Factors at Play in Faster Progression for Female Pathological Gamblers: An Exploratory Analysis

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Background: Previous studies reported a faster progression for alcohol dependence and pathological gambling among females as compared with males. This phenomenon was called the "telescoping effect." By comparing female gamblers with male gamblers regarding gambling preferences and comorbidity, the authors explored potential risk factors for telescoping.

Method: A consecutive sample of Brazilian treatment-seeking pathological gamblers (DSM-IV criteria) was recruited. Genders were contrasted regarding comorbidity and gambling behavior, controlling for demographics, gambling severity, and previous access to mental health services.

Results: Seventy female gamblers and 70 male gamblers were interviewed. A greater proportion of women than men reported electronic bingo and video lottery terminals as their main type of gambling. Gambling was divided in 3 progressive stages: "social gambling," "intense gambling," and "problem gambling." Faster progression for female gamblers was confirmed; female gender and preference for electronic bingo and/or video lottery terminals were risk factors for telescoping throughout all stages. Female gamblers presented a higher comorbidity with depression, whereas male gamblers had higher rates of alcohol dependence. Nevertheless, comorbidity profiles were not related to gambling progression.

Conclusion: Two factors could be at play for treatment-seeking female gamblers in Brazil: (1) a potential gender vulnerability and (2) a cultural environment yielding them access to a narrower range of gambling games that includes mainly the most addictive ones.

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Investigating the course of a mental illness is part of the broader task of describing its natural history. Though currently well recognized as a disease, addiction still requires better knowledge of the factors involved in its generation and their relation with a likely order of events and symptoms.[1] This is particularly true for the newer so-called behavioral addictions,[2] among them pathological gambling.

Insight into the progression of pathological gambling may render better understanding of its psychopathology and vulnerability factors. In a preliminary study, Tavares and colleagues[3] identified a faster progression of gambling problems and treatment seeking for women when compared with men among a sample of gamblers entering treatment. This finding was further corroborated by Potenza and colleagues,[4] who reported a faster progression for women among callers to a gambling hotline. Piazza and colleagues[5] were the first to describe this faster progression among female alcoholics, naming it the "telescoping effect." In the study by Piazza and colleagues, both genders had similar degrees of addiction severity, indicating that treatment seeking was not prompted by women's hypothetical decreased capacity of enduring addiction and its consequences. The meaning of the telescoping effect is not clear yet. It could be an indicator of

female vulnerability to addiction, but as the majority of measures of addiction progress adopt age at seeking treatment as the ending point, the observed faster progression could also be an effect of greater social pressure over women to seek treatment. Reviewing this topic, Zilberman and colleagues[6] counter-argue that (1) the secrecy of women's addictive behavior, (2) the fact that the majority of their spouses also carry an addiction problem, and (3) due to social stigma women are less likely to seek specialized treatment for addiction[7–10] make it unlikely that telescoping is an effect of greater social pressure to seek treatment.

The gambling scenario is changing throughout the world, with new computer games increasing gambling availability to an extent never observed before.[11] These new games have shortened the time span between the bet and the outcome. They operate almost entirely on a random basis, but results are displayed in a certain way to encourage re-betting as they falsely suggest closeness to winning. The ability to produce such an effect without altering the probability of winning was described as the "near miss" effect.[12,13] Thus, these new computerized games are potentially more addictive than the older traditional games, such as horse racing and card games, and may influence the development of gamblers' addictions differently.[14] To date, we have found no study addressing the effect of different games on gambling progression.

In Brazil, video lottery terminals (VLTs) were briefly allowed during 1989, suspended a year later, and then reinstated in 1994 along with the authorization for electronic bingo. Before that, the most popular games were weekly state lotteries, horse racing, and an illegal, though very popular, lottery called "The Animal Game" that runs twice a day.[3] Although gender studies are just beginning in the gambling field, recent articles have pointed out interesting differences among genders. Compared with men, women are more likely to play games of chance over games that require some skill.[15] They are more likely to present comorbidity with depression and to justify gambling as an escape from negative emotions.[16] In previous studies,[3,17] we identified that female gamblers from the city of São Paulo, Brazil, gave preference to the new forms of gambling, mainly VLTs and electronic bingo, while horse racing, card games, and other older games were almost exclusive to male gamblers.

The goal of this study is to investigate whether differences in gambling preferences and comorbidity profiles among female and male gamblers are likely to render a faster gambling progression for women, while controlling for potential confounding variables such as access to and use of mental health services, addiction severity, and differences in demographic profile. The hypotheses are that preference for new computerized games and a higher comorbidity with mood and anxiety disorders might explain "telescoping" among female gamblers. On the other hand, if these hypotheses are false, it is assumed that other factors linked to gender might be at play, and the existence of a vulnerability factor for gambling intrinsic to women should be considered.

METHOD

Patients

A series of interviews from 1998 to 2001 published in the main newspapers of the city of São Paulo, Brazil, emphasized pathological gambling and the access to treatment. Patients either self-referred or were referred by other services. Treatment was offered on an outpatient basis at the Gambling Unit of the Institute of Psychiatry. The Institute of Psychiatry is located at the public hospital of the University of São Paulo. All patients with pathological gambling according to DSM-IV criteria[18] and the South Oaks Gambling Screen (SOGS)[19] consecutively admitted from April 1998 to September 2001 were included in this study. The exclusion criteria were either refusal to sign or inability to provide informed consent (because of, e.g., comorbidity with psychosis, mental retardation). All ethical requirements for human subject research were followed, and approval from the institutional ethics committee was obtained.

A trained psychiatrist specializing in the field (H.T., S.S.M., or D.S.S.L.) interviewed patients at the first session using a semi-structured interview[3] devised to elicit information on demographics, history of gambling involvement, and previous usage of mental health services. A timeline follow-back method[20,21] was used to elicit information on gambling behavior during the 3 months prior to treatment seeking. A Portuguese translation[22] of the Schedules for Clinical Assessment in Neuropsychiatry (SCAN)[23] was used to assess psychiatric comorbidity.

Data and Statistical Analysis

Demographic data included age, marital status, number of children, job status, education, racial/ethnic background, and religion. Previous gambling treatment was indicated by 4 dichotomous variables: Gamblers Anonymous (GA)/12-step–based programs, counseling/psychotherapy, psychiatric treatment, and any treatment. Previous treatment for other psychiatric conditions was categorized according to the focus of treatment and was indicated by 4 dichotomous variables: mood, anxiety, addiction-related problems, and any mental health treatment.

Gambling behavior data included age at gambling onset (when subject started betting regularly—at least once a month), age when gambling increased (when initial frequency was at least doubled), age at onset of gambling-related problems (when the gamblers themselves first recognized a problem directly caused by gambling), and age at first treatment seeking specific to gambling problems. Gambling progression was divided into 3 intervals. The

interval between age at gambling onset and age at gambling increase was called "Social Gambling." The interval between age at gambling increase and age at onset of gambling-related problems was called "Intense Gambling." The interval between age at first problem gambling and the age at first treatment seeking was called "Problem Gambling." A structured interview modeled after the Structured Clinical Interview for DSM-IV Axis I Disorders and that reflected DSM-IV criteria for pathological gambling was developed.[24] Gambling severity was assessed by the total number of positive DSM-IV criteria for pathological gambling. With respect to type of game, gamblers were classified into 1 of 2 categories: having played exclusively new games (electronic bingo and video lottery terminals) or having played traditional games either in the past or currently (cards, horse racing, and lotteries). These latter subjects may or may not have played new games.

The SCAN investigated 12 diagnoses: nicotine dependence, alcohol dependence, drug dependence, depressive disorders, bipolar disorders, phobic disorders, obsessive-compulsive disorder, panic disorder, somatoform disorders, eating disorders, dissociative disorders, and sleep disorders. Upon further evaluation, dissociative and sleep disorders were excluded since the majority of such symptoms were secondary to recent acute stress caused by gambling. Somatoform and eating disorders were not analyzed, as the small numbers would not yield statistical analysis. Two female gamblers and 3 male gamblers fulfilled criteria for somatoform disorders, and 3 female gamblers and 1 male gambler fulfilled criteria for bulimia nervosa.

On a preliminary exploratory univariate comparison, female gamblers and male gamblers were contrasted for possible differences in demographics, gambling variables, and comorbidity. Chi-square tests with continuity correction for 2×2 tables and t tests were used respectively for categorical and continuous data. Variables with a significance level equal to or below .10 were selected for the next phase.

For the second phase of the analysis, the subjects were classified as "telescoped" or "non-telescoped" according to time spent in each gambling progression interval. The cutoff points used for dichotomization were based on the mean values of the Intense and Problem gambling intervals described for a sample of telescoped gamblers (respectively 1 year or less and 2 years or less), because these parameters clearly differentiated female gamblers from their male counterparts in a previous study.[3] In addition, such cutoff points have clinical relevance, as they demonstrate that the window for intervention after one increases gambling frequency may be particularly short for a subset of gamblers. Because of lack of previous information, the cutoff for the Social Gambling interval was based on the median score for this sample. Subjects reporting a period of Social Gambling lasting 2 years or less were classified as telescoped for this interval.

A binary logistic regression model was computed for each dichotomized gambling progression variable. Based upon the sample size available, the models were limited to a maximum of 11 factors.[25] In order to avoid increasing the likelihood of an alpha error, a Bonferroni correction was adopted and the level of significance was set as .017 ($p = .05 \div 3$ comparisons). The SPSS software package (release 10.0; SPSS, Inc., Chicago, Ill.) was used for statistical analysis.

RESULTS

Seventy women and 70 men diagnosed as pathological gamblers with a mean ± SD age of 42.8 ± 9.6 years entered treatment, and none were ineligible or refused to participate in this study. Of the 140 patients, 77 were included in our previous report.[3] The majority of patients were white (82%, N = 115), Catholic (76%, N = 107), married (59%, N = 82) with 1 or 2 children (mean = 1.6 ± 1.3), and had high school or greater education (81%, N = 114, mean years of formal education = 11.8 ± 3.7). This profile is compatible with the one described for middle class strata according to the last Brazilian government census.[26] Forty-one percent of the sample (25 men and 32 women) were unemployed, which is high compared with the same social strata in the general population (around 9%).[26] No gender differences were found for demographic variables, except for marital status. Half of women were living without a current partner (50%, N = 35). Conversely, the majority of men (67%, N = 47) were married or living in common-law ($\chi^2 = 4.3$, df = 1, N = 140, odds ratio = 0.49, p = .039).

No gender difference in the overall rate of previous treatment for pathological gambling was observed; 35% of subjects (N = 49) had some previous treatment for gambling. Nevertheless, men attended GA or 12-step–based programs more than women (31%, N = 22 vs. 17%, N = 12; $\chi^2 = 3.9$, df = 1, N = 140, odds ratio = 2.2, p = .047). Thirteen percent of the total sample (N = 18) sought psychotherapy or counseling as their first treatment attempt for pathological gambling; 6% sought a psychiatrist. The overall usage of mental health services was not different between genders; 33% of subjects (N = 46) had some previous treatment for other mental health condition. However, women (29%, N = 20) sought treatment for mood disorders more than men (10%, N = 7) did ($\chi^2 = 8.0$, df = 1, N = 140, odds ratio = 0.28, p = .005). Nine percent of the total sample (N = 13) sought previous treatment for anxiety related symptoms; 4% (N = 6) had a previous treatment for other addiction related problem.

Women differed from men across all chosen gambling variables except for mean ± SD number of positive DSM-IV criteria for pathological gambling (8.0 ± 1.3)

Table 1. Current Comorbid Axis I Disorders for Female and Male Pathological Gamblers

	Women (N = 70)		Men (N = 70)	
Type of Disorder	N	%	N	%
Substance dependence				
Tobacco	52	74	44	63
Alcohol	4	6	19	27[a]
Other substances	7	10	10	14
Mood disorders				
Depressive disorders	56	80	44	63[b]
Bipolar disorders	5	7	6	9
Anxiety disorders				
Specific phobias	26	37	21	30
Obsessive-compulsive disorder	10	14	10	14
Panic disorder	8	11	6	9

[a]Women < men: $\chi^2 = 10.2$, df = 1, N = 140; odds ratio = 0.16 (95% CI = 0.052 to 0.51); p = .001; with continuity correction.
[b]Women > men: $\chi^2 = 4.2$, df = 1, N = 140; odds ratio = 2.4 (95% CI = 1.1 to 5.1); p = .040; with continuity correction.

and age when they first sought treatment specifically for gambling. The mean age at first seeking treatment for gambling (42.7 ± 9.6 years) was roughly the same as mean current age, because for the majority of clients the current gambling treatment was their first. Women started (35.9 ± 12.2 vs. 22.7 ± 10.6 years, t = 6.80, df = 138, p < .001) and increased (40.9 ± 9.7 vs. 30.7 ± 10.5 years, t = 6.00, df = 138, p < .001) gambling later in life than men. They also experienced gambling problems later (41.8 ± 9.8 vs. 35.0 ± 9.2 years, t = 4.24, df = 138, p < .001), meaning that they progressed faster through all the stages of pathological gambling so that they could reach treatment at the same age as men. Time spent in the 3 gambling progression intervals was shorter for women: "Social Gambling" (5.0 ± 9.5 vs. 7.9 ± 7.0 years, t = –2.06, df = 138, p = .042), "Intense Gambling" (0.8 ± 1.1 vs. 4.3 ± 5.8 years, t = –4.92, df = 74, p < .001, equal variances not assumed), and "Problem Gambling" (1.9 ± 1.6 vs. 6.7 ± 7.5 years, t = –5.20, df = 75.2, p < .001, equal variances not assumed).

Type of gambling also differed according to gender. A greater proportion of women than men (N = 51, 73% vs. N = 39, 56%, $\chi^2 = 4.5$, df = 1, N = 140, odds ratio = 2.1, p = .034) reported being exclusive new game players (electronic bingo, VLT, or both). The remaining female gamblers (N = 19, 27%) were all current players of electronic bingo and/or VLT as well, but had a past history of problems with other games. No woman sought treatment for current problems with games other than electronic bingo or VLT. Among the 31 male gamblers (44%) classified as players of other games, 23 (33%) played electronic bingo and VLT along with other games, and 8 (11%) sought treatment because of other games (5 bettors of "The Animal Game," 2 card games bettors, and 1 horse race bettor).

Table 1 shows the profile of comorbid Axis I disorders for men and women. If nicotine dependence is not counted, then 34 subjects will be classified as having comorbid substance dependence. Some subjects also had more than 1 comorbidity.

Six variables reached significance and advanced to the second phase of the statistical analysis. The selected variables were marital status, engagement in GA/12-step–based program, previous treatment for mood disorders, type of game, lifetime comorbidity with alcohol dependence, and depression.

On the second phase, binary logistic regression models were calculated for each of the 3 dichotomized gambling progression variables. The factors entering the models were the 6 variables described above plus gender. Table 2 shows the significant results. In all 3 models, gender and type of game significantly predicted gambling progression such that women and players of new games had shorter progressions. The comorbidity variables did not reach significance in any of the 3 models.

DISCUSSION

The current study confirmed previous results obtained by Tavares and colleagues,[3] analyzing a subset of those data, including gender differences in marital status, gambling preferences, and the faster progression for women. Furthermore, the larger sample in this study demonstrated the telescoping effect for all gambling progression phases, whereas in the first study it was demonstrated only for the latter 2. It is noteworthy that even in this more stringent approach, in which differences in gambling preferences, mental health services usage, and comorbidity profiles were accounted for, female gender was at risk for telescoping through all progression intervals of pathological gambling. It is unlikely that the telescoping effect among female gamblers is a by-product of females' greater tendency to seek help in the health system or that they were forced to seek treatment earlier due to social pressure. Indeed, the overall rate of mental health services usage was equivalent between genders, and the telescoping effect was also observed for the first 2 phases of gambling progression, indicating a possible faster acquirement of symptoms of pathological gambling. The profile of women seeking treatment more often for depression and men being more likely to attend 12-step–based programs is compatible with previous descriptions of women turning to unspecific sources of help, whereas men will look more for treatments specific to addiction.[8,27]

Also, the current data do not support the assumption of women being less able to bear addiction-related problems, thus coming for treatment in earlier stages, as they displayed similar gambling severity as compared with men. Hence, it seems that, despite the differences identified for gender, the female gender does carry some other vulnerability factor for gambling yet unknown. Previously, women's telescoping was explained in terms of a decreased capacity for metabolizing substances such as

Table 2. Risk Factors for Telescoping Effect According to Gambling Progression Interval, Binary Logistic Regression

	Telescoped		Non-Telescoped					
Interval	N	%	N	%	Wald χ^2	Odds Ratio	95% CI	p Value[†]
Model 1: Social Gambling[‡]								
Gender								
Female (N = 70)	47	67	23	33	13.7	4.8	2.1 to 11.0	< .001
Male (N = 70)	19	27	51	73				
Type of game								
E-bingo/VLT (N = 90)	52	58	38	42	8.1	3.3	1.5 to 7.6	.004
Other games[a]/ e-bingo/VLT (N = 50)	14	28	36	72				
Model 2: Intense Gambling[‡]								
Gender								
Female (N = 70)	58	83	12	17	7.6	3.6	1.4 to 8.8	.006
Male (N = 70)	36	51	34	49				
Type of game								
E-bingo/VLT (N = 90)	71	79	19	21	10.4	3.8	1.7 to 8.4	.001
Other games[a]/ e-bingo/VLT (N = 50)	23	46	27	54				
Model 3: Problem Gambling[‡]								
Gender								
Female (N = 70)	51	73	19	27	6.5	2.9	1.3 to 6.4	.011
Male (N = 70)	27	39	43	61				
Type of game								
E-bingo/VLT (N = 90)	59	66	31	34	6.3	2.7	1.2 to 5.9	.012
Other games[a]/ e-bingo/VLT (N = 50)	19	38	31	62				

[a]"Other games" include lotteries, cards, and horse racing.
[†]Significance level adjusted for multiple comparisons: p = .05 ÷ 3 = .017.
[‡]Coefficients for omnibus tests of models: Model 1 χ^2 = 32.5, Model 2 χ^2 = 34.1, Model 3 χ^2 = 34.6, df = 7, N = 140, p < .001.
Abbreviations: e-bingo = electronic bingo, VLT = video lottery terminal.

alcohol,[6] therefore rendering greater serum levels than men when an equal dosage is administered. The confirmation of women's telescoping effect in pathological gambling challenges this assumption. Further investigation should address differences in gender roles and the impact of the introduction to gambling in different phases of life. The usual trend for male gamblers in this sample was to be introduced to gambling as young adults, when one usually first faces societal pressure toward professional start and autonomy. Conversely, women were introduced later in life, usually around the so-called midlife crisis, which may include the loss of some social roles (motherhood, family nurture), change in personal identity, and perimenopause. This latter factor is especially complex, as it combines an array of psychobiological factors such as fear of losing female identity and greater vulnerability to psychiatric symptoms.[28]

Specific preference for electronic bingo and VLTs was also strongly related to telescoping effect, reinforcing the perception that these games are particularly addictive. Unfortunately, these are the games that through the advancement of technology are making gambling widely available. This fact should be kept in mind when developing public policies and preventive strategies for pathological gambling.

The comorbidity profiles found in this study reinforce the notion of pathological gambling as being associated with substance dependence, depression, and anxiety disorders and are compatible with previous reports.[29–35] Nevertheless, in the present study comorbidity profiles were not related to gambling progression. The use of lifetime diagnosis does not yield insight into at what point of progression of pathological gambling the comorbid conditions were present, and this might have clouded the appreciation of their impact. This is one of the limitations of this study. The interaction between gambling progression and comorbidity deserves further investigation with special focus on the temporal relation between emotional distress (anxiety and depression) previous to and near key moments such as gambling increase and first noticeable gambling problem.

Another important limitation of this study is that a sample derived from a clinical setting precludes generalization for gamblers that do not attend treatment. Even though Potenza and colleagues[4] also described a faster progression of pathological gambling for female gamblers in New England, further investigations beyond the cultural realities of South and North American women are needed to fully appreciate the role of cultural and psychosocial factors in the telescoping effect. Nevertheless, these findings raise the concern that with the ongoing changes in the gambling scenario, women from Western culture who gamble might be at double risk for acquiring a gambling addiction (1) because of a potential gender

vulnerability and (2) because the cultural environment is yielding them access to a narrower range of gambling games that includes mainly the most addictive ones.

The overall rate of gamblers' usage of mental health services for comorbid disorders is low, especially in regard to addiction and anxiety disorders. A public education program for this condition is urgently needed.

REFERENCES

1. Schuckit MA, Anthenelli RM, Bucholz KK, et al. The time course of development of alcohol-related problems in men and women. J Stud Alcohol 1995;56:218–225
2. Holden C. "Behavioral" addictions: do they exist? Science 2001;294: 980–982
3. Tavares H, Zilberman ML, Beites FJ, et al. Gender differences in gambling progression. J Gambl Stud 2001;17:151–159
4. Potenza MN, Steinberg MA, McLaughlin SD, et al. Gender-related differences in the characteristics of problem gamblers using a gambling helpline. Am J Psychiatry 2001;158:1500–1505
5. Piazza NJ, Vrbka JL, Yeager RD. Telescoping of alcoholism in women alcoholics. Int J Addict 1989;24:19–28
6. Zilberman ML, Tavares H, el-Guebaly N. Gender similarities and differences: the prevalence and course of alcohol and other substance related disorders. Psychiatr Serv. In press
7. Blume S. Addiction in women. In: Galanter M, Kleber HD, eds. Textbook of Substance Abuse. 2nd ed. Washington, DC: American Psychiatric Press; 1999:485–490
8. Schober R, Annis HM. Barriers to help-seeking for change in drinking: a gender-focused review of the literature. Addict Behav 1996;21:81–92
9. Grella CE. Background and overview of mental health and substance abuse treatment systems: meeting the needs of women who are pregnant or parenting. J Psychoactive Drugs 1996;28:319–343
10. Saulnier CF. Women-specific alcohol use(r) intervention programs: a preliminary dimension analysis based on specialized services in Western New York State. Subst Use Misuse 2000;35:1585–1612
11. Hollander E, Buchalter AJ, DeCaria CM. Pathological gambling. Psychiatr Clin North Am 2000;23:629–642
12. Reid RL. The psychology of the near miss. J Gambl Behavior 1986;2: 32–39
13. Griffiths M. The psychology of gambling: an overview. In: Griffiths M, ed. Adolescent Gambling. New York, NY: Routledge; 1995:1–33
14. Doiron JP, Nicki RM. Epidemiology of problem gambling in Prince Edward Island: a Canadian microcosm? Can J Psychiatry 2001;46:413–417
15. Adebayo B. Gambling behavior of students in grades seven and eight in Alberta, Canada. J Sch Health 1998;68:7–11
16. Getty HA, Watson J, Frisch GR. A comparison of depression and styles of coping in male and female GA members and controls. J Gambl Stud 2000;16:377–391
17. Tavares H, Zilberman ML, Beites FJ, et al. Pathological gambling in women. In: Syllabus and Proceedings Summary of the 154th Annual Meeting of the American Psychiatric Association; May 9, 2001; New Orleans, La. Abstract NR80B:151
18. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association; 1994
19. Lesieur HR, Blume SB. The South Oaks Gambling Screen (SOGS): a new instrument for the identification of pathological gamblers. Am J Psychiatry 1987;144:1184–1188
20. Sobell LC, Sobell MB, Leo GI, et al. Reliability of a timeline method: assessing normal drinkers' reports of recent drinking and a comparative evaluation across several populations. Br J Addict 1988;83:393–402
21. Hodgins DC, Makarchuk K. Trusting problem gamblers: reliability and validity of self-reported gambling behavior. Psychol Addict Behav. In press
22. Wing JK, Sartorius N, Üstün TB, eds. Diagnosis and Clinical Measurement in Psychiatry: A Reference Manual for SCAN. 1st ed. Cambridge, United Kingdom: Cambridge University Press; 1998
23. Wing JK, Babor T, Brugha T, et al. SCAN: Schedules for Clinical Assessment in Neuropsychiatry. Arch Gen Psychiatry 1990;47:589–593
24. First MB, Spitzer RL, Gibbon M, et al, eds. Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), Clinical Version. Washington, DC: American Psychiatric Press; 1997
25. Tabachnick BG, Fidell LS. Using Multivariate Statistics. 4th ed. Needham Heights, Mass: Allyn & Bacon; 2001:117
26. Instituto Brasileiro de Geografia e Estatística – IBGE (1998). Pesquisa Nacional por Amostra de Domicílios. Volume Brasil [Brazilian Institute of Geography and Statistics (1998) National Household Survey. Volume Brazil]. Brasilia, Brazil: IBGG; 1998
27. Weisner C, Greenfield T, Room R. Trends in the treatment of alcohol problems in the US general population, 1979 through 1990. Am J Public Health 1995;85:55–60
28. Novaes C, Almeida OP, de Melo NR. Mental health among perimenopausal women attending a menopause clinic: possible association with premenstrual syndrome? Climacteric 1998;1:264–270
29. Ramirez LF, McCormick RA, Russo AM, et al. Patterns of substance abuse in pathological gamblers undergoing treatment. Addict Behav 1983;8:425–428
30. Lesieur HR, Blume SB, Zoppa RM. Alcoholism, drug abuse and gambling. Alcohol Clin Exp Res 1984;10:33–38
31. Lesieur HR, Heineman M. Pathological gambling among youthful multiple substance abusers in a therapeutic community. Br J Addict 1988;83:765–771
32. McCormick RA. Disinhibition and negative affectivity in substance abusers with and without a gambling problem. Addict Behav 1993;18:331–336
33. Black DW, Moyer T. Clinical features and psychiatric comorbidity of subjects with pathological gambling behavior. Psychiatr Serv 1998;49:1434–1439
34. Ibáñez A, Blanco C, Donahue E, et al. Psychiatric comorbidity in pathological gamblers seeking treatment. Am J Psychiatry 2001;158:1733–1735
35. Hodgins DC, el-Guebaly N. Natural and treatment-assisted recovery from gambling problems: a comparison of active and resolved gamblers. Addiction 2000;95:777–789

