Internet Gambling Among College Students

Amy W. Helstrom, Ph.D.[a], Angela Bryan, Ph.D.[b] Kent E. Hutchison, Ph.D.[b]

VA Boston Healthcare System[a], University of Colorado, Boulder[b]

Corresponding Author: Amy Helstrom
VA Boston Healthcare System,
Psychology Service (116B)
150 S. Huntington Avenue
Boston, MA, 02130
Tel: (857) 364-2474
Fax: (857) 364-6539

This work was supported by a grant from the National Institute on Drug Abuse awarded to the first author (DA13182-02) and by the Department of Veterans Affairs Research Enhancement Award Program.

Abstract

The present study sought to examine Internet gambling behavior among 200 college students. Frequencies of Internet and non-Internet gambling were compared. Results suggested that 9% of respondents had engaged in past-year Internet gambling. Problem gambling and older student age were significantly associated with involvement in Internet gambling.

KEY WORDS: Internet, Gambling Student

Pathological or problem gambling among young people is a concern among health practitioners, parents, and educators. National prevalence studies suggest that the rate of weekly gambling among college students ranges from 2.6%[1] to 23%[2]. A national survey[1] of gambling among more than 10,000 college students suggested that 42% of responding students gambled in the past school year and 2.6% gambled weekly or more frequently.

Many young adults who gamble do so as a social activity. Social gambling has been defined by the American Psychiatric Association as "gambling which lasts for a limited amount of time with predetermined acceptable losses"[3]. However, for some individuals, gambling becomes problematic. Many terms have been used to describe gambling behavior that is persistent and maladaptive and is accompanied by symptoms of impairment (e.g., repeated, unsuccessful efforts to control, cut back, or stop gambling) and disruption in personal, familial, financial, and/or legal arenas[3]. Terms used to describe this type of gambling behavior include "pathological gambling," "problem gambling," and "disordered gambling"[5]. For the purpose of the present study, the term problem gambling is used. Studies of problem gambling estimate the rate among college students ranges from 1.2% to 5.6%[4], with results varying depending on proximity to gambling venue, indicating that for some young adults, gambling may be a significant problem.

A recent area of research focus has been the effect of the Internet on youth gambling. Internet gambling has the potential to expand the number of gamblers and the severity of problem gambling, particularly for young adults[6]. Due to the vast number of Internet users, Internet advertising, and easy credit card payment methods, Internet gambling is more accessible than many traditional methods of gambling. A recent study[7] that assessed Internet gambling behavior among mainly adult patients who presented to a health clinic demonstrated that 8.1% of the sample endorsed lifetime Internet gambling and that individuals with Internet gambling experience had significantly more gambling problems than individuals without Internet gambling experience.

Given the particular risk factors that gambling may pose to young adults[2], the purpose of the present study was to examine Internet and pathological gambling among a non-clinical sample of college students. A second purpose was to examine correlates of pathological gambling observed in samples of young adults, including sensation-seeking personality and risky behavior. Sensation-seeking personality, a trait that predisposes an individual to seek out new experiences and to take risks to experience novel, varied, and intense experiences[8], has been linked in multiple studies to various types of risky behavior, including problem gambling[9]. Risky behavior, such as reckless driving, reckless sexual behavior, and alcohol or drug use, has also been demonstrated to be associated with problem gambling behavior[9,10]. Based on this literature, it was hypothesized that both sensation-seeking personality and risk-taking behavior would be predictors of Internet gambling.

Methods

Participants

Data were gathered from 200 college students, age 18-25 (M=19), from a large state university who received research participation credit for an introductory psychology course for their participation. Ninety-six (47.8%) participants were male

Table 1. Percentage of Sample Participants Who Engaged in Internet and Non-Internet Gambling Activities at Least Once in the Past Year.

Gambling Activity	% Gamble on Internet	% Gamble (non-Internet)
Cards	4.5	69.0
Coin games	0.5	13.0
Games of skill	2.5	60.0
Sports	3.5	55.0
Horse or dog races	0.5	23.0
Bingo	1.0	25.0
Dice games	1.0	30.0
Gambling machines	3.0	43.0
Scratch tabs	0.5	50.0
Lottery	2.5	49.0
Pull tabs	0	15.0

and 104 (52.2%) were female. The average income for participants who based their income rating on their parents was $50,000-$60,000 per year. For participants who based their income level on their own income, the average was less than $9,999.

Procedure

All procedures were reviewed and approved by a university-level human subjects internal review board. After reading informed consent regarding the goals and content of the study, none of the participants refused to take part. Thus, selection bias based on gambling participation is not a problem, and in that sense, the sample represents a random sample of introductory psychology students. Participants completed a self-report questionnaire that was approximately 15 minutes in duration.

Measures

Gambling behavior was measured by the South Oaks Gambling Screen – Revised[11]. The SOGS has been used in a number of epidemiological and clinical studies. The SOGS-RA is a version of the adult SOGS[12] modified for adolescents to reflect wording more appropriate for adolescents and to omit questions about financial support for gambling that were most likely to pertain to adults. Because we anticipated that the majority of our sample would be 18-19 years old, and because the SOGS-RA has been successfully used in other studies with similar age participants[13], the adolescent version was used.

The SOGS-RA consists of two parts: one that measures gambling problems and one that measures gambling frequency. The level of gambling problems is assessed by 12 scored items. Eleven of these items are rated "yes" (scored 1) or "no" (scored 0) with the remaining item, "In the past 12 months, how often have you gone back another day to try to win back the money you lost?" rated from "never" to "every time." A summary score is constructed that categorizes gambling behavior into three groups of gambling severity: problem gamblers, who are gamblers who meet criteria for pathological gambling as impaired in psychosocial domains (Level 3; score of 4+); at-risk gamblers, who are gamblers who may display signs of gambling problems and who may be at risk for developing more significant problems (Level 2; score of 2-3); and no gambling problems (Level 1; score of 0-1). Both the original SOGS and the SOGS-RA have good internal consistency and reliability (SOGS-RA coefficient α =.80). The reliability for the SOGS-RA in the present study was .62.

The additional section of the SOGS-RA includes 11

Table 2 . Correlations Among Continuous Dependent and Independent Variables Included in the Regression Models

Variable	1	2	3	4	5	6	7
1. Age							
2. # Years of Education	.72**						
3. Internet Gambling Frequency	.30**	.09					
4. Non-Internet Gambling Frequency	.16*	.15*	.05				
5. Disordered Gambling	.23**	.14*	.30**	.24**			
6. Risky Behavior	-.11	-.04	.02	.34**	.13		
7. Sensation Seeking Behavior	.11	.14	.09	.38**	.19**	.46**	

**Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

items about gambling frequency (e.g., "How many times in your lifetime have you played cards for money?") that are not usually included in the total score. Response options included "never," "less than monthly," "monthly," "weekly," or "daily". For the purpose of the present study, we added questions to the gambling frequency items about Internet gambling. The Internet gambling items are identical to the original questions about gambling frequency from the SOGS-RA with the addition of the word "Internet."

Examples of these items include "How many times have you bet on sports teams on the Internet in the last twelve months?" Response choices included "never (0), "at least once" (1), "less than monthly" (2), "monthly (3), "weekly" (4), and "daily" (5). Scores for Internet gambling frequency and non-Internet gambling frequency were calculated separately by summing the individual items of each type of gambling endorsed.

Sensation–seeking personality was measured by the Sensation-Seeking Scale, Form V[8]. The original questionnaire contained 72 items. In the present study a revised 40-item version was used. Respondents were asked to choose one of two statements that best described their likes or feelings.

Response choices included statements such as "I often wish I could be a mountain climber" or "I can't understand people who risk their necks climbing mountains". Statements representing higher sensation seeking tendencies were scored 1; statements representing lower sensation seeking tendencies were scored 0. Scores were computed for the measure by adding the total for all 40 items (range 0-40), α =.78. Risky behavior was measured by the Risky Behavior Questionnaire[15]. The RBQ is an 11-item instrument that measures the number of times an individual has engaged in 11 types of reckless behavior in the past 30 days (e.g., "How many times have you driven a car over 80 mph?"). Answer choices range from "0 times" (1), "once" (2), "2-5 times" (3), "6-10 times" (4), and "more than ten times" (5). RBQ scores were calculated by adding the 11 response items to get a total RBQ score with scores ranging from 11-55, α = .71.

Data Analysis

The frequency and type of Internet gambling behavior were compared to frequency and type of non-Internet gambling behavior in this sample. Predictors of gambling behavior were examined using standard regression models. Three separate equations were estimated, one with Internet gambling as the criterion, one with non-Internet gambling as the criterion, and one with gambling problems as the criterion. In each equation, the predictors were age, gender, sensation seeking behavior, and risky behavior, which were entered in the model simultaneously. Outlier analyses using the Mahalanobis distance score were conducted. In addition, SOGS-RA scores were used to classify participants into level of gambling pathology.

Results

Internet and Disordered Gambling

Nine percent of respondents endorsed past-year Internet gambling, and 11.5% endorsed lifetime Internet gambling. The most frequently endorsed type of Internet gambling included playing cards (4.0%) and betting on sports teams (3.5%). Descriptive statistics are shown in Table 1.

Problems due to gambling were somewhat infrequent in our sample. Of the respondents, 83.4% scored a 0 on the SOGS-RA, indicative of no problematic gambling. However, 16.6% reported at least one problem due to gambling: 1 problem (8.5%), 2 problems (4%), 3 problems (3%), and 4 or more problems (1%). Approximately 92% qualified as Level I gamblers, 7% Level II gamblers, and 1% as Level III gamblers.

Correlates of Gambling Behavior

Correlations between the predictor and criterion variables utilized in regression analyses are shown in Table 2. Linear regression models suggested that age is a significant predictor of Internet gambling, β=.22, p=<.01, such that older participants were more likely to engage in Internet gambling. Other criterion variables were not significant predictors of Internet gambling in either separate models or models including all four predictor variables and did not account for significant variance in a model

predicting frequency of Internet gambling. However, in order to better understand the relationship between gambling problems and Internet gambling, an additional regression model was estimated, using gambling problems as a predictor variable, rather than a criterion variable as in the following analyses, in a model predicting Internet gambling. In this model, problem gambling was a significant predictor of Internet gambling, indicating that individuals with higher levels of problem gambling were more likely to gamble on the Internet, β=.25, p=<.001.

The predictor variables performed slightly differently in the regression model including non-Internet gambling as the criterion. In a model including all four predictor variables, age, β=.17, p=<.01 and risky behavior, β=.30, p=<.001 were significant predictors of gambling frequency such that older students and those engaging in higher levels of risk behavior generally were more likely to report non-Internet gambling. However, gender and sensation seeking, which showed significant bivariate relationships to non-Internet gambling, were not significant in the multivariate model. This model accounted for 22% of the variance in gambling frequency.

Regression analyses with gambling problems as the criterion revealed a significant association with risky behavior, β=.30, p<.05, again suggesting that those with higher levels of risk behavior generally are more likely to have gambling problems. Age, gender, and sensation seeking were not significant predictors. This model accounted for 10% of the variance.

Consistent with the literature, results indicated that men, overall, gambled more than women, t (1, 195) = 5.37, p<.001. However, analyses of gender difference conducted with lifetime rates of Internet gambling were non-significant.

Discussion

Results revealed that disordered gambling was a significant predictor of Internet gambling in our sample. Internet gambling was also related to participant age. Contrary to the relationship observed between non-Internet gambling and high-risk behaviors, risky behavior was not associated with Internet gambling. Overall, the rate of Internet gambling was similar to the rate reported in other studies[5], with 9% of participants reporting that they had engaged in past-year Internet gambling compared to 81% of participants indicating that they had engaged in non-Internet gambling at least once in the past year.

The findings suggest that Internet gambling is associated with higher rates of gambling problems. However, these results should be viewed cautiously. Although there was a significant relationship between gambling pathology and Internet gambling, only 1% of participants fell into the problem gambling category. Conclusions drawn from the present study should take into account methodological drawbacks (i.e., a cross-sectional design, self-report) that preclude causal inferences. Moreover, it is possible that the limited relationship observed between sensation-seeking personality, risky behavior, and Internet gambling may be due to the relatively small rate of Internet gambling observed in this sample (i.e., approximately 11% reporting lifetime Internet gambling). Future studies would benefit from longitudinal designs that include greater sample size to adequately identify the correlates of Internet gambling. Still, the implications from the present study appear to warrant further investigation into Internet gambling behavior and its role in the development of gambling problems.

References

1. Labrie, RA, Shaffer, HJ, LaPlante, DA, et al. Correlates of college student gambling in the United States. J American College Health 2003; 52: 53-62.
2. Lesieur, HR, Cross, J, Frank, M, et al. Gambling and pathological gambling among university students. Addictive Behaviors 1991; 16: 517-527.
3. American Psychiatric Association (APA). Diagnostic and Statistical Manual of Mental disorders, 4th Edition. Washington DC: American Psychiatric Association Press; 1994, p. 617.
4. Shaffer, HJ, Hall, MN. Updating and refining meta-analytic prevalence estimates of disordered gambling behavior in the United States and Canada. Canadian Journal of Public Health 2001; 92: 168-172.
5. Blaszczynski A, Nower L. A pathways model of problem and pathological gambling. Addiction 2002; 97: 487-499.
6. Griffiths, M, Wood, RTA. Risk factors in adolescence: The case of gambling, videogame playing, and the internet. Journal of Gambling Studies 2000; 16: 199-225.
7. Ladd, GT, Petry, NM. Disordered gambling among university-based medical and dental patients: A focus on internet gambling. Psychology of Addictive Behaviors 2002; 16: 76-79.
8. Zuckerman, M. (1979). Sensation seeking: Beyond the optimal level of arousal, Hillsdale, NJ: Earlbaum.
9. Powell J, Hardoon K., Derevensky JL, Gupta R. Gambling and risk-taking behavior among university students. Substance Use and Misuse 1999; 34: 1167-1184.
10. Cross ME, Basten J, Hendrick EM, Kristofic B, Schaffer EJ Student-athletes and gambling: An analysis of attitudes towards risk-taking. Journal of Gambling Studies, 1998; 14: 431-438.
11. Winters KC, Stinchfield RD, Fulkerson J. Toward the development of an adolescent gambling problem severity scale. Journal of Gambling Studies, 1993; 9: 63-84.
12 Lesieur HR, Blume SB (1987). The South Oaks Gambling Screen (SOGS): a new instrument for the identification of pathological gamblers. American Journal of Psychiatry 1987; 144: 1184-1188.
13. Govoni R, Rupcich N, Frisch GR. Gambling behavior of adolescent gamblers. Journal of Gambling Studies 1996; 12 (3): 305-317.
14. Zuckerman M. Sensation seeking: Beyond the Optimal Level of Arousal. Hillsdale, New Jersey: Earlbaum; 1979.
15. Shaw DS, Wagner, EF, Arnett, J, et al. The factor structure of the reckless behavior questionnaire. Journal of Youth & Adolescence 1992; 21: 305-322.
16. Winters KC, Stinchfield RD, Kim LG. Monitoring adolescent gambling in Minnesota. Journal of Gambling Studies 1995; 11: 165-183.