

Internet gambling and risk-taking among students: An exploratory study

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Background and aims: Internet gambling is undergoing a massive worldwide expansion. The relationship between the convenience, anonymity, and the 24-hour availability of Internet gambling and problem gambling in young people presents a serious concern. This study explored general gambling behavior, including Internet gambling (with and without money), problem gambling, and risk-approach motivation in a sample of university students aged 18 to 20 years. *Methods:* University undergraduates ($N = 465$) in two urban universities completed in-class paper-and-pencil questionnaires concerning Internet gambling, risk taking, and a checklist of the DSM-IV criteria for problem gambling. *Results:* Overall, 8.0% of participants reported past-year gambling for money on the Internet, with significantly higher rates among males (11.8%) than females (0.6%). Based on DSM-IV criteria, 3.7% of respondents were classified as problem gamblers (i.e., endorsed 3 or more items). There were higher rates of problem gambling among those who had gambled on the Internet, and students who had gambled on the Internet had higher risk-approach scores. *Conclusions:* The results of this study suggest that students who have gambled on the Internet have greater risk-taking motivation than students who have not gambled online, and those classified as problem gamblers have greater risk-taking motivation than non-gamblers. Results also suggest both higher risk taking scores and classification as a high risk-taker predict online gambling. Gambling on the Internet may be harmful for some individuals; young males, those with high risk-approach motivation, and, most certainly, those already exhibiting problem gambling behaviors.

Keywords: Internet gambling, university students, problem gambling, risk-taking, practice sites

INTRODUCTION

Since governments began to relax gambling legislation in the 1980s, many young people today have lived their entire lives within the context of commercialized gambling (McMillen, 2003; Rose, 2010). As such, they have grown up in an era where gambling is not only normalized, it is marketed as a form of recreation and entertainment. In North America youth can begin gambling legally as early as 18 years old, depending on the type of gambling activity and jurisdiction (in some jurisdictions the legal age is 21). Age 18 to 25 has been proposed as a unique period of development, distinct from both adolescence and adulthood, referred to as emerging adulthood (Arnett, 2000, 2004). Some researchers report that this period represents a stage where youth, as a group, exhibit a disproportional amount of reckless behavior, sensation seeking, and risk taking (Arnett, 1992, 2000, 2007; Bradley & Wildman, 2002; Duangpatra, Bradley & Glendon, 2009; LaBrie, Shaffer, LaPlante & Wechsler, 2003; Nelson & Barry, 2005; Worthy, Jonkman & Blinn-Pike, 2010). Most studies of risk and college students involve sexual behavior, driving, and alcohol and/or drug abuse (Bradley & Wildman, 2002; Duangpatra et al., 2009; Ravert et al., 2009; Schulenberg & Zarrett, 2006); despite its normalization, gambling can be considered a high-risk activity (LaBrie et al., 2003; Stuhldreher, Stuhldreher & Forrest, 2007; Worthy et al., 2010).

Reported prevalence rates of gambling among college students vary considerably. While some researchers suggest college and university students may be at heightened risk for developing gambling problems (Engwall, Hunter &

Steinberg, 2004; Neighbors, Lostutter, Cronce & Larimer, 2002; Platz, Knapp & Crossman, 2005; Volberg, 2002), others report no increase in gambling behavior (LaBrie et al., 2003). Nonetheless, by all indications a significant number of college students report gambling; 67%–76% of college students have gambled in their lifetime (Engwall et al., 2004; Kerber, 2005; Platz et al., 2005; Stuhldreher et al., 2007) and from 42%–92% of students report gambling during the past year (Burger, Dahlgren & MacDonald, 2006; Ellenbogen, Jacobs, Derevensky, Gupta & Paskus, 2008; Huang, Jacobs, Derevensky, Gupta & Paskus, 2007a; LaBrie et al., 2003; Weinstock, Whelan, Meyers & Watson, 2007). Rates for problem gambling among college students range from 2–9% for at-risk to 1–5% for probable pathological gamblers (Burger et al., 2006; Ellenbogen et al., 2008; Engwall et al., 2004; Lesieur et al., 1991; Neighbors et al., 2002; Rockey Jr., Beason, Howington, Rockey & Gilbert, 2005; Skitch & Hodgins, 2005; Weinstock et al., 2007; Winters, Bengston, Door & Stinchfield, 1998; Wong, Chan, Tai & Tao, 2008), with rates up to 15% for student athletes (Kerber, 2005) and 11% for students in Las Vegas (Platz et al., 2005). Blinn-Pike, Worthy and Jonkman's (2007) meta-analysis suggested that the percentage of disordered gamblers (i.e., endorsing 5 or more items on the South Oaks Gambling Screen) (Lesieur & Blume, 1987) among college students in North America was 7.89%.

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Internet gambling

To date, research on the impact of Internet gambling on the development and maintenance of problem gambling, in either adults or youth, is in its infancy. Early studies of online gambling among college students reported varying prevalence rates from 2%–4%, with prevalence as high as 10% among college student athletes (Jones, 2003; Kerber, 2005; LaBrie et al., 2003; Welte, Barnes, Tidwell & Hoffman, 2009). Griffiths and Barnes (2008) and Petry and Weinstock (2007) reported, respectively, that 22% of students (ages 18–52) and 23% of college undergraduates had gambled on the Internet at least once in their lifetime. Results from the second British Gambling Prevalence Survey (2006–2007) revealed that 6% of the sample ($N = 9,003$, ages 16 and older) had gambled on Internet, and that prevalence of Internet gambling was the highest among the 16 to 24 and 24 to 34 age groups (Griffiths, Wardle, Orford, Sproston & Erens, 2009) and more recently evidence by Romer (2010) and Shead, Derevensky and Paskus (in press) has shown a shifting pattern of gambling behavior, reporting a significant rise in Internet wagering among college students. While this research contributes to our understanding of online gambling, some limitations of the previous studies include using self-selecting samples (Griffiths & Barnes, 2008) or samples that may not be representative of college students in general (Kerber, 2005; Petry & Weinstock, 2007), use of lifetime problem gambling scores which may or may not represent current problems (Kerber, 2005; Petry & Weinstock, 2007), or including one question about gambling in a study of Internet use in general (Jones, 2003).

Although current evidence suggests that only a very small percentage of Internet gamblers gamble purely online (Wood & Williams, 2011), research focusing on Internet gambling hints that the Internet may be a medium particularly favored by those with serious gambling problems (Griffiths & Barnes, 2008; Griffiths et al., 2009; Ladd & Petry, 2002; McBride & Derevensky, 2009; Wood & Williams, 2007a, 2011). In one report of student online poker players, 18% were identified as problem gamblers, with another 30% being at-risk for developing gambling problems (Griffiths, Parke, Wood & Rigbye, 2010). These studies are correlational in nature and it is not known if the gambling online is responsible for the development of gambling problems, or if problem gamblers use the Internet as one of many gambling venues. At this point it is also unclear whether problem gamblers actually prefer online to offline gambling or whether the Internet is a convenient tool for their “addiction”; though there is some evidence indicating that those who have gambled on the Internet have engaged in more forms of gambling than have offline gamblers (Gainsbury, Wood, Russell, Hing & Blaszczynski, 2012; Welte et al., 2009; Wood & Williams, 2011) and the Internet may simply be a part of their gambling repertoire.

“Practice” sites

Many Internet gambling companies offer “practice” sessions where individuals may play gambling-type games without wagering real money, and therefore, do not have to be of legal age to gamble. Incentives such as “free” chips, along with prizes and bonuses for sign-up, lure players to engage in card playing and casino-type games. For young people, the decision to begin playing on these sites may not be seen as risky, as no money is actually wagered. However,

many practice sites post messages to the players, inciting them to play for money and focusing on their wins during the practice sessions. These messages give an illusion of control (e.g., “Practice makes perfect.”) or contribute to erroneous beliefs (e.g., “Based on your playing skills...”) (Sévigny, Cloutier, Pelletier & Ladouceur, 2005). When young people obtain personal credit cards for the first time (e.g., many colleges and universities offer “student” credit cards [Worthy et al., 2010]), believing these false messages they may begin wagering real money, but might not experience the same “wins”. Some free sites have inflated payout rates for their trial sessions and lower payout rates in the real money sessions (Sévigny et al., 2005). The relationship between the free and paid sites and the free sites and problem gambling in young adults is unknown.

Sensation-seeking/risky behavior

Sensation seeking is a personality factor characterized by one’s need for novel, varied, and complex experiences (Zuckerman, 1979). Sensation seeking has been shown to play a role in a wide range of risky behaviors (Zuckerman, 2007). There is evidence of overlap between problem gambling, sensation seeking, and risky behavior in adolescents and college students. Probable pathological gamblers report significantly greater sensation-seeking scores and risk taking behaviors and significantly greater substance-related problems (Engwall et al., 2004; Huang, Jacobs, Derevensky, Gupta & Paskus, 2007b; LaBrie et al., 2003; Stuhldreher et al., 2007; Worthy et al., 2010). College students who see themselves as risk-takers or thrill-seekers also report positive attitudes toward gambling (Kassinove, 1998). Gupta, Derevensky and Ellenbogen (2006) reported that adolescents with gambling problems have higher scores than social gamblers and non-gamblers on all scales for Zuckerman’s Sensation Seeking Scale (Zuckerman, Eysenck & Eysenck, 1978).

To date, there are no studies linking Internet gambling and risk taking behavior, though there is speculation that Internet gambling may provide unique risks for young people (King, Delfabbro & Griffiths, 2010). The combination of the unique risk posed by online gambling, that university students are typically of legal age to gamble online and are prone to risk-taking, and the easy availability of credit cards on college campuses (Worthy et al., 2010), leads to concern about the role of Internet gambling and problem gambling in youth. This study is exploratory and descriptive in nature, and aims to provide current information about gambling among university students, including the relationship between Internet gambling, problem gambling, and risk taking. Due to the exploratory nature there were no explicit hypotheses, although it is expected that those who have gambled on the Internet (with and without money) will have higher risk-taking and problem gambling scores than those who have not.

METHODS AND SAMPLE

Participants

Participants included 465 individuals (305 males, 160 females), ages 18–20 years attending two urban Canadian universities from the same city, where the legal age of regulated forms of gambling is 18. The local gambling opportunities

include a casino, vast numbers of lottery outlets, bingo and Video-Lottery Terminals. Participants represented a convenience sample of Engineering, Computer Science, and Science students and were recruited during class time or in the Students' Centre dining hall during two lunch periods. The use of a convenience sample is noted as a limitation to the research. Questionnaires were completed individually in the presence of the researcher and an assistant. All participants were told their participation was voluntary and they were free to withdraw from the study at any point without penalty. Participants were assured anonymity and confidentiality. Participants' consent was obtained in writing on forms that were collected and stored separately. The questionnaire consisted of forty-four multiple-choice questions and took approximately 25 minutes to complete, though most completed it in 15 minutes. Surveys were available in English and French. Although participation rate was not directly measured, typically most students agreed to complete the survey instruments. No incentives for participation were offered. Data were collected over a 12-month period (four semesters) between October 2005 and October 2006, with an additional collection in April 2007. Ethics approval was granted by McGill University's Ethics Review Committee.

MEASURES

Demographic questionnaire

Eleven items were included to assess individual biographical data, including gender, age, languages spoken in the home, marital status, and occupation/education level.

Gambling activities

For the purposes of this study, gambling was defined as wagering money on activities (e.g., lottery, cards, sports events, bingo, casino-type games, etc.) with a chance of winning or losing money. Twenty-nine items assessed: the reasons participants gambled; with whom and from where they typically gambled; typical wagers, wins and losses; and methods of payment (data not reported). Participants were presented with a list of 13–15 potential gambling activities (e.g., lotteries, sports betting, electronic gaming machines, cards, casino table games, etc.) and indicated the frequency with which they engaged in those activities, either on the Internet (with and without money) or offline, during the previous 12 months. Each activity was evaluated using a 4-point Likert-type scale (*never, less than once a month, 1–3 times a month, or once a week or more*). All questions were asked directly and no constructs are assessed, assuring face validity.

Risk-taking

The Risk-Taking Questionnaire (RTQ) (Knowles, 1976) is a 20-item measure used to gauge risk-approach and risk-avoidance motivation. Participants indicate to what extent they agree or disagree with each item, using a 5-point Likert-type scale, with 1 = *agree very much* and 5 = *disagree very much*. Eleven risk-avoidant items (e.g., *In most situations, it is often better not to take a chance*) are scored directly and nine risk-approach items (e.g., *I'm the kind of per-*

son who is usually not very cautious) are reverse scored, with all items summed to produce a global total score. A higher global total score indicates greater risk-taking motivation. Internal reliability of the RTQ ranges from $r_{20} = .85-.86$. Concurrent validity with performance on Zuckerman's Sensation Seeking Scale (SSS) is $r = .73$. The RTQ has been shown to be an applicable measure for gambling research (Powell, Hardoon, Derevensky & Gupta, 1999).

Problem gambling screen

Respondents completed a ten-item checklist of the DSM-IV criteria for problem gambling (American Psychiatric Association, 2000). The DSM-IV diagnostic criteria have demonstrated satisfactory reliability, validity and classification accuracy (Stinchfield, 2003). The use of the DSM-IV as an index for pathological gambling is well established, both in the general population and in gambling treatment samples (Derevensky & Gupta, 2000; Lesieur & Klein, 1987; Lesieur & Rosenthal, 1991; Petry, 2005; Stinchfield, 2002; Wood & Griffiths, 1998); it is highly correlated with other gambling measures (e.g., South Oaks Gambling Screen) (Cox, Enns & Michaud, 2004; Stinchfield, 2002, 2003), though with fewer false positives (Shaffer, Hall & Vander Bilt, 1997; Stinchfield, 2002).

Statistical analyses

Questionnaires were scanned and the data were converted to SPSS Statistics 19.0 for analysis using descriptive statistics, frequency distributions, cross-tabulations, chi-square tests of association, one-way ANOVA, and *t*-tests (where appropriate). To examine the relationship between risk-taking and gambling, binary logistic regressions were used, with Internet gambling, practice site playing, and gambling as dependent variables, respectively, and risk-taking scores and gender as covariates in one case, and risk-approach motivation (low, medium and high) and gender as covariates in the other. To assess risk-approach motivation, global scores for the RTQ were rank ordered, then divided into quartiles. A group comprised of the lowest 25% of scores was then classified as low-risk motivation, a group comprised of scores ranging from 25% to 75% of scores was classified as average-risk motivation, and a group comprised of the top 25% of scores was classified as high-risk motivation. A Bonferroni correction was applied to control for multiple comparisons, so that $\alpha = .002$ for these statistics.

RESULTS

Problem gambling

Based on the DSM-IV criteria and gambling behaviors, 40.0% of the sample ($n = 186$) was classified as non-gamblers (endorsed no past-year gambling), 56.3% ($n = 262$) as social gamblers (0–2 items), 3.0% ($n = 14$) as at-risk gamblers (3–4 items), and 0.6% ($n = 3$) as probable pathological gamblers (5 or more items). Due to the small number of probable pathological gamblers in the present sample, for statistical considerations those participants who reported gambling in the past year and who endorsed three or more

items on the DSM-IV were combined and categorized as problem gamblers (3.7%) ($n = 17$) (see Table 1). Similar classification strategies have been used in other studies of problem gambling among university students (Skitch & Hodgins, 2005; Slutske, 2006); for public health planning and prevention purposes, many researchers focus on emerging gambling problems rather than on more end-stage extreme pathological gambling (Cox, Yu, Afifi & Ladouceur, 2005).

Overall, there were significant differences in DSM-IV classification of gambling severity among males and females [$\chi^2(2, N = 465) = 18.19, p < .001$], with fewer females exhibiting gambling problems (see Table 1). These results are heavily skewed for gender, with over twice as many males than females classified as problem gamblers.

Table 1. Problem gambling severity by gender

	N	Problem gambling severity ¹		
		Non-gambler ^a	Social gambler ^b	Problem gambler ^c
Gender***				
Male	305	33.1 (101)	62.3 (190)	4.6 (14)
Female	160	53.1 (85)	45.0 (72)	1.9 (3)
Total	465	40.0 (186)	56.3 (262)	3.7 (17)

¹Percentage, participant numbers in parentheses.

^aDSM-IV score = 0, no gambling activity (on or off the Internet) in past 12 months.

^bDSM-IV score (0–2).

^cDSM-IV score (≥ 3).

*** $p < .001$

Gambling participation

A total of 59.6% of students reported gambling offline, 43.0% reported playing on practice sites, and 8.0% reported gambling on the Internet in the past year (see Table 2). The most popular online game for money was cards (poker) with 67.6% of those who had gambled online reporting they had gambled at cards online in the past year. This was followed by slot machines (18.9%), blackjack (18.9%), roulette (16.2%) and sports betting (13.5%). The most popular practice game was also poker, with 81.2% of those who had

Table 2. Past-year gambling participation (on and off the Internet) based on gender and problem gambling severity

	N	Offline gambling	Practice sites	Internet gambling
Gender***				
Male	305	66.2 (202)	49.8 (152)	11.8 (36)
Female	160	46.9 (75)	30.0 (48)	0.6 (1)
Problem gambling severity				
Non-gambler ^a	186	–	22.0 (41)***	–
Social gambler ^b	262	99.2 (260)	55.3 (145)***	11.8 (31)**
Problem gambler ^c	17	100 (17)	82.4 (14)***	35.3 (6)**
Total	465	59.6 (277)	43.0 (200)	8.0 (37)

¹Percentage, participant numbers in parentheses.

^aDSM-IV score = 0, no gambling activity (on or off the Internet) in past 12 months.

^bDSM-IV score (0–2).

^cDSM-IV score (≥ 3).

*** $p < .001$

** $p < .01$

played on practice sites reporting they had played at cards in the past year. This was followed by blackjack (39.5%), slot machines (22.2%) and sports betting (15.5%).

It should be noted, in accordance with Wood and Williams (2011), only two students reported exclusively gambling on the Internet. Thus the term “Internet gambler” refers more to those students who have also gambled on the Internet, in addition to gambling offline. Interestingly, there was a group of “pure” practice players (8.8% of participants and 22% of practice players) who did not gamble outside of the practice sites, either offline or online. Further research is needed to determine if this type of gambler would move from the free to the paid sites and what impact this may have on problem gambling.

Similar to the results for gambling severity, gambling participation results are heavily skewed for gender. Significantly more males than females reported gambling offline [$\chi^2(1, N = 465) = 16.32, p < .001$], playing on practice sites [$\chi^2(1, N = 465) = 16.85, p < .001$], and gambling for money on the Internet [$\chi^2(1, N = 465) = 17.91, p < .001$] (see Table 2). While land based gambling rates for females is consistent with that seen elsewhere (Burger et al., 2006; Ellenbogen et al., 2008; LaBrie et al., 2003), only one female reported past-year online gambling.

Problem gamblers and social gamblers were equally likely to have gambled offline in the previous year. There were significant differences based on problem gambling severity for playing on practice sites [$\chi^2(1, N = 465) = 60.35, p < .001$] and significantly more problem than social gamblers report online gambling [$\chi^2(1, N = 279) = 7.64, p < .01$] (see Table 2). Although it is difficult to compare statistically because of different group sizes, it is notable that among Internet gamblers ($n = 37$) 16.2% are classified as problem gamblers, whereas among participants who have not gambled on the Internet ($n = 428$) 2.6% are classified as problem gamblers.

Internet gambling and risk-taking behavior

A one-way between-groups ANOVA was used to compare mean scores on the RTQ ($M = 52.02, SD = 11.50$, range 22–94). There were significant differences among non-gamblers ($M = 48.07, SD = 11.23$), social gamblers ($M = 54.43, SD = 10.80$), and problem gamblers ($M = 57.98, SD = 12.94$) on the RTQ ($F(2, 457) = 20.25, p < .001$). Post-hoc Tukey tests revealed that both problem gamblers and social gamblers have significantly higher risk-taking scores than non-gamblers, while there were no statistically significant differences in risk-taking scores for problem and social gamblers. To compare gamblers and non-gamblers, after meeting assumptions for normality, independent t -tests were conducted. Those who gambled on the Internet had overall higher mean scores ($M = 60.60, SD = 9.57$) than those respondents who had not gambled online ($M = 51.27, SD = 11.36$) ($t(458) = -4.85, p < .001$). Similarly, offline gamblers had higher mean RTQ scores ($M = 54.67, SD = 10.95$) than non-gamblers ($M = 48.09, SD = 11.20$) ($t(458) = -6.26, p < .001$) and those who played on practice sites had higher risk-taking scores ($M = 53.98, SD = 10.07$) than those who had not ($M = 50.52, SD = 12.29$) ($t(458) = -3.24, p = .001$).

Logistic regression

In the prediction model, both scores on the RTQ and risk group classification significantly predicted past-year gambling; an increment of 1 on the RTQ results in that individual being 1.05 times more likely to have gambled in the past year. Individuals with low and medium risk-approach scores are 24% and 45% less likely than those with high risk-approach scores to have gambled (see Table 3). Male gender was also a significant predictor for gambling.

Table 3. Direct logistic regression predicting past-year gambling

	β	Odds ratio	95% C.I.	<i>p</i>
Gender	0.608	1.84	1.07–3.15	< .01
Risk-taking score	0.049	1.05	1.03–1.08	< .001
Low risk approach	–1.41	0.24	0.14–0.43	< .001
Medium risk approach	–0.79	0.45	0.28–0.73	.001

Table 4. Direct logistic regression predicting past-year practice site playing

	β	Odds ratio	95% C.I.	<i>p</i>
Gender	0.775	2.17	1.26–3.75	< .001
Risk-taking score	0.021	1.02	1.00–1.04	< .05
Low risk approach	–0.85	0.43	0.24–0.75	< .01
Medium risk approach	–0.12	0.89	0.58–1.37	NS

Table 5. Direct logistic regression predicting Internet gambling

	β	Odds ratio	95% C.I.	<i>p</i>
Gender	2.83	16.89	1.21–235.21	< .01
Risk-taking score	0.067	1.07	1.02–1.12	< .001
Low risk approach	–1.52	0.22	0.06–0.76	< .05
Medium risk approach	–1.79	0.17	0.07–0.40	< .001

Both scores on the RTQ and risk group classification significantly predicted past-year practice site playing; an increment of 1 on the RTQ results in that individual being 1.02 times more likely to have played on practice sites. Individuals with low risk-taking motivation are 43% less likely than those with high risk-taking motivation to have played on practice sites (see Table 4). There was no significant difference between those with medium and high risk-approach scores in their likelihood to have played on practice sites. Male gender emerged as a significant predictor for playing on practice sites.

Both scores on the RTQ and risk group classification significantly predicted past-year Internet gambling; an increment of 1 on the RTQ results in that individual being 1.07 times more likely to have gambled on the Internet. Individuals with low and medium risk-approach scores are 22% and 17% less likely than those with high risk-approach scores to have gambled on the Internet (see Table 5). Being male was also a significant predictor for online gambling.

DISCUSSION

The present study was conducted to explore the gambling behavior of university students. Overall, 8% of students and 12% of males (1% of females) reported past-year online gambling. With respect to problem gambling severity, 35% of problem gamblers and 12% of social gamblers reported gambling on the Internet for money in the past year. Internet gamblers had higher risk-taking scores when compared to participants who had not gambled online. Those university

students who have gambled on the Internet are at significantly greater risk for gambling problems than those who are not. Unfortunately, due to the correlational nature of the data, whether gambling on the Internet leads to gambling problems or whether those with gambling problems are more attracted to online gambling remains unanswered.

Internet gambling

Although the sample size of Internet gamblers is relatively small, the percentage of university students who engaged in this behavior is higher than that which had been previously found in earlier studies (Jones, 2003; LaBrie et al., 2003; Wardle et al., 2007), but lower than in later studies (e.g., Griffiths & Barnes, 2008; Petry & Weinstock, 2007). This may reflect a trend of increasing participation and popularity of online gambling; this is consistent with the increases in reported revenues and wagers by Internet gambling companies (Christiansen Capital Advisors, 2005). The Responsible Gambling Council of Ontario (2006) reported 5.5% of 18–24-year olds were gambling online at poker sites in 2005, compared to 1.4% in 2001. The possibility that more students have personal computers (in particular laptops), the introduction of wireless connections on many campuses (including university classrooms), and the escalating popularity in the media of online gambling, specifically Texas Hold’Em poker, can be speculated to have contributed to increasing Internet gambling rates. As prevalence rates for land-based gambling are, in general, higher for college students than adults (Blinn-Pike et al., 2007; Burger et al., 2006; Platz et al., 2005), it is not known whether the Internet gambling rates will decrease, remain steady, or increase as college students mature, leave school, and have greater revenues. More longitudinal studies are needed to collect data on this behavior. It can be speculated, however, that as more countries and governments move toward regulation of Internet gambling, they will legitimize and actively promote it. Online gambling will continue to grow and more research is clearly needed.

Gambling problems

Early gambling patterns may lay the foundation for future problems for some individuals (Winters et al., 1998). A significant finding in the current study is that among Internet gamblers, 16% were classified as problem gamblers. This is nearly four times the rate found in the entire sample, and six times the rate found among those who have not gambled on the Internet. These inflated rates are consistent with other reports of an overrepresentation of problem gamblers on the Internet (Griffiths & Barnes, 2008; Ladd & Petry, 2002; Parke, Wood, Griffiths & Rigbye, 2006; Petry, 2006; Wood & Williams, 2007a, 2007b). Whether or not the Internet is addicting in itself, or simply a medium through which to channel an existing addiction remains unknown. Nonetheless, the convenience of gambling to be had at one’s fingertips – 24 hours a day – may be attractive, yet particularly difficult for those who are already experiencing problems with gambling. This necessitates consideration of how more effective measures can be introduced to protect these vulnerable individuals (Monaghan, 2009).

Risk-taking behavior

As gambling involves risking something of value with the expectation of winning something of value in return, one might speculate that gambling inherently attracts risk-seeking individuals. There is some evidence that individuals who gamble, or have positive attitudes toward gambling, tend toward taking risks (Kassinove, 1998). While researchers have established a link between land-based gambling and risk-taking (Engwall et al., 2004; Gupta et al., 2006; Huang et al., 2007b; Powell et al., 1999), to date no studies have examined the relationship between risk-taking and Internet gambling. The results of this study suggest that students who had gambled on the Internet had greater risk-taking scores than students who had not, and those classified as problem gamblers had greater risk-taking scores than non-gamblers. Results also suggest both higher risk-taking scores and classification as a high risk-taker predict online gambling. While statistically significant and therefore indicating the results are greater than chance, the odds ratios are low. Although these small ratios are most likely due to the small sample of Internet gamblers, further research examining risk-taking and Internet gambling is warranted. If high risk-takers are attracted to Internet gambling, intervention strategies could include teaching more adaptive methods to satisfy risk-seeking behavior.

Internet “gambling” without money

Although the lack of wagering for real money suggests that practice sites do not conform to traditional definitions of gambling, the games played (e.g., poker, roulette) mimic gambling games; the behavioral patterns they instill in gamblers and the physiological reactions to playing may place individuals at risk to develop a gambling addiction. Added to that is the perception by many that poker (the most popular form of online gambling in this study) is a game of skill and that practice sites help improve skills may mean youth who frequent these sites are at greater risk for developing gambling problems. Future research would do well to examine the physiological reactions to gambling on money versus practice sites (e.g., cortisol levels, heartbeat, and ideally, areas of the brain implicated in both) to determine how these sites might contribute to later gambling addiction.

Among those who reported having played practice games in the past year, significantly more problem gamblers (82.4%) than social gamblers (55.3%) endorsed participation. Interestingly, 8.8% of university students who do not gamble for money (either on or off the Internet) report playing on practice sites. It may be a sign of the level of normalization of gambling in today's society that even non-gamblers choose gambling-type games as a form of recreational past time. The ramifications of this are that students who ordinarily may not have tried gambling are introduced to a “risk-free” form of gambling, which ultimately may then lead them to gamble for money. Longitudinal research is needed to examine whether practice sites serve as a “gateway” to gambling with money. Gateway theory is traditionally used to describe a sequence and progression in addictive substance use, e.g., from tobacco and cannabis to heroin and cocaine (Kandel, 2002). There is some evidence that youth follow a similar pattern of progression in gambling, beginning with playing cards for money or gambling on skill-re-

lated activities, to buying lottery tickets, to sports betting, to VLTs, and casinos (Gupta & Derevensky, 2000). What is not known is how the easy accessibility of practice sites and appeal of “free” gambling games contribute to development of problem gambling. More research is needed on the social and psychological dynamics of “gambling” on practice sites.

Limitations

This research corroborates previous work examining gambling among college students, but it is not without its limitations. The data were obtained between 2005 and 2007, and while this period of time is significant in the context of Internet gambling, given the rapid changes in the field of Internet gambling that have occurred since, the prevalence rates may not be current. The results may not inform our understanding of current patterns of gambling; nonetheless, the study contributes to scarce knowledge about Internet gambling at a point in time and fills in a gap in the literature. The data collection period was also quite long and may result in differences within the sample.

Another limitation of this study, due to small sample size, is the inability to distinguish between different types of Internet gamblers. Research with offline gamblers reports different types of gamblers (e.g., card gamblers, casino/slot gamblers) differ on measures of novelty seeking, alcohol and drug use, and self-identified gambling problems (Goudriaan, Slutske, Krull & Sher, 2009). In addition, certain forms of gambling are associated with increases in SOGS-RA problem gambling symptoms (Welte et al., 2009). It is becoming clear Internet gamblers are a heterogeneous group, and most gamble offline as well as online (Gainsbury et al., 2012; Wardle, Moody, Griffiths, Orford & Volberg, 2011; Wood & Williams, 2011). It is also a difficult group to research, as very large random community samples are needed to ensure a large enough sample of Internet gamblers (Gainsbury et al., 2012; Wood & Williams, 2011). This leads to targeting online gamblers, a methodology that is not without its own set of problems (Griffiths, 2011; Shaffer, Peller, LaPlante, Nelson & LaBrie, 2010; Wardle et al., 2011). However, as more countries move toward regulation of Internet gambling these methodological difficulties must be overcome in order to give an accurate portrait of those who gamble online to inform problem gambling prevention policies.

As with any retrospective self-report questionnaire, there are some limitations with respect to the methodology, including memory-errors, self-presentation strategies (i.e., social desirability bias), and miscomprehension. Although an attempt was made to sample as diverse a population as possible, in the end this is a relatively small convenience sample of students from a few rigorous fields and as such may underestimate gambling and problem gambling rates. A degree of caution is required in generalizing results, as findings may not be representative of the wider population of university students. Students with serious gambling problems may miss class or drop out of school and therefore may be underrepresented in the present sample. The small number of Internet gamblers may have affected the statistical analyses, in that the small odds ratios may be a reflection of the sample size. These are problems that will always affect a study of modest size, nonetheless they must be recognized.

CONCLUSIONS

The current study provides empirical evidence of the prevalence of Internet gambling on university campuses and adds to the literature on risk-taking and gambling by including Internet gambling. The findings provide important initial information regarding a growing and little-researched area of gambling, and suggest several avenues for future research. Developing a solid understanding of the relationship between Internet gambling, risk taking and problem gambling is important for developing regulation initiatives. While some might argue the number of students actually gambling on the Internet is not sufficiently large enough to warrant concern, or even government intervention, there are some clear indications that it is not the number of people engaging in this type of behavior, rather the characteristics of those who do so which demand attention. It is apparent that gambling on the Internet may be dangerous for some individuals; males, those with high risk-approach motivation, and, most certainly, those already exhibiting problem gambling behaviors. Awareness, prevention, and responsible social policies should be at the forefront of university initiatives. Universities would be best advised to initiate campus-wide prevention programs, similar to drug and alcohol campaigns, providing guidelines for responsible gambling and warning signs for problem gambling (Ellenbogen et al., 2008; Engwall et al., 2004).

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