# Illegal Behaviors in Problem Gambling: Analysis of Data from a Gambling Helpline

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Problem gambling behaviors, particularly the most severe form, which is pathological gambling (PG), represent an emerging public health problem. Compared with the general population, individuals with problem gambling are more likely to have reports of legal issues, including commission of crimes, arrest, and incarceration. The goal of the present study is to examine the characteristics of individuals seeking help for gambling problems with regard to reports of illegal behavior secondary to gambling. Individuals with gambling problems were identified through use of a 24-hour gambling helpline, and information regarding the identified problem gambler was investigated with respect to reported presence or absence of gambling-related illegal behaviors. Identified gamblers with reported gambling-related illegal behaviors compared with those without such behaviors appeared to experience more severe gambling-related problems. Despite being on average younger, gamblers with acknowledged gambling-related illegal behaviors were more likely to have reports of having problems with multiple forms of gambling, debts to acquaintances, been suicidal secondary to gambling, used alcohol or drugs excessively, and received mental health treatment. Secondary analyses of the subgroup of gamblers with gambling-related illegal behaviors revealed that those with reports of arrest or incarceration secondary to gambling compared with those with gambling-related illegal behaviors but without arrest or incarceration secondary to gambling were more likely to have features similar to those described for individuals with antisocial personality disorder (ASPD). That is, the gambler with reported arrest or incarceration secondary to gambling was more likely to be male, unemployed, single, and have reports of problems with excessive drug or alcohol use. In contrast, the gamblers acknowledging gambling-related illegal behaviors but not arrest or incarceration secondary to gambling were predominantly female and more likely to have reports of problems with non-strategic forms of gambling (e.g., slot machine), owing money to legitimate sources of borrowing, having filed for bankruptcy, and having family problems related to gambling. The findings indicate: (1) individuals with reported legal problems secondary to gambling represent a more ill subpopulation of problem gamblers; and (2) there exist separate subgroups of gamblers with gambling-related illegal behaviors (i.e., those with or without reported arrest or incarceration secondary to gambling) with strikingly different characteristics and possibly different treatment needs. The results of the present study highlight the importance of the identification and treatment of individuals with gambling problems with respect to legal issues.

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Accompanying the increased access to gaming opportunities with the introduction, proliferation and popularization of state lotteries, casinos, and other forms of gambling, there has been a growing public awareness of the potential dangers associated with problem gambling. In this article, we will use the term "problem gambling" to include the spectrum of gambling behaviors from pathological gambling

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(PG) (as described in DSM-IV)[1] to less severe, yet disruptive, patterns of gambling. In North America, one-year and lifetime prevalence rates of PG have been conservatively estimated at 1.1 percent and 1.6 percent for adults, respectively, with significantly higher rates observed in adolescents and young adults.[2] One-year and lifetime prevalence rates of problem gambling (exclusive of PG) have been estimated at 2.8 percent and 3.8 percent for adults, respectively.[2]

Gambling problems are not only prevalent in the general population but are also associated with significant morbidity and mortality. Seventeen to 24 percent of pathological gamblers attempt suicide.[3] One research group has reported completed suicide rates to be higher than expected in cities with established casinos as compared with those of similar demographics,[4] although a second group argues against causality of gambling and suicide in interpreting the same data.[5] Despite some unresolved questions regarding differences in methodologies, the initial study found that Las Vegas had quadruple and Atlantic City twice the expected completed suicide rate, with available data supporting an increase from a normal rate following the introduction of casinos.[4] Approximately one of every five individuals with PG files for bankruptcy[6,7] and bankruptcy rates have been found to be elevated in regions surrounding casinos.[8] Increased rates of mental and physical health problems also have been linked to PG.[6]

Problem gambling is frequently associated with illegal activities and adverse legal consequences (e.g., arrest and/or incarceration), and these legal problems are often associated with significant personal, familial, and societal costs.[9-17] Studies of Gamblers Anonymous (GA) members report that approximately half of the participants had stolen to gamble and over one-third had been arrested.[7,18] In an early comprehensive study of problem gamblers in North America, Lesieur[10] found high rates of reports of crime, particularly those against property without violence (e.g., burglary, theft, embezzlement, fencing) (38.7% of sample) and fraud and/or forgery (56.0% of sample). The author also reported the direction of causality as being from gambling to crime in the majority (90%) of cases,[10] a finding supported by subsequent studies.[19] In a separate study, the patterns of offenses exhibited by problem gamblers in the United States were mirrored in the patterns of convictions in a sample of GA members in the United Kingdom.[11] The author concluded the criminal patterns exhibited by individuals with pathological gambling resembled most closely those of individuals dependent on narcotic drugs.[11] A third study, performed in Germany, found that GA members who reported having committed illegal acts were more likely than those who denied being more excessive in their gambling behavior, deriving greater satisfaction from gambling, and experiencing greater psychological and financial problems.[19] The findings of the National Gambling Impact Study Commission (NGISC), investigating the current effects of gambling upon the United States,[20] corroborate and extend these findings. After correcting for control variables, rates of arrests for pathological and problem gamblers were 32.3 percent and 36.3 percent, respectively, compared with those of 20.7 percent, 11.1 percent, and 4.5 percent in at-risk gamblers, low-risk gamblers, and non-gamblers, respectively.[6] Pathological gamblers were also more likely to have been arrested a greater number of times than other groups of gamblers and non-gamblers.[6] Rates of incarceration were also significantly elevated in problem gamblers: 21.4 percent in pathological, 10.4 percent in problem, 7.8 percent in at-risk, and 3.7 percent in low-risk gamblers compared with .4 percent in non-gamblers.[6] Estimates of lifetime criminal justice costs for arrests were $960 and $1,250 and for incarceration $670 and $1,700 per each problem and pathological gambler, respectively.[6] The Gambling Impact and Behavior Study concluded that approximately one-third of the $5 billion annual cost directly attributable to problem gambling in the United States is accounted for by arrests and corrections costs.[6]

Data support the existence of subgroups of problem gamblers exhibiting different patterns of criminal behavior. For example, pathological gamblers with co-morbid ASPD were more likely to engage in both gambling- and non-gambling-related offenses as compared with pathological gamblers not meeting the criteria for ASPD.[13,21] In a separate study from the same group,[22] gamblers with ASPD have been found to be more likely to commit an illegal act; however, the majority of criminal offenses committed by one group of gamblers was performed independently of a diagnosis of ASPD. Alternatively, pathological gamblers with co-morbid opiate dependence treated in a methadone maintenance program were more likely to engage in drug-related crimes.[15]

The same study also demonstrated gender differences in the patterns of criminal behavior, with male pathological gamblers as or more likely to endorse engaging in all forms of identified criminal/hustling activities.[15]

Taken together, these findings underscore the magnitude of the legal problems associated with problem gambling and suggest the relationships between problem gambling and illegal actions and their consequences to be complex. As such, further research is warranted to define more precisely the characteristics of specific groups of individuals with gambling problems with regard to legal problems. Such information could be of significant value in evaluating individuals with gambling problems and determining appropriate treatment interventions.

A current health care challenge involves engaging individuals with gambling problems in treatment and targeting effective treatment strategies to specific subgroups of problem gamblers. One increasingly widespread method of providing support to individuals seeking help for gambling-related problems is through gambling helplines. In the United States, all 50 states have access to toll-free telephone services designed specifically to assist callers seeking aid for themselves or someone they care about with a gambling problem.[23, 24] In addition, there exist national helplines (e.g., in the United States, United Kingdom, and New Zealand) specifically for addressing concerns about problem gambling.[23, 25, 26] These helplines serve to answer questions, respond to crises, and provide individuals with appropriate information on treatment options. Despite the relative widespread use of gambling helplines, little information has been published to date regarding the characteristics of the help-seeking problem gamblers identified through gambling helplines operated in the United States.

The goal of the present study was to identify characteristics of individuals with gambling problems utilizing a gambling helpline with respect to reported presence or absence of reported illegal actions or legal problems secondary to gambling (ILL). We hypothesized the subgroup of problem gamblers with reports of ILL would be more seriously afflicted with financial, psychiatric, substance use, and gambling problems. We also predicted the group of gamblers with reported arrest or incarceration secondary to gambling (ARR) would represent a subgroup of gamblers with ILL with more extreme gambling-related problems and traits consistent with ASPD. To investigate these hypotheses, we examined the responses over a one-year period from 1998 to 1999 of individuals utilizing a gambling helpline serving the greater Southern New England region of the United States.

## Methods

### The Connecticut Council on Problem Gambling (CCPG) Helpline

The CCPG, an affiliate of the National Council on Problem Gambling, operates the gambling helpline from which data for the present study were obtained. The CCPG helpline service is available 24 hours/day, seven days/week. The CCPG helpline has been in continuous operation since 1994 and currently receives approximately 1,000 telephone calls per year for gambling-related problems. Calls to the helpline are received by an answering service. The answering service then pages the on-call helpline worker who then contacts the helpline caller. Callers at the time of initial contact with a helpline staff member are asked questions from a standard 115-item questionnaire. Based on the information provided by the caller to the helpline, treatment referrals are offered to the caller for the identified gambler. If the caller has contacted the helpline within the previous year, an abbreviated list of information is requested from the caller in an effort to exclude duplicate information.

### Data Collection

Data for the present analysis were obtained from callers to the CCPG helpline during the period of February 15, 1998 to February 14, 1999, inclusive. During this period, 1260 phone calls were received.

### Data Analysis

Of the 1,260 calls received, 1,024 were from or concerned individuals with gambling problems. Of the 1,024 gambling problem-related calls, 196 were excluded because information regarding legal problems was missing (e.g., the caller was unwilling to provide information or did not know of gambler's legal problem status). The remaining 826 calls were used as the basis for the data analysis to investigate differences related to ILL. The presence of ILL was determined by a positive response to any of the four following questions: (1) legal action past, current, or pending related to gambling; (2) arrest caused by

gambling; (3) incarceration caused by gambling; or (4) other illegal acts (besides arrest or incarceration) caused by gambling. The presence of ARR was determined by a positive response to the second or third question. In the data used for the legal analysis, the percentage of phone calls received from the identified gambler was 66.6 percent (550/826); 28.9 percent of the calls (239/826) were from individuals regarding someone they knew with a gambling problem, and the remaining 4.48 percent (37/826) were missing caller designations. Substantial differences were not observed when comparing results of analyses of "call-for-self" and "all caller" data sets, and the decision was made to use the larger data set because of its greater statistical power.

Questionnaire items were grouped into seven categories by consensus of three of the authors (S.S.O., B.J.R., and M.N.P.) as follows: (1) demographics (gender, age, ethnicity, education level, employment status, marital status, income); (2) gambling types and durations (years of gambling problem, number of problematic gambling types); (3) psychiatric symptoms secondary to gambling (anxiety, depression, suicidality, suicide attempt(s)); (4) problems secondary to gambling (family, financial); (5) financial problems (debt to institutions (bank, government), debt to bookie or loan shark, debt to casino credit line or credit card, debt to acquaintance (friend, family, or coworker), no debt, bankruptcy filed); (6) drug and alcohol problems (alcohol, other drug); and (7) treatment (mental health, professional gambling, self-help gambling). The mental health variable in the treatment category refers specifically to non-drug-, non-gambling-related mental health care (depression, anxiety, etc.). The variable number of types of problematic gambling was derived from the total number of acknowledged non-casino and casino forms of gambling problems. The list of possible types of gambling problems included 15 specific non-casino forms (bingo, business speculation, cards, dog/cock fighting, dog racing, horse racing, jai alai, lottery-daily, lottery-lotto, lottery-scratch-off, slots, sports betting, stock market, sweepstakes games, and video poker) and 10 specific casino forms (baccarat, bingo, blackjack, craps/dice, horse racing, keno, poker, roulette, slots, and video poker). Additionally, the options of non-casino "other" and casino "other" were available for types of problematic gambling. The variable lottery gambling problem was considered present for individuals acknowledging any of the three types of lottery gambling problems listed above. The variable "years of gambling" was removed from the category of gambling types and durations due to a high degree of correlation with the variable "years of gambling problem."

Logistic regression analyses were completed for each of the seven categories of predictors to determine the relationships to the dependent variable ILL. If the overall model for a category of predictors was significant, the individual variables within the model were examined for their relationship to the dependent measure using the results of the logistic regression analysis. Prior to completing the logistic regression analyses, independent variables in each category were examined for colinearity and multicolinearity using correlation matrices and the equivalent model adjusted by weight matrix. Secondary analyses exploring the relationship of individual types of problematic gambling to ILL were performed using chi-square methods. A secondary set of logistic regression analyses was performed for each of the seven categories of predictors to determine the contributions to the dependent variable ARR within the subgroup of gamblers with ILL using methodologies similar to those used in the primary set of analyses. The SAS System was used for coding data, estimating models, and performing computations. Items answered as "Don't know" were excluded from data analyses.

Two authors (M.A.S. and M.N.P.) with experience in the study and treatment of individuals with gambling problems, in consultation with a casino manager, categorized the gaming forms as strategic or non-strategic in nature. Gambling forms were described as strategic if they were believed by the authors to involve a gaming or wagering process that could be altered by an individual in a systematic fashion to alter the chances of winning. An initial question regarding categorization of three of the types of gambling was resolved in consultation with a third person (a casino manager) and through mutual agreement between the two authors (M.A.S. and M.N.P.). The non-casino forms of strategic gambling problems included in the present study include business speculation, cards, dog/cock fighting, dog racing, horse racing, jai alai, sports betting, stock market, and video poker. The casino forms of strategic gambling problems included in the present study include baccarat, black jack, craps/dice, horse racing, poker, roulette, and video poker. The non-casino forms of non-strategic gambling problems covered in

Table 1 Categories Significantly Contributing to ILL as Determined by Logistic Regression Analysis

| Category | *df* | $\chi^2$ | *p* Value[a] |
|---|---|---|---|
| Demographics | 7 | 15.78 | .027 |
| Gambling types and durations | 2 | 16.37 | .0003 |
| Psychiatric problems secondary to gambling | 4 | 15.86 | .0032 |
| Problems secondary to gambling | 2 | 8.48 | .014 |
| Financial problems | 6 | 45.22 | .0000 |
| Drug problems | 2 | 19.75 | .0000 |
| Treatment | 3 | 8.89 | .031 |

[a] Value of .0000 corresponds to $p \leq .0001$.

the present study include bingo, lottery, slots, and sweepstakes games. The casino forms of non-strategic gambling problems covered in the present study include bingo, keno, and slots.

## Results

### Legal Characteristics

Approximately one of every five (20.7%; 171/826) identified gamblers utilizing the gambling helpline had reports of ILL. Additionally, 55.6 percent (95/171) of this group, or 11.5 percent of the entire sample, had reports of ARR.

### Analysis by Category

Information obtained from callers to the gambling helpline was categorized into seven groups of variables (Table 1). Multivariate analyses of each category revealed significant contributions from each to ILL (Table 1).

### Demographics

The individual demographic variables found to contribute significantly to the regression model were age and education level (Table 2). The parameter estimates indicate that younger age is associated with a higher likelihood of ILL, as is lower educational

Table 2 Logistic Regression Analysis of Demographic Variables Predicting ILL

| Category | Gamblers Without ILL | Gamblers with ILL | Parameter Estimate | Standard Error | $\chi^2$ | *p* Value |
|---|---|---|---|---|---|---|
| Mean age (Years ± SD)[a] | 41.3 ± 11.7 (417)[b] | 37.8 ± 11.4 (105) | −.030 | .011 | 7.43 | .0064 |
| Gender | % | % | .0029 | .25 | .0001 | .99 |
| Female | 32.9 (137/417)[c] | 30.5 (32/105) | | | | |
| Male | 67.2 (280/417) | 69.5 (73/105) | | | | |
| Yearly Income | | | .021 | .16 | .018 | .89 |
| <$14,999 | 7.67 (32/417) | 9.52 (10/105) | | | | |
| $15,000–$34,999 | 41.7 (174/417) | 42.9 (45/105) | | | | |
| $35,000–$59,999 | 38.9 (162/417) | 40.0 (42/105) | | | | |
| $60,000 | 11.8 (49/417) | 7.62 (8/105) | | | | |
| Race | | | −.15 | .19 | .61 | .44 |
| Caucasian | 82.5 (344/417) | 82.9 (87/105) | | | | |
| African-American | 7.43 (31/417) | 9.52 (10/105) | | | | |
| Hispanic | 3.84 (16/417) | 0.95 (1/105) | | | | |
| Other | 6.24 (26/417) | 6.67 (7/105) | | | | |
| Educational level | | | −.50 | .21 | 5.92 | .015 |
| <High school | 2.16 (9/417) | 5.71 (6/105) | | | | |
| GED[d]/high school | 48.9 (204/417) | 56.2 (59/105) | | | | |
| >High school | 48.9 (204/417) | 38.1 (40/105) | | | | |
| Employment status | | | −.26 | .33 | .63 | .43 |
| Unemployed | 13.9 (58/417) | 15.2 (16/105) | | | | |
| Employed | 86.1 (359/417) | 84.8 (89/105) | | | | |
| Marital status | | | −.12 | .23 | .28 | .60 |
| Married/cohabiting | 52.0 (217/417) | 45.7 (48/105) | | | | |
| Other | 48.0 (200/417) | 54.3 (57/105) | | | | |

[a] SD, standard deviation.
[b] The numbers in parentheses for continuous variables represent the sample size for the variable.
[c] The numbers in parentheses for categorical variables represent the sample size for the variable over sample size for the group.
[d] GED, graduation equivalency diploma.

**Table 3** Logistic Regression Analysis of the Gambling Types and Durations Variables Predicting ILL

| Category | Gamblers Without ILL | Gamblers with ILL | Parameter Estimate | Standard Error | $\chi^2$ | *p* Value[a] |
|---|---|---|---|---|---|---|
| Duration gambling problem (years ± SD)[b] | 2.26 ± 2.47 (586)[c] | 2.92 ± 3.25 (163) | .062 | .030 | 4.20 | .040 |
| Number of problematic gambling types (±SD) | 2.07 ± 1.43 (586) | 2.57 ± 1.87 (163) | .17 | .055 | 9.53 | .0020 |

[a] Value of .0000 corresponds to $p \leq .0001$.
[b] SD, standard deviation.
[c] Numbers in parentheses for continuous variables represent the sample size for the variable.

attainment. No statistically significant differences were observed between groups with and without ILL with regard to gender, marital status, annual income, race, or employment status.

### *Durations of Gambling and Problem Gambling*

The variables "duration of gambling problem" and "number of types of problematic gambling" were found to contribute significantly to the regression model for the category of "durations of gambling and problem gambling" (Table 3). The parameter estimates show that longer durations of gambling problems and a larger number of types of problematic gambling are associated with ILL. The variable "duration of gambling," not included in the logistic regression model due to high correlation with the variable "duration of problem gambling," did not differ significantly with regard to presence or absence of ILL (10.3 ± 8.91 versus 9.31 ± 9.48 years, respectively).

### *Grouped Types of Gambling Problems*

A secondary set of analyses was performed to investigate how patterns of problematic gambling might be related to ILL (Table 4). Individual types of gambling problems, categorized by style (strategic versus non-strategic) as described under "Methods," were found to differ significantly with regard to ILL. Gamblers with reports of both strategic and non-strategic as compared with either type alone comprised a greater proportion of the gamblers compared with those without ILL. Gamblers with ILL were more likely to have reports of problems with types of gambling involving strategies (68.7%) as compared with gamblers without ILL (58.9%; $p = .022$). Gamblers with ILL were more likely to have reports of

**Table 4** Chi-square Analysis of Grouped and Individual Types of Gambling Problems with Regard to ILL

| Category | Gamblers Without ILL | Gamblers with ILL | *df* | $\chi^2$ | *p* Value[a] |
|---|---|---|---|---|---|
| Types of gambling problems grouped by style | % | % | | | |
| Non-strategic only | 37.2 (227/610)[b] | 30.1 (49/163) | 2 | 16.80 | 0.000 |
| Strategic only | 33.6 (205/610) | 23.9 (39/163) | | | |
| Both non-strategic and strategic | 29.2 (178/610) | 46.0 (75/163) | | | |
| Types of gambling problems grouped by location | | | | | |
| Non-casino only | 16.8 (103/612) | 15.8 (26/164) | 2 | 15.45 | 0.000 |
| Casino only | 51.0 (312/612) | 36.0 (59/164) | | | |
| Both non-casino and casino | 32.2 (197/612) | 48.2 (79/164) | | | |
| Individual types of casino gambling problems | | | | | |
| Slots | 45.5 (296/650) | 50.0 (83/166) | 1 | 1.06 | 0.30 |
| Blackjack | 32.9 (214/650) | 38.6 (64/166) | 1 | 1.87 | 0.17 |
| Roulette | 8.62 (56/650) | 8.43 (14/166) | 1 | 0.01 | 0.94 |
| Poker | 8.77 (57/650) | 6.63 (11/166) | 1 | 0.80 | 0.37 |
| Craps/dice | 7.69 (50/650) | 9.04 (15/166) | 1 | 0.33 | 0.57 |
| Bingo | 4.46 (29/650) | 3.01 (5/166) | 1 | 0.70 | 0.40 |
| Individual types of non-casino gambling problems | | | | | |
| Lottery | 30.8 (200/650) | 44.6 (74/166) | 1 | 11.31 | 0.000 |
| Sports | 11.1 (72/650) | 15.7 (26/166) | 1 | 2.63 | 0.10 |
| Dog racing | 6.31 (41/650) | 13.9 (23/166) | 1 | 10.42 | 0.000 |
| Horse racing | 6.15 (40/650) | 10.2 (17/166) | 1 | 3.40 | 0.065 |
| Jai alai | 5.08 (33/650) | 6.02 (10/166) | 1 | 0.24 | 0.63 |
| Cards | 3.54 (23/650) | 3.61 (6/166) | 1 | 0.002 | 0.96 |

[a] Value of .000 corresponds to $p \leq .001$.
[b] Numbers in parentheses for categorical variables represent sample size for variable over sample size for the group.

Table 5 Logistic Regression Analysis of Psychiatric, Gambling-Related, Financial, Drug, and Treatment Variables Predicting ILL

| Category | Gamblers Without ILL | Gamblers with ILL | Parameter Estimate | Standard Error | $\chi^2$ | *p* Value[a] |
|---|---|---|---|---|---|---|
| Psychiatric symptoms or behaviors caused by gambling | % | % | | | | |
| Anxiety | 85.6 (548/640)[b] | 90.4 (151/167) | .25 | .31 | .67 | .41 |
| Depression | 72.8 (466/640) | 79.6 (133/167) | .13 | .24 | .30 | .59 |
| Suicidality | 20.6 (132/640) | 34.7 (58/167) | .60 | .21 | 8.42 | .0037 |
| Suicide attempt | 2.34 (15/640) | 5.39 (9/167) | .37 | .46 | .67 | .41 |
| Problem caused by gambling | | | | | | |
| Family problems | 63.0 (406/645) | 68.2 (116/170) | .22 | .18 | 1.44 | .23 |
| Financial problems | 80.5 (519/645) | 88.8 (151/170) | .65 | .26 | 6.09 | .014 |
| Financial problem acknowledged | | | | | | |
| Acquaintance debt | 44.0 (256/582) | 69.1 (112/162) | .98 | .21 | 22.77 | .0000 |
| Institutional debt | 20.3 (118/582) | 30.9 (50/162) | .58 | .21 | 7.56 | .0060 |
| Credit debt | 63.8 (371/582) | 57.4 (93/162) | −.25 | .20 | 1.46 | .23 |
| Bookie/LS debt | 5.84 (34/582) | 5.56 (9/162) | −.077 | .40 | .036 | .85 |
| Debt owed | 91.8 (534/582) | 95.7 (155/162) | .097 | .47 | .043 | .84 |
| Bankruptcy filed | 13.6 (79/582) | 21.6 (35/162) | .46 | .23 | 3.79 | .052 |
| Excessive or problematic drug use acknowledged | | | | | | |
| Alcohol use | 17.0 (111/651) | 27.6 (47/170) | .45 | .21 | 4.49 | .034 |
| Drug use | 5.22 (34/651) | 14.7 (25/170) | .98 | .29 | 11.29 | .0008 |
| Type of treatment received | | | | | | |
| Mental health | 19.2 (109/569) | 30.1 (46/153) | .57 | .21 | 7.48 | .0062 |
| Professional gambling | 2.64 (15/569) | 3.92 (6/153) | .063 | .52 | .015 | .90 |
| GA | 11.4 (65/569) | 15.0 (23/153) | .24 | .27 | .77 | .38 |

[a] Value of .0000 corresponds to $p \leq .0001$.
[b] Numbers in parentheses for categorical variables represent sample size for variable over sample size for the group.

problems with non-strategic forms of gambling (74.7%) than were gamblers without ILL (62.3%; $p = .003$).

When examining gambling problem by location, significant differences were observed (Table 4). Individuals with ILL were more likely to have reports of both non-casino and casino gambling problems than were those without ILL. More gamblers with reports of ILL (65.1%) reported at least one non-casino gambling problem as compared with 46.9 percent of those without ($p \leq .001$). No statistically significant differences were observed for rates of reported casino gambling problems with regard to ILL (83.1% versus 78.3%; $p = .17$).

### *Individual Types of Gambling Problems*

To further investigate the relationships between type of gambling problems and ILL, individual gambling types were investigated by chi-square analysis with regard to presence or absence of ILL (Table 4). No statistically significant differences were observed with regard to ILL for the major individual types of casino problems acknowledged. Lottery and dog racing non-casino gambling problems were acknowledged significantly more frequently by gamblers with ILL. No statistically significant differences in reports of non-casino sports, horse racing, jai alai, or cards gambling problems were observed with regard to ILL.

### *Psychiatric Symptoms Perceived as Caused by Gambling*

The variable suicidality caused by gambling was found to contribute significantly to the regression model for the category of psychiatric problems secondary to gambling (Table 5), with ILL being associated with higher rates of suicidality secondary to gambling. Reported rates of suicide attempts secondary to gambling were more than twice as frequent in gamblers with ILL. Although the other three variables in the category did not contribute significantly to the regression model, overall high rates of feeling anxious or depressed because of gambling were observed.

### *Problems Perceived as Caused by Gambling*

The variable "financial problems caused by gambling" in the category "problems caused by gambling" was found to contribute significantly to the logistic regression model (Table 5), with individuals with ILL more likely to have reports of financial problems caused by gambling compared with those without ILL. The variable of "family problems

Table 6 Categories Contributing to ARR and Corresponding Significant Variables as Determined by Logistic Regression Analysis

| Category | Parameter Estimate | Standard Error | $\chi^2$ | $p$ Value[a] |
|---|---|---|---|---|
| Demographics ($df = 7$, $\chi^2 = 51.89$, $p = .0000$) | | | | |
| Age | −.085 | .028 | 9.11 | .0025 |
| Gender | 2.61 | .64 | 16.73 | .0000 |
| Income | −.76 | .36 | 4.57 | .032 |
| Marital status | −1.74 | .60 | 8.40 | .0038 |
| Gambling types and durations ($df = 2$, $\chi^2 = 18.24$, $p = .0000$) | | | | |
| Number of types of problematic gambling | .43 | .12 | 14.09 | .0002 |
| Psychiatric problems secondary to gambling ($df = 4$, $\chi^2 = 4.20$, $p = .38$) | | | | |
| Problems secondary to gambling ($df = 2$, $\chi^2 = 28.40$, $p = .0000$) | | | | |
| Family problems | −2.01 | .43 | 22.16 | .0000 |
| Financial problems ($df = 6$, $\chi^2 = 24.80$, $p = .0004$) | | | | |
| Institutional debt | −.92 | .38 | 5.69 | .017 |
| Bankruptcy | −.88 | .42 | 4.32 | .038 |
| Acquaintance debt | −.77 | .42 | 3.47 | .062 |
| Credit debt | −.66 | .37 | 3.15 | .076 |
| Drug problems ($df = 2$, $\chi^2 = 29.30$, $p = .0000$) | | | | |
| Alcohol | 1.43 | .44 | 10.31 | .0013 |
| Drug | 1.99 | .78 | 6.61 | .010 |
| Treatment ($df = 3$, $\chi^2 = 3.45$, $p = .33$) | | | | |

[a] Value of .0000 corresponds to $p \leq .0001$. Individual variables with $0.10 \geq p > .05$ included in table (trend).

caused by gambling" did not contribute significantly to the regression model. Overall, individual high rates of family and financial problems secondary to gambling were reported irrespective of reported gambling-related legal problems.

### Financial Problems

The variables of "debt to acquaintances" and "debt to institutions" in the category "financial problems" were found to contribute significantly to the model, with the parameter estimates indicating that higher rates of debt were positively associated with ILL (Table 5). The variable of "bankruptcy filed" was noted to approach statistical significance in the overall model. None of the other variables in the category was found to contribute significantly to the model, although overall high rates of indebtedness were observed for the sample.

### Excessive Drug or Alcohol Use

Both the variables "excessive alcohol use" and "excessive drug use" in the category "drug problems" were observed to contribute significantly to the model, with increased reports of each associated with ILL (Table 5).

### Treatments Received

The variable "non-gambling-related, non-drug-related mental health treatment" in the "treatment" category was found to contribute significantly to the model, with increased rates of treatment associated with ILL (Table 5). Approximately 30 percent of individuals with ILL had sought mental health treatment as compared with 20 percent of those without ILL. No statistically significant contributions were noted for the variables of "professional gambling treatment" or "Gamblers Anonymous meeting attendance." Overall, only 12.2 percent of the gamblers had reports of prior attendance at Gamblers Anonymous, and even fewer (2.9%) had reports of seeking professional gambling treatment.

### Arrest or Incarceration Secondary to Gambling

A secondary series of logistic regression analyses was performed to investigate the characteristics of gamblers with ILL with respect to the presence or absence of reported arrest or incarceration secondary to gambling. Of the 171 individuals with ILL, 95 (55.6%) had alleged ARR.

### Analysis by Category

Of the categories used in the primary analysis, all but two (psychiatric symptoms caused by gambling and treatment) showed significance in the series of logistic regression analyses using ARR as the dependent variable (Table 6).

### Demographics

Multiple demographic variables were found to contribute significantly to the model: age ($p = .0025$), gender ($p \leq .0001$), income ($p = .032$), and marital status ($p = .0038$). Individuals with ARR as

compared with those with ILL and without ARR were more likely to be younger (34.4 ± 9.49 versus 43.4 ± 12.0 years) and male (86.2% versus 42.5%). Individuals with ARR were less likely than those with ILL and without ARR to have reports of being married or in a cohabiting relationship (33.9% versus 65.0%) and to have annual incomes of $35,000 or more (36.9% versus 65.0%). Although reported rates of unemployment were higher in the group of gamblers with ARR (16.9% versus 12.5%), the variable did not contribute significantly to the overall model ($p = .20$). No statistically significant contributions were made to the demographics category by the variables of educational level or ethnicity.

### Durations of Gambling and Problem Gambling

The variable "number of types of problematic gambling" was found to contribute significantly to the category "durations of gambling and problem gambling," with more types acknowledged by the group of gamblers with ARR than by those with ILL and without ARR (3.15 ± 2.09 versus 1.96 ± 1.28; $p = .0002$). No significant difference was noted between the groups of gamblers with ILL and without ARR compared with those with ARR in reported duration of problem gambling. Although the variable "duration of gambling" was removed from the regression model because of high degrees of correlation with the variable "duration of problem gambling," no significant difference was observed in reported durations of gambling with regard to absence or presence of ARR.

### Grouped Types of Gambling Problems

A secondary series of chi-square analyses was performed to investigate further the contributions of individual types of problematic gambling, given the significant findings with regard to the variable of number of types of problematic gambling. Significant differences were observed in the groups of gamblers with ILL with regard to the absence or presence of ARR when analyzing for the effects of types of gambling problems grouped by location or style. Individuals with ILL and ARR were more likely to have reports of experiencing a problem with a non-casino form of gambling (79.0% versus 47.1%; $df = 1$, $\chi^2 = 17.87$, $p \leq .001$). In contrast, a larger but not statistically significantly different percentage of gamblers with ILL and without ARR reported a problem with a casino form of gambling (89.7% versus 79.0%; $df = 1$, $\chi^2 = 3.32$, $p = .068$). Individuals with ILL and ARR were more likely than those with ILL and without ARR to have reports of both non-casino and casino types of gambling problems (59.6% versus 36.8%; $df = 2$, $\chi^2 = 18.97$, $p \leq .001$). Additionally, a larger percentage of those without ARR had reports of casino gambling problems alone (52.9% versus 20.2%; $df = 2$, $\chi^2 = 18.97$, $p \leq .001$) whereas those with ARR were more likely to have reports of non-casino gambling problems alone (20.2% versus 10.3%; $df = 2$, $\chi^2 = 18.97$, $p \leq .001$).

Individuals with ILL with regard to presence or absence of ARR also differed with regard to styles of problematic gambling. Gamblers with ILL and ARR were more likely to have reports of a strategic form of gambling (85.3% versus 47.1%; $df = 1$, $\chi^2 = 27.20$, $p \leq .001$) and less likely to have reports of a non-strategic gambling problem (67.4% versus 85.3%; $df = 1$, $\chi^2 = 6.76$, $p = .009$). Gamblers with ARR were more likely to have reports of problems with both forms of gambling (55.9% versus 34.3%; $df = 2$, $\chi^2 = 29.55$, $p \leq .001$) or a strategic form only (31.2% versus 13.4%; $df = 2$, $\chi^2 = 29.55$, $p \leq .001$) and less likely to have reports of problems with a non-strategic form only (12.9% versus 52.2%; $df = 2$, $\chi^2 = 29.55$, $p \leq .001$).

### Individual Types of Gambling Problems

Additional chi-square analyses were performed with regard to individual types of problematic gambling given the significant findings with regard to grouped types of problematic gambling. Multiple individual casino gambling problems distinguished the groups of gamblers with ILL with ARR from those without ARR. Gamblers with ILL without ARR were more likely to have reports of casino slot machine gambling problems (70.6% versus 34.7%; $df = 1$, $\chi^2 = 20.38$, $p \leq .001$). In contrast, individuals with ILL with ARR were more likely to have problems with casino blackjack (49.5% versus 25.0%; $df = 1$, $\chi^2 = 9.95$, $p = .002$), roulette (12.6% versus 2.94%; $df = 1$, $\chi^2 = 4.74$, $p = .029$), or craps/dice (13.7% versus 2.94%; $df = 1$, $\chi^2 = 5.47$, $p = .019$). No statistically significant difference was observed between the groups in reports of problems with casino poker or bingo.

The frequency of reports of specific individual non-casino gambling problems also differentiated gamblers with ILL with ARR from those without ARR. Individuals with ILL and ARR were more

likely to have reports of problems with non-casino sports betting (24.2% versus 4.41%; $df = 1$, $\chi^2 = 11.59$, $p \leq .001$) or card gambling (3.68% versus 0%; $df = 1$, $\chi^2 = 4.46$, p = .035). No statistically significant differences were observed between the groups with respect to reports of non-casino gambling problems with lottery, dog racing, horse racing, or jai alai.

### *Psychiatric Symptoms and Problems Perceived as Caused by Gambling*

The category "psychiatric symptoms caused by gambling" was found by logistic regression to be non-significant (Table 6). The overall model for the "problems secondary to gambling" category was significant in the logistic regression analysis (Table 6). Of the variables contributing to the category, only the variable "family problems secondary to gambling" was found to make a significant contribution. Gamblers with ARR were significantly less likely than those with ILL and without ARR to have reports of family problems secondary to gambling (51.6% versus 88.9%; $p \leq .0001$).

### *Financial Problems*

Gamblers with ILL and without ARR were more likely to owe money to a variety of conventional sources of borrowing including: banks or other institutions (43.5% versus 18.9%; $p = .017$), credit cards or casino credit lines (66.7% versus 48.9%; $p = .076$ (trend)), and acquaintances (78.3% versus 62.2%; $p = .062$ (trend)). Gamblers with ARR had higher but not statistically different rates of borrowing from bookies or loan sharks (7.78% versus 2.90%; $p = .27$). Additionally, gamblers with ILL and without ARR were more than twice as likely to have reports of bankruptcy filing than those with ARR (31.9% versus 14.4%; $p = .038$). High rates of indebtedness were observed in both groups (98.6% versus 93.3%; $p = .77$).

### *Excessive Drug or Alcohol Use*

Both variables, "excessive or problematic alcohol use" ($p = .0013$) and "excessive or problematic drug use" ($p = .010$), were found to make significant contributions to the model by logistic regression analysis. Specifically, gamblers with ARR were close to 4- and 10-fold, respectively, more likely to have reports of excessive usage of alcohol (41.1% versus 11.1%) or drugs (24.2% versus 2.78%).

### *Treatments Received*

The treatment category was found not to be significant by logistic regression analysis (Table 6).

## Discussion

The present study is the first, to our knowledge, to use data from a gambling helpline to investigate the characteristics of problem gamblers with respect to illegal behaviors/legal problems and arrest or incarceration caused by gambling. The results of the present study reinforce the importance of forensic considerations with regard to examination and treatment of individuals with gambling problems. A significant proportion, slightly more than 20 percent, of the gamblers utilizing the helpline acknowledged ILL, and over 55 percent of this subgroup had reports of ARR. As hypothesized, the gamblers with ILL differed in multiple respects from those without ILL. As compared with those without ILL, individuals with ILL had reports of longer durations of problematic gambling (despite being significantly younger), problems with multiple forms of gambling (casino and non-casino, strategic and non-strategic), more financial problems secondary to gambling, and higher rates of suicidality as a result of gambling. Taken together, these findings suggest that the gamblers with ILL constitute a subgroup with more severe gambling-related pathology and that the presence of illegal behaviors may define a "high-risk" group of problem gamblers.

Multiple noteworthy results were obtained from the study. First, overall high rates of psychiatric problems are reported as being caused by gambling. Specifically, high rates of anxiety (close to 90%) and depression (close to 80%) caused by gambling were observed for the entire sample. The reported rates of suicidality caused by gambling in the present study (23.5%) were lower than the rate of suicidal ideation (close to 90%) reported by the subset of callers to another gambling helpline who also met the criteria for PG.[27] Additionally, the rates of attempted suicide secondary to gambling are lower than the quoted rates of suicide attempts (17%–24%) in individuals with PG.[4] It is likely that the lower rates found in the present study reflect the intent of the question (i.e., suicidality caused by gambling) and a possibly lesser average degree of pathology of the identified gambler (problem rather than pathological gambling). Despite the high rates of occurrence of psychiatric

symptomology in response to gambling, a much lower percentage of individuals had reports of prior treatment for gambling or mental health problems. In light of these findings and the high volume of calls to gambling helplines, the data suggest the need for increased efforts to engage individuals with gambling problems in appropriate treatment settings for gambling and other mental health concerns. Furthermore, the finding that fewer identified problem gamblers acknowledged prior gambling treatment as compared with other prior mental health treatment specifically suggests the need for additional efforts to identify individuals with gambling problems and engage them in gambling treatment programs. Avenues for improving treatment could include earlier intervention through increased public awareness, training of clinicians in detecting and treating gambling problems, and enhanced provision of mental health services for individuals with gambling problems.

Lower rates of illegal behaviors were observed in the group of gamblers identified through the gambling helpline than have been found in other prior studies of illegal behaviors in PG.[6, 10–17] There are multiple possible reasons for this apparent difference. First, several of the aforementioned studies involved GA members. As such, the gamblers in those studies were likely to have experienced more severe gambling problems, potentially increasing the likelihood of having engaged in illegal behaviors. Second, GA members might provide different accounts of illegal behaviors given that they are at different stages of gambling behavior. That is, one could speculate that 12-step participants might be able to reflect more accurately on detrimental behaviors in which they have engaged than the group of gamblers using the helpline, many of whom are probably at an earlier stage of recovery and possibly in greater denial. Third, several of the other studies asked respondents about specific illegal behaviors, a feature that prompts respondents and thus could raise the rates of positive responses. Fourth, some studies investigated lifetime arrests and explored illegal behaviors not confined to gambling-related activities.[6] For these and possibly other reasons, a direct comparison of the findings of the present with prior investigations of rates and types of illegal behaviors in groups of individuals with gambling problems is complicated.

An additional finding is the high proportion of individuals (approximately one-third of the entire sample) acknowledging non-casino lottery problems. In one study, lottery gambling was found to be associated with poorer social functioning, higher rates of alcohol and cigarette consumption, and lower frequency of social support.[28] Perhaps in part because of the lower stakes involved in lottery gambling, problems involving lottery wagering arguably have not received as much attention as casino gambling problems. Given the strong association observed in the present study between reported lottery problems and ILL, the high rate of lottery gambling in the general population,[20] and the high rates of lottery gambling problems in the present study, further investigation is warranted to clarify the role of lottery gambling in the development and maintenance of gambling problems and subsequent legal concerns.

Previous studies have reported high rates of substance use disorders in individuals with gambling problems.[29–33] The reported presence of excessive or problematic use of substances (alcohol and drug) each correlated strongly with ILL. Individuals with co-morbid gambling and substance use problems have been found to exhibit more significant pathology than either group alone with regard to measures of suicidality, hospital care utilization, detoxifications, and illegal behaviors.[34–38] These findings are consistent with those in the present study showing significant correlations between problematic substance use and legal problems, particularly if commission of illegal actions secondary to gambling is considered a marker of greater gambling pathology. More direct investigation is warranted to define further the theoretical and practical relationships between behavioral and drug addictions as related to gambling problems. Such investigations, leading to the clarification of the relationships of the neural bases of gambling, drug use, and impulse control disorders, would have significant implications with respect to forensic psychiatry.

Significant financial problems were also observed among the gamblers utilizing the helpline, and financial variables as a group strongly correlated with ILL. These findings are consistent with the hypothesis that a causal link exists between escalating problem gambling behavior and the commission of crimes.[10, 19–21] Specifically, as gamblers lose money, they have been reported to engage frequently in criminal, particularly non-violent, behaviors to acquire funds to recoup losses.[10] Interestingly, this pattern of behavior may be particularly relevant for the

group of gamblers with ILL and without ARR. When compared with gamblers with ARR, those with ILL and without ARR exhibited significantly elevated rates of bankruptcy and elevated rates of borrowing from multiple legal sources. It is possible that individuals with ARR may have committed crimes of greater severity or with greater frequency than individuals with ILL and without ARR, who may have relied more extensively on borrowing. The findings from the present study indicate individuals with legal problems related to gambling form a high risk group with greater potential need not only for legal counseling and advising but also for consideration of financial problems. Financial problems might be addressed through a variety of methods (pressure relief, debt restructuring, or financial counseling), while taking appropriate care not to use the services as a financial "bail-out." Taken together, these findings reinforce the need for integrated treatment programs for individuals with PG.[39]

The comparison of the groups of gamblers with ILL and the presence or absence of ARR yielded multiple interesting findings. The group reporting arrest secondary to gambling appeared to display not only some characteristics consistent with greater gambling pathology, but also features more consistent with ASPD, a disorder commonly found in individuals with PG.[40] The antisocial-associated features include not only a history of arrest but also include being predominantly male with higher rates of unemployment and having drug and alcohol problems.[41] Lower rates of being involved in a married or cohabiting relationship and decreased rates of family problems are also consistent with individuals with antisocial characteristics having difficulty maintaining interpersonal relationships over time. That is, the individuals with ARR may have already distanced themselves from meaningful relationships, and therefore gambling was less likely to cause problems in this area. In contrast, the group without ARR but with ILL appeared to exhibit characteristics less consistent with ASPD, differing from those with ARR as noted above in categories such as age, income, education, and marital status. The group with ILL and without ARR had high rates of problems within the financial category, reporting high rates of bankruptcy and indebtedness to multiple conventional forms of borrowing. These findings suggest that the group of gamblers with ILL and without ARR might turn to illegal actions out of financial desperation, consistent with previous reports of patterns of criminology in individuals with PG.[10] It is also possible that social class differences between the two groups exist and play a role in the observed differences. Taken together, the data support the proposition that the group of gamblers with ILL and ARR have features more consistent with ASPD and lower socioeconomic status than the group with ILL and without ARR. Given the lack of measures incorporated into the present study to investigate directly for the presence or absence of ASPD, additional research is needed to clarify the relationship between ILL/ARR and ASPD and socioeconomic status in individuals with gambling problems.

The group with ILL and without ARR is also composed of a disproportionately high percentage of females with regard to the remainder of the sample. The present findings of gender-associated differences in illegal actions and consequences due to gambling are significant and demand additional clinical attention and investigation. As the majority of studies have historically involved predominantly or exclusively male subjects,[42] the results further highlight the need for inclusion of gender-balanced subject samples in research studies involving individuals with gambling problems.

Highly significant differences were found between the groups with legal problems secondary to gambling with regard to types and locations of problematic gambling. Notably, the group with ILL, and to a greater extent the group with ARR, displayed more pervasive patterns of gambling problems as reflected in reports of problems with multiple types of gambling, including both casino and non-casino and strategic and non-strategic forms. These findings suggest that, in comparison with the other subgroups of gamblers studied, the group of gamblers with ARR may exhibit a more generalized pattern of impaired impulse control over gambling behaviors.

The group of gamblers with ILL and without ARR was more likely to have reports of problems with non-strategic gambling, particularly casino slot machine gambling. These findings are consistent with gender-based differences observed between men and women in gaming preferences and problem gambling development.[14] That is, to some extent, men and women may begin or continue gambling and develop subsequent problems for different reasons.

Previous publications have reported that more women than men appear to be seeking escape from undesirable situations via participation in such forms of gambling as slot machines, a non-confrontational, non-strategic gambling form arguably more conducive to dissociation.[14] On the other hand, males have been historically characterized as participating more frequently than women in strategic forms of gambling, not inconsistent with a "scheming" mentality.[14] For example, some authors have described individuals with problem gambling, particularly a subgroup of predominantly males, as envisioning themselves as "smarter than the average sucker" (Ref. 14, p. 185). The subsequent engagement in and development of problems with strategic forms of gambling would then not be inconsistent with an antisocial pattern of behavior. The hypothesized link between problems with strategic forms of gambling, male gender, and antisocial behavior is consistent with the finding of higher rates of problems with strategic forms of gambling in the predominantly male group of gamblers with ARR. As compared with the male gambler, the female gambler who turns to illegal activity may do so out of greater financial desperation, as supported by the findings of increased rates of reported bankruptcy filing and sources of owed debt in the predominantly female group with ILL and without ARR. More direct research into gender-related differences in individuals with gambling problems is warranted to clarify the relationships between gender and gambling-related illegal actions.

The observed patterns of characteristics of problem gamblers without ARR compared to those with ARR share similar features to those described for individuals with Types I and II alcohol dependence, respectively.[43–45] Individuals with type II alcohol dependence are predominantly male and display onset of drinking at an early age, more severe drinking patterns with regard to development of alcohol-related medical problems, personal histories of criminality, high degrees of novelty seeking, and low measures of harm avoidance.[46] Similarly, the gamblers with ARR are predominantly male, with apparently more severe gambling behaviors and, by definition, more severe legal problems. Type II alcoholics have been reported to have biochemical abnormalities including low platelet monoamine oxidase (MAO) activity[47] and cerebrospinal fluid 5-hydroxyindoleacetic acid (CSF 5-HIAA).[48] Low platelet MAO activity[49, 50] and, possibly although less clearly demonstrated, low/altered CSF 5-HIAA[51, 52] levels have been found in males with PG, further suggesting the possibility that similar Type I and II subgroups might be applicable to individuals with PG. Given the behavioral, biochemical, and genetic[53] differences between Type I and II alcoholics, the definition of Type I and Type II subgroups of individuals with PG would have significant value in the research and treatment of PG. Additional research is warranted to evaluate further these hypotheses.

A currently widespread method of introducing individuals with gambling problems into treatment is through gambling helpline services.[23] Information obtained from the helplines is potentially of great importance in redirecting and targeting treatment efforts. In interpreting data obtained from helpline callers, one must recognize potential limitations. For example, there exist regional differences in gambling opportunities (e.g., Connecticut has the world's largest casino but no legalized non-casino video gambling machines). Additionally, data obtained from helplines rely on the information provided by the caller and as such could be influenced by multiple factors (e.g., caller recollection and willingness to utilize phone intervention, among others). Additionally, the present study lacks the information from a standardized diagnostic instrument necessary to make a formal diagnosis of PG. Nonetheless, gambling helplines serve as a point of entry for treatment-seeking gamblers and therefore provide a unique vantage point from which to obtain information from a large and diverse group of help-seeking individuals with gambling problems. Information provided during contact with helpline services has the potential for tremendous impact for optimizing treatment referral and patient care. As such, it is surprising that there exists a paucity of data in the literature on gambling helplines, including the characteristics of gamblers utilizing the helplines and the effectiveness of interventions provided via the helplines (e.g., extent of caller follow-through to treatment).

Given the findings in the present study of significant differences between the groups of help-seeking gamblers with and without legal complications secondary to gambling, specific attention to legal issues in the treatment of individuals with gambling problems seems warranted in clinical, legal, and academic settings.

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