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The relationship between recreational gambling and substance abuse/dependence: Data from a nationally representative sample

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Abstract

Background—Although recreational gambling is prevalent and co-occurs with substance abuse/dependence, few studies have investigated the relationship between the two.

Methods—Logistic regression analyses were performed on data from a nationally representative sample from the Gambling Impact and Behavior Study.

Results—Substance-abusing recreational gamblers, as compared to non-substance-abusing ones, differed in gambling motivations, began gambling at earlier ages, reported heavier gambling, and preferred and performed strategic forms of gambling.

Conclusions—As compared with non-substance-abusing gamblers, substance-abusing gamblers demonstrated different gambling profiles including heavier gambling. These findings suggest the need for additional research on whether and how substance use might promote gambling and vice-versa.

Keywords

recreational gamblers; substance abuse; gambling motivations; impulsivity; national survey

1. Introduction

Most adults have gambled within the past-year (National Research Council, 1999). As the proportion that experiences problem/pathological gambling is small (Petry, 2007), an improved understanding of recreational gambling has significant public health implications (Shaffer and Korn, 2002).

Recreational gambling has been associated with substance use and psychiatric disorders across age groups (Desai et al., 2007; Desai et al., 2004; Desai et al., 2005; Martins et al., 2007; Pietrzak et al., 2007) and gender (Desai et al., 2005; Martins et al., 2008; Potenza et al., 2006). Among types of substance abuse/dependence, alcohol has been most associated with recreational gambling (Desai et al., 2007; Desai et al., 2004; Desai et al., 2005; Duhig et al., 2006; Pietrzak et al., 2007). Motivational factors, such as excitement-seeking, have been associated with heavier gambling and substance abuse amongst recreational gamblers

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(Pantalon et al., 2008). These studies suggest a robust relationship between substance use and recreational gambling, warranting a study of gambling behaviors in substance abusers as compared to non-abusers.

Data from the Gambling Impact and Behavior Study (GIBS) were used to examine relationships between substance abuse/dependence and socio-demographic and gambling measures among recreational gamblers. We hypothesized that substance-abusing recreational gamblers as compared to non-substance-abusing ones would have different gambling patterns and preferences, engage in heavier gambling, have earlier ages at gambling onset, gamble more frequently for excitement, and more frequently prefer and perform strategic forms of gambling typically involving competitive risk-taking.

2. Method

2.1. Sampling and Study Design

The GIBS surveyed a nationally representative sample of 2,417 adults taken from the telephone component of the civilian household population of the U.S., which covered 95% of U.S. households (Gerstein et al., 1999). It employed National Opinion Research Center's (NORC) standard sampling method for random-digit-dialing (RDD) surveys stratified by state lottery status (state lottery, no state lottery)—a list-assisted approach which covers almost 98% of telephone households with small non-coverage bias (Brick et al, 1995; Gerstein et al., 1999). The RDD sampling ensured that the sample within each stratum was representative of that stratum. The number of telephone numbers obtained within each stratum was directly proportional to the stratum's population with no over-sampling, and no demographic groups were under- or over-represented (Gerstein et al., 1999). A RDD sample of 9,200 telephone numbers was purchased from Survey Sampling Inc., 4,358 of which were classified as working residential numbers eligible for interview, and 3,281 were successfully screened to select one household adult for interview (using a variant of the Troldahl-Carter-Bryant method). Finally 2,417 interviews were completed (screening completion rate=75.3%; post-screening completion rate=73.7%; final cooperation rate=55.5%) (Gerstein et al., 1999).

In this study, the GIBS-RDD sample was restricted to past-year recreational gamblers with complete data for all socio-demographic measures presented in Table 1 (N=1,390). Past-year gamblers omitted due to missing socio-demographic data (87 of 1,477 gamblers=5.9%) did not significantly differ from those included in the study with respect to any socio-demographic measure presented in Table 1.

2.2. Survey Measures

2.2.1. Recreational, problem and pathological gambling—Problem and pathological gambling were defined as acknowledgement of three or four or five or more (respectively) past-year or lifetime DSM-IV-based diagnostic criteria for pathological gambling (American Psychiatric Association, 1994), as assessed by the NORC-DSM Screen, shown, in limited testing, to have strong internal consistency, test-retest reliability and validity in identifying pathological gamblers (Gerstein et al., 1999). Past-year recreational gambling was defined as any betting or game-playing involving money stakes in the last year which did not fulfill the criteria for problem/pathological gambling.

2.2.2. Substance abuse/dependence—Participants were classified as having “Past-year substance abuse/dependence” if they met three or more DSM-IV criteria for substance dependence as implemented in the National Household Survey on Drug Abuse (e.g., questions about tolerance, withdrawal, and adverse medical, social, and psychiatric consequences of use) (Gerstein et al., 1999). Respondents needed to meet a threshold criterion of non-medical use

of a substance (not including nicotine or caffeine) on ≥ 5 days in the previous year in order to be queried about DSM-IV criteria for dependence (Gerstein and Toce, 1999). This definition for “Past-year substance abuse/dependence” has been used in this fashion in previous publications (Desai et al., 2004; Desai et al., 2005; Duhig et al., 2006). Substances targeted included marijuana/hashish, cocaine/crack, stimulants like methamphetamine, amphetamines or speed, tranquilizers such as alprazolam for non-medical uses.

2.2.3. Socio-demographic measures—Socio-demographic variables were derived directly from questions in the GIBS (Gerstein and Toce, 1999) and presented in Table 1.

2.2.4. Gambling measures—Gambling measures were adapted directly from the GIBS (Gerstein and Toce, 1999) with responses grouped as in Table 2. Strategic, non-strategic and machine gambling were defined as previously done (Desai et al., 2004; Potenza et al., 2006).

2.3. Data Analysis

Individuals missing information on gambling status ($n=4$) or with past-year or lifetime problem/pathological gambling ($n=51$) were excluded to generate a sample consisting of past-year recreational gamblers and past-year non-gamblers. Substance-abusing past-year recreational gamblers were compared to non-substance-abusing ones on socio-demographic and gambling measures. Statistical analyses were performed using the weight variable (scaled to the actual sample size in our study, $N=1,390$) provided by the GIBS. This weight variable makes adjustments associated with the RDD sampling methodology, as described in the GIBS documentation (Gerstein et al., 1999). To be consistent with the statistics reported in the Tables, sample sizes (N) were reported based on sum of sample weights. Use of the sample weights has no impact on the inferences drawn. Every statistical test that is significant in an analysis using the sample weights reported is also significant in an analysis not using the sample weights.

Socio-demographic characteristics that were significantly associated with past-year substance abuse (i.e., age, gender and marital status) were included as covariates in the multiple logistic regression models. All parameter estimates for associations consisted of odds ratios which were tested for significance using a Wald chi-square test.

3. Results

The sample consisted of 1,390 past-year recreational gamblers, among which 142 were substance-abusing.

3.1. Socio-demographic characteristics

Substance-abusing and non-substance-abusing gamblers differed on age, gender and marital status. Substance-abusers were younger and had a larger proportion of males. Fewer substance-abusers were married/cohabitating and more were never married (Table 1).

3.2. Gambling measures

3.2.1. Reasons for gambling—Compared to non-substance-abusing gamblers, higher proportions of substance-abusers endorsed gambling for social activity, to be around people, for excitement and to win money (Table 2).

3.2.2. Gambling patterns—Higher proportions of substance-abusing gamblers, as compared to non-abusers, began gambling before 18 years; gambled at least once a month; had largest maximal daily wins and losses in the past year of $> \$100$; and endorsed usually gambling with someone (Table 2).

Larger proportions of substance-abusers favored and performed strategic forms of gambling. Conversely, a higher proportion of non-abusers preferred non-strategic gambling (Table 2).

4. Discussion

This study represents the first to our knowledge to use a large, nationally representative sample to investigate systemically relationships between substance abuse/dependence and gambling measures among recreational gamblers. Results support our hypothesis that, as compared to non-substance-abusing gamblers, substance-abusing ones have different gambling motivations and engage in heavier gambling.

4.1. Socio-demographic characteristics

Substance-abusing gamblers were younger and more likely to be male and never married. Gender differences in gambling behaviors and co-morbidities have been previously reported (Blanco et al., 2006; Desai et al., 2005; Potenza et al., 2006). Our results are consistent with a NESARC study which found that male gamblers not meeting criteria for pathological gambling were more likely to have substance use disorders (Blanco et al., 2006). As men and male gamblers frequently score high on sensation-seeking measures (Zuckerman et al., 1993; McDaniel and Zuckerman, 2003), male sensation-seeking may underlie engagement in multiple risk-taking behaviors.

Our results are consistent with previous observation that young adults are more likely than older adults to participate in multiple risk-taking activities (Gupta and Derevensky, 2000; Potenza, 2003). Neurobiological data linking the neurodevelopmental stage of young adults, excitement-seeking, and engagement in risk-taking behaviors are emerging and warrant further investigation (Chambers and Potenza, 2003; Chambers et al., 2003).

4.2. Gambling behaviors

Substance-abusing and non-substance-abusing recreational gamblers reported different gambling-related motivations, preferences and behaviors. These characteristics may be interrelated.

4.2.1. Monetary motivation and gambling behaviors—Consistent with previous research (Coman et al., 1997; Lee et al., 2007; Mississippi State University Gambling Group, 1995), “to win money” was the most commonly endorsed reason to gamble, particularly amongst substance abusers. Financial problems associated with substance abuse may contribute to the motivation to gamble for money. Such motivation may contribute to substance abusers’ heavier gambling, given previous research showing that monetary motivations may exercise greater influences than other motivations on gambling severity (Coman et al., 1997; Neighbors et al., 2002).

4.2.2. Excitement-seeking and gambling behaviors—Our findings that substance-abusers more frequently endorsed gambling for excitement, gambled more heavily, and preferred and performed strategic gambling may be interrelated. First, previous studies associated excitement-seeking with higher gambling frequency (Kuley and Jacobs, 1988; McDaniel and Zuckerman, 2003), larger size of bets (Anderson and Brown, 1984), and loss of control over gambling (Coventry and Hudson, 2001). Second, strategic gambling involves competitive interaction which may be particularly closely related to excitement or impulse dyscontrol. Together, the results suggest that substance-abusing recreational gamblers may have particularly poor impulse control and be particularly prone to multiple risk behaviors. Impulse dyscontrol may represent a common construct linking risk behaviors, consistent with studies of behavioral measures in substance abusers/gamblers (Petry, 2001a; Petry, 2001b),

biological correlates of impulsivity (e.g., low 5-hydroxyindoleacetic acid levels) (Asberg et al., 1976; Coccaro et al., 1989; Nordin and Eklundh, 1999; Potenza, 2001), and treatment development strategies (Grant and Potenza, 2006).

4.2.3. Socialization motivation—Socialization has been suggested as an important motivation in substance use (Cooper et al., 1992; Fite et al., 2006; Neighbors et al., 2002) and gambling (Lynch et al., 2004; Jacobs, 2000). Substance abusers' frequent endorsement of socialization motivation may reflect social skill deficits that may contribute to excessive substance use and represent a target for intervention (Monti et al., 1981; Van Hasselt et al., 1993).

4.2.4. Age at gambling onset—Underage gambling (Shaffer and Hall, 1996) appears particularly common among substance abusers. Given that adult pathological gamblers typically have gambling onset before adulthood (Volberg, 1994), and that existing data associate early gambling onset with heavier gambling and more severe psychosocial and substance abuse problems (Burge et al., 2006; Lynch et al., 2004; National Research Council, 1999; Volberg, 1994), substance-abusing recreational gamblers may be at significant risk for developing gambling problems. Longitudinal studies to investigate temporal relationships of substance use and gambling are needed since multiple non-mutually exclusive hypotheses exist. Substance abuse onset may be secondary to excitement/stress from gambling. Conversely, substances may lead to disinhibition and onset of gambling. Alternatively, both may be manifestations of underlying impulse dyscontrol.

4.3 Limitations and Strengths

The study's cross-sectional design does not allow for examination of causal relationships in observed associations. Biases related to incorrect reporting of information by respondents may exist. Diagnostic interviews were not performed to assess psychiatric conditions. The well-designed, RDD methodology and the large, nationally representative sample are strengths of the study.

5. Conclusions

Differences in gambling motivations, age at gambling onset, and intensity and types of gambling between substance-abusing and non-substance-abusing recreational gamblers found in this study suggest overall heavier gambling in substance abusers. Differences in motivations suggest that winning money, socializing and experiencing excitement are all particularly relevant reasons for gambling amongst substance abusers. Additional research is needed from longitudinal studies to examine relationships between substance use and gambling.

References

- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. Vol. 4. American Psychiatric Association; Washington, DC: 1994.
- Anderson G, Brown RI. Real and laboratory gambling, sensation-seeking and arousal. *Br J Psychol* 1984;75:401–410. [PubMed: 6487928]
- Asberg M, Traskman L, Thoren P. 5-HIAA in the cerebrospinal fluid. A biochemical suicide predictor? *Arch Gen Psychiatry* 1976;33:1193–1197. [PubMed: 971028]
- Blanco C, Hasin DS, Petry N, Stinson FS, Grant BF. Sex differences in subclinical and DSM-IV pathological gambling: results from the National Epidemiological Survey on Alcohol and Related Conditions. *Psychol Med* 2006;36:943–953. [PubMed: 16650342]
- Brick MJ, Waksberg J, Kulp D, Starer A. Bias in list-assisted telephone surveys. *Public Opinion Quarterly* 1995;59:218–235.

- Burge AN, Pietrzak RH, Petry NM. Pre/early adolescent onset of gambling and psychosocial problems in treatment-seeking pathological gamblers. *J Gambl Stud* 2006;22:263–274. [PubMed: 16816990]
- Chambers RA, Potenza MN. Neurodevelopment, impulsivity, and adolescent gambling. *J Gambl Stud* 2003;19:53–84. [PubMed: 12635540]
- Chambers RA, Taylor JR, Potenza MN. Developmental neurocircuitry of motivation in adolescence: A critical period of addiction vulnerability. *Am J Psychiatry* 2003;160:1041–1052. [PubMed: 12777258]
- Coccaro EF, Siever LJ, Klar HM, Maurer G, Cochrane K, Cooper TB, Mohs RC, Davis KL. Serotonergic studies in patients with affective and personality disorders. Correlates with suicidal and impulsive aggressive behavior. *Arch Gen Psychiatry* 1989;46:587–599. [PubMed: 2735812]
- Coman GJ, Burrows GD, Evans BJ. Stress and anxiety as factors in the onset of problem gambling: implications for treatment. *Stress Med* 1997;13:235–244.
- Cooper ML, Russell M, Skinner JB, Windle M. Development and validation of a three-dimensional measure of drinking motives. *Psychol Assess* 1992;4:123–132.
- Coventry KR, Hudson J. Gender differences, physiological arousal and the role of winning in fruit machine gamblers. *Addiction* 2001;96:871–879. [PubMed: 11399218]
- Desai RA, Desai MM, Potenza MN. Gambling, health, and age: Data from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychol Addict Behav* 2007;21:431–440. [PubMed: 18072825]
- Desai RA, Maciejewski PK, Dausey DJ, Caldarone BJ, Potenza MN. Health correlates of recreational gambling in older adults. *Am J Psychiatry* 2004;161:1672–1679. [PubMed: 15337659]
- Desai RA, Maciejewski PK, Pantalon MV, Potenza MN. Gender differences in adolescent gambling. *Ann Clin Psychiatry* 2005;17:249–258. [PubMed: 16402759]
- Duhig AM, Maciejewski PK, Desai RA, Krishnan-Sarin S, Potenza MN. Characteristics of adolescent past-year gamblers and non-gamblers in relation to alcohol drinking. *Addict Behav* 2006;32:80–89. [PubMed: 16814934]
- Fite PJ, Colder CR, O'Connor RM. Childhood behavior problems and peer selection and socialization: risk for adolescent alcohol use. *Addict Behav* 2006;31:1454–1459. [PubMed: 16266788]
- Gerstein, D.; Hoffmann, J.; Larison, C.; Engelman, L.; Murphy, S.; Palmer, A.; Chuchro, L.; Toce, M.; Johnson, R.; Buie, T.; Hill, MA. *Gambling Impact and Behavior Study*. National Opinion Research Center; University of Chicago: 1999.
- Gerstein, D.; Toce, M. *Fast Track Codebook for the Gambling Impact and Behavior Study-Adult Survey*. National Opinion Research Center; University of Chicago: 1999.
- Grant JE, Potenza MN. Compulsive aspects of impulse-control disorders. *Psychiatr Clin North Am* 2006;29:539–551. [PubMed: 16650722]
- Gupta R, Derevensky JL. Adolescents with gambling problems: From research to treatment. *J Gambl Stud* 2000;16:315–342. [PubMed: 14634318]
- Jacobs DF. Juvenile gambling in North America: An analysis of long term trends and future prospects. *J Gambl Stud* 2000;16:119–152. [PubMed: 14634310]
- Kuley NB, Jacobs DF. The relationship between dissociative-like experiences and sensation seeking among social and problem gamblers. *J Gambl Stud* 1988;4:197–207.
- Lee HP, Chae PK, Lee HS, Kim YK. The five-factor gambling motivation model. *Psychiatry Res* 2007;150:21–32. [PubMed: 17270278]
- Lynch WJ, Maciejewski PK, Potenza MN. Psychiatric correlates of gambling in adolescents and young adults grouped by age at gambling onset. *Arch Gen Psychiatry* 2004;61:1116–1122. [PubMed: 15520359]
- Martins SS, Storr CL, Ialongo NS, Chilcoat HD. Mental health and gambling in urban female adolescents. *J Adolesc Health* 2007;40:463–465. [PubMed: 17448407]
- Martins SS, Storr CL, Ialongo NS, Chilcoat HD. Gender differences in mental health characteristics and gambling among African-American adolescent gamblers. *Am J Addict* 2008;17:126–134. [PubMed: 18393056]
- McDaniel SR, Zuckerman M. The relationship of impulsive sensation seeking and gender to interest and participation in gambling activities. *Pers Individ Dif* 2003;35:1385–1400.

- Mississippi State University Gambling Group. National gambling survey, MS: MSU Social Sciences Research Center. In: Thompson, WN., editor. *Legalized Gambling*. ABC-Clio, Inc; Santa Barbara, CA: 1995.
- Monti PM, Corriveau DP, Zwick W. Assessment of social skills in alcoholics and other psychiatric patients. *J Stud Alcohol* 1981;42:526–529. [PubMed: 7278295]
- National Research Council. *Pathological gambling: a critical review*. National Academy Press; Washington, DC: 1999.
- Neighbors C, Lostutter TW, Cronce JM, Larimer ME. Exploring college student gambling motivation. *J Gambl Stud* 2002;18:361–370. [PubMed: 12514915]
- Nordin C, Eklundh T. Altered CSF 5-HIAA disposition in pathologic male gamblers. *CNS Spectr* 1999;4:25–33. [PubMed: 18311105]
- Pantalon M, Maciejewski P, Desai R, Potenza M. Excitement-seeking gambling in a nationally representative sample of recreational gamblers. *J Gambl Stud* 2008;24:63–78. [PubMed: 17828446]
- Petry NM. Pathological gamblers, with and without substance use disorders, discount delayed rewards at high rates. *J Abnorm Psychol* 2001a;110:482–487. [PubMed: 11502091]
- Petry NM. Substance abuse, pathological gambling, and impulsiveness. *Drug Alcohol Depend* 2001b; 63:29–38. [PubMed: 11297829]
- Petry NM. Gambling and substance use disorders: current status and future directions. *Am J Addict* 2007;16:1–9. [PubMed: 17364415]
- Pietrzak RH, Morasco BJ, Blanco C, Grant BF, Petry NM. Gambling level and psychiatric and medical disorders in older adults: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Am J Geriatr Psychiatry* 2007;15:301–313. [PubMed: 17095749]
- Potenza MN. The neurobiology of pathological gambling. *Semin Clin Neuropsychiatry* 2001;6:217–226. [PubMed: 11447573]
- Potenza, MN. A perspective on adolescent gambling: Relationship to other risk behaviors and implications for prevention strategies. In: Romer, D., editor. *Reducing adolescent risk: An integrated approach*. Sage Publications; Thousand Oaks, CA: 2003. p. 247-255.
- Potenza MN, Maciejewski P, Mazure C. A gender-based examination of past-year recreational gamblers. *J Gambl Stud* 2006;22:41–64. [PubMed: 16374660]
- Shaffer HJ, Hall MN. Estimating the prevalence of adolescent gambling disorders: A quantitative synthesis and guide toward standard gambling nomenclature. *J Gambl Stud* 1996;12:193–214.
- Shaffer HJ, Korn DA. Gambling and related mental disorders: a public health analysis. *Annu Rev Public Health* 2002;23:171–212. [PubMed: 11910060]
- Van Hasselt VB, Null JA, Kempton T, Bukstein OG. Social skills and depression in adolescent substance abusers. *Addict Behav* 1993;18:9–18. [PubMed: 8465682]
- Volberg RA. The prevalence and demographics of pathological gamblers: implications for public health. *Am J Public Health* 1994;84:237–241. [PubMed: 8296947]
- Zuckerman M, Kuhlman D, Joireman J, Teta P, Kraft M. A comparison of three structural models for personality: The big three, the big five, and the alternative five. *J Pers Soc Psychol* 1993;65:757–768.

Table 1
Sociodemographic characteristics of substance abusing and non-substance abusing past-year recreational gamblers (N = 1,390)

Variable	Category	Substance Abusing Past-year Recreational Gamblers (% N = 142)	Non-Substance Abusing Past-year Recreational Gamblers (% N = 1,248)	Chi Square	df	P Value
Age	18 – 29	52.1	20.3	14.14	4	< .0001
	30 – 39	20.9	25.4			
	40 – 49	18.4	21.6			
	50 – 64	4.8	18.6			
	> 65	3.8	14.1			
Gender	Female	31.3	51.2	48.83	1	< .0001
	Male	68.7	48.8			
Race/Ethnicity	Caucasian	75.4	73.1	1.75	3	0.627
	African American	8.5	8.6			
	Hispanic	7.9	11.3			
	Other	8.3	7.0			
Education	Under 12 years	7.2	10.3	2.57	2	0.277
	12 years	27.0	30.3			
	Over 12 years	65.9	59.4			
Marital Status	Married/cohabitating	38.7	61.9	54.52	3	< .0001
	Divorced/separated	9.4	11.0			
	Never married	51.4	23.3			
	Widowed	0.5	3.9			
Employment	Full time	73.2	65.0	4.40	2	0.111
	Part time	9.8	10.4			
	Unemployed	17.0	24.6			
Income	<24K	22.3	27.2	6.75	3	0.080
	24K – 50K	28.5	32.6			
	50K – 100K	33.7	30.7			
	100K	15.5	9.5			

Note: Sample sizes (N) listed indicate sum of sample weights.

Table 2
Factors distinguishing substance abusing and non-substance abusing past-year recreational gamblers (N = 1,390)

Group, Variable, Category	Substance Abusing Past-year Recreational Gamblers (%), N = 142	Non-substance Abusing Past-year Recreational Gamblers (%), N = 1,248	Adjusted Odds Ratio	95% Confidence Interval	P Value
<i>Reasons for Gambling</i>					
Gambling for social activity	51.6	36.5	1.69	1.17, 2.45	0.005
Gambling for personal services	21.5	20.2	1.01	0.65, 1.57	0.976
Gambling to be around people	41.5	28.0	1.62	1.12, 2.37	0.012
Gambling for excitement	59.2	35.9	2.03	1.40, 2.94	< .001
Gambling to win money	76.7	61.3	1.73	1.13, 2.63	0.011
<i>Patterns of Gambling</i>					
Earliest age gambled less than 18 years	46.9	21.7	1.99	1.36, 2.92	< .001
Gambled at least once per month in past year	61.2	48.3	1.90	1.30, 2.78	0.001
Usually gamble with someone	73.6	63.2	1.59	1.06, 2.41	0.027
Largest win in past year > \$100	62.1	49.2	1.81	1.24, 2.64	0.002
Largest loss in past year > \$100	44.0	28.4	1.84	1.27, 2.69	0.001
<i>Types of Gambling Performed</i>					
Strategic, any	56.6	26.6	2.70	1.86, 3.93	< .0001
Non-strategic, any	80.3	86.2	0.72	0.45, 1.15	0.163
Machine, any	25.8	20.0	1.46	0.96, 2.23	0.078
Casino, past year	44.0	39.8	1.24	0.86, 1.78	0.258
Non-casino, past year	94.3	92.4	1.18	0.55, 2.53	0.679
<i>Favorite Type of Gambling</i>					
Strategic	47.2	27.1	1.82	1.25, 2.65	0.002
Non-strategic	33.8	50.3	0.64	0.43, 0.94	0.022
Machine	16.9	25.6	0.82	0.51, 1.32	0.407

Note: Sample sizes (N) listed indicate sum of sample weights. The number of missing data (based on sum of sample weights) for each variable are as follows: social activity (3), personal services (7), be around people (4), for excitement (2), earliest age ever gambled (6), frequency gambled in past year (8), gamble with someone (14), largest win (19), favorite type strategic (1), favorite type non-strategic (1), and favorite type machine (1). All other variables have no missing values. Odds ratios adjusted for age, gender, and marital status.