Gender Differences in Pathological Gambling

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Background: To determine the differences in clinical presentation, gambling behavior, and psychiatric comorbidity of male and female treatment-seeking pathological gamblers.

Method: Sixty-nine consecutive individuals with DSM-IV pathological gambling (47 men and 22 women) applying to a specialized outpatient treatment program were evaluated with structured interviews, self-report questionnaires, and psychological scales.

Results: Sixty-seven percent of men (N = 26) versus 25% of women (N = 5) had been exposed to gambling in adolescence. Women had a later age at first bet and a faster evolution of the disorder. Female pathological gamblers were more likely to play bingo, whereas men tended to prefer slot machines. Male and female pathological gamblers had similar gambling severity and overall rates of psychiatric comorbidity. However, male pathological gamblers had higher rates of alcohol abuse/dependence and antisocial personality disorder, whereas women had higher rates of affective disorders and history of physical abuse.

Conclusion: There are substantial gender differences in the clinical presentation and comorbidity of pathological gambling. These gender differences should be incorporated in the selection and planning of treatment for pathological gamblers.

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Pathological gambling is characterized by recurrent and progressive maladaptive patterns of gambling behavior. Over the last few years, there has been an increasing interest in the phenomenology and treatment of pathological gambling.[1–5] However, to date, most research has been conducted in samples composed of predominantly or exclusively male pathological gamblers. The study of gender differences in pathological gambling is important because (1) some psychiatric disorders may have differential course and treatment response in males and females,[6–8] (2) women comprise one third of pathological gamblers,[9,10] and (3) women are generally underrepresented in treatment samples of pathological gamblers.[9,11,12]

Prior work by our group has suggested that there are genetic differences between male and female pathological gamblers.[13–16] Two studies[17,18] have recently suggested that male and female pathological gamblers may also have substantial differences in clinical presentation, but those studies were limited by the lack of standardized assessment instruments. The goal of our study was to confirm previously reported phenomenological and clinical gender differences in pathological gamblers, extend those findings to the personality characteristics and associated psychopathology of the patients, and place those findings in the context of our current knowledge of the genetics and neurobiology of pathological gambling.

METHOD

Subjects

The subjects in the study were 69 consecutive patients (47 men and 22 women) seeking treatment in the Pathological Gambling Unit of the Ramón y Cajal Hospital in Madrid, Spain. To be eligible for the study, the individuals had to meet DSM-IV criteria for pathological gambling and provide written informed consent. Patients who met criteria for schizophrenia or other psychotic disorders, mental retardation, or a mental disorder due to a general medical condition were excluded from the study. None of patients were taking any psychotropic medication at the time they were referred to the clinic and evaluated.

Assessment Procedures

Patients were queried regarding their sociodemographic characteristics, gambling behavior, and associ-

Table 1. Sociodemographic Characteristics of Male and Female Pathological Gamblers Seeking Treatment[a]

	Men (N = 47)		Women (N = 22)		Analysis		
Demographic Characteristic	N	%	N	%	χ^2	df	p
Job status							
Employed	26	55.3	11	50.0	5.2	2	.07
Unemployed	15	31.9	3	13.6			
Other	6	12.8	8	36.4			
Education							
Primary school	24	51.1	13	59.1	0.6	2	.7
High school	15	31.9	5	22.7			
College+	8	17.0	3	13.6			
History of childhood physical abuse	2	4.3	7	31.8	8.1	1	.004
Marital relations prior to pathological gambling							
Good	27	90.0	12	63.2	5.2	1	.03
Fair/poor	3	10.0	7	36.8			

[a]Mean ± SD age for men = 41.9 ± 15.1 years; for women, 42.7 ± 9.0 years (t = –0.28, df = 63, p = .8).

ated psychopathology. Information was confirmed by a relative whenever possible. Demographic characteristics included information on age, education, and employment.

Gambling behavior was assessed with the South Oaks Gambling Screen (SOGS).[19] The SOGS is a 20-item screening questionnaire that has been previously used as a measure of severity.[20] Self-report 5-point Likert scales with categories ranging from 1 ("no repercussions at all") to 5 ("very much affected") were used to measure the consequences of gambling behavior in different areas of the patient's life. The 5-item Clinical Global Impressions scale[21] was used to obtain an overall assessment of pathological gambling for each individual.

Comorbidity of DSM-III-R Axis I and II disorders was assessed with the Structured Clinical Interview for DSM-III-R (SCID-I)[22] and the Structured Clinical Interview for DSM-III-R Axis II Disorders (SCID-II),[23] respectively. Dimensional ratings of depression were obtained using the Beck Depression Inventory,[24] which offers a measure of patients' severity of depression regardless of their diagnosis. It contains 21 items with a possible total score ranging from 0 to 63. A score of 23 or above is generally considered to be associated with clinical depression.[25] Dimensional ratings of anxiety were assessed with the State-Trait Anxiety Inventory (STAI).[26] It consists of 2 subscales (anxiety-state and anxiety-trait), each including 20 items with 4 alternatives ranging from 0 to 3.

Personality characteristics of pathological gamblers were assessed with the Sixteen Personality Factor Questionnaire (16PF),[27] which provides an extensive characterization of the personality that is generally stable over time. Scores for each personality factor can range from 1 to 10. Because some studies have suggested that pathological gamblers are sensation seekers,[28] the subjects were also assessed with the Sensation Seeking Scale (SSS).[29] The SSS consists of 4 different subscales: thrill and adventure seeking, experience seeking, disinhibition, and boredom susceptibility. Each subscale includes 10 items, each of them scored from 0 to 10. The total score is the sum of the 4 subscale scores.

Statistical Analyses

Chi-square statistics were used to test for differences in the distribution of categorical variables, and t tests were used for continuous variables. All statistical tests are considered significant at the $\alpha = .05$ (2-tailed) level.

RESULTS

Background Characteristics

There were no differences between men and women regarding mean age, employment status, or level of education. Women were significantly more likely than men to have a history of physical abuse during childhood. Also, significantly more women than men rated their marital relationships previous to the onset of the disorder as fair or poor (Table 1).

Gambling Behavior

There were no gender differences in the age at onset of pathological gambling, time since onset of the disorder, or gambling severity. However, men were significantly more likely than women to have been exposed to gambling during adolescence and had a younger mean age at the time of their first bet. In contrast, the women had a shorter interval between the time of their first bet and the onset of pathological gambling (Table 2).

Women were significantly more likely to have negative emotional feelings (loneliness, family or marital conflicts) trigger their gambling behavior, and their main motivation to continue gambling was the game in itself. Men were significantly more likely than women to start gambling due to the hope for possible gains, and their main motivation to continue gambling derived from the potential profits. They related the onset of pathological gambling to a history of initial gains. Men and women also differed in the type of problematic games. Women tended to have bingo as their main problematic game, whereas men were more likely to have problems with slot machines (see Table 2).

Although gambling adversely affected the majority of patients, independently of gender, men were more frequently affected in their marriages and had a greater number of areas that were "much" or "very much" adversely affected by gambling than women (mean ± SD = 2.2 ± 1.2 vs. 1.4 ± 1.0; t = 2.8, df = 67, p = .006). However, there were no significant differences between groups concerning the likelihood of suicidal ideation or attempts after gambling. In contrast, women were almost twice as likely as men to have sought previous treatment

Table 2. Characteristics of Gambling-Related Behavior Among Pathological Gamblers

Characteristic	Men (N = 47)	Women (N = 22)	Analysis		
			Result	df	p
Age at first bet, mean (SD), y	23.8 (12.1)	32.7 (9.9)	t = –2.6	67	.01
Age at onset of pathological gambling, mean (SD), y	34.8 (14.9)	36.9 (8.4)	t = –0.6	67	.5
No. of years from first bet until onset of pathological gambling, mean (SD)	11.0 (10.7)	4.2 (6.4)	t = 2.3	67	.007
Duration of illness, mean (SD), y	6.9 (5.9)	5.8 (4.1)	t = 0.8	67	.4
No. of DSM-IV pathological gambling diagnostic criteria met, mean (SD)	7.6 (1.1)	7.8 (1.2)	t = –0.4	67	.6
South Oaks Gambling Screen score, mean (SD)[a]	12.9 (2.2)	12.2 (2.5)	t = 1.2	66	.2
Clinical Global Impressions scale score, mean (SD)	2.8 (0.9)	2.8 (0.7)	t = 0.3	67	.8
Exposure to gambling in adolescence, N (%)	26 (55.3)	5 (22.7)	$\chi^2 = 9.2$	1	.002
Reasons to start gambling, N (%)					
Thoughts about gains	21 (44.7)	4 (18.2)	$\chi^2 = 5.7$	3	.12
To have fun	19 (40.4)	13 (59.1)			
Family tradition	6 (12.8)	3 (13.6)			
Others	1 (2.1)	2 (9.1)			
Triggers for pathological gambling, N (%)					
Initial gains	11 (23.4)	1 (4.5)	$\chi^2 = 9.1$	3	.03
Negative emotional feelings (loneliness, family or marital conflicts)	11 (23.4)	12 (54.5)			
Loss of control	14 (29.8)	7 (31.8)			
Others	11 (23.4)	2 (9.1)			
Main problematic game, N (%)					
Slot machines	31 (66.0)	10 (45.5)	$\chi^2 = 7.4$	2	.02
Bingo	9 (19.1)	11 (50.0)			
Others	7 (14.9)	1 (4.5)			
Main motivation to continue gambling, N (%)					
Game in itself	20 (42.5)	15 (68.2)	$\chi^2 = 4.5$	1	.03
Potential gains	27 (57.5)	6 (27.3)			
Consequences of pathological gambling, N (%)					
Marital	27 (57.4)	5 (22.7)	$\chi^2 = 7.3$	1	.007
Economic	40 (85.1)	16 (72.7)	$\chi^2 = 1.5$	1	.2
Work	18 (38.3)	4 (18.2)	$\chi^2 = 2.8$	1	.1
Legal	20 (42.6)	6 (27.3)	$\chi^2 = 1.7$	1	.2
Pathological gambling–related suicidal thoughts/behavior, N (%)					
None	34 (72.3)	15 (68.2)	$\chi^2 = 4.4$	2	.1
Suicidal ideation	13 (27.7)	5 (22.7)			
Suicide attempt	0 (0.0)	2 (9.1)			
Previous treatment for pathological gambling, N (%)	10 (21.3)	9 (40.9)	$\chi^2 = 2.9$	1	.09

[a]Data missing on 1 male subject.

for pathological gambling, and this difference approached statistical significance (Table 2).

Psychological Characteristics and Associated Psychopathology

Both groups had high rates of associated psychiatric comorbidities. Although the overall rates of 12-month psychiatric comorbidities were similar for both groups, women were more likely to have a concurrent diagnosis of a mood disorder, whereas men were more likely to suffer from comorbid alcohol abuse or dependence (Table 3). In addition, lifetime comorbidity for major depressive disorder was 40.9% (9/22) in women, compared with 4.3% (2/47) in men ($\chi^2 = 15.0$, df = 1, $p < .001$), whereas that of alcohol dependence was 9.1% (2/22) versus 46.8% (22/47) ($\chi^2 = 9.8$, df = 1, p = .002). Men met a greater mean number of criteria for antisocial personality disorder than women (Table 3). In contrast, women had higher scores on the BDI, although there were no differences in the scores of the STAI. Overall, women were significantly more likely than men to have had prior treatment for a mental disorder other than pathological gambling (Table 3).

Male and female pathological gamblers differed on a number of personality traits. Men and women had significant differences in the factors A (outgoing–reserved), B (more intelligent–less intelligent), I (tender-minded–tough-minded), L (suspicious–trusting), M (imaginative–practical), Q1 (experimenting–traditional), and Q2 (self-sufficient–group-tied) of the 16PF (Table 4). Women had significantly lower scores than men on the overall SSS and the thrill and adventure seeking and disinhibition subscales, but not on the experience seeking or boredom susceptibility subscales (Table 3).

DISCUSSION

Male and female pathological gamblers in this sample differed on a number of important characteristics. The clinical picture of male pathological gamblers suggests that they are more impulsive than female pathological gamblers. They meet a higher mean number of antisocial personality criteria, have a more frequent history of alcohol abuse or dependency, have higher scores on the SSS, tend to have a preference for slot machines (with its im-

Table 3. Psychological Characteristics and Associated Psychopathology of Treatment-Seeking Pathological Gamblers

Characteristic	Men (N = 47)	Women (N = 22)	Analysis		
			Result	df[a]	p
12-Month comorbidity (SCID-I and -II), N (%)					
No disorder	19 (40.4)	7 (31.8)	$\chi^2 = 3.5$	2	.2
1 disorder	13 (27.7)	11 (50.0)			
2 or more disorders	15 (31.9)	4 (18.2)			
12-Month comorbidity, N (%)					
Any psychiatric disorder	28 (59.6)	15 (68.2)	$\chi^2 = 0.5$	1	.5
Alcohol abuse/dependence	15 (31.9)	1 (4.5)	$\chi^2 = 6.5$	1	.01
Adjustment disorder	6 (12.8)	6 (27.3)	$\chi^2 = 2.2$	1	.1
Mood disorder	1 (2.1)	5 (22.7)	$\chi^2 = 8.0$	1	.005
Anxiety disorder	2 (4.3)	1 (4.5)	$\chi^2 = 0.003$	1	.9
Any personality disorder	22 (46.8)	7 (31.8)	$\chi^2 = 1.4$	1	.2
Antisocial personality disorder	9 (19.1)	1 (4.5)	$\chi^2 = 2.6$	1	.1
Prior mental health treatment (excluding treatment for pathological gambling), N (%)	11 (23.4)	12 (54.5)	$\chi^2 = 6.2$	1	.01
Sensation Seeking Scale score, mean (SD)[b]					
Thrill and adventure seeking	4.9 (3.1)	2.4 (2.1)	t = 3.9	64	< .001
Experience seeking	4.2 (2.2)	3.6 (2.1)	t = 1.1	64	.3
Disinhibition	3.6 (2.1)	2.4 (1.7)	t = 2.3	64	.03
Boredom susceptibility	2.4 (1.9)	1.9 (1.5)	t = 1.1	64	.3
Total	15.2 (6.4)	10.3 (4.4)	t = 3.6	64	.001
State-Trait Anxiety Inventory score, mean (SD)[c]					
Anxiety-state	30.0 (14.0)	35.6 (15.0)	t = –1.5	65	.1
Anxiety-trait	28.8 (11.0)	34.0 (12.4)	t = –1.7	65	.1
Beck Depression Inventory score, mean (SD)[c]	17.6 (9.4)	22.7 (10.0)	t = –1.98	65	.05
No. of DSM-III-R criteria met for antisocial personality disorder, mean (SD)	2.1 (0.8)	1.4 (0.8)	t = 3.0	67	.004

[a]Degrees of freedom (df) for the Sensation Seeking Scale, State-Trait Anxiety Inventory, Beck Depression Inventory, and number of DSM-III-R criteria met for antisocial personality disorder vary due to missing data.
[b]Data missing for 1 male and 2 female subjects.
[c]Data missing for 2 female subjects.
Abbreviation: SCID = Structured Clinical Interview for DSM-III-R.

mediate rewards) and a particular interest in the monetary aspects of gambling, and seek treatment when psychosocial consequences of their gambling are more severe, all of which point to impulsivity. In contrast, we found a relatively lower prevalence of mood disorders in men than previously reported. It is possible that the SCID may have classified as suffering from adjustment disorders those patients who are frequently diagnosed with depression on the basis of a clinical interview. Alternatively, it is possible that male pathological gamblers with affective symptoms may seek treatment for mood instead of gambling disorders. Variability in the reported rates of mood disorders has been previously suggested to be due to sampling bias and not to true increases in comorbidity.[30]

Our findings are consistent with those of previous studies documenting high levels of impulsivity in male pathological gamblers.[31–33] A serotonergic dysfunction is the most replicated finding in the research of the pathogenesis of the impulsivity and impulse-control disorders,[34,35] including pathological gambling.[33,36,37] A genetic association study in this sample of pathological gamblers compared with a sample of healthy volunteers matched for age and sex found that allele variants at 2 serotonergic candidate genes were associated with male pathological gamblers but not with female pathological gamblers.[13] Similarly, the less functional allele of a polymorphism in the monoamine oxidase A gene has been found to be associated with men with severe pathological gambling but not with female pathological gamblers.[14]

We also found that men had been exposed to gambling in adolescence more frequently than women. Because exposure to gambling in adolescence may be a risk factor for pathological gambling,[38] it is possible that this sex difference contributes to the higher rates of pathological gambling found among men.[10,39] However, the mechanism of this increased prevalence remains to be elucidated.

Because our study is the first to document rates of comorbidity in pathological gamblers by gender, it is difficult to compare the results with other samples, composed predominantly of men. However, in contrast to the impulsivity that appears to be associated with pathological gambling in men, negative emotional states appear to play a bigger role in the gambling behavior of women. Female pathological gamblers have a higher frequency of history of physical abuse in childhood and unsatisfactory romantic relationships predating the onset of pathological gambling and are more likely to have depression. Our findings are consistent with reports from previous studies suggesting that women often gamble to escape from problems, troubled marriages, and loneliness.[17,38,40,41]

Similarly, several studies in patients with substance abuse (which is often seen as a conceptual model of

Table 4. Scores on the Sixteen Personality Factor Questionnaire Among Pathological Gamblers[a]

	Men (N = 46)		Women (N = 20)		Analysis	
Factor (high–low score)[b]	Mean	SD	Mean	SD	t[c]	p
A (outgoing–reserved)	4.8	2.1	6.3	1.6	–3.2	.002
B (more intelligent–less intelligent)	4.8	1.8	2.9	1.6	4.0	< .001
C (stable–emotional)	4.1	1.9	3.9	1.7	0.4	.7
E (assertive–humble)	5.2	2.2	4.2	2.3	1.7	.08
F (happy-go-lucky–sober)	5.2	2.4	4.6	2.1	0.9	.4
G (conscientious–expedient)	4.5	1.7	4.7	1.2	–0.6	.6
H (venturesome–shy)	4.9	2.2	5.4	1.9	–0.8	.4
I (tender-minded–tough-minded)	6.1	1.7	5.0	1.8	2.3	.03
L (suspicious–trusting)	6.0	1.9	4.6	2.2	2.6	.01
M (imaginative–practical)	5.3	2.1	3.9	1.7	2.8	.009
N (shrewd–forthright)	6.1	1.9	6.1	1.7	–0.1	.9
O (apprehensive–placid)	7.2	1.8	7.3	2.0	–0.2	.8
Q1 (experimenting–traditional)	4.8	1.8	3.6	1.9	2.2	.03
Q2 (self-sufficient–group-tied)	6.9	1.7	5.2	2.2	3.3	.002
Q3 (controlled–casual)	4.5	1.9	4.6	1.6	–0.3	.8
Q4 (tense–relaxed)	6.9	2.1	6.7	1.7	0.3	.7

[a]Data missing for 1 man and 2 women.
[b]Range of possible scores for each factor is 1 to 10.
[c]df = 64.

pathological gambling) have found an association between substance abuse and a history of trauma,[42] and female substance abusers have higher rates of depression and anxiety disorders than male substance abusers.[6,43,44] Also paralleling substance abuse disorders,[45,46] the phenomenon of telescoping has been observed in women, i.e., they started to gamble at a later age than men, but developed the disorder more quickly. This appears to be a robust finding, as it was documented in the 2 prior studies of gender differences in pathological gambling and may have important etiologic and treatment implications. The dopaminergic system has been shown to be extensively involved in the mechanisms of reward and the pathogenesis of substance abuse.[47] Female, but not male, pathological gamblers in our sample have an increased frequency of the less efficient variant of a polymorphism in the dopamine D4 receptor gene leading to a less functional receptor.[15] Recent models of substance abuse suggest that there may be an imbalance between the drive to engage in the behavior (the "go!") and the mechanisms responsible to modulate that behavior (the "no!").[48] It is possible that gambling behavior may be more influenced by deficits in reward mechanisms in women and deficits in impulse-control mechanisms in men.

Consistent with previous studies,[18,38] we found that for the majority of women, bingo was their type of problematic gambling. This preference may indicate that female pathological gamblers place less importance on the immediacy and monetary aspects of the reward and more importance on other aspects such as the social setting where the gambling takes place. Because there are almost no biological studies of pathological gambling in women, it is difficult to know the extent to which these behaviors are related to serotonergic deficits.[33,36] However, the gender differences in patterns of gambling behavior, psychological characteristics, psychiatric comorbidity, and genetic vulnerability suggest that female pathological gamblers may have different treatment needs than male pathological gamblers.

Surprisingly, despite having similar levels of symptoms and fewer psychosocial consequences of pathological gambling at the time of our assessment, women were almost twice as likely as men to have previously sought treatment for pathological gambling. This is in contrast to the reported finding of underrepresentation of women in treatment settings for pathological gambling from past studies.[9,11,12] It is possible that female pathological gamblers in the general population may be substantially less severely disordered than male pathological gamblers, leading them to seek treatment less often. Alternatively, it is possible that increased knowledge of pathological gambling among professionals and the lay public may have decreased the stigma of help-seeking. Recent findings from another group seem to support this interpretation.[1]

This study has several limitations. First, it was conducted in a sample of patients seeking treatment in a specialized program in Spain, and therefore the results cannot be generalized to other populations of pathological gamblers. Reanalysis of the available epidemiologic data could be conducted to investigate to what degree our findings may extend to the general population of pathological gamblers. Second, although male pathological gamblers had a higher frequency of certain impulsive behaviors, the study did not include a direct measure of impulsivity. Interestingly, a study[44] found no gender differences in the prevalence of impulse-control disorders in a clinical sample of pathological gamblers, suggesting that male and female pathological gamblers may differ only in certain aspects of impulsivity.[49] Future inclusion of appropriate psychological scales and/or neuropsychological measures may help elucidate the differences in impulsivity between male and female pathological gamblers. Third, our study did not include non-pathological gamblers as psychiatric controls. Thus, these differences may be related to gender in a disease-nonspecific manner. Fourth, many of the factors studied here were examined only with self-report measures and are thus subject to social desirability and recall biases. Finally, the data presented here are cross-sectional. Future studies should try to relate the characteristics of male and female pathological gamblers, including presence of specific comorbidities, to treatment preference and outcome.

Recent data from a small clinical trial suggest that male pathological gamblers have a better response to the seroto-

nin reuptake inhibitor fluvoxamine than do female pathological gamblers, consistent with the relationship between serotonin deficits and impulsive behaviors.[50] It is possible that female pathological gamblers may respond better to treatment strategies that take more into account their emotional needs. Despite these limitations, these data represent an important step in our characterization of the gender differences in pathological gambling, raise questions about the generalizability to female pathological gamblers of many of the published findings on pathological gambling, and stress the importance of including appropriate gender representation in future studies.

Drug name: fluvoxamine (Luvox and others).

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