

Ludomania: cross-cultural examinations of gambling and its treatment

Ludomania: avaliação transcultural do jogo de azar e seu tratamento

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Abstract

Pathological gambling is a disorder of impulse control that is gaining more and more attention. This paper reviews diagnostic criteria and screening instruments for pathological gambling, as well as the prevalence rates of this disorder worldwide, with an emphasis on gambling in Brazil. Treatments for pathological gambling are also described, including both psychosocial and pharmacological approaches. Pathological gambling is highly comorbid with other psychiatric disorders, including substance abuse and depression, and few pathological gamblers seek treatment for their gambling problems. Therefore, direct screening for gambling problems is recommended. Increasing education about the disorder, from both the provider and societal perspective, is necessary to reduce the personal and societal consequences of this disorder.

Descriptors: Gambling; Pathologic processes; Comorbidity; Outcome assessment; Clinical protocols

Resumo

O jogo patológico é um transtorno do controle do impulso que está ganhando mais e mais atenção. Este artigo revisa os critérios diagnósticos e os instrumentos de rastreamento para o jogo patológico, bem como os índices de prevalência desse transtorno ao redor do mundo, com ênfase na situação do jogo de azar no Brasil. Os tratamentos para o jogo patológico são também descritos, incluindo tanto as abordagens psicossociais como as farmacológicas. O jogo patológico é altamente comórbido com outros transtornos psiquiátricos, incluindo abuso de substâncias e depressão e poucos jogadores patológicos buscam tratamento para seus problemas com o jogo de azar. Portanto, recomenda-se o rastreio direto de problemas com o jogo de azar. É necessário melhorar a educação sobre o transtorno, tanto sob a perspectiva do cuidador como da sociedade, a fim de reduzir as consequências pessoais e sociais desse transtorno.

Descritores: Jogo de azar; Processos patológicos; Comorbidade; Avaliação de resultados; Protocolos clínicos

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Introduction

Pathological gambling (PG) is a psychiatric disorder that is gaining attention as gambling becomes more acceptable and prevalent within society. This article reviews the current state of the research literature from around the world (including Brazil) regarding diagnostic criteria for the disorder, prevalence of pathological gambling, comorbidity, treatment options, and finally implications for clinicians.

Diagnostic criteria of pathological gambling (ICD-10; DSM-IV)

Pathological gambling is classified as an impulse control disorder. According to the World Health Organization's International Classification of Diseases,¹ pathological gambling is a disorder of habit or impulse that "consists of frequent, repeated episodes of gambling that dominate the patient's life to the detriment of social, occupational, material, and family values and commitments."

Pathological gambling was first introduced as a disorder of impulse control in the third edition of the Diagnostic and Statistical Manual (DSM), and continues to be categorized as such in the current DSM-IV-TR.² In order to receive a diagnosis of PG, a patient must engage in persistent, maladaptive gambling behavior, meet at least 5 out of 10 of the DSM-IV-TR diagnostic criteria concurrently, and the gambling symptoms must not occur exclusively during a manic episode in which an individual's judgment is severely impaired.² The symptoms include:

- 1) Preoccupation with gambling (e.g., reliving gambling experiences, planning the next gambling venture);
- 2) Increasing amounts of money are needed to maintain gambling excitement (similar to tolerance in substance dependence);
- 3) Repeated and unsuccessful attempt to quit or cut back gambling;
- 4) Restlessness or irritability when reducing or quitting gambling (similar to withdrawal in substance dependence);
- 5) Using gambling as a way to escape from problems or negative mood;
- 6) Chasing losses (i.e., returning another day to win back money lost);
- 7) Lying to family, friends or others about one's gambling in order to hide the extent of gambling;
- 8) Engaging in illegal acts (e.g., forgery, embezzlement, etc.) to finance gambling;
- 9) Placing a relationship, job, educational or career opportunity in jeopardy as a result of gambling;
- 10) Seeking help from others to relieve a desperate financial situation caused by gambling.

Some have observed that PG may not typically be a persistent and chronic disorder with a steady downward trajectory. Rather, some study results suggest that pathological gamblers move in and out of the disorder, often recovering naturally, without treatment,³ and sometimes experiencing recurrences of the disorder.

Gamblers who experience more than two but fewer than five of these symptoms are generally called "problem gamblers," and problem gambling is associated with less severe psychosocial difficulties than is PG. Because gamblers may move in and out of the disorder, it is important to be aware that problem gamblers may also be at risk of developing PG, and may also require treatment services.

Assessing pathological gambling

The most widely used screening instrument for assessing pathological gambling is the South Oaks Gambling Screen (SOGS).⁴

The SOGS, based on DSM-III pathological gambling criteria, was originally developed as a lifetime measure. More recently the measure has been modified to assess pathological gambling over different timeframes, such as past 12- or 6-months.^{5,6} It consists of 20 self-report items, and scores five and higher indicate pathological gambling status. Additionally, an adolescent version of the SOGS is also available.⁷

The SOGS has been translated into Portuguese and used in Brazilian adult samples.^{8,9} In a psychometric study, Oliveira et al. found the SOGS to discriminate between pathological and social gamblers in Brazil.¹⁰ Furthermore, pathological gamblers seeking treatment in that study scored significantly higher than pathological gamblers recruited from the community with average SOGS scores of 14.3 and 9.4, respectively.

Despite the measure's widespread use, the SOGS has been criticized for its high false positive rate (identifying non-pathological gamblers as pathological) when used in prevalence studies, its over-emphasis on financial problems, and its use of DSM-III criteria.¹¹ These critiques of the SOGS have led to the development of several other pathological gambling screening instruments. The two next most commonly used screening measures are the National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS);¹² and the Canadian Problem Gambling Index (CGPI).¹¹

The NODS is an interviewer administered brief questionnaire regarding past-year and lifetime gambling problems. Administration of the 17 NODS items takes less than five minutes. The NODS identified 95% of treatment-seeking gamblers as pathological, and has demonstrated adequate reliability and validity.¹² Scores five and higher on the NODS indicate pathological gambling status. The CPGI consists of 14 items, 9 of which are used to determine pathological gambling status. Scores on the CPGI classify individuals into three categories: non-problem gambler, at-risk gambler, and pathological gambler. Like the NODS, the CPGI has also demonstrated acceptable psychometric properties.¹¹ Unfortunately, these instruments have yet to be translated into Portuguese and adapted for use in Brazilian samples.

The SOGS, NODS, and CPGI are screening tools, meaning they are not definitive in terms of pathological gambling diagnostic status. In clinical practice, these screens may be administered in a clinic waiting room, and those patients scoring in the at-risk range or higher could be given a more thorough assessment of gambling and its associated consequences by a mental health professional.

Going beyond screening, several more intensive instruments are available that assess pathological gambling, such as the Structured Clinical Interview for DSM-IV (SCID).¹³ However, these instruments have not been translated into Portuguese and require training on how to administer them properly. Diagnostic instruments similar to the SCID that are available in Portuguese, such as the Schedules of Clinical Assessment in Neuropsychiatry,¹⁴ do not currently include a module for pathological gambling.

Prevalence of and demographic factors associated with pathological gambling

Epidemiological studies from around the world suggest that the prevalence rate of pathological gambling in the general population ranges between 0.4% and 2.1%.¹⁵⁻¹⁸ Several factors contribute to the variability found in these prevalence estimates, including samples surveyed, the instruments and methodology used to assess pathological gambling, and the availability of gambling. Studies that have relied on interviewing individuals via the telephone often suffer from high refusal rates [over 35% in U.S. studies¹⁸], which can raise

questions about participant response bias. Additionally, studies that use the SOGS often find higher prevalence rates than DSM-IV based measures or clinical interviews.⁷ Finally, the availability and social acceptability of gambling has been shown to impact pathological gambling prevalence.¹⁹

In the largest and most methodologically rigorous epidemiological study done to date, Petry et al. found a lifetime prevalence rate of 0.42% in the U.S. general population.¹⁶ This sample was from the National Epidemiological Survey on Alcohol and Related Conditions (NESARC) and consisted of over 43,000 individuals who were interviewed face-to-face. The overall response rate was 81%, and a DSM-based instrument was used, possibly leading to the relatively lower prevalence rate in this study compared to those using the SOGS.

Specific risk factors have been consistently identified for pathological gambling. In general, males are two to three times more likely to meet diagnostic criteria for pathological gambling than females.^{16,19} Partly this may be due to the fact that males often begin gambling at an earlier age than women. However, women progress into a gambling problem faster and seek treatment sooner than men.⁹ Prevalence studies have also found other sociodemographic characteristics associated with pathological gambling, such as a specific region within a country, ethnicity, and being widowed, divorced, or separated.^{16,19} Education and income have also been investigated, but conflicting results abound.^{12,16,18} Finally, the presence of a prior or current psychiatric disorder is also a significant risk factor for pathological gambling. This information is reviewed in the next section.

Comorbidity with pathological gambling

Data are emerging that pathological gambling is a disorder that rarely occurs in isolation, but instead is often related to other psychiatric conditions. Comorbidity is a term used to describe the co-occurrence of two or more disorders in the same person. Each disorder can occur at different points in time, a pattern that would represent lifetime comorbidity. Alternatively, the disorders can occur at the same time, a pattern that would be considered current comorbidity. Some psychiatric conditions have overlapping symptoms, so in order for multiple diagnoses to be made, the disorders must express their usual etiology and characteristic symptom presentation independently.

The strongest case for evidence of comorbidity among pathological gamblers relates to substance use disorders. In all known epidemiological surveys in which both pathological gambling and substance use disorders were assessed, a positive association between the conditions was noted.¹⁸ In the largest and most representative sample, Petry et al. investigated the comorbidity of pathological gambling with other psychiatric disorders in the United States.¹⁶ Using the NESARC sample, the authors found the lifetime rate of alcohol abuse or dependence was 73.2% among those identified as lifetime pathological gamblers versus 25.0% among non-gamblers. Statistical analyses on the NESARC sample suggest pathological gamblers have a 6-fold increased risk of having an alcohol use diagnosis in their lifetimes.

In regards to other substance use disorders, excluding nicotine, Petry et al. found that 38.1% of lifetime pathological gamblers had one or more.¹⁶ The substances use disorders assessed for included: sedatives, tranquilizers, opiates, stimulants, hallucinogens, cannabis, cocaine, inhalants/solvents, heroin and other drugs. The corresponding rate of other illicit substance use disorders in the non-

gamblers was only 8.8%, representing a 4.4-fold increased risk of illicit drug dependence in the pathological gamblers.

While epidemiological data are clearly most appropriate for understanding relationships between disorders, data from treatment-seeking samples corroborate high rates of comorbidity between pathological gambling and substance use disorders. For example, Tavares et al. evaluated 140 consecutive admissions to a gambling treatment program in São Paulo and found 24% of those seeking treatment had a current substance dependence diagnosis.⁹ This rate is much higher than the rate of substance dependence found in the São Paulo general population 5.1%.²⁰ In Spain, Ibanez et al. evaluated 69 treatment-seeking gamblers, and 35% had a history of an alcohol use disorder, with 23% reporting a current alcohol use disorder.²¹ Maccallum and Blaszczynski evaluated 75 gamblers in treatment in Australia, and 24% had a current alcohol use diagnosis and 11% marijuana abuse or dependence.²² These rates are clearly much higher than general population rates.²³

The converse relationship has also been examined, with individuals seeking treatment for a substance use disorder being assessed for a gambling problem. Many such studies are available from a variety of treatment settings, including residential facilities, inpatient units, and outpatient addictions treatment.^{24,25} Most find rates of pathological gambling between 10% and 20% in samples of substance abusers seeking treatment. In a Brazilian sample, de Carvalho et al. evaluated 74 substance abuser seeking treatment and found 19% were pathological gamblers, as assessed by the SOGS.⁸ These rates are substantially higher than the 0.4% to 2.0% rates of pathological gambling in general population surveys.¹⁶ Thus, substance use disorders and pathological gambling are clearly linked.

Mood disorders are also commonly associated with pathological gambling. Epidemiological studies in the United States found that rates of major depression were about three times higher in pathological gamblers relative to non-gamblers.^{16,26} In Canada, Bland et al. found that 20.0% of pathological gamblers, compared with only 12.4% of the non-pathological gamblers, met criteria for major depression.¹⁵ The relationship between pathological gambling and co-occurring mood disorders most likely has multiple etiologies. For example, individuals who gamble problematically may experience symptoms of depression because of the emotional, financial, and social problems that result from excessive gambling behavior. For others, gambling may be a strategy for escaping from, or coping with stress and depressive symptoms.²

Other mood disorders have also been found to be elevated in pathological gamblers in comparison to non-pathological gamblers. Rates of dysthymia, a disorder characterized by chronically depressed mood for over two years, were significantly elevated in pathological gamblers in the NESARC study, with about a 3-fold elevated risk. Meanwhile, bipolar disorder is generally considered an exclusionary criterion for pathological gambling, unless the two disorders occur independently, as gambling episodes may be better accounted for by a manic episode. Neither Bland et al.¹⁹ nor Cunningham-Williams et al.²⁶ found significantly elevated risk of bipolar disorder in their samples. However, in the much larger NESARC sample,¹⁶ rates of a manic episode were 8-fold higher in pathological gamblers compared with non-gamblers.

Only a few studies have systematically examined rates of mood disorders in treatment seeking pathological gamblers. While all these studies suffer from relatively small sample sizes, they do point to high rates of depression among those who seek treatment for gambling

problems. In Brazil, Tavares et al. assessed outpatient gamblers for current depressive disorders and found over 70% met criteria.⁹ Other studies involving gambling centers have found rates of major depression ranging between 32% and 76%.²⁷⁻³⁰ Two studies^{27,29} also found elevated rates of hypomania (38%) and manic episodes or bipolar disorder (8-24%) in treatment seeking gamblers. Again, these rates are clearly higher than general population rates of mania and bipolar disorder,²³ but the rates are confounded by the fact that the majority of these patients were receiving inpatient psychiatric treatment. Patients receiving outpatient treatment, by definition, are likely to have less severe problems. Nevertheless, the available data do suggest a strong link between pathological gambling and mood disorders no matter whether epidemiological or treatment seeking samples are studied.

Anxiety disorders have also been evaluated with respect to comorbidities with pathological gambling, albeit in relatively few studies. The NESARC study found that every anxiety disorder assessed occurred at significantly higher rates among pathological gamblers than non-pathological gamblers, including generalized anxiety disorder, panic disorder with and without agoraphobia, specific phobias and social phobia, each with odds ratios greater than 3 for all these disorders.¹⁶

In terms of treatment-seeking gamblers, limited information exists. Tavares et al. found that approximately a third of the treatment-seeking sample met criteria for specific phobias, 14% met criteria for obsessive compulsive disorder, and 10% met criteria for panic disorder.⁹ Other studies have compared pathological gamblers to controls and found no significant differences in anxiety disorders prevalence.²¹ However, the lack of statistical significance may be related to low power, as sample sizes were relatively small in these studies. Overall, anxiety disorders appear to occur more frequently in pathological gamblers than in the general population.

Regrettably, data are lacking regarding the association between pathological gambling and other psychiatric conditions. However, given the strong and consistent relationships noted between pathological gambling and substance use, mood, and anxiety disorders assessed in epidemiological and treatment-seeking samples, it is likely that other psychiatric conditions such as schizophrenia are elevated in pathological gamblers, as well.

In regards to the onset and patterning of pathological gambling and other Axis-I psychiatric disorders, the relationship is variable. Examples abound of pathological gambling being a secondary disorder to other psychiatric disorders, especially substance use disorders.²⁴ In contrast, the onset of major depression was found to be equally likely to precede or to follow the development of pathological gambling in one study, and more often followed the onset of pathological gambling in others.²⁸ As legalized gambling becomes more readily available to current and future generations, different patterns may emerge, presumably with pathological gambling being more likely to co-occur or precede other conditions. Clearly, these reports highlight that our knowledge is limited concerning the temporal relationship between pathological gambling and other psychiatric disorders.

An association between pathological gambling and antisocial personality disorder (ASPD), an Axis-II disorder, has also been found. Several population-based studies have found increased rates of ASPD within pathological gamblers.^{16,26} Treatment-seeking pathological gambling samples have also found elevated rates of ASPD.²¹ The estimates of ASPD in these samples range from 0% to 33%, with the typical finding being approximately 10% to 15%.

These rates are greater than those found in the general population, which is 1.5% to 3.5%.²³

Finally, a cautionary note about the findings summarized here. The majority of studies were conducted in North America. Prevalence and comorbidity rates may differ in Brazil. One important factor is the availability of gambling activities. Gambling has become steadily more available in North America over the past 15 years, with a large increase in lotteries and casino based games. This increase in availability may result in more people participating in gambling activities with some going on to develop problems.¹⁹ Meanwhile, gambling has been restricted and only recently become more available in Brazil with bingo, video poker, and horse racing being the most commonly played games.³¹

Another factor that may influence prevalence and comorbidity rates is the fact that different classification systems are used throughout the world, and across these classification systems, symptoms and methods of psychiatric diagnoses vary. For example, the diagnosis of anxiety disorders varies depending upon whether ICD-10 or DSM-IV classifications are employed.³² Compounding upon the diagnostic classification system used is cultural or ethnic issues, such that psychiatric symptoms and even classifications can vary, sometimes quite substantially, cross culturally. For instance, the experience of major depression symptoms varies across cultures, such that depression may be experienced and reported in more somatic terms (e.g., aches, weakness) than emotional terms (e.g., sadness, guilt) in some cultures.² Also, cultural idioms of distress, such as "feeling blue" for sadness or "butterflies" for anxiety, are not necessarily relevant or easily translated to other languages.³³ In addition, the language used in the interview and ethnicity of the assessor may influence clinical judgment of symptom severity and ultimately diagnosis.³⁴ Combined, these issues impact the accuracy of diagnoses across samples and populations.

Treatments for pathological gambling

Pharmacological and psychosocial treatments for pathological gambling have received increased attention in the past decade. However, research examining the efficacy of psychosocial and pharmacological treatments for PG is at a relatively early stage compared with other psychiatric and substance use disorders of similar prevalence (e.g., cocaine dependence or posttraumatic stress disorder). No single or group of treatments are universally accepted as highly efficacious with pathological gamblers. However, recent research, conducted primarily in the last 15 to 20 years, has identified several promising psychosocial and pharmacological treatment approaches. Some of these approaches are described below.

1. Psychosocial treatments

Gamblers Anonymous (GA), a 12-step support-group approach, is the most utilized psychosocial gambling cessation intervention. GA is less structured than many other types of treatment. Participants may attend single or multiple meetings, there is no set termination date of treatment, and individuals who attend GA are free to attend meetings at different locations as they wish. As such, rigorous study of the efficacy of GA is very difficult, if not contrary to the nature of the intervention. The limited evidence available about the effectiveness of GA has been mixed. Stewart and Brown followed 232 GA members through their fellowship with the organization.³⁵ One year after entry into a GA group, only 8% of group members maintained abstinence from gambling. Abstinence was maintained by 7% after two years.

As many as 22% of the participants dropped out of GA after their first meeting, and nearly 70% dropped out by their 10th meeting. Petry on the other hand, found more positive outcomes associated with GA among treatment seeking pathological gamblers.³⁶ Patients in structured outpatient gambling treatment who also attended GA were more likely to abstain from gambling two months into treatment (48%) than patients who did not attend GA (36%). GA attendees also began treatment with more severe gambling problems and attended more of their structured therapy appointments. Other studies have also found associations between GA attendance and longer term gambling abstinence.²⁸ Such correlational findings suggest that GA attendance may serve as a proxy for treatment motivation. However, more research is needed to examine the efficacy of GA as a stand-alone intervention. In Brazil, GA meetings are available in most of the large cities (see <http://www.gamblersanonymous.org/mtgdirBRA.html>).

Other recent examinations of psychosocial treatments for PG have involved controlled clinical trials. The efficacy of **brief interventions** has been examined in this fashion. Hodgins et al.,⁵ for example, randomly assigned 102 patients to receive a self-help workbook alone, a self-help workbook plus one motivational interview, or placement on a waiting list. The motivational interview was based on motivational enhancement treatment approach frequently utilized in substance abuse treatment. Assignment to the workbook plus motivational interview condition resulted in the greatest reductions in gambling symptoms. The self-help workbook alone did not produce greater reductions in gambling symptoms relative to the waitlist condition. In another study, Dickerson et al. similarly found that a brief intervention resulted in greater short-term reductions in gambling compared with no in-person contact.³⁷ Thus, brief gambling interventions have the potential to reduce gambling behavior in some pathological gamblers.

Cognitive and cognitive behavioral (CBT) treatment approaches are associated with the greatest empirical support for efficacy among the psychosocial treatments. Several different research groups have conducted clinical trials that suggest that CBT is an efficacious treatment for PG.^{6,38,39} Although interventions vary with lesser or greater emphasis on cognitive and behavioral aspects of treatment, these interventions frequently focus on identification of cognitive distortions about gambling (e.g., biased memories, illusions of control), reinforcement of non-gambling behaviors, encouragement of problem solving, social skills building and relapse prevention.

In a recently published study conducted in our lab,³⁹ 231 pathological gamblers recruited from the community were randomly assigned to one of three treatment groups - referral to GA, GA referral plus a self-directed CBT manual, or GA referral plus individual CBT. The manual and individual CBT consisted of eight chapters or sessions, covering various cognitive risk factors and behavioral coping skills. Each session lasted approximately 50 minutes, and the session themes included: identifying gambling triggers, functional analysis of gambling triggers and consequences, planning alternative activities, trigger management, coping with cravings to gamble, assertiveness and gambling refusal skills, addressing gambling-related irrational thoughts and relapse prevention. Patient gambling was reassessed at 1 month, 2 months, 6 months and 12 months after the baseline assessment. Primary outcome variables included changes in gambling symptom severity scores (SOGS and Addiction Severity Index Gambling scale), days of gambling and money gambled. Patients in the individual CBT condition experienced greater improvement than patients in the GA referral condition on

all of the primary outcome measures. Individually treated patients also experienced greater reductions in the amount of money wagered than patients who received the CBT workbook, during the 8-week treatment period. However, the workbook and individual treatment conditions were similar in terms of the other outcome measures. Individual therapy was also associated with some longer-term maintenance of lower gambling symptoms relative to the other two treatment conditions.

2. Pharmacological treatments

Although pharmacological treatments have not been approved for use in pathological gamblers, several recent investigations have begun to explore the efficacy of various medications. These drugs generally fall into one of three categories: 1) opioid antagonists; 2) antidepressants; and 3) mood stabilizers. Below, we describe the evidence for various pharmacological treatments.

Opioid antagonists that have been studied in gamblers include naltrexone and nalmefene hydrochloride. Naltrexone inhibits dopamine neurons in key areas of the brain, and has been used successfully as a treatment for opioid and alcohol dependence. Researchers theorize that dopamine inhibition produced by the drug may reduce urges and excitement associated with gambling.⁴⁰ Naltrexone has demonstrated effectiveness in reducing gambling symptoms in a number of clinical trials and case reports.^{40,41}

In the most rigorous published study to date, Kim et al. enrolled 83 pathological gamblers in an 11-week double-blind, placebo controlled investigation of naltrexone.⁴⁰ A 1-week single-blind placebo lead-in phase preceded administration of naltrexone, which began at 25 mg/day, and was titrated up to a maximum possible dose of 250 mg (however, dose increase were stopped short of 250 mg based on clinical judgment). Data from 45 patients were analyzed. These included patients who were retained in the study past week 6, and who achieved naltrexone doses of 100 mg/day or more for at least 2 weeks. Naltrexone-treated patients experienced greater reductions in gambling symptoms, and were more likely to be "much" or "very much" improved (75%) compared with patients in the placebo condition (24%). Side-effects caused by naltrexone include nausea, dry mouth, vivid dreams and elevated liver transaminases in patients taking non-steroidal analgesics.⁴⁰

Recently, Grant et al. conducted a 16-week, randomized, double-blind, placebo-controlled investigation of nalmefene, an opioid antagonist medication often used for treatment of alcohol dependence, with treatment-seeking pathological gamblers.⁴² A potential advantage of nalmefene is that it is not associated with liver problems linked to naltrexone. Patients were randomly assigned to placebo, or 25 mg, 50 mg or 100 mg doses of nalmefene. Nalmefene groups were combined for analysis, and nalmefene resulted in greater decreases in gambling disorder symptoms and gambling urges compared with placebo. Overall treatment response was most pronounced for patients who received 25 mg doses (59% were "much improved" or "very much improved"), compared with 34% of those in the placebo group. Patients receiving 50 mg (48%) and 100 mg (42%) doses were not significantly more likely to show marked improvement compared with placebo patients. Side-effects, however, were relatively common and included nausea, insomnia, dizziness, vomiting, dry mouth constipation, somnolence, urinary frequency, decreased appetite and sweating.

Several **antidepressant medications** have also been explored as potential medications for pathological gambling. Selective serotonin reuptake inhibitors (SSRIs) have been studied most frequently in

this category.⁴³ However, norepinephrine/dopamine agonists, such as bupropion have also received some attention.⁴¹ Some double- and single-blind placebo controlled trials have also been conducted to evaluate the efficacy of SSRIs, and have generally found mixed results. A portion of these trials suggested that SSRIs are efficacious in reducing gambling disorder symptoms and gambling behavior,⁴⁴ while others found no effect of SSRIs on gambling.⁴⁵ Still others found comparable results when comparing an antidepressant to another medication thought to reduce gambling, such as antiepilepsy medications such as topiramate⁴⁶ or opioid antagonists such as naltrexone.⁴¹

One of the more rigorous studies conducted to date was a double-blind placebo-controlled study of paroxetine.⁴⁴ Forty-five pathological gamblers participated in a 1-week placebo lead-in phase followed by randomization to 8 weeks of medication (titrated up to a maximum dose of 60 mg/daily) or placebo, and were included in an intent-to-treat analysis. Patients receiving paroxetine experienced greater reductions in gambling disorder severity and gambling urges than patients in the placebo condition. Nearly 48% of patients in the paroxetine condition were rated as "very much improved", compared with about 5% of the placebo patients.

Another double-blind, placebo-controlled study examined the efficacy of fluvoxamine in 32 pathological gamblers over 6 months of treatment.⁴⁷ Overall, fluvoxamine was not related to greater improvement than placebo. However, men and younger patients taking fluvoxamine reported greater improvement in gambling symptoms compared with placebo, suggesting that the efficacy of some SSRIs may be mediated by other factors.⁴⁷

Lithium and other **mood stabilizers** have recently been studied in pathological gamblers who have co-occurring bipolar disorder symptoms.⁴⁸ In one recent double-blind, placebo-controlled study, 40 pathological gamblers with a bipolar spectrum disorder (limited to bipolar II, bipolar NOS and cyclothymia) were randomized to receive sustained-release lithium carbonate (titrated up to 300 mg/morning and 600 mg/evening dose) or placebo for a 10-week course of treatment.⁴⁸ Twenty-nine patients completed the treatment. Lithium treatment was associated with significant reductions in gambling disorder symptoms, and gambling thoughts and urges. Findings were similar regardless of whether data from only completers was considered, or an intent-to-treat (last observation carried forward) analysis was performed. Of the patients who completed the entire course of treatment, more lithium-treated patients (83%) were rated as treatment-responders than placebo-treated patients (29%). Thus, lithium may be a useful treatment in pathological gamblers with co-occurring bipolar spectrum disorders, but more research is needed to further explore this pharmacotherapy for the treatment of pathological gambling.

The psychosocial and pharmacological treatments described above have led to some promising treatment outcomes. However, many of the studies are also limited by several factors (e.g., small sample sizes, inadequate control groups, no posttreatment assessments, etc.). Thus, much more research is needed to further refine our understanding of the efficacy of these treatments, and no medication has yet received an indication for the treatment of pathological gambling. As pharmacological research in this area continues, it may address several issues, such as the long-term effects on gambling following cessation of stop-gambling medications, and the possibility of additive efficacy by combining medication and psychotherapy.

Summary and implications for research and treatment in Brazil

In sum, pathological gambling can manifest along a number of dimensions, from relatively modest to more severe forms. It is associated with an array of psychosocial, psychiatric and substance-related problems. To the extent that gambling is influenced by environmental factors, it is important to obtain more cross-nationally data to better understand its clinical and cultural expression.

In Brazil, horse racing, state lotteries, and card betting games have traditionally been the national favorite gambling methods, whereas casino gambling is prohibited.^{8,31} In recent years, bingo halls and electronic games have also become increasingly popular.⁸ Despite changes in the Brazilian gambling scene, there is no nationally representative study to estimate the extent of the country's gambling problems. In fact, prevalence estimates derive largely from the southern metropolitan area of Sao Paulo.

Oliveira and Silva interviewed 171 adults at bingo, horse racing and video-poker clubs employing the South Oaks Gambling Screen.⁴⁹ Not surprisingly, these investigators found a high prevalence rate of problem gambling at 43.8%. In comparison to non-pathological gamblers, a significantly higher proportion of pathological gamblers played cards, horse racing, video poker, and dice during their lifetime. In another study, Carvalho et al. examined the frequency of pathological gambling in three São Paulo addiction treatment settings.⁸ Specifically, 74 individuals attending these outpatient facilities were interviewed through structured questionnaires, and 61.6% met DSM-IV criteria for alcohol dependence, 60.3% for cocaine dependence and 34.2% for cannabis dependence. Most subjects (70.3%) were categorized as social gamblers, 10.8% as problem gamblers and 18.9% as pathological gamblers. Among the pathological gamblers, the games most often played were electronic games, bingo, cards and other games that require skill. Pathological gamblers showed significantly more depressive symptoms than non-pathological gamblers, consistent with American and European studies which also demonstrate higher levels of psychiatric symptoms among pathological gamblers.^{16,21}

The presence of a psychiatric disorder in pathological gamblers seems to be associated with a greater severity of clinical problems,²¹ which may manifest differentially across genders.⁵⁰ Investigators have attempted to understand the phenomenology of gambling specifically in Brazilian samples with respect to gender differences in comorbidity profiles and progression of gambling severity.⁹ In one study, 70 Brazilian female gamblers were compared to 70 male gamblers after controlling for gambling severity, demographics and previous access to psychiatric services. Compared to males, a greater proportion of females reported electronic bingo and video lottery terminals as their primary mode of gambling. Consistent with data from Spain,⁵⁰ female gamblers displayed a higher comorbidity with depression, whereas male gamblers had higher rates of alcohol dependence. Female gamblers displayed a more rapid increase in severity of gambling than their male counterparts. Thus, the relatively limited available clinical research data in Brazilian samples largely replicates findings from other countries regarding pathological gambling, including gender differences in the clinical presentation as well as an important association with comorbid psychiatric and substance use disorders. As Brazilians in general and Brazilian psychiatrists in particular become more familiar with this disorder, it will be important to conduct population-based studies to determine the extent of gambling problems in various regions of the country.

Overall, the cross national data reviewed earlier above and

throughout the paper underscore the need to screen for problem gambling and associated comorbidities, particularly in high-risk settings such as substance abuse treatment facilities and other psychiatric clinics. As in US and Canadian samples, few pathological gamblers present specifically for gambling treatment 4.9%;^{3,31} instead, pathological gambling is more likely to be uncovered if it is queried about, using some of the instruments reviewed initially.

Treatment recommendations for pathological gambling range from brief interventions, especially for less severe forms of the disorder, to more extensive cognitive-behavioral therapies alone or in combination with referral to GA. While no medication is indicated for pathological gambling per se, comorbid conditions (e.g., depression) can be effectively treated pharmacologically, and gambling may subside once other symptoms subside. Educational efforts targeting gamblers, their families and staff in psychiatric and substance abuse treatment settings may also help increase awareness of this disorder and ultimately guide prevention and intervention strategies.

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