambling; played the lottery; gambled for money on the Internet; played cards for money; bowled or played basketball, pool, golf, backgammon, darts, or some other game of skill - other than cards - for money; played Bingo for money and bet on sports events. For each type of gambling ever done, the participant was then asked whether s/he had gambled on that type in the past 12 months; and if so, was the frequency – everyday, at least once a week (if so, how many days per week), at least once a month (if so, how many days per month), at least once in the past 12 months (if so, how many days during the past 12 months). The frequencies for each of the 15 types of gambling were summed to derive the variable, *total number of times gambled in the past year*. *Gambling in the past year* was a dichotomous measure defined as gambling at least once in the past year, and *heavy gambling* was a dichotomous measure defined as gambling 52 or more times in the past year which is roughly equivalent to gambling once a week or more often and permits comparisons with other samples using comparable definitions for heavy gambling (e.g., Welte et al., 2004; Barnes et al., 2002).^{21,22}

Gambling problems—Participants who indicated that they had gambled more than five times in their life were asked a series of questions about gambling problems using the South Oaks Gambling Screen, Revised for Adolescents (SOGS-RA; Winters et al., 1993).²³ This instrument is a modified version of the SOGS (South Oaks Gambling Screen; Lesieur and Blume, 1987).¹³ Participants first were asked whether they had ever experienced each of 12 gambling problems, including going back another day to win back money you lost; telling others you were winning money when you really weren't winning; having problems such as arguments with family or friends, or having problems at school or work caused by gambling; gambling with more money than you had planned to; and borrowing or stealing money in order to bet or cover gambling debts in the past 12 months. The *SOGS-RA* measure was defined as the *total number of past year problem gambling symptoms*, ranging from 0 to 12. A dichotomous variable representing *at-risk/problem gambling*, was defined as having 2 or more symptoms on the SOGS-RA in the past 12 months.

Alcohol consumption and misuse—Past-year average alcohol consumption was calculated from quantity/frequency questions for beer, ale, malt liquor, wine, fortified wine, wine coolers, liquor, and flavored malt beverages. *Past year drinkers* were defined as those respondents whose daily average past-year alcohol consumption was greater than zero. *Heavy drinking* was assessed using questions about the *past-year frequency of drinking 5 or more drinks in one day*. A dichotomous measure of *heavy drinking* was defined as drinking five or more drinks in one day on 12 or more days in the past year. Respondents who answered that they had had a drink of any alcoholic beverage more than 5 times in their life, were asked a series of questions taken from the Adolescent Diagnostic Interview (ADI)²⁴ (Winters and Henley, 1993) based on the DSM-IV criteria for alcohol abuse and dependence (American Psychiatric Association, 1994).²⁵ There were 19 questions asking about alcohol abuse symptoms in the past 12 months, including: missing school or work more than once or twice; driving a car or motorcycle while drunk on alcohol; having sex when drunk on alcohol; having legal problems because of alcohol; having problems with friends or family; getting into physical fights; and having frequent arguments with your parents or other adults about your alcohol use. There were also 38 items asking about alcohol dependence symptoms, including tolerance (needing larger amounts of alcohol than previously to get drunk), withdrawal (having shakes or tremors of the hands after stopping or cutting down on drinking), having to use alcohol to relieve or reduce hangover or withdrawal symptoms, and trying to reduce or control your alcohol use. The total number of alcohol abuse or dependence symptoms in the past year ranged from 0 to 57. The problem drinking dichotomous measure was defined as having 3 or more alcohol symptoms in the past year.

Predictor Measures

Predictor measures were college student status and sociodemographic characteristics. *College student status* was coded 1 for those young people 18 and older who were not in high school or college and 2 for those young people 18 and older who were enrolled in two-year or four-year colleges or universities. *Gender* was coded 0 for females, 1 for males. *Age* was measured in years (18 to 21). Participants were asked whether they considered themselves Spanish, Hispanic, Latino, or Chicano. They were also asked "What is your race?" Response choices were: White (or White Hispanic); Black or African American (or

Black Hispanic); Asian; American Indian or Alaska Native; and Mixed/Unknown. *Socioeconomic status (SES)* was based on the mean of four equally weighted factors: mother's years of education, father's years of education, mother's occupational prestige, and father's occupational prestige. Occupational prestige was coded from census occupation categories using the method described by Hauser and Warren (1997).²⁶ Because we knew from previous studies that a portion of youth are unable to supply information on their parents' education and occupation, we asked a series of questions (home ownership, number of books in the home, receipt of food stamps, etc.) that were then used as predictor variables to impute education or occupational prestige when these variables were missing. Imputation was performed by the SPSS Missing Value program. Socioeconomic status was categorized into thirds for the present analyses. A dichotomous living arrangement variable was derived based on the question, "Are you currently living on your own or in the home of your parent or guardian?" The variable, *Live Independently*, was coded 0 for those living with parents or guardians and 1 for those living on their own.

RESULTS

Table 1 gives the demographic profile of college students and non-college students in this U.S. sample. There were no significant differences in the gender distributions for college and non-college students. The remaining demographic factors were significantly different between college and non-college students. As compared with their non-college counterparts, college students were somewhat younger; they were more likely to be white as compared with being classified in a minority group except Asian; college students were much more likely to be in the highest SES group. College students were somewhat more likely to live with parents than their non-college student counterparts. These demographic factors were controlled in later multivariate analyses.

A comparison of gambling among college students and non-college young adults revealed no significant differences in the overall prevalence rates or in the age- and race/ethnic-specific prevalence rates. For instance, three-quarters (75%) of college students and 70% of the non-college young adults gambled in the past year (Table 2). However, with regard to heavy gambling (52+ times in the past year), non-college young people had significantly higher rates (25%) than college students (18%). These differences were further observed for females where non-college females had twice the rate of heavy gambling (12%) as college females (6%). There were no significant differences in rates of heavy gambling for college and non-college males; indeed both groups of males had high rates, 31% and 38%, respectively. Older (20 – 21 year olds) and white non-college young people had significantly more heavy gambling than their college counterparts. Comparisons of problem gambling for college and non-college young adults revealed only one significant difference – college females had a 2% rate of problem gambling compared with a 5% rate for females not attending college.

The comparisons of alcohol use for college students and non-college young adults are different than the comparisons for gambling. Non-college young people had lower overall rates of drinking alcohol (61%) than their college student counterparts (76%); non-college young people were also less likely to be problem drinkers (19%) than college students

(27%). These differences held for both males and females. However, the rates of heavy drinking were not significantly different for the two groups.

Because of popular notions that particular forms of gambling, such as sports betting and internet gambling, may be more prevalent for college students as compared with non-college young people, Table 3 shows the rank order for various forms of gambling for college students, non-college young adults and for each gender. In the overall comparisons, the top five types of gambling are the same for college and non-college young people. According to frequency of occurrence, these forms are: lottery, card games, office pools/raffles/charitable small stakes gambling, sports betting and games of skill. Internet gambling has the lowest frequency of participation of any of the forms listed (3% for college students and 1% for non-college young people). There are striking gender differences in frequency of participation in various forms of gambling regardless of college student status. Although males play most forms of gambling more often than females, some forms of gambling, such as sports betting and games of skills (e.g., bowling, basketball, pool) are three or more times more common among males than females. Bingo is the fourth most prevalent form of gambling for both college and non-college females.

To address the question as to whether or not college student status predicts gambling and alcohol behaviors, we carried out a series of logistic regressions – first with college student status entered alone and then with college student status and demographic controls entered together (Table 4). College student status did not predict overall gambling or problem gambling in the analysis with college student status entered alone or when college student status was entered with all of the demographic controls. When college student status was entered alone, college students had a significantly lower odds of heavy gambling, i.e., 52+ times in the past year; however, once the demographic controls were entered, college status was no longer significant in predicting heavy gambling. Thus, being a college student or not, does not appear to have much of an effect on gambling behavior, whereas male gender is the variable with the largest effect on gambling – with males having approximately five times the odds of being a heavy or problem gambler as females regardless of college student status.

The effects of college student status on alcohol use and problem drinking showed a different pattern from that of gambling. College students had 1.9 times the odds of being a drinker as compared with young people not in college and college students had a significantly increased odds (1.6) of being a problem drinker than their non-college counterparts. This finding was observed when college student status was entered alone or when it was considered with all of the control variables. Male gender greatly increased the probability of drinking, heavy drinking and problem drinking – consistent with the significant effect of male gender on the increased probability of gambling, heavy gambling and problem gambling. Other demographic factors showed different relationships to alcohol and gambling variables. Increased age in this sample of 18 to 21 year olds significantly predicted increased drinking and heavy drinking but did not have any effect on gambling behaviors. Being black decreased the odds of drinking and heavy drinking by 70% respectively, yet being black increased the odds of heavy gambling by 60%. Being Hispanic was not related to either alcohol or gambling behaviors. Higher socioeconomic status predicted a somewhat

increased probability of drinking and heavy drinking, while higher socioeconomic status lowered the odds of problem gambling. Living independently was not related to any gambling variables; on the other hand, young people who lived independently from their parents or guardians had 1.7 times the odds of being a problem drinker as those who lived with their parents or guardians.

COMMENT

There has been widespread public concern over high-risk addictive behaviors among college students, especially binge drinking and to a lesser extent, gambling among college students. Since the 1990s, there have been federal task forces and numerous college initiatives to address the concern of college binge drinking; yet the question remains if rates of problem behaviors such as excessive drinking and gambling among college students are high due to specific aspects of the college experience – such as increased freedom from parental supervision and increased peer influences -- or if these problems are associated with the age group of young adulthood more generally conceived, regardless of current college status. If these high risk behaviors are age-related regardless of college status, then prevention and intervention efforts must necessarily be targeted beyond the college environment. This is the first U.S. national study to compare both gambling and alcohol use behaviors among college students as well as other similarly-aged young adults in the general population. The scope of this study permits us to determine if college students as compared with other young adults are at high risk for problem gambling as they have been shown to be regarding heavy alcohol use.

Consistent with findings from the few other national surveys of alcohol use which included both college and non-college young adults,⁴⁻⁶ this study shows that the rates of alcohol use and problem drinking are significantly higher for college students than for similarly aged non-college young adults. However, the rates of heavy drinking, often referred to as binge drinking, were not significantly different for college and non-college young people in this study. The lack of differences between the two groups should not detract from the extent of the problem of alcohol misuse for both college and non-college adults. In particular, over a third of the males in both groups were classified as heavy drinkers. As in other national surveys⁴⁻⁶, heavy drinking is much more prevalent among white young people than among black young people regardless of college student status.

The patterns of gambling for college and non-college young people show some differences from the patterns of alcohol use. Whereas rates of overall alcohol use and problem drinking were higher for college students than for non-college adults, the rates of heavy gambling were higher for non-college young adults than for college students, particularly for females. There were no significant differences in the prevalence of overall gambling or problem gambling for the two groups. However, college student status was no longer significant in predicting heavy gambling once demographic factors were entered. Being male and being black were the important factors in increasing the risk for heavy gambling.

Thus, in this study, being a college student does not put a young person at added risk for gambling, heavy gambling or problem gambling. In addition, the top five most popular

forms of gambling are the same for college males and non-college males; these forms are lottery, card games, pool and raffles, sports betting and games of skill. Regardless of college status, the most popular forms of gambling for females are lottery, card games, pools and raffles and bingo. It is also interesting that internet gambling is a low prevalence form of gambling for college and non-college young people. Findings from this study support the position that gambling and problem gambling are influenced by broad sociodemographic factors, especially gender and race, and not by college factors per se. Therefore, prevention efforts must be targeted broadly across young adulthood regardless of college status. Because there are no other comparable national studies of gambling including college and non-college young people, these findings remain to be replicated by future studies.

Limitations

This sample was one of household telephone numbers, and therefore, cell phone numbers were not intentionally included in the sample. Nonetheless, some cell phone numbers became a part of the sample because phone numbers from land-line exchanges may be ported to cell phones; and some telephone exchanges (often in less populated areas) contain both land-line and cell numbers. Estimates from the National Health Interview Survey for 2005–2006 (CDC, 2007)²⁷ show that between 7.6% and 8.6% of U.S. households with children had only wireless telephone service or no telephone service. Weighting can reduce potential bias created by not including cell-phone-only users a household sample; this was done in the present study as described above.

Conclusions

College student status significantly increases the odds that a young person will drink alcohol and experience problems associated with alcohol use. However, college student status does not appear to put young people at added risk of gambling or gambling problems. The most important and consistent risk factor for both alcohol and gambling behaviors is being a young male whether in college or non-college settings. Age- and gender-targeted prevention and intervention strategies are warranted to reduce the serious consequences of alcohol use and gambling among young adult males in the U.S. population.

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TABLE 1

Demographic Profile of College Students and Non-college Young Adults, aged 18 – 21 years old. U.S. Youth and Gambling Survey (N = 1,000)

		College Students (N = 578)	Non-college Young Adults (N = 422)
Gender	Female	54%	49%
	Male	47%	51%
	<i>Not significant</i>		
Age	18 – 19 years	50%	42%
	20 – 21 years	50%	59%
	<i>p < .01</i>		
Race/Ethnicity	White, Not Hispanic	66%	56%
	Black, Not Hispanic	11%	17%
	Hispanic	15%	19%
	Asian	7%	2%
	American Indian	1%	3%
	Mixed, Unknown	1%	3%
	<i>p < .001</i>		
Socio-economic Status	Low third SES	20%	48%
	Middle third SES	36%	33%
	High third SES	45%	19%
	<i>p < .001</i>		
Living Arrangements	Live with parents	77%	71%
	Live independently	23%	29%
	<i>p < .05</i>		

Gambling, Alcohol Use, Heavy Use and Related Problems (Past Year) for College Students (N = 578) and Non-College Young Adults (N = 422) aged 18 – 21 years old in the U.S.

TABLE 2

Sociodemographic group (n)	Gambled		Drank Alcohol		Gambled 52+ times		Drank 5+ drinks on 12 or more days		At-Risk/Problem Gambling (2+ symptoms on SOGS-RA)		Problem Drinking (3+ symptoms)	
	College students	Non-college young adults	College students	Non-college young adults	College students	Non-college young adults	College students	Non-college young adults	College students	Non-college young adults	College students	Non-college young adults
Total sample	75%	70% NS	76%	61% ***	18%	25% **	30%	27% NS	6%	9% NS	27%	19% **
Female	67%	62% NS	72%	53% ***	6%	12% **	20%	17% NS	2%	5% *	21%	12% **
Male	83%	79% NS	80%	70% **	31%	38% NS	42%	36% NS	11%	14% NS	35%	26% *
18 – 19 years	76%	71% NS	70%	56% ***	18%	24% NS	27%	23% NS	7%	10% NS	27%	19% *
20 – 21 years	73%	69% NS	81%	65% ***	18%	26% *	33%	29% NS	5%	8% NS	27%	20% *
White, Not Hispanic	79%	73% NS	82%	72% **	17%	23% *	37%	33% NS	6%	10% NS	31%	23% *
Black, Not Hispanic	67%	67% NS	53%	43% NS	26%	32% NS	11%	13% NS	7%	11% NS	21%	16% NS
Hispanic	71%	72% NS	73%	55% *	18%	22% NS	23%	25% NS	2%	8% NS	26%	17% NS

* *p* .05;** *p* .01;*** *p* .001.

TABLE 3
 Percent Participating in Various Types of Gambling (Past Year) (Listed by Frequency of Occurrence among College Students)
 College Students and Non-College Young Adults Aged 18 – 21 years old in the U.S. (N = 1,000)

Type of gambling	College Students				Non-College Young Adults		
	Female (n= 309)	Male (n=269)	Overall (n=578)	Female (n=208)	Male (n=214)	Overall (n=422)	
Lottery	41%	45%	43%	45%	49%	47%	
Card games	21%	59%	38%	18%	46%	32%	
Office pools, raffles, charitable small stakes gambling	31%	45%	38%	16%	38%	27%	
Sports betting	13%	35%	23%	11%	36%	23%	
Games of skill – e.g., bowling, basketball, pool, golf, backgammon, darts	11%	31%	20%	7%	36%	22%	
Casino gambling	10%	21%	15%	8%	17%	13%	
Bingo	16%	10%	13%	14%	16%	15%	
Slot machines, poker machines and other gambling machines	10%	11%	10%	6%	13%	10%	
Dice games	3%	13%	8%	4%	19%	11%	
Pull tabs	6%	10%	8%	6%	10%	8%	
Bet on horses, dogs or other animals	3%	12%	7%	3%	10%	7%	
Video keno – e.g., Quick Draw or Quick Cash	3%	5%	4%	4%	10%	7%	
Trading cards – such as sports cards for the resale of the insert cards	0%	6%	3%	1%	3%	2%	
Internet gambling	0%	7%	3%	1%	2%	1%	

TABLE 4
 Logistic Regressions Predicting Gambling, Alcohol Use, Heavy Use and Related Problems (past year) for College Students and Non-College Young Adults 18 – 21 years old in the U.S. (n =1,000)

Predictor	Dichotomous Dependent Variable						
	Gambled OR ^a	Drank Alcohol OR ^a	Gambled 52+ times OR ^a	Drank 5+ drinks on 12 or more days OR ^a	At-Risk or Problem Gambling (2+ symptoms on SOGS-RA) OR ^a	Problem Drinking (3+ symptoms) OR ^a	
<u>College Student entered alone</u>	1.3 ^{ns}	1.9 ^{****}	0.6 ^{**}	1.2 ^{ns}	0.6 ^{ns}	1.6 ^{**}	
<u>College Student entered with controls</u>							
College Student	1.3 ^{ns}	1.6 ^{**}	0.7 ^{ns}	1.1 ^{ns}	0.8 ^{ns}	1.8 ^{****}	
Male	2.4 ^{****}	1.8 ^{****}	5.5 ^{****}	3.1 ^{****}	4.6 ^{****}	2.3 ^{****}	
Age (years)	1.0 ^{ns}	1.4 ^{****}	1.1 ^{ns}	1.3 ^{****}	0.9 ^{ns}	1.1 ^{ns}	
Black	0.7 ^{ns}	0.3 ^{****}	1.6 [*]	0.3 ^{****}	1.0 ^{ns}	0.7 ^{ns}	
Hispanic	0.9 ^{ns}	0.8 ^{ns}	0.9 ^{ns}	0.8 ^{ns}	0.5 ^{ns}	0.8 ^{ns}	
SES	1.0 ^{ns}	1.2 ^{****}	0.9 ^{ns}	1.1 [*]	0.8 [*]	0.9 ^{ns}	
Live Independently	1.3 ^{ns}	1.1 ^{ns}	0.7 ^{ns}	1.4 ^{ns}	1.3 ^{ns}	1.7 ^{**}	

^aOR = odds ratio.

* $p < .05$.

** $p < .01$.

**** $p < .001$