An Analysis of the Relationship of Alcohol to Casino Gambling Among College Students

David Giacopassi
University of Memphis

B. Grant Stitt
University of Nevada, Reno

Margaret Vandiver
University of Memphis

Research has found significant overlap in the problem drinker and pathological gambler populations. This finding leads to the question of whether the pairing of drinking and gambling at lower levels of intensity is similarly related to a variety of negative consequences. The data for the present study were gathered in Memphis, TN, and Reno, NV, from questionnaires completed by 835 students in two universities. The data indicate that about one-fourth of students who gamble in casinos frequently or always drink while gambling. Drinking when gambling is significantly related for males, but not for females, to size of bet, obtaining additional money while at the casino, and losing more than one can afford. The analysis suggests that an increased effort should be made to inform even casual drinkers and casual gamblers of the dangers of pairing these behaviors.

INTRODUCTION

The relationship between problem drinking and problem gambling has been well established. Possibly both behaviors belong to a

Address correspondence to Dr. David Giacopassi, Department of Criminology and Criminal Justice, University of Memphis, Memphis, TN 38152.

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common category of addictions and each may serve to reinforce the other. These behaviors individually have been linked to a variety of criminal activities and other social pathologies that suggest that problem drinking and problem gambling have much in common.

While several studies have examined the relationship of problem drinking to problem gambling, the less extreme form of these behaviors—social drinking and casual gambling—has been largely ignored by researchers. Certainly the conventional wisdom is that a relationship does exist. Most casinos provide free drinks to gamblers. By providing free drinks, casinos are seeking to provide a "gambling tonic" (Binion, quoted in Popkin, 1994, p. 49) to spur betting and possibly to cloud judgment and loosen the social restraints normally firmly attached to the purse strings. However, there is a lack of research quantifying the relationship between social drinking and casual gambling within casinos. The present paper analyzes drinking and gambling among university students who report having gambled in casinos. We test if casual gamblers who drink exhibit different patterns of gambling than those who do not drink while they gamble.

Review of the Literature

The relationship between problem drinking and problem gambling has not been causally specified (Lesieur, Cross, Frank, Welch, & Mark, 1991). However, Lesieur, Blume, and Zoppa (1986) identify many elements shared by pathological gamblers, alcoholics, and drug addicts. Among these are that the pathological activity heightens or depresses one's awareness; the addicted behaviors frequently appear together or in sequence; the patterns of abstinence and relapse are similar; and the treatment approaches have much in common. Doweiko (1990) writes of "the unity of addictive disorders" (p. 2) and includes compulsive gambling, alcoholism, and drug addiction as examples of addictive disorders that may share a common foundation. Hyde (1978) similarly concludes that alcoholics and compulsive gamblers have much in common.

Several studies make clear that compulsive gamblers have a much higher rate of problem drinking than is found in the general population. Based on their extensive review of the literature, Rosenthal and Lorenz (1992) estimate that approximately one-half of all pathological gamblers have or had a problem with alcohol or with an illicit drug;

conversely, they estimate that 20% of substance abuse patients have had problems with gambling. In a survey of admissions to a drug abuse treatment center, Lesieur, Blume, and Zoppa found that 19% of the patients had a problem with gambling. They concluded that "alcohol, cocaine, heroin, and marijuana abuse are indicators which should alert the clinician to the possibility of a gambling problem" (1986, p. 37).

Coyle and Kinney's study of 61 self-identified compulsive gamblers found that 24% were problem drinkers and an additional 8% had problems with other drugs as well (1990, p. 35). A study by Ramirez et al. (1983) of 51 consecutive admissions to an inpatient gambling treatment program found that 47% of the sample had an alcohol or drug abuse problem at some time in their life, and 39% had experienced the problem within the last year.

Ladouceur, Dube, and Bujold's (1994) survey of 1471 college students in Quebec found that 2.8% of the college students were probable pathological gamblers as indicated by a score of five or greater on the South Oaks Gambling Screen (Lesieur & Blume, 1987). The authors found that the scores were significantly and positively correlated with tobacco use, alcohol abuse, frequency and number of illegal substances used, and having been arrested for a criminal offense (1994, p. 291). Lesieur et al.'s study of 1771 university students from five states found that 85% of the students had engaged in some form of gambling. Using the South Oaks Gambling Screen, the authors found the rates of probable pathological gambling varied from 4% in Nevada to 8% in New York. The highest rates of probable pathological gambling were found in males, Hispanics, Asians, Italian-Americans, and students with non-traffic arrests and those who abused alcohol or other drugs. The authors conclude that "another significant finding of this study is that addictive-like behaviors, including excessive gambling, excessive alcohol and drug use, and over-eating are associated with each other" (Lesieur et al., 1991, p. 525).

A study of 972 randomly selected adolescents (aged 12–17) in Alberta, Canada, found that use of alcohol, tobacco, marijuana, and hallucinogens generally increased with reported degree of gambling involvement (Wynne Resources, 1996). A large scale study of Minnesota public school students in the 6th, 9th, and 12th grades was conducted in 1992 and again in 1995 (Stinchfield, Cassuto, Winters, & Latimer, 1997). Although no questions were asked about casino gam-

bling and no student over the age of 21 was included in the analysis, the findings are consistent with the results of research conducted on other sample populations. The analysis indicated that "high frequency gambling may be part of a constellation of deviant behaviors that are mainly exhibited by some males, including frequent alcohol use . . ." (Stinchfield, Cassuto, Winters, & Latimer, 1997, p. 45). A third large scale study of adolescent gambling was conducted in Texas (Wallisch, 1993). In this study, 924 teens aged 14 to 17 were interviewed. Wallisch found that among teens who had gambled, the more frequent gamblers were more likely to have used alcohol, tobacco, and other drugs and to have had problems related to drug use. Problem gamblers were significantly more likely than non-problem gamblers to have experienced trouble due to alcohol or drug use (Wallisch, 1993).

The strong and consistent finding that high frequency or problem gamblers tend to have higher rates of alcohol abuse than does the general population leads to the question of whether a positive correlation between drinking and deleterious gambling behaviors exists at lower levels of intensity. Do university students who usually drink when they gamble go to casinos more frequently, bet more heavily, lose more than they can afford, and have different attitudes towards gambling than do those university students who do not drink when they gamble? Do students from Nevada, a state that has had legalized casino gambling for many years, exhibit different patterns of drinking and gambling than do students from an area where casino gambling only recently has been introduced?

METHOD

Reno, Nevada, has had casino gambling since 1931. It has 33 casinos, the second largest number of any city in the country. In addition to the casinos, it should be noted that gambling devices, such as slot machines and video poker machines, are commonly found in a variety of commercial establishments ranging from bars to supermarkets and laundromats. Given the long history of casino gambling in Reno and its economic importance to the region, casinos are a well-accepted and integral part of the community.

Memphis, Tennessee, is less than 20 miles from Tunica County, Mississippi, which opened its first casino in October 1992 and which

now has nine casinos in operation. As a result of its proximity to this new, major gambling center, Memphis has become the fifth largest casino market in the country (Schwarz & Schwarz, 1996).

To determine the relationship of drinking to gambling, 420 students at the University of Memphis (UofM) and 415 students at the University of Nevada, Reno (UNR) were given questionnaires. Both universities are comprehensive, urban, state universities with enrollments of over 12,000 students. In each university, classes that fulfill general university requirements and attract a diverse enrollment not limited to any one major or field of study were selected for questionnaire administration. Ten classes at the UofM and seven classes at UNR were asked to complete the questionnaire during class time set aside for that purpose. A statement was included in the questionnaire that informed students that they were free to not answer any or all of the questions and they were told not to put their names or any other type of identification on the questionnaire. Almost all students present on the day the questionnaire was administered completed the survey, although no record was kept of the number of students who did not complete the questionnaire.

All respondents were asked to answer a demographic section and a question asking if they had ever gambled in a casino.[1] If students had never gambled in a casino, they were directed to an attitudinal section that asked whether they agreed/disagreed with a series of statements (e.g., "gambling is immoral"), and to a question that asked what was the main reason they had never gambled. Students who had gambled in a casino answered the demographic and attitudinal sections and a series of questions about gambling behaviors (e.g., average bet, length of time spent gambling during an average casino visit, etc.). In addition, students who had gambled were asked if they drank while they gambled (the five response categories ranged from "never" to "always"). No attempt was made to ascertain the amount or type of alcoholic beverage consumed. The current analysis will focus only on questions concerned with drinking and gambling behavior.

Of the 420 UofM students completing the questionnaire, 60.5%

[1] The 30 item questionnaire was pretested to ensure questions were not ambiguous and that response categories were comprehensive. Although the questions are believed to have face validity, no attempt was made to assess the reliability and validity of the questions comprising the research instrument.

Table 1
Demographic Comparison of Student Samples to Respective University Undergraduate Population

	U of M		*UNR*	
	Sample	*Population*	*Sample*	*Population*
Sex				
Female	60.5%	58.1%	52.3%	52.9%
Male	39.5%	41.9%	47.7%	47.1%
	100.0%	100.0%	100.0%	100.0%
	(415)	(14,777)	(413)	(12,279)
Race				
White	69.8%	65.5%	76.5%	77.6%
Black	28.0%	29.3%	3.7%	1.6%
Latino	0.7%	0.9%	5.9%	4.5%
Other/Unknown	1.5%	4.3%	14.0%	16.3%
	100.0%	100.0%	100.0%	100.0%
	(410)	(14,777)	(408)	(12,279)
Age				
Under 21	47.0%	35.1%	63.8%	28.5%
21–29	44.8%	47.3%	29.8%	44.1%
30+	8.2%	17.6%	6.5%	27.4%
	100.0%	100.0%	100.0%	100.0%
	(403)	(14,777)	(403)	(12,279)

were female; 69.8% were White and 28.0% were Black;[2] and the median age was 21. Of the 415 UNR students completing the questionnaire, 52.3% were female; 76.5% were White, 3.7% were Black, and 5.9% were Latino; and the median age was 20. The demographic profile of students in each sample is closely representative of the university from which it was drawn except for the age distribution (see Table 1). Respondents under 21 years of age in each university are over-represented. The over-representation of this age group is at least partially explained by the decision to survey classes that met general university requirements, to avoid obtaining an over-representation of students from any

[2] Other racial/ethnic categories were included in the questionnaire. However, there were too few respondents in the other categories to allow for meaningful analysis.

one major. These classes are typically taken in the first two years of a student's university education and resulted in the lower age distribution of respondents.

The great majority of students at each university are residents of the respective state, with 87% of the UofM students being from Tennessee, and 81% of the UNR students being Nevada residents. No claim can be made, however, that the students are representative of their respective university's city or county population, since only 11.3% of the residents of Shelby County (Memphis) and 10.5% of the residents of Washoe County (Reno) are between the ages of 18 to 24. Fully 80.6% of the UofM students and 89.0% of the UNR students surveyed fall within the 18 to 24 age group. Furthermore, only 20.8% of Shelby County residents and 20.7% of Washoe County residents are college graduates (Bureau of the Census, 1994). Although the results of this survey are not generalizable to students in other universities or to the residents of the respective cities and states where these two universities are located, the analyses may provide insight into the attitude and behaviors of university students regarding their drinking and gambling behaviors within casinos.

RESULTS

The initial analysis sought to determine if there is a different pattern of drinking and gambling among the UNR students, who come from a venue where casino gambling is easily accessible and integrated into the local culture, and the UofM students, who come from an area where gambling has only recently been introduced. Despite the fact that the median age of the UofM students is slightly higher than the median age of the UNR students, slightly over one-half (53.3%) of the Memphis students have gambled in a casino compared to more than two-thirds (68.6%) of the Reno sample. It should be noted that despite the fact that the legal age for casino gambling in Nevada and Mississippi is 21, underage gambling was relatively common in each sample, with 24.2% of the underage UofM students and 52.7% of the underage UNR students stating that they had gambled in a casino on at least one occasion.[3]

[3] Although this may appear to be a high rate of underage gambling, the results are consistent with the rates of underage casino gambling found in other studies (Arcuri, Lester, & Smith, 1985; Frank, 1990; Lesieur & Klein, 1987; Oster & Knapp, 1994; Waddell, 1994).

Table 2
Drinking and Gambling, by University and Total Sample

"Do you drink while you gamble?"	*University*		
	U of M	*UNR*	*Total Sample*
Never	30.8%	26.8%	28.6%
Rarely	16.5%	18.2%	17.5%
Occasionally	25.9%	27.5%	26.8%
Frequently	11.6%	11.8%	11.7%
Always	15.2%	15.7%	15.5%
	100.0%	100.0%	100.0%
	(224)	(280)	(504)

No significant difference emerges when the pattern of drinking and gambling is compared between the UofM and UNR students who have gambled in a casino (see Table 2). Approximately 45% in each sample answered that they never or rarely drink while they gamble, while slightly over 25% in each group responded that they frequently or always drink while they gamble. Since the differences between the two sample populations are not significant, the responses were combined for the remainder of the analysis.[4]

The results indicate that individuals who frequently or always drink when they gamble differ significantly along several dimensions from individuals who never or rarely drink when they gamble. Males are twice as likely as females (36.8% versus 18.6%, respectively) to frequently or always drink when they gamble ($\chi^2(4) = 27.22$, $p < .001$). Whites are significantly more likely than Blacks to frequently or always drink when gambling (30.2% versus 18.4%, respectively) ($\chi^2(4) = 30.23$, $p < .001$). The respondents who frequently or always drink when they gamble are more likely to have visited a casino four or more times in the last year than are those who never or rarely drink when they gamble (58.1% versus 41.0%, respectively) ($\chi^2(4) = 15.95$, $p < .005$). Similarly, a higher percentage of those who frequently or always drink when they gamble spend two or more hours gambling (62.7%)

[4] In the combined sample, 55% of females and 64% of males had gambled in a casino; 62% of Whites and 89% of Blacks and 11% of Latinos had gambled in a casino; and 40% of those below age 21, 78% of those 21–29, and 93% of those age 30 and above had gambled in a casino.

than do those who never or rarely drink when they gamble (39.9%) ($\chi^2(4) = 18.39$, $p < .001$). Of those who frequently or always drink when they gamble, 38.6% go to casinos with three or more friends compared to 28.0% of those who never or rarely drink when they gamble ($\chi^2(4) = 11.93$, $p < .05$). Those who frequently or always drink when they gamble are more than three times as likely to play table games (45.0%) as opposed to machines than are those who never or rarely drink when they gamble (14.0%) ($\chi^2(4) = 44.40$, $p < .001$).

Due to the larger number of females than males in the sample and the finding that males are twice as likely as females to frequently or always drink when they gamble, gender was used as a covariate for the remaining comparisons. Controlling for gender, the pattern of drinking when gambling is significantly related to the dependent variables for males, but not for females. The remaining analysis, therefore, only reports the results for the male respondents.

When students were asked to state their average bet, a significant difference emerged between the male students who frequently or always drink while they gamble and the other male respondents ($\chi^2(16) = 43.87$, $p < .001$) (see Table 3). Of the 83 male students who never or rarely drink while they gamble, 39.8% had an average bet of 25 cents. Of the 84 male students who frequently or always drink while they gamble, only 19.1% had an average bet of 25 cents. Furthermore,

Table 3
Drinking, Gambling, and Average Bet (Male Respondents)

"What best describes your average bet?"	*"Do you drink while you gamble?"*				
	Never	*Rarely*	*Occasionally*	*Frequently*	*Always*
$.25	49.1%	19.2%	7.1%	15.6%	21.2%
$.50	15.8%	7.7%	16.1%	6.3%	5.8%
$1.00	19.3%	34.6%	35.7%	28.1%	25.0%
$5.00	14.1%	26.9%	32.2%	31.2%	36.5%
$5.00+	1.7%	11.6%	8.9%	18.8%	11.5%
	100.0%	100.0%	100.0%	100.0%	100.0%
	(57)	(26)	(56)	(32)	(52)

$X^2 = 43.87$, $p<.001$

fewer than one fourth (22.9%) of the students who never or rarely drink while they gamble had an average bet of five dollars or more, while about one-half (48.8%) of those who frequently or always drink while they gamble had average bets of five dollars or more.

When the students were asked whether they ever had to get additional money (from friends or from credit card machines) while at a casino, the results were once again significant when cross-tabulated with drinking patterns ($\chi^2(4) = 18.28$, $p < .001$) (see Table 4). Of those males who never or rarely drink when they gamble, only 10.8% ever had to get additional money while at a casino. However, of those males who frequently or always drink when they gamble, 39.3% on some occasion had to get additional money while at the casino.

When students were asked whether they ever lost more than they could afford as a result of gambling at a casino, once again the results were significant for males when analyzed by drinking pattern ($\chi^2(4) = 9.95$, $p < .05$) (see Table 5). Of the 83 male students who never or rarely drink while they gamble, 9.6% have at least on one occasion lost more than they could afford at a casino. Of the 84 students who frequently or always drink while they gamble, 23.8% have on some occasion lost more than they could afford as a result of casino gambling.

Table 4
Drinking, Gambling, and Having to Get Additional Money While at a Casino (Male Respondents)

"Have you ever had to get additional money while at a casino?"	*"Do you drink while you gamble?"*				
	Never	*Rarely*	*Occasionally*	*Frequently*	*Always*
No	91.2%	84.6%	71.9%	62.5%	59.6%
Yes	8.8%	15.4%	28.1%	37.5%	40.4%
	100.0%	100.0%	100.0%	100.0%	100.0%
	(57)	(26)	(57)	(32)	(52)

$X^2 = 18.28$, $p<.001$

Table 5
Drinking, Gambling, and Losing More Than One Can Afford
(Male Respondents)

"Have you ever lost more than you could afford while at a casino?"	*"Do you drink while you gamble?"*				
	Never	*Rarely*	*Occasionally*	*Frequently*	*Always*
No	89.5%	92.3%	70.2%	78.1%	75.0%
Yes	10.5%	7.7%	29.8%	21.9%	25.0%
	100.0%	100.0%	100.0%	100.0%	100.0%
	(57)	(26)	(57)	(32)	(52)

$X^2 = 9.95$, $p<.05$

DISCUSSION

The present research finds that although a higher percentage of UNR students (68.6%) than UofM students (53.3%) have gambled in a casino, there is no significant difference in the pattern of drinking among those who gamble in the student populations surveyed in Memphis, TN, and Reno, NV. This is somewhat surprising since Memphis tends to be more culturally conservative, does not have casinos as conveniently located, and does not have the long tradition of a "casino culture" as fully integrated into the community as does Reno, Nevada.[5] The difference in proportion of respondents in each university who have gambled in a casino is probably due in part to the close proximity of casinos to UNR, which is located on the outskirts of the downtown casino district, and the greater distance of the UofM campus from the casinos in Tunica County, Mississippi.

[5] Some might argue that this finding is not surprising given the emphasis on drinking and gambling in the popular culture and the fact that opportunities to gamble are widespread. Lorenz (1983), for example, studied attitudes and gambling behaviors in university students in Atlanta (before any form of legalized gambling was present locally) and Las Vegas, which she described as having nearly all forms of gambling available virtually everywhere at all hours. Despite the apparent differences in gambling culture, Lorenz found 68.8% of the Atlanta students and 76.9% of the Las Vegas students had engaged in one or more forms of gambling.

When responses were analyzed to determine if those who frequently or always drink when they gamble differ from those who never, rarely, or occasionally drink when they gamble, several significant findings emerged for male respondents, but not for female respondents. Those males who usually drink when they gamble are significantly more likely to place higher wagers, to obtain additional money while at the casino, and to have lost more than they could afford than are those males who do not usually drink while they gamble.

The finding that alcohol's effect on gambling is mediated by gender may be related to culturally derived views of drinking and gambling. For example, males tend to associate alcohol consumption with the desire to feel high or powerful (McClelland, 1972), while females tend to drink to enhance feelings of sociability and expressiveness (Thombs, 1993; Wall, Hinson, & McKee, 1998). Furthermore, females tend to be more knowledgeable about alcohol's effects and more cautious in its use than are males (Giacopassi & Stein, 1991; Ray & Ksir, 1987).

Although gender has received little attention as an explanatory variable in gambling research (Lindgren, Youngs, McDonald, Klenow, & Schriner, 1987; Mark & Lesieur, 1992), gender differences have been widely noted in gambling activities. Research tends to indicate that, as with alcohol, males and females have different motivations and attach different meanings to gambling (Lindgren et al., 1987). Males tend to have a higher degree of gambling involvement (Chantal, Vallerand, & Vallieres, 1982) and their gambling activity is reinforced by an "illusory control experienced in gambling" (Hong & Chiu, 1984). Males also tend to score higher in "sensation seeking" (risk behaviors) than females (Arnett, 1994) and there is some evidence of greater risk-taking by males in betting decisions (Bruce & Johnson, 1994). In the present research, it appears that the gender differentiated motivations associated with alcohol and gambling combine to support heightened levels of drinking and gambling for males, but not for females. Additional research is clearly needed to specify the nature of the interaction between alcohol, gambling, and gender. However, the present data strongly suggest that drinking has an effect on gambling behavior, especially for males, even at the casual drinking and gambling levels present in the student populations surveyed.

Alcohol can affect behavior by decreasing the level of arousal in the cerebral cortex (Ritchie, 1985). This results in the cortex having a diminished capacity to act as an integrating agent for various higher order

functions of the brain. "As a result, the various processes related to thought occur in a jumbled, disorganized fashion. . . . The first mental processes to be affected are those that depend on training and previous experience that usually make for sobriety and self-restraint. The finer grades of discrimination, memory, concentration, and insight are dulled and then lost. Confidence abounds . . ." (Ritchie, 1985, pp. 372–373).

These changes in brain function occur when even relatively small amounts of alcohol are consumed. Ray and Ksir (1987) state that a .05% blood alcohol level (the result of two drinks consumed in a relatively short period of time by a 150 pound male) results in lowered alertness, release of inhibitions, and impaired judgment. It is reasonable to conclude, then, that drinking has a negative effect on gambling behavior in two ways. First, by acting as a disinhibitor, the alcohol frees the individual from normal social and financial restraints and allows the individual to wager more than is prudent. Second, alcohol's effect on cognitive abilities makes it more likely that the individual will not "play smart," will not make the appropriate plays to optimize whatever chance there is of winning, and will make it more likely that the individual will lose the imprudent wager.

Although a cause and effect relationship between problem drinking and problem gambling has not been established, the research literature indicates that these conditions often exist together. Those who frequently drink when they gamble may be exhibiting warning signs of future pathologies. However, as Ladouceur, Dube, and Bujold (1994) point out, this type of experimentation in teenagers and young adults is a normal phenomenon. Future research may nevertheless be helpful in specifying the relationship of drinking and gambling and in determining if there are warning signs that will enable clinicians to predict those who will become problem drinkers and gamblers.

The implications of the current research are that more than problem drinkers and problem gamblers need to be warned of the potential negative effects caused by pairing these behaviors. The present research strongly suggests that in samples of college students composed overwhelmingly of social drinkers and casual gamblers, drinking and gambling are significantly associated for males with a number of negative consequences. Programs aimed at preventing problem gambling may be well-advised to at least partially focus on the less extreme forms of drinking and gambling to educate the social drinker and casual gambler of the dangers of pairing these behaviors.

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