N. Kruedelbach[1]
H. I. Walker[2]
H. A. Chapman[1]
G. Haro[3]
C. Mateu[3]
C. Leal[4]

Comorbidity on disorders with loss of impulse-control: pathological gambling, addictions and personality disorders

[1] Louis Stokes Cleveland Veterans Affairs Medical Center
Brecksville, OH (USA)
[2] Sacred Heart
St. Mary's Hospital Ministry Health Care
Cleveland, OH (USA)
[3] Unidad de Conductas Adictivas y Patología Dual
Servicio de Psiquiatría
Hospital de La Ribera
Alzira (Valencia)
[4] Unidad de Psiquiatría
Departamento de Medicina
Universidad de Valencia
Valencia

Objectives. To analyze the comorbidity of pathological gamblers, mainly in disorders with loss of impulse-control as addictions and personality disorders (PD). Also, to discuss addictive and impulsive characteristics of pathological gambling (PG), and their implications in prognosis and treatment.

Material and methods. Cross-sectional study on 162 patients with PG admitted for treatment in a specific residential unit. The SCID-I and II were used for the addiction and the PD diagnosis. For the diagnosis and evaluation of PG the SOGS, AGQ III and the Gambling Severity Index were also used.

Results. The 61.1% of the patients presented some PD, where the cluster B ones (impulsive group) were more frequent, followed by C and A ones. 63.3% of patients had had in their lives substance dependence criteria, where alcohol dependence was the most prevalent. The presence of PD is related to the gravity of the addiction by the dependence to more than one substance ($\chi^2=7.15$; $p<0.008$).

Discussion. TP and substance-related disorders (SRD) are frequent comorbidities of the PG. Their co-presentation could mean worse prognosis of this patients. The PG as impulsive disorder could help to the understanding of the etiopatogenia of this disorder, but also of the prognosis. This hypothesis will add to the addictive one other treatment approaches that should be included in future studies of PG.

Key words:
Pathological gambling. Impulse-control disorder. Personality disorder. Substance-related disorder. Comorbidity.

Actas Esp Psiquiatr 2006;34(2):76-82

Comorbilidad de trastornos con pérdida del control de impulsos: ludopatía, adicciones y trastornos de la personalidad

Objetivos. Analizar la comorbilidad de la ludopatía, principalmente con los trastornos con alteración del control de los impulsos, como es el caso de las adicciones y los trastornos de la personalidad (TP). También realizar una discusión sobre las características adictivas e impulsivas de la ludopatía, así como sus implicaciones pronósticas y de tratamiento.

Material y método. Estudio transversal en 162 pacientes diagnosticados de ludopatía que fueron admitidos para tratamiento en una unidad residencial específica. Para el diagnóstico de trastornos por uso de sustancias (TUS) y de TP se utilizó el SCID-I y II, mientras que para el diagnóstico y evaluación de la ludopatía se utilizó además la SOGS, el AGQ III y el Gambling Severity Index.

Resultados. El 61,1% de los ludópatas presentaban algún TP, siendo más frecuentes los del grupo B (impulsivos), seguidos de los TP del grupo C y después del A. El 63,3% de los pacientes había cumplido durante su vida criterios diagnósticos de dependencia, siendo la sustancia más frecuente el alcohol. La presencia de algún TP se correlacionó con la gravedad de la adicción, pues estos pacientes presentaban dependencia de más de una sustancia ($\chi^2=7,15$; $p<0,008$).

Discusión. Los TP impulsivos y los TUS son comorbilidades frecuentes de la ludopatía. Su copresentación con la ludopatía puede conllevar peor pronóstico para estos pacientes. La ludopatía entendida como un trastorno impulsivo puede ayudar a entender mejor la etiopatogenia de este trastorno, pero también su pronóstico. Esta hipótesis puede aportar a la hipótesis aditiva de la ludopatía otros abordajes terapéuticos que deberán ser evaluados en futuras investigaciones.

Palabras clave:
Ludopatía (juego patológico). Trastorno del control de los impulsos. Trastorno de personalidad. Trastorno por uso de sustancias. Comorbilidad.

INTRODUCTION

PG is a mental disorder that is having a great importance among clinics[1,2]. The incidence of this disease, according to the DSM-IV, is situated between 1% and 3% of the general population[3]. In Europe, Spain is the country with the highest

Correspondence:
Gonzalo Haro Cortés
UCA-DU Alzira
Onda, s/n
46600 Alzira (Valencia) (Spain)
E-mail: gharoc@comv.es

expenses on gambling per capita, for example a National Lottery created in 1812, where the slot machines with prize account for 42.6% of the expenses in gambling, followed by an expense of 21.7% in the bingos[4]. This fact is important because some authors as Lesieur or McCormick, cited by González in 1996[5], observed an increase of the PG parallel to the expense in legalized play. However the United States is the country where more epidemiological studies have been developed about this disorder. The first study was done in 1974 when it was observed that 0.77% of the population were possible pathological gamblers and 2.33% potential ones[6]; in more systematic studies these percentages were increased to 2.5%-3.4% and 3.4%-4.1%, respectively[7,8]. Later studies, using the South Oaks Gambling Screening (SOGS), show 1.2%-1.5% of possible pathological gamblers[9,10]. A recent meta-analysis, done in United States and Canada, shows an incidence through life of 1.6%[11]. In Spain, several studies that have used similar quantitative instruments, estimate prevalence between 1.36% and 1.91% of pathological gamblers in the general population[12-15]. In this way it is important to be alert to the results that will be obtained in the future with developed qualitative techniques[16].

Referring to the social-demographic characteristics of these patients, the majority of authors point out a disease where the male sex prevails, from a proportion of 3:1[15] to 9:1[1,17,18]. With regard to age, this is a disease that normally starts in adolescence or in the young adults[1], where recent studies have shown that the prevalence of pathological players under 18 years old is between 2.9%[17] and 5.4%[19]. An important repercussion of the early starting of this pathology is the absentee of scholars[20]. In people under 18 years old, an important relation to the substances taking has been discovered, since 14.3% of the pathological gamblers consumed tobacco and/or alcohol, over the average of people with the same age[19].

PG is considered by the WHO and APA as an Impulse-Control Disorder (ICD), because the person that suffers this disorder is making himself/herself, in a chronic and progressive way, incapable to resist the impulse of playing[1]. Furthermore it is frequent that the pathological gamblers have other ICD comorbids[21,22]. Although initially it was proposed as a disorder of the state of mood, it seems that this option is rejected nowadays[23]. However, other authors consider this disorder closer to Substance-related Disorders (SRD)[1]. In any case, comorbidity between the ICD and the SRD, as well as Personality Disorders (PD), is a constant of the clinical practice and very often debates about the independent character derived from its classification as separate entities[24]. In this way, many researches[25-30], and a recent revision[24], have determined some environmental, psychological and biological aspects, in which it is important to emphasize the impulsiveness of the personality and some neurotransmitters, as the serotoninergic system. In spite of that, the classification of these disorders is still being discussed[4,31-33] because there are many possibilities between comorbidity and morbid co-presentation[24]. Another aspect to point out is the prognosis repercussion of that comorbidity. In this way, some authors[34-40] have been focused on the study of impact that the co-existence of other comorbid disorders have on PG. Among these disorders the most interesting ones are PD[25,36,37]. As some authors have suggested, the fact of clearing up the role of these PD in the appearance and maintenance of the PG will be useful to understand better its etiopatogeny, and it will help to state the treatment strategies and prevention of relapses more suitable and specific.

PDs are a group of mental diseases that have been associated for a long time to other diseases as SRD, in which there is a worse prognosis for the evolution of the patients[43-46]. However, the systematic study of the presence of PD in pathological gamblers is very recent[35-37]. The most frequent PD that has been found in these people is the Antisocial Personality Disorder (APD), followed by the Borderline Personality Disorder (BPD), both characterized by impulsiveness. In two studies carried out by Blaszczynsky[47,48], in which he studied the presence of APD among all possible PD in pathological gamblers and with semi-structured interviews, prevalence between the 14.6% and the 15.4% was found. In the studies about general population and using the Diagnostic Interview Schedule (based on the DSM-III) for the exclusive detection of APD[28,49], the prevalence found in this PD for those patients who had gambling problems was 35% to 40%. Although in the initial studies carried out to analyze systematically the presence of any PD in pathological gamblers the prevalence of those was between 50% to 92%, but these studies presented methodological problems as the use of self-administration instruments for the diagnosis[35,36,50,51]. Thus, when more reliable diagnosis instruments, as the Structured Clinical Interview for DSM-IV (SCID-II) have been used, the prevalence of PD in gamblers decreases to 25% in ambulatory patients[37]. In this study the most frequent PD were the ones from cluster C (17.5%), followed by cluster B (7.5%) and finally cluster A (5%).

Some authors as Blaszczynsky[36], have proposed that the preference for some games (horse race, bingo, card game, etc.) by gamblers could be related to emotional by unsatisfied needs. Thus, it is supposed that the identification of the relation between some PD and some types of games, could help the professionals involved in the treatment of these patients to know the role that gambling has in their lives. In this way, those with a tendency of eluding would prefer slot machines with prize, while the most dramatic or those unable to stand the frustration would prefer horse racing or bingo. In the same way, this author[36] and some others[35,52], have associated some PD to some particular types of games. For instance, an association among gamblers who prefer slot machines with prize has been found within the Paranoid Personality Disorder, or between the Narcissistic Personality Disorder (NPD) and gamblers who prefer card and sport games. Finally, we have to point out Kroeber's study[52] in which preference for the roulette game was associated in gamblers with narcissistic, schizoid and cyclothimic personality features.

The only study carried out in Spain that has evaluated the personality of these patients was the one belonging to González in 1990[53] in which, with the Minnesota Multiphasic Personality Inventory (MMPI), he found that gamblers did not have a «common personality structure». Thus, although the scores of Depression, Schizophrenia, Psycastenia and Psychopathy were very high in the majority of the patients, the results pointed to the existence of at least 6 different groups of personalities in the sample of gamblers.

The other group of disorders that, as the PD, has been showed as comorbid factor that deteriorates the natural course of the PG, is the SRD[54,55] that causes, for instance, the appearing of suicide behaviours[21]. The prevalence of these SRD among gamblers, considering the general population as well as the clinical samples, varies from 5% to 66.4%[21,30,39,40]. Thus, in the studies of general population prevalences between the 44.5% and 63.3% of SRD through the life of the gamblers has been obtained, whilst 19% of the population said they did not have gambling problems[28,49]. In clinical samples the rank is higher because it varies from 5% to 66.4% of comorbidity in gamblers, depending on whether the diagnosis instrument used was the clinical interview or self-administered questionnaires[21,36,37], but also depending on whether the case was considered as use, abuse or dependence diagnosis, as well as depending on whether the consumption or diagnosis was at present or through life[21]. In a recent study carried out at a Residential Unity of PG Treatment (RUPGT) it was observed that alcohol was the most consumed substance (89.3% of patients with abuse history or substances dependance). While 42.5% of patients presented an alcohol abuse or dependence diagnosis through life, 30.1% had drugs dependence (mainly cannabis [72.7%], cocaine [45.5%] and benzodiazepines [36.4%]).

One study has just been found that discusses specifically the existence of the three types of disorders. However, it only studied the existence of APD and the gamblers sample was very reduced (7 patients)[56]. Thus, there are so few researches that study the comorbidity of the three groups of disorders in the same population and with a large enough number of samples. In the present study it is aimed to evaluate the predominance of PD and SRD in gamblers who receive treatment in a RUPGT. With this is aimed to give more prevalence data of the three disorders that help to understand better their ethiopatogenic connexion and their prognosis importance and thus facilitate the most effective design of specific preventive and therapeutic measures.

MATERIAL AND METHOD

This study is cross-sectional, with descriptive and analytic components. The sample of 162 patients was obtained with the consecutive sampling of patients admitted in the RUPGT. These patients were veterans of the USA Army, from any state of that country. The patients selected for this study had the DSM-IV gambling criteria, while those who had a psychotic disorder or intellectual deficit were excluded. Other comorbidities in axis I or II were not excluded.

The social-demographic data was obtained from an interview designed for this purpose and has been used before in other studies[21]. For the SRD and PD diagnosis were used the SCID-I and SCID-II (based in the DSM-III-R) respectively. Finally, the South Oaks Gambling Screen (SOGS)[57], the Gamblers Self Report Inventory (AGQ III)[58], the Gambling Severity Index (an appendix of the Addiction Severity Index or ASI)[59] were used. A specific interview was used to determine the preferential game of the patients. With this information patients were classified in several auto-excluded groups when there was a clear preference or in the mixed group if the preference did not exist.

The data was included in the statistics program SPSS v10 where the chi-square (χ^2) was used for the analysis of the proportions between the different groups. The significance was considered as valid when $p<0.05$.

RESULTS

All the patients who were asked to participate in this study accepted and they finished the tests included in the study. Thus it was not necessary to do any analysis to evaluate the possible existence of differences between the patients who left and the gamblers who participated in and completed the study.

The majority of patients were men (98.1%) and average age was 46.7 years old (SD = 9.6). Predominant race was Caucasian (87.7%), followed by the black race (10.5%), Hispanics (6%) and American Indians (1.2%). Half of the patients were divorced or separated (49.1%). While a third were married (35.8%), 14.2% were not and only 1.9% were widowed. The average age with which the patients finished studying was 13.2 years old (SD = 2.3).The majority of patients were working, 56.2% full time and 13.3% part time, while 21.9% were pensioners. 6.3% of patients were unemployed, while only 0.6% were studying.

In relation to the comorbid psychopathology, 61.1% of patients presented some PD. Thus, 45.7% of the sample presented one PD while 9.9% presented two of them, 3.7% presented three, 1.2% four and 0.6% presented five PD. The most frequent PD are the ones from cluster B, NPD being the most frequent (18.5%), followed by BPD (11.7%), APD (9.9%) and personality histrionic disorder (6.8%). Referring to frequency they are followed by the PD from the cluster C, lead by the disorder by avoidance (6.2%), followed by the obsessive-compulsory (5.6%) and the dependent one (3.1%). Finally, the less frequent PD were the ones from cluster A, because paranoid was found in four patients (2.5%) and schizoid and schizoid-typical disorders were found each one in two cases (1.2%). Thus, 30.2% of patients presented a PD from the cluster B, 13.0% from the

cluster C and 4.3% from cluster A, while 17.9% of patients presented a non-specified PD. The differences on the prevalence were very significant as it is shown on table 1.

Related to the comorbidity with SRD, 63.3% of patients had had substance dependence criteria in a moment of their lives. The majority of these patients (40.9%) presented alcohol and illegal drugs dependence at the same time, while 33.3% had only alcohol dependence and 25.8% illegal drugs dependence. When the analysis was made in order to determine if there were differences among gamblers in relation to the SRD history depending on the presence of PD, it was observed that the prevalence of SRD was not different among those gamblers with PD and those without PD. However, the presence of any PD influenced in the seriousmess of the history of SRD because the gamblers with PD presented more than one substance dependence ($\chi^2 = 7.15$; $p < 0.008$).

Related to the type of favourite games we point out that the most frequent was video-poker (21.6%) followed by card game (17.3%), horse race (15.4%), sport games (6.2%) and slot machines with prize (3%). A high number of gamblers were not included in any of these clusters (36.4%). After the analysis of age, sex, race and studies variables, important differences related to the favourite type of game of the sample were not found. An association between any type of PD or their clusters and the favourite type of game was not demonstrated. In the same way SRD did not influence in that predilection.

DISCUSSION

The results show that the PD are very frequent in patients with gambling pathology as 61.1% of the studied patients had them. These results have important implications for the design of treatments and for the prognosis. Considering that the presence of personality pathology is a negative predictor of the prognosis[45], if the PD are not recognised and properly treated in the treatment, the wrong evolution will be less avoidable. The treatment programs and their personnel need flexibility as well as experience in order to treat gamblers with PD.

There are some considerations regarding this comorbidity. Thus, the factors that start the relapses and the confrontation styles vary depending on the type of PD[60]. In this way, patients choose a specific type of game to confront the problems of their PD. For instance, it would have been logical to find (maybe if the clusters would have been bigger) that the patients who prefer card game, sport game or horse race were more narcissists as sentiments of grandiosity and the inability of feeling empathy could be related with these games and they are typical of this PD.

Table 1 Comparison of prevalence between PD clusters

Comparison	χ^2	df	N	*p*
Cluster A versus B	33.0	1	52	< 0.001
Cluster B versus C	10.4	1	66	< 0.01
Cluster A versus C	6.8	1	26	< 0.01

It is interesting to consider that the results show that the PD of the cluster B have a higher prevalence than the ones on the cluster C or A. That fact helps the results obtained by Blaszczynsky[36]. In the same way, Kroeber found that the APD and BPD, both from cluster B, were the most frequent among gamblers[52]. These findings support the idea that the etiopatogeny of the pathology gambling like ICD and of the impulsive PD could have similarities, for example for the impulsive and wandering behaviour as Linehan described[61]. If we also add that the patients with PG and PD present a worse evolution of the SRD, the hypothesis of Petry[62] becomes firm: the comorbidity of the PG and the SRD has an addictive result in the loss of the impulses control. Maybe this «addictive» effect is promoted by the PD from cluster B.

However, we need to emphasize that the results of prevalence in the axis II of the present study contrast with the ones obtained by Specker[37], who found PD in the 25% of gamblers, the cluster C being the predominant one. These differences could be caused because the populations studied are different as in his study the gamblers were those who had an ambulatory treatment while in the present study they were remitted because of their seriousness to be treated in a RUPGT. Another aspect that could have influenced in the results of that author is that his percentage of participation was 60% without any selection and it does not fit to the sample of our study where all the patients accepted to participate. In the same way the samples studied are different in distribution by sex as this study is mainly carried out with men.

The reduced prevalence of the PD from cluster A that has been found in this study agrees with the results obtained by other authors[36,37]. Maybe the difficulty of bringing other patients together, physically as well as emotionally, necessary aspect for the group therapies carried out in this RUPGT, could be one of the reasons why patients with comorbid traits as paranoids, schizoids or schizotypics do not go to ask for a treatment. On the other hand, these patients may not have a vulnerability to suffer from PG, since the majority of games require interaction with another person. In any case, more population studies are necessary in order to clear up the prevalence of this comorbidity and whether the appearance of new gambling that do not require that interaction (video-poker, Internet games, etc.) is modifying that vulnerability.

We need to emphasize that other studies that used self-administration or screening instruments had higher PD pre-

valence in gamblers[35,36], maybe for the high existence of false positives that these instruments generate.

In relation to the comorbidity of SRD in patients with PG (63.3%), these results are similar to those obtained by other authors[21,37,63], although they are higher than the ones found by Blaszczynsky[36]. In any case it seems that alcohol is the most frequent problem as Kausch stated[21]. However we cannot ignore the high percentage of patients who presented dependence of many substances (40.9%) in this study as this was shown to be a factor associated to the presence of some PD in patients, perhaps due to the strengthening in the loss of the impulse control of the three disorders.

Related to the limitations of the study, the population taken were mainly men, so the results must be extended to the general population but very lightly. However, recent revisions state that this is a pathology developed mainly in men[1]. Furthermore, patients were recruited in a RUPGT for the armed forces that, as residential unity, was expected to be chosen by the therapists who selected the patients depending on the high level of their pathology. Another limitation of this study is that the typology of their favourite games was not the determinant variable for the presence of SRD or PD, maybe because they were not grouped properly or maybe due to the high number of patients who did not choose any concrete group (36.4%).

Previous studies have shown that there are effective treatments for the PG[32,41,42,64]. Therefore the stimulus control and the live exposition with response prevention as well as relapses prevention with cognitive-behavioural intervention has been proposed[65]. Recently, an appeal to identify better the differences of the several types of gamblers has been done, with the aim of adapting the treatments or the future therapeutic designs to their specific characteristics[25].

We also need to point out that under the gambling pathology as addictive disorder hypothesis medicines like the naltrexone[66] that, through endogen opiate system, has been shown as effective in the dependence treatments like the opiate and alcohol dependencies has been successfully used[67,68]. Under the same hypothesis, other authors have proposed the use of group intervention models with behavioural techniques because of their effectiveness in the treatment of addictive disorders[69].

On the other hand, this study shows that the disorders with impulsive characteristics, as the SRD and the PD, mainly the APD and the BPD[24], are very frequent among gamblers. These results show another hypothesis: the PG as impulsive disorder. For that reason the interventions designed to treat any of the three disorders must take into consideration the rest of the comorbid impulsive disorders. Therefore, future studies must go deeper into not only neuroscientific aspects but also the psychological, social and even philosophical ones related to the PG[70,71], including those patients who also present SRD or PD from the cluster B to clear up which aspects are common ones and which are not, and whether the impulsiveness or loss of impulse control is the nexus, as is proposed in the present article.

REFERENCES

1. Ibáñez A, Saiz J. Psiquiatría médica. La ludopatía: una «nueva» enfermedad. Barcelona: Masson, 2000.
2. Domínguez FJ, Macías JA. El juego patológico. Medicina Integral 1997;30:30-47.
3. American Psychiatric Association. DSM-IV. Manual diagnóstico y estadístico de los trastornos mentales. Barcelona: Masson, 1995.
4. Vázquez JM. Formas de ludopatía. Psicopatología 2000;20:27-39.
5. González A, Vallejo J, Mercadé PV, Jiménez S, Saldaña C. Juego patológico: un modelo de estudio epidemiológico en población general. Adicciones 1996;8:193-202.
6. Kallick M, Suits D, Dielman T, Hybels J. A survey of American gambling attitudes and behavior. Insitute for Social Research. Minnesota: Ann Arbor, 1979.
7. Culleton RP, Lang MH. The prevalence rate of pathological gambling in the Delaware Valley in 1984. Camden Forum for Policy Research an Public Service. New Jersey, 1984.
8. Culleton RP. A survey of pathological gamblers in the state of Ohio. Transition planning associates. Philadelphia, 1985.
9. Volberg RA, Steadman H. Refining prevalence estimate of pathological gambling. Am J Psychiatry 1988; 145:502-5.
10. Volberg RA, Steadman H. Prevalence estimate of pathological gambling in New Jersey and Maryland. Am J Psychiatry 1989; 146:12.
11. Shaffer HJ, Hall MN, Vander Bilt J. Estimating the prevalence of disordered gambling behavior in the United States and Canada: a research synthesis. Am J Public Health 1999;89:1369-76.
12. Legarda JJ, Babio R, Abreu JM. Prevalence estimates of pathological gambling in Seville (Spain). Br J Addict 1992;87:767-70.
13. Becoña E. The prevalence of pathological gambling in Galicia (Spain). J Gambl Studies 1993;8:353-69.
14. JARCA (Asociación de Jugadores de Azar del Campo de Gibraltar). Estudio sobre el juego de azar en Algeciras: prevalencia y características sociodemográficas. Algeciras: JARCA, 1996.
15. Becoña E, Fuentes MJ. El juego patológico en Galicia evaluado por el South Oaks Gambling Screen. Adicciones 1995;7:423-40.
16. Urdániz G, Izco A, Muñoz O, Salinas M. Estudio cualitativo de la ludopatía en Navarra. Anales Sis San Navarra 1999;22(Suppl. 3): 155-62.
17. Arbinaga F. El juego patológico en estudiantes menores de 18 años: incidencia, uso de drogas y variables asociadas. Adicciones 1996;8:331-47.
18. Rodríguez-Martos A. Estudio piloto estimativo de la prevalencia de juego patológico entre los pacientes alcohólicos que acuden al programa DROSS. Rev Esp Drogodep 1989;14:265-75.
19. Arbinaga F. Estudio descriptivo sobre el juego patológico en estudiantes (8-17 años): características sociodemográficas, consumo de drogas y depresión. Adicciones 2000;12:493-505.
20. Villa A, Becoña E, Vázquez FL. Juego patológico con máquinas tragaperras en una muestra de escolares de Gijón. Adicciones 1997;9:195-208.

21. Kausch O. Patterns of substance abuse among treatment-seeking pathological gamblers. J Subst Abuse Treat 2003;25: 263-70.
22. Morcillo L, Alcántara AG, Barcia D. Piromanía, ludopatía y cleptomanía en un mismo paciente. An Psiquiatr 1997;13:439-43.
23. Moreno I, Saiz J, López-Ibor JJ, Sánchez G. Ludopatía: ¿un trastorno del ánimo? An Psiquiatr 1995;2:61-7.
24. Cervera G, Rubio G, Haro G, et al. La comorbilidad entre los trastornos del control de los impulsos, los relacionados con el uso de sustancias y los de la personalidad. Trast Adict 2001;3:3-10.
25. National Research Council. Pathological Gambling: a critical review. Committee on the Social and Economic Impact of Pathological Gambling, Committee on Law and Justice, Commission on Behavioral and Social Sciences and Education, National Research Council. Washington: National Academy Press, 1999.
26. Stinchfield AR, Winters K. Gambling and problem gambling among youths. Annals of the American Academy of Political and Social. Science 1998;556:172-85.
27. Lesieur HR. The chase: career of the compulsive gambler. Rochester: Schenkman Books, 1984.
28. Cunningham-Williams RM, Cottler LB, Compton WM, Spitznagel EL. Taking chances: problem gamblers and mental health disorders-results from the St. Louis Epidemiologic Catchment Area Study. Am J Public Health 1998;88:1093-6.
29. Comings DE. The molecular genetics of pathological gambling. CNS Spectrums 1998;3:20-37.
30. Crockford DN, el-Guebaly N. Psychiatric comorbidity in pathological gambling: a critical review. Canad J Psychiatry 1998;43: 43-50.
31. Saiz J, Moreno I, López-Ibor JJ. Ludopatía: estudio clínico y terapéutico-evolutivo de un grupo de jugadores patológicos. Actas Esp Psiquiatr 1992;20:189-97.
32. Bartolomé S, Pelaz S, Ríos M, Carmona A, Gutiérrez R. Juego patológico: a propósito de un caso. An Psiquiatría 1999;15:394-7.
33. Mayor L, Cortés M, Cano L. Observaciones sobre la adicción al alcohol y el juego patológico: ¿procesos analógicos?, ¿enfoques diversos? Rev Esp Drogodependencias 1996;21:139-47.
34. McCormick RA, Russo AM, Ramirez LF, Taber JI. Affective disorders among pathological gamblers seeking treatment. Am J Psychiatry 1984;14:215-8.
35. Kruedelbach N, Kogan E. Psychiatric comorbidity among hospitalized pathological gamblers: a look at axis II. First Conference on Problem and Pathological Gambling. Toronto, 1995.
36. Blaszczynski A, Steel Z. Personality disorders among pathological gamblers. J Gambl Studies 1998;14:51-71.
37. Specker SM, Carlson GA, Edmonson KM, Johnson PE, Marcotte M. Psychopathology in pathological gamblers seeking treatment. J Gambl Studies 1996;12:67-81.
38. Griffiths M. An exploratory study of gambling cross addictions. J Gambl Studies 1994;10:371-84.
39. Lesieur HR, Blume SB, Zoppa RM. Alcoholism, drug abuse, and gambling. Alcohol Clinl Exp Res 1986;10:33-8.
40. McCormick RA. Disinhibition and negative affectivity in substance abusers with and without a gambling problem. Addictive Behaviors 1993;18:331-6.
41. Russo AM, Taber JI, McCormick RA, Ramirez LF. An outcome study of an inpatient treatment program for pathological gamblers. Hosp Community Psychiatry 1984;35:823-7.
42. Taber JI, McCormick RA, Russo AM, Adkins BJ, Ramírez LF. Follow-up of pathological gamblers after treatment. Am J Psychiatry 1987;144:757-61.
43. Kosten TA, Kosten TR, Rounsaville BJ. Personality disorders in opiate addicts show prognostic specificity. J Subst Abuse Treat 1989;6:163-8.
44. Nace EP, Davis CW, Caspari JP. Axis II comorbidity in substance abuse. Am J Psychiatry 1991;148:118-20.
45. Reich JH, Green AI. Effect of personality disorders on outcome of treatment. J Nerv Ment Dis 1991;179:74-82.
46. Haro G, Mateu C, Martínez-Raga J, Valderrama JC, Castellano M, Cervera G. The role of personality disorders on drug dependence treatment outcomes following inpatient detoxification. Europ Psychiatry 2004;9:187-92.
47. Blaszczynski A, McConaghy N, Frankova A. Crime, antisocial personality and pathological gambling. J Gambl Behavior 1989; 5:137-52.
48. Blaszczynski AP, McConaghy N. Antisocial personality disorder and pathological gambling. J Gambl Studies 1994;10:129-45.
49. Bland RC, Newman SC, Orn H, Stebelsky G. Epidemiology of pathological gambling in Edmonton. Canad J Psychiatry 1993;38: 108-12.
50. Lesieur H R, Blume SB. Characteristics of pathological gamblers identified among patients on a psychiatric admissions service. Hosp Community Psychiatry 1990;41:1009-12.
51. Bellaire W, Caspari D. Diagnosis and therapy of male gamblers in a university psychiatric hospital. J Gambl Studies 1992;8: 143-50.
52. Kroeber H. Roulette gamblers and gamblers at electronic game machines: where are the differences? J Gambl Studies 1992;8: 79-92.
53. González A, Mercadé N, Aymaní N, Pastor C. Variables de personalidad, juego patológico. Rev Psiquiatría Fac Med Barna 1990; 17:203-9.
54. Rounsaville BJ, Tierney T, Crits-Christoph K, Weissman MM, Kleber HD. Predictors of treatment outcome in opiate addicts: evidence for the multidimensionality of addicts' problems. Comprehen Psychiatry 1982;23:462-78.
55. Rounsaville BJ, Dolinsky ZS, Babor TF, Meyer RE. Psychopathology as a predictor of treatment outcome in alcoholics. Arch Gen Psychiatry 1986;43:739-45.
56. Lejoyeux M, Feuche N, Loi S, Solomon J, Ades J. Study of impulse-control disorders among alcohol-dependent patients. J Clin Psychiatry 1999; 60:302-5.
57. Lesieur HR, Blume SB. The South Oaks Gambling Screen (SOGS): a new instrument for the identification of pathological gamblers. Am J Psychiatry 1987;144:1184-8.
58. Lesieur HR, Rosenthal RJ. Gambler's Self-Report Inventory: AGQ-III. Rochester, 1995.
59. Carise D, Henry CM, McLellan AT. Addiction Severity Index. 5th ed. University of Pennsylvania/Veterans Administration Center for Studies of Addiction. Pennsylvania, 1997.
60. Kruedelbach N, McCormick RA, Schulz SC, Grueneich R. Impulsivity, coping styles, and triggers for craving in substance abusers with borderline personality disorder. J Pers Dis 1993;7: 214-22.
61. Linehan M. Cognitive-behavioral treatment of borderline personality disorder. New York: Guilford Press, 1993.

62. Petry NM. Substance abuse, pathological gambling, and impulsiveness. Drug Alcohol Depend (en prensa).
63. Ramirez LF, McCormick RA, Russo AM, Taber JI. Patterns of substance abuse in pathological gamblers undergoing treatment. Addict Behav 1983;8:425-8.
64. Tomás MC, Robert C, Ridaura MA, Senent E, Botella C. Importancia de la evaluación en el tratamiento del juego patológico. Rev Esp Drogodep 1991;16:295-304.
65. Echeburúa E, Fernández-Montalvo J, Báez C. Avances en el tratamiento del juego patológico. Adicciones 1999;11:349-61.
66. Turón V, Salgado P, González MA, Vicente P. Naltrexona en el tratamiento del juego patológico. An Psiquiatría 1990;6(Suppl. 2):38.
67. Haro G, Cervera G, Martínez-Raga J, Pérez-Gálvez B, Fernández-Garcés M, Sanjuán J. Tratamiento farmacológico de la dependencia de sustancias desde una perspectiva neurocientífica (I): opiáceos y cocaína. Actas Esp Psiquiatr 2003;31:205-19.
68. Haro G, Cervera G, Martínez-Raga J, Pérez-Gálvez B, Fernández-Garcés M, Sanjuán J. Tratamiento farmacológico de la dependencia de sustancias desde una perspectiva neurocientífica (II): alcohol, benzodiazepinas y nicotina. Actas Esp de Psiquiatr 2003; 31:284-94.
69. Mercadé PV, González A, Pastor C, Aymamí N. Juego patológico y grupo: una posibilidad. C Med Psicosom 1990;16:19-24.
70. Blanco AL, Llorca G, Manzano JM, Díez MA, Gómez R. El jugador: estudio de la ludopatía a través de la obra de Fedor Dostoievski. Informaciones Psiquiátricas 1995;139:81-8.
71. Novella EJ. Psiquiatría y filosofía: un panorama histórico y conceptual. Frenia 2002;2:7-31.