Demographic and Clinical Features of 131 Adult Pathological Gamblers

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Background: This study was constructed to detail the demographic and phenomenological features of pathological gamblers.

Method: One hundred thirty-one subjects with DSM-IV pathological gambling were administered a semistructured interview to elicit demographic data and information on the phenomenology, age at onset, course, associated features, treatment history, and response to treatment of the disorder, followed by the Structured Clinical Interview for DSM-IV.

Results: Seventy-eight female (59.5%) and 53 male (40.5%) (mean ± SD age = 47.7 ± 11.0 years) pathological gamblers were studied. The majority of subjects (55.7%) were married. Subjects gambled a mean of 16 hours per week. Slot machines (65%), cards (33%), and blackjack (26%) were the most popular forms of gambling. The mean length of time between first gambling behavior and onset of pathological gambling was 6.3 ± 8.9 years. Approximately one half (46%) of the subjects reported that television, radio, and billboard advertisements were a trigger to gamble. Most gamblers had severe financial, social, or legal problems. The majority of the subjects (58%) had at least 1 first-degree relative who also exhibited symptoms of problematic gambling behavior.

Conclusion: Pathological gambling is a disabling disorder associated with high rates of social and legal difficulties.

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Pathological gambling, a disorder characterized by persistent and recurrent maladaptive patterns of gambling behavior, was first designated a psychiatric disorder in 1980 in DSM-III, and in DSM-III-R was grouped under the category "disorders of impulse control not elsewhere classified." As an impulse control disorder, pathological gambling is currently classified in DSM-IV with kleptomania, pyromania, intermittent explosive disorder, and trichotillomania.[1] Unlike the other impulse control disorders, however, the criteria for pathological gambling were borrowed from substance dependence criteria,[2] and for this reason, many consider pathological gambling to be an addiction. Others have argued that pathological gambling may have more in common with obsessive-compulsive disorder (OCD) than with addictions and thus should be thought of as an obsessive-compulsive spectrum disorder.[3,4] The difficulty with categorizing pathological gambling stems both from the inherent phenomenological instability of the impulsive-compulsive dimension (e.g., behaviors may start out impulsive and become compulsive over time) and from the sparsity of knowledge we have concerning this particular disorder.

Although the studies are few in number, there is a growing literature on the phenomenology of pathological gambling. Pathological gamblers have been described as predominately nonwhite, unmarried males with little education.[5] In fact, studies have been fairly consistent in their finding that the rate of pathological gambling is perhaps twice as high among men compared with women.[5,6] Several studies have reported that subjects with pathological gambling suffer from high rates of lifetime mood (60%–76%),[7,8] anxiety (16%–40%),[8,9] and substance use (25%–63%) disorders.[10] Several descriptive studies have also reported on the percentage of patients with pathological gambling who engage in illegal behavior, such as stealing (30%–40%),[11,12] embezzlement (31%),[12] and robbery (14%).[12] No single study to date, however, has analyzed these multiple domains within the same group of subjects with pathological gambling.

The purpose of the present study was to construct a detailed demographic and phenomenological picture of pathological gamblers by assessing types of gambling activity and lifetime comorbidity, as well as personal and legal problems, in the same group of subjects with pathological gambling. Additionally, this study further contributes to the literature by providing information on variables not previously examined, such as reported triggers to gambling behavior, time course from starting to gamble to the development of pathological gambling, and response of pathological gambling symptoms to nonpharmacologic treatments. Furthermore, we made 2 a priori hypotheses concerning subjects with pathological gambling that have not been previously investigated: first, most subjects with pathological gambling would gamble in response to particular reported triggers, and, second, the most prevalent trigger to gambling behavior would also most likely be associated with a more rapid progression to pathological gambling.

METHOD

One hundred thirty-one consecutive subjects were drawn from 2 groups: all patients participating in a now completed 10-week, double-blind, paroxetine placebo comparison study (N = 48)[13] and all subjects enrolled in an 11-week, double-blind, naltrexone placebo comparison study (N = 83).[14] Subjects were recruited through newspaper advertisements. All study participants provided written informed consent. The Institutional Review Board for the University of Minnesota, Minneapolis, approved the study and the consent statement.

The inclusion and exclusion criteria were the same for both pharmacologic trials. Patients in both studies were 18 to 65 years of age and fulfilled the DSM-IV criteria for pathological gambling.[1] Whether subjects met DSM-IV criteria for pathological gambling was determined by diagnostic interview without the use of a standardized instrument. For inclusion, subjects also had to score greater than or equal to 5 on the South Oaks Gambling Screen (SOGS).[15] The SOGS is a 20-item self-report screening instrument assessing types of gambling, largest amount gambled in a single day, difficulties associated with gambling, and an individual's opinion about whether his or her gambling is problematic. A score of ≥ 5 indicates problematic gambling behavior.[15] The SOGS has a reported sensitivity of 96.7%, a false-positive rate of 1.4%, and a false-negative rate of 3.3%.[15] No other gambling severity cutoff scores were used as inclusion criteria. We administered the Structured Clinical Interview for DSM-IV (SCID)[16] to all study subjects to assess for psychiatric comorbidity. Subjects were enrolled if no other current Axis I disorder as determined by the SCID was present and if baseline scores on both the 17-item Hamilton Rating Scale for Depression (HAM-D)[17] and the Hamilton Rating Scale for Anxiety (HAM-A)[18] were ≤ 18 at the screening and baseline assessments. Concomitant psychotropic medication was not allowed, and all previous psychotropic medications were discontinued at least 4 weeks before participation in either study began (6 weeks for fluoxetine). Patients undergoing group or individual psychotherapy or participating in Gamblers Anonymous were excluded. Individuals with an untreated coexisting medical condition and women of childbearing potential who did not practice a reliable method of contraception were not eligible for the studies.

We also administered a semistructured interview to elicit demographic data, lifetime comorbid psychiatric disorders, and information on the phenomenology, age at onset, course, associated features, treatment history, and response to treatment of the disorder. Because the SCID covers only certain DSM-IV disorders, a detailed interview assessing a history of impulse control disorders (including impulse control disorders not otherwise specified, such as compulsive shopping, psychogenic excoriation, and sexual compulsions) was conducted.

Gambling behavior was assessed by the following: number of hours per week spent gambling, percentage of a person's yearly income that was lost due to gambling, total score on the SOGS,[15] Global Assessment of Functioning (GAF)[1] scale score, and number of DSM-IV criteria endorsed by the subjects.

Prior treatment history for pathological gambling was elicited on interview. Patients were asked about all outpatient, inpatient, and Gamblers Anonymous treatments they had attended, the length of attendance, and their self-assessed response to those treatments with respect to gambling behavior and urges (full remission of symptoms, moderate improvement, slight improvement, no change, worsening of symptoms).

Patients were asked about family history of alcohol use, substance use, and gambling behavior in first-degree relatives. Detailed information was elicited about relatives' patterns of alcohol use, substance use, and gambling. The study investigators obtained all family information through an interview with the subject. Only when subjects were able to provide detailed information about first-degree relatives was that information included. No interviews of first-degree relatives were performed, and therefore a DSM-IV diagnosis of pathological gambling of the relatives could not be made. Instead, based on detailed information, a first-degree relative was listed as exhibiting problematic gambling if the gambling behavior resulted in severe financial, social, or work-related problems. Severity was defined as significant loss of finances resulting in reliance on others, a need for a second job, or jeopardizing social or work relationships. Speculation about family members' substance use or gambling was not included in the family history data. Of the 673 first-degree relatives of the pathological gambling subjects, family history data were obtained for 531 of the first-degree relatives, resulting in 142 relatives (21.1%) being excluded from data analysis.

Data Analysis

Demographics, types of gambling activity, reported triggers to gambling, problems secondary to gambling, lifetime psychiatric diagnoses, family history, and treatment history were analyzed as frequencies. Age at onset and variables assessing severity of gambling symptoms (hours per week spent gambling, GAF score, SOGS score, number of DSM-IV criteria) were calculated as mean values accompanied by standard deviations.

To determine which variables predicted a shorter time course from the start of gambling to pathological gambling (i.e., lag time), Spearman rho correlations were performed, except with age at onset, for which a Pearson r correlation was performed. For each dichotomous variable analyzed (reported triggers to gambling: advertisements, having money/just got paid, thoughts of winning, hearing others talk of gambling, feeling lonely/depressed, sights/sounds of the casino, boredom/free time, stress/anxiety,

Table 1. Types of Gambling Behavior Engaged in by 131 Pathological Gamblers

Type of Gambling	N	%
Slot machines	85	64.9
Cards	43	32.8
Blackjack	34	26.0
Lottery	19	14.5
Pull-tabs	18	13.7
Sporting events	15	11.5
Bingo	13	9.9
Horse/dog track	11	8.4
Dice	7	5.3

Table 2. Triggers to Gambling Behavior/Urges Among 131 Pathological Gamblers

Trigger to Gambling Behavior/Urges	N	%
Ads about gambling (eg, television, billboards)	60	45.8
Boredom/free time	31	23.7
Thoughts of winning	25	19.1
Having money/just got paid	24	18.3
Feeling lonely/depressed	23	17.6
Stress/anxiety	19	14.5
Hearing others talk about gambling	10	7.6
No known triggers	10	7.6
Sights/sound of casino, or sights/sounds that remind them of casino	4	3.1

and none known; and types of gambling behavior: cards, slot machines, lottery, blackjack, sports), t tests (2-tailed) were performed to determine if the "no" group differed from the "yes" group with respect to lag time. To determine if any one variable predicted a shorter lag time while controlling for all other variables studied, linear regression analysis was performed. The level of significance for all tests was set at .05.

RESULTS

Demographic Characteristics

Seventy-eight female (59.5%) and 53 male (40.5%) pathological gamblers were studied. The age of the subjects at the time of presentation ranged from 21 to 73 years (mean ± SD age = 47.7 ± 11.0 years; median = 30 years). The sample included 128 white and 3 African American subjects. Seventy-three (55.7%) of the subjects were married, 37 (28.2%) were single, 20 (15.3%) were divorced, and 1(0.7%) was widowed. Six (4.6%) never completed high school, 45 (34.4%) had a high school diploma or General Equivalency Diploma, 46 (35.1%) had some college or trade school education, 27 (20.6%) had college degrees, and 7 (5.3%) had schooling beyond college.

Clinical Characteristics

The reported mean age at onset of gambling behavior was 30.5 ± 14.1 years (range, 8–67 years). The mean length of time between first gambling behavior and onset of pathological gambling was 6.3 ± 8.9 years (range, 0–33 years). Sixty-four (48.9%) of the subjects progressed to pathological gambling within 1 year of starting to gamble. Two predictors of rapid progression to pathological gambling (i.e., within 1 year of starting to gamble) were later age at onset of gambling behavior (correlation coefficient = –0.485; p = .000) and having the urge to gamble triggered by advertisements (billboards, television, radio) (correlation coefficient = 0.199; p = .023). Gender (correlation coefficient = 0.065; p = .457), amount lost (correlation coefficient = –0.029; p = .742), and family history of gambling in either parent (correlation coefficient [mother] = –0.035, p = .693; correlation coefficient [father] = 0.084, p = .340) were not predictors of rapid progression to pathological gambling. No other triggers to gambling behavior predicted rapid progression to pathological gambling.

The types of gambling activity were varied (Table 1). Slot machines (65%; N = 85), cards (33%; N = 43), and blackjack (26%; N = 34) were the most popular forms of gambling. Most subjects were quite specific in how they chose to gamble, with a mean of only 1.9 types of gambling activity per subject. Among pathological gamblers who played slot machines, 72.7% (N = 62) were female. Women also constituted 71.4% (N = 5) of the dice players and 60.0% (N = 11) of those gamblers who played the lottery. Men comprised the majority of gamblers who bet on sporting events (93.3%; N = 14), bet on card games (74.4%; N = 32), and gambled at the track (81.8%; N = 9).

Various triggers were reported as provoking the urge to gamble (Table 2). Approximately one half (46%; N = 60) of the subjects reported that television, radio, and billboard advertisements were a trigger to gamble. Other strong triggers included boredom or free time (24%; N = 31), thoughts of winning (19%; N = 25), and having extra money or having just been paid (18%; N = 24). Among those subjects who reported having a trigger to their gambling behavior, there was a mean of 1.6 triggers per subject.

The subjects in this study generally had severe symptoms. On average, the subjects gambled 16.0 ± 12.7 hours per week. The average subject lost approximately 45% of his or her annual income over the 12 months prior to the study. In terms of overall functioning, the mean GAF score was 44.9 ± 7.3. The mean SOGS score was 14.1 ± 3.5. The mean number of DSM-IV criteria per subject was 7.8 ± 1.5 (range, 5–10). With respect to individual DSM-IV criteria, 130 subjects (99.2%) reported trying unsuccessfully to quit gambling, 113 subjects (86.3%) "chased" their losses (returned another day to get "even"), and 105 subjects (80.2%) reported that they gambled as a way of escaping dysphoria.

In addition to the money lost from gambling, subjects reported numerous other problems that resulted from their gambling: 57 (43.5%) reported lying to family or friends, 39 (29.8%) had to borrow money to pay bills or buy food, 84 (64.1%) had reached the maximum limit on credit

Table 3. Lifetime Prevalence of Psychiatric Disorders in 131 Pathological Gamblers

Diagnosis	N	%
Mood disorders		
Major depressive disorder	38	29.0
Depressive disorder NOS	6	4.6
Bipolar disorder	0	0.0
Anxiety disorders		
Panic disorder	7	5.3
Generalized anxiety disorder	2	1.5
Social phobia	3	2.3
Obsessive-compulsive disorder	0	0.0
Substance use disorders		
Alcohol dependence	21	16.0
Alcohol abuse	14	10.7
Other abuse/dependence	11	8.4
Impulse-control disorders		
Compulsive shopping	22	16.8
Intermittent explosive disorder	1	0.7
Compulsive sexual behavior	1	0.7
Pyromania	0	0.0
Kleptomania	0	0.0

cards, 57 (43.5%) reported that they no longer had savings or retirement funds, and 30 (22.9%) had lost their homes or cars or pawned valuables to pay off gambling losses. Twenty subjects (15.3%) reported marital problems secondary to gambling. Eleven subjects (8.4%) reported work-related difficulties due to gambling (usually showing up to work late after a night at a casino). Thirty-one subjects (23.7%) filed for bankruptcy because of gambling debts. Only 6 subjects (4.6%) reported no financial, social, or work-related problems due to gambling. These 6 subjects, however, admitted severe distress secondary to the "loss of control" they felt toward their behavior.

When financial problems became severe, 32 subjects (24.4%) resorted to illegal activities to cope with gambling debt. Sixteen subjects (12.2%) reported knowingly writing bad checks to cover other expenses, 4 subjects (3.1%) embezzled from where they worked, 4 (3.1%) knowingly committed tax fraud, 2 subjects (1.5%) stole from strangers to cover gambling debts, and 1 woman engaged in prostitution because of financial problems secondary to gambling.

Seventy-six probands (58.0% of total subjects) reported at least 1 first-degree relative exhibiting symptoms of problematic gambling behavior. Seventy-four probands (56.5%) had at least 1 first-degree relative who had either alcohol abuse or dependence. Twelve probands (9.2%) reported at least 1 first-degree relative who had some other substance use disorder (10 probands reported at least 1 first-degree relative with cocaine abuse; 2 reported at least 1 first-degree relative with opioid abuse). Of the 531 first-degree relatives with detailed information, 143 (26.9%) had symptoms of problematic gambling.

Lifetime Comorbidity

Table 3 summarizes lifetime comorbidity of DSM-IV Axis I disorders, including other impulse control disorders, that were screened for by the SCID and by detailed clinical interviews. Eighty-three subjects (63.4%) had at least 1 lifetime Axis I disorder other than pathological gambling and a mean of 1.6 Axis I disorders per subject. Of these 131 subjects, the most common comorbid disorders were mood disorders (34%; N = 44), alcohol abuse or dependence (27%; N = 35), and compulsive shopping (17%; N = 22). Twenty-one subjects (16%) had been hospitalized for a psychiatric or chemical dependency problem. Twenty-four subjects (18.3%) had a history of impulse control disorders. Only 9% (N = 12) of the subjects had a lifetime comorbid anxiety disorder, and none had a history of OCD.

Treatment History

In terms of prior treatments, 69 subjects (52.7%) had previously sought treatment through Gamblers Anonymous. A "Gamblers Anonymous treatment" refers to having gone to Gamblers Anonymous at least weekly for 1 month. Those 69 subjects underwent a total of 102 Gamblers Anonymous treatments (range, 1–10 treatments). Those who had attended Gamblers Anonymous reported that the majority of the treatments (80 treatments; 78.4%) had resulted in no change in gambling symptoms. Twenty-seven subjects (20.6%) had undergone some form of outpatient therapy treatment (group therapy or individual therapy). These 27 subjects underwent a total of 28 trials of outpatient treatment. Although the majority reported no response to outpatient treatment, approximately one third (35.7%; 10 trials) of the treatments resulted in slight improvement in gambling symptoms (by patients' subjective reports). Only 6 subjects had received inpatient treatment for pathological gambling (intensive residential therapy) for a total of 7 inpatient treatments received. Of the 7 inpatient treatments received, the majority (5 treatments; 71.4%) resulted in only slight improvement. None of the treatments received by these subjects resulted in subjective reports of remission of gambling symptoms. Those who reported improvement were unable to stay abstinent for more than several months. Only a small percentage (7 treatments; 5.1%) of the total 137 nonmedication treatments resulted in subjective reports of at least moderate improvement. No subject had previously received pharmacotherapy for gambling symptoms.

DISCUSSION

This study examined the characteristics of a large group of pathological gamblers. The results show that gambling behavior began at approximately 30 years of age, with the mean length of time to onset of pathological gambling behavior approximately 6 years after starting to gamble (range, 0–33 years). Why some subjects gambled for years before it became a problem and others developed a problem almost immediately is still unclear. Onset of gambling

behavior at a later age was one predictor of developing pathological gambling within 1 year of beginning to gamble. Whether there is some biological determinant of the progression to pathological gambling is unknown. Similarly, those gamblers who had urges reportedly triggered by advertisements also appeared to develop pathological gambling soon after onset. Constant exposure to specific triggers to urges would naturally reinforce the behavior, and this may explain why these subjects progressed to pathological gambling quickly. Gender, type of gambling activity, amount of money gambled, and family history do not seem to predict who is more likely to develop pathological gambling in a shorter time span.

The subjects engaged in several different types of gambling activities. The majority of the subjects reported playing slot machines, blackjack, or cards. These findings are consistent with the activity of subjects with pathological gambling found in other studies conducted where casino gambling is available.[8] Studies done in areas where there are no casinos have reported that subjects with pathological gambling were disproportionately active in bingo and card games.[5] Thus, to a large extent, availability appears to determine gambling activity. Furthermore, our finding that subjects engaged in 1.9 gambling activities per subject suggests, however, that once an individual with pathological gambling engages in a particular gambling activity, he or she tends not to play other games. Individuals with pathological gambling tend to be specific in how they like to gamble.

The majority of subjects appeared to have significant family histories of both gambling problems and alcohol abuse or dependence. The finding of high rates of familial problem gambling is consistent with literature that has found that those who gamble as adults report exposure to gambling as children by their families.[19] However, our finding that approximately 58% of our probands had at least 1 first-degree relative with problematic gambling is considerably higher than previously reported.[8] The present study is limited, however, because the family members were not directly interviewed. Although the connection between pathological gambling and familial alcohol abuse has not been studied, the high rate of alcohol abuse in at least 1 first-degree relative of our probands is consistent with studies of alcoholic families. Relatively high levels of behavioral disinhibition differentiate the children of alcoholics from nonalcoholics.[20] Just as general behavioral disinhibition may be familial, the development of pathological gambling may be similarly affected by this behavioral trait. Many gamblers in this study with a history of substance abuse were introduced to both gambling and drinking by family members at different times in their lives. Whether one disorder plays a role in the initiation of the other is unclear, and the exact influence of genetics and environmental risk factors is just beginning to be explored.[21]

The lifetime prevalence of other psychiatric disorders raises several questions about the nosology of pathological gambling. The results show approximately equal comorbidity with substance use disorders and with other impulse control disorders. There is virtually no comorbidity with other anxiety disorders, and this finding conflicts with the current literature. One study found a lifetime prevalence of anxiety disorders to be approximately 40%.[8] Many investigators have also argued that pathological gambling should be thought of as an obsessive-compulsive spectrum disorder and support this point by citing the increased rates of comorbidity between pathological gambling and OCD.[22] The results of this study, however, do not support a comorbidity between pathological gambling and OCD. Instead, the high comorbidity of pathological gambling with other impulse control disorders, such as compulsive shopping, supports classifying all of these disorders together.

There is growing literature that symptoms of pathological gambling may respond to various treatment approaches: psychoanalytic, psychodynamic, behavioral, cognitive, addiction-based, and pharmacologic.[23,24] Virtually no subject in this study found significant symptom relief with the available nonpharmacologic treatments. Although the lack of response to Gamblers Anonymous and outpatient therapy may reflect a selection bias in our sample (i.e., patients who improved with Gamblers Anonymous or other treatments would not have entered our study), this finding argues for further studies both of pharmacotherapy and of psychotherapy in treating this disorder. Additionally, the fact that certain triggers to gambling urges or behavior exist may prove useful in devising cognitive-behavioral therapies to treat this disorder.

Limitations

This study suffers from several limitations. The major limitation is that our sample of pathological gamblers may not reflect the larger population of patients who suffer from the disorder. One striking feature highlighting the possible uniqueness of our sample population is the high female-to-male ratio. A majority of the subjects in this sample were female. The literature, however, has been fairly consistent in finding that the rate of pathological gambling is perhaps twice as high among men than women.[5,6,25] Referral bias might explain the fact that our study is inconsistent with earlier research. First, these findings may reflect a greater tendency of women with pathological gambling to seek medication treatment for their gambling problem. Second, as noted in other psychiatric illnesses,[26] family members may have been more able to bring ill female relatives rather than ill male relatives to mental health facilities. This may be due to different expectations of normative behavior for men and women and/or from the higher likelihood that women live with their families as compared with men.

The preponderance of whites in our sample population also differs from the "typical" nonwhite pathological gam-

blers described in the literature.[5] There may be several explanations for this difference. First, the profile of the nonwhite pathological gambler is based on epidemiologic studies, not treatment studies. Although racial or ethnic minorities may comprise a large percentage of pathological gamblers, they may also be less likely to seek medication treatment for their illness. Second, the ethnic profile of pathological gamblers may differ substantially based on where the sample population is studied. The Twin Cities area, where we recruited our sample, is approximately 93% white. Therefore, one may expect our study subjects to approximate the racial or ethnic makeup of the larger population.

Another general limitation of the study stems from a possible selection bias due to the method of recruitment. Newspaper advertisements may limit the study sample to only those who are really motivated for treatment or have interest in a secondary gain. What this means, in terms of addictions and human behavioral change, is that our studies recruited only those in the preparation (action) phase or the maintenance/relapse-prevention phase, not the denial or precontemplation and contemplation phases.[27] Thus, our study sample may not represent all people suffering from pathological gambling.

Additionally, our results concerning the problems associated with pathological gambling may underestimate the true legal and personal problems associated with this disorder. The problems resulting from pathological gambling were collected only by patient report, with no corroboration of the severity or the frequency of these problems. Relying only on patient report may have underestimated the legal problems in particular, given the shame associated with illegal behavior.

Finally, subjects were excluded from our studies if other Axis I disorders were present, which may reflect another selection bias. Because the reported high comorbidity of pathological gambling with other disorders, such as mood disorders and substance use disorders, is high,[8,28] our study sample may not represent the actual population of pathological gamblers and generalizability of these findings may be limited. Additionally, the rates of lifetime psychiatric disorders seen in our study sample were quite likely lowered by the exclusion of subjects with current comorbidity.

CONCLUSION

Pathological gambling appears to be a disorder associated with significant social dysfunction and legal problems. These findings must be considered preliminary, requiring confirmation by controlled investigation of the phenomenology, course, biology, family history, and response to treatment of pathological gambling disorder.

Drug names: fluoxetine (Prozac and others), naltrexone (ReVia), paroxetine (Paxil).

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