

Pathological Gambling: Comorbid Psychiatric Diagnoses in Patients and their Families

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Abstract: Objectives: Pathological gambling is a highly prevalent and disabling impulse control disorder. Recent studies have consistently demonstrated that pathological gamblers respond well to treatment with selective serotonin reuptake inhibitors, mood stabilizers and opioid antagonists. These findings have supported the observation that pathological gambling is associated with anxiety and mood spectrum disorders as well as addictive disorders. **Methods:** Fifty-two male pathological gamblers and their first-degree relatives (n=93) completed a semi-structured DSM-IV-based diagnostic interview as well as a series of data collection instruments including the South Oaks Gambling Scale, the Hamilton Rating Scale for Depression, the Hamilton Rating Scale for Anxiety, the Yale-Brown Obsessive-Compulsive Scale, and the Young Mania Rating Scale. The study subjects and their first-degree relative were compared to demographically matched normal controls (n=96). **Results** We found higher prevalence of alcohol, substance abuse, problematic gambling, depression, and anxiety disorders in the pathological gamblers and their first-degree relatives than in the control group. In particular, the scores on the Hamilton Rating Scale for Depression, the Hamilton Rating Scale for Anxiety, and the Yale-Brown Obsessive-Compulsive Scale were higher in the study group than in the control group. **Conclusions:** Our finding of a high prevalence of psychiatric comorbidity in pathological gamblers and their families raises the question of the proper classification of pathological gambling in the DSM-IV. Furthermore, the pattern of psychiatric disorders seen in the first-degree relatives can lead to new insights about the etiopathology of pathological gambling.

Introduction

Pathological gambling (PG) is classified in the DSM-IV of the American Psychiatric Association as a disorder of impulse control not otherwise specified (1). In the International Classification of Diseases of the World Health Organization (2), PG is coded under the heading of Habit and Impulse Disorders together with kleptomania, pyromania and trichotillomania. Impulse control disorders are characterized by an overwhelming urge to perform a harmful act. The patient usually feels a sense of tension before committing the act and then experiences pleasure or relief during the act. PG is a chronic, progressive, male-dominated disorder, which has a prevalence of 1.0% to 3.4% among U.S. adults (3). PGs engage in persistent and recurrent maladaptive patterns of gambling behavior. The enormous personal and social consequences of this disorder include a high rate of suicide attempts, job loss, marital and family prob-

lems, legal problems and criminal behavior caused by gambling behavior all over the world (4, 5).

PG appears to be associated with other psychiatric comorbidities, most notably mood disorders, anxiety disorders, attention deficit disorder, eating disorders, alcohol abuse and other disorders of psychoactive substance abuse (5, 6). Indeed, most PG patients are referred for psychiatric treatment due to a comorbid psychiatric or somatic disorder. Hollander et al. (7) describe a connection between the clinical features of PG and bipolar disorder. They describe characteristics common to both disorders such as impulsive risk taking behavior, mood swings, poor judgement and grandiose thinking. According to McElroy et al. (8), 30% of patients with bipolar disorder have had a diagnosis of comorbid PG. Hollander and Wong (9) suggested that impulsive disorders such as PG are associated with strong compulsive and impulsive features, and hence, PG can be viewed as an "impulsive subtype" of the "obsessive-compulsive (OC) spectrum" disorders. Ac-

According to this theory, a common unifying theme among the OC spectrum disorders is their selective responsiveness to treatment with selective serotonin reuptake inhibitors (SSRIs). Multiple open-label and double-blind studies have shown SSRIs to be beneficial in reducing gambling urges and behavior (10) although a recent controlled study yielded negative results (11).

Recently, investigators have looked at the role of addictive behavior in PG (12). Kim et al. (13) conducted a double-blind, placebo-controlled trial (N=83) and demonstrated that the opioid receptor antagonist naltrexone significantly reduced the average intensity of gambling urges, gambling thoughts and gambling behavior. Our group also demonstrated the effectiveness of topiramate and fluvoxamine (14) in the treatment of PG, and bupropion SR has been shown to be beneficial in preliminary studies of male pathological gamblers (15, 16).

We believe that PG shares characteristics of both addictive behavior and anxiety spectrum disorders. The aim of this article is to present our findings regarding the comorbid psychiatric diagnoses seen in our cohort of PGs and their first-degree relatives.

Methods

Fifty-two outpatients with a diagnosis of PG according to DSM-IV criteria were included in this study, and 93 first-degree relatives of this patient group agreed to participate in the study. First-degree relatives included both parents and siblings. We note that the patients' children were not included in the study due to patient preference. Ninety-six demographically matched normal controls were included in this study.

The study was conducted at the Rehovot Community Mental Health & Rehabilitation Center, an ambulatory care psychiatric clinic run by the Israeli Ministry of Health. The participants were referred to the walk-in clinic either by their family, medical physician or social workers. All study subjects completed a semi-structured psychiatric diagnostic interview (using the SCID format) performed by a senior psychiatrist (PND, KL). The South Oaks Gambling Scale (SOGS) (17) was also administered to all patients and to the cohort of first-degree rela-

tives at the screening interview. Diagnosis of pathological gambling in the study subjects and their first-degree relatives was made according to DSM-IV criteria and the South Oaks Gambling Scale. The participants gave their written informed consent for participating in the study, and the study was approved by the hospital's Helsinki Committee (Chaim Sheba Medical Center).

Instruments

A masked rater who was blind to the group allocation delivered several data collection instruments rating anxiety, depression and functioning. The instruments were administered once at baseline to all study subjects, the cohort of first-degree relatives and to the control group. The normal controls were also interviewed at the ambulatory psychiatric clinic. We administered the Hamilton Rating Scale for Anxiety (HRSA) (18), the Hamilton Rating Depression Scale (HRDS) (19), the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) (20), and the Young Mania Rating Scale (YMRS) (21).

Analysis

Statistical analysis was performed with t-test analysis, chi squares and ANOVA with repeated measures. Levels of significance were set at 0.05 (Bonferroni correction), unless otherwise stated.

Results

The patient sample was composed of 52 male pathological gamblers.

Their age ranged from 21 to 67 years (38.7 ± 16.4); 65% of the sample was married and 27% was divorced or separated (n=14). An analysis of social status demonstrated that 19% of the patients had a university degree; 62% of the patients had a high school diploma, and 19% of the patients did not complete high school; 76% of the patients were employed and only 10% were unemployed. Demographic findings of the patients and families are summarized in Table I.

The age at onset (mean \pm SD) of gambling behavior was (19.7 ± 11.4) years, ranging from 13 to 45, and the majority of the sample reported a sudden onset

of the course of disorder. The majority of the patients had more than one comorbid psychiatric disorder, and most of them were referred to the clinic because of the comorbid diagnosis rather than gambling (Table II).

The group of 93 first-degree relatives was comprised of 37 parents and 56 siblings. Twenty-seven of the parents were females and 10 were males.

Their ages ranged from 56 to 82 years (68.4 ± 14.9); 47% of them were married, 22% of them divorced and 31% of them were widowed. An analysis of socioeconomic status showed a preeminently middle-class background. Fifty-six siblings, 24 sisters and 32 brothers, ranged in age from 23 to 64 years (32.6 ± 17.9). Some of the first-degree relatives have been diagnosed and treated before.

Table I. *Demographic Findings*

		Pathological Gamblers	Families	
			Parents	Siblings
Number		52	37	56
Age		36.7 ± 11.4	68.4 ± 14.9	32.6 ± 17.9
Gender	Female (%)	0%	73%	43%
	Male (%)	100%	27%	57%
Race	Sepharadi	65%	69%	64%
	Ashkenazi	35%	31%	36%
Education (%)	≤12th grade	19%	50%	12%
	High School diploma	62%	38%	66%
	University	19%	12%	22%
Employment	Unemployed/Pension	10%	38%	18%
	Student/Homemaker	14%	54%	22%
	Full Time	76%	8%	60%
Marital Status	Married	65.4%	47%	59.3%
	Divorced/Separated	27.1%	22%	24.7%
	Widowed/Never Married	7.5%	31%	16.0%

Table II. *Psychiatric Diagnoses in Patients and their First-Degree Relatives*

		Patients (N=52)		Family Members (N=93)		
		Number	Male (52)	Number	Male (42)	Female (51)
Mood Disorders	Unipolar Depression	7	7	12	5	7
	Bipolar I	1	1	1	0	1
	Bipolar II	1	1	4	1	3
Anxiety Disorders	PTSD	2	2	2	1	1
	OCD	2	2	4	2	2
	Panic Disorder	2	2	5	2	3
	GAD	1	1	2	0	2
Drug Abuse		4	4	3	3	0
Alcohol Abuse		10	10	15	11	4
Problematic-pathologic gambling		52	52	9	3	6
Attention Deficit Disorder		3	3	1	1	0

Table III. Results of Rating Scales for Patients, First-Degree Relatives, and Controls

	Pathological gamblers	Relatives	p	Controls	t	p
HRSD	13.9±10.2	10.7±9.4	ns<0.052	5.2±2.6	3.25	0.01
HRSA	16.8±9.4	15.2±7.8	ns<0.44	5.3±2.1	4.24	0.001
Y-BOCS	20.3±8.6	18.3±10.5	ns<0.19	3.1±2.2	7.81	0.001
YMRS	9.7±3.8	8.6±4.5	ns<0.27	6.5±4.9		ns<0.066

Normal controls, 46 females and 50 males, ranged in age from 18 to 71 years (41.4±16.9). Social and family status was equal to patient and the family groups. The comparison of the results of the rating scales among the study subjects, first-degree relative and the control group is summarized in Table III.

Discussion

Our study is one of the first studies, to our knowledge, to conduct psychiatric assessments among first-degree relatives of PG patients. It has been well demonstrated that PGs have high rates of comorbid anxiety, depression, bipolar disorder and substance abuse (6, 7, 22, 23). In our study, we found significantly higher rates of comorbid mood disorders, substance abuse and obsessive-compulsive spectrum disorders both in our patients and their first-degree relatives. These results are consistent with other preliminary family data. Vachon et al. (24) and Gupta and Derevensky (25) demonstrated that parents of adolescent gamblers were involved with gambling and addiction problems, and Carlton and Manowitz (26) found a correlation between impulsivity-hyperactivity problems in adolescent gamblers and their parents.

PG is currently regarded as an impulse-control disorder sharing similarities with OCD and conceptualized as belonging to the OCD spectrum psychopathology. Our study lends support to this hypothesis, for we observed higher prevalence rates of affective and OCD spectrum disorders in our patients and their families. PG has also been conceptualized as an addictive disorder because of shared behavioral characteristics and shared response to naltrexone. Our study supports the hypothesis that PG is a disorder that has a high comorbidity with

other psychiatric diagnoses and raises the question of its proper classification in DSM-IV and ICD-10. The high rates of drug and alcohol abuse and of anxiety and obsessive-compulsive spectrum disorders among the first-degree relatives in our study supports the idea that PG may be more appropriately considered to be an impulsive subtype of the obsessive-compulsive spectrum disorders rather than a disorder of impulse control.

The primary limitation of our study is the relatively small sample size of both the patients and their first-degree relatives. In addition, our results may be influenced by selection bias since our patients were selected from an ambulatory psychiatric care setting, and most of the patients initially presented with a comorbid psychiatric condition. The combined effect of these two variables may have been to increase the likelihood of seeing associated psychopathology in the patients and their first-degree relatives. Further studies in a larger, more varied sample of patients and their relatives are needed in order to more definitively examine the relationship between PG and obsessive-compulsive spectrum disorders. We believe that continued work in this emerging field can lead to further insights into the pathophysiology and clinical management of PG as well as other disorders of impulse control.

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