Aragay N, Jiménez-Murcia S, Granero R, Fernández-Aranda F, Ramos-Grille I, Cardona S, Garrido S, Islam MA, Menchón JM, Valles V. (2015). Pathological gambling: understanding relapses and dropouts. ***Comprehensive Psychiatry, 57,*** **58-64. doi: 10.1016/j.comppsych.2014.10.009.**

Abstract

There is little available information on the factors that influence relapses and dropouts during therapy for pathological gambling (PG). The aim of this study was to determine socio-demographic, clinical, personality, and psychopathological predictors of relapse and dropout in a sample of pathological gamblers seeking treatment. A total of 566 consecutive outpatients diagnosed with PG according to DSM-IV-TR criteria were included. All patients underwent an individualized cognitive–behavioral treatment program. We analyzed predictors of relapse during 6 months of treatment and during the subsequent 6 months of follow-up, and predictors of dropout over the entire therapeutic program. Eighty patients (14.1%) experienced at least one relapse during the entire follow-up of the study: 50 (8.8%) within the treatment period and 12 (2.1%) during the subsequent 6-month follow-up period. The main predictors of relapse were single marital status, spending less than 100 euros/week on gambling, active gambling behavior at treatment inclusion, and high scores on the TCI-R Harm Avoidance personality dimension. One hundred fifty-seven patients (27.8%) missed 3 or more therapeutic sessions over the entire therapeutic program. The main predictors of dropout were single marital status, younger age, and high scores on the TCI-R Novelty Seeking personality dimension. The presence of these factors at inclusion should be taken into account by physicians dealing with PG patients.

1. Introduction

There is evidence that cognitive–behavioral treatment is the most effective intervention for treating pathological gambling (PG) [1–3]. In a meta-analysis including 1434 subjects in 22 articles, Pallessen et al. [4] concluded that psychological interventions for PG were more effective than no treatment and yielded favorable short- and long-term outcomes. Although individuals who begin therapy for PG may find considerable relief of symptoms, relapses and lack of adherence to treatment have been noted in many patients in two systematic reviews [5,6]. However, both reviews mentioned that few studies have directly examined relapses or dropouts, and those that have, include small samples.

Studies focused on PG relapses have reported differing results. Some authors have cited dissatisfaction with treatment, alcohol consumption, and high levels of neuroticism as the main factors related to relapse [7]. Others have additionally mentioned psychopathological distress as predictive of relapse [8,9]. Hodgins and el-Guebaly [10] concluded that optimism to make money, a need for more money, free time, boredom, negative mood, the desire to socialize, and excitement-seeking were factors contributing to relapses. All these factors have been described in retrospective studies, and there are no reports investigating relapses over a lengthy follow-up.

During PG treatment, patients often re-schedule, cancel, or fail to attend sessions, and some may ultimately drop out of treatment [5]. Although several studies have investigated the influences associated with dropout, the available results do not provide robust empirical evidence to identify the main factors with certainty [11]. Some authors have described a role for neuroticism [7], impulsivity [12,13], and sensation-seeking [14,15]. Melville et al. [5] reported a relationship of dropping out with age at gambling onset and poor coping with stressful situations. Jiménez-Murcia et al. [16] found no link between age at onset and a poor response to treatment (dropout or relapse), but in another study by the same group, a positive association between shorter duration of the disorder and treatment dropout was evident [14]. Issues such as motivation and adherence to treatment are core aspects of the therapeutic prognosis in PG patients [2,17–19]. Given the variability of these results, additional work is needed.

Most studies that have attempted to analyze relapses and dropouts in PG are based on small samples or have explored specific clinical and psychopathological variables. The aim of this study was to determine predictors of relapse and dropout in a large sample of pathological gamblers attending a dedicated PG unit. In addition, the time to the first relapse was investigated over an extended follow-up period.

2. Methods

2.1. Subjects

The study populationwas derived froma prospective single- center registry of consecutive outpatients attended at a publicly- funded Pathological Gambling andBehavioral AddictionsUnit with a catchment population of 1.5 million inhabitants and universal access. Most patients are referred from primary care physicians within the public healthcare system. The study period was from October 2005 to January 2012. We included all patients diagnosed with PG according to theDiagnostic and Statistical Manual of Mental Disorders Fourth Edition (Text Revision) (DSM-IV-TR) [20]. Patients consulting at the Unit for any other behavioral addiction (compulsive buying, internet addiction, sex addiction) were excluded.

The study was carried out in accordance with the latest version of the Declaration of Helsinki (WMA, 2008). The Research Ethics Committee of Consorci Sanitari de Terrassa approved the study, and informed consent was obtained from all participants.

2.2. Procedures

After receiving the diagnosis of PG, all participants completed a semi-structured interview and were entered in a therapeutic program involving individualized outpatient cognitive–behavioral therapy for PG, aimed at achieving abstinence from gambling. The interview and treatment were applied by a clinical psychologist with more than 10 years' experience in the diagnosis and treatment of PG. In the first session, we collected socio-demographic and clinical data, and information about gambling behavior and personality traits.

Treatment was protocoled, and the main techniques used were psychoeducation, motivational interviewing, stimulus control, cognitive restructuring (understanding the concept of chance, detecting and modifying perceptions and misconcep- tions that players have in relation to the game), and relapse prevention. Treatment lasted for 6 months and consisted of individual 40-minute sessions on a weekly or biweekly basis and after this period, patients began a 6-month follow-up period with monthly visits. Subsequently, a later follow-up phase involving 3 follow-up visits at 3, 9, and 21 months was scheduled. Patients who did not achieve abstinence were considered to be in partial remission, and prolongation of these periods was decided, extending the therapeutic protocol. At each scheduled visit, the therapist recorded attendance to the treatment session, whether the patient had gambled on previous days, and the amount of money spent on gambling.

2.3. Aims and outcome definitions

The aim of the study was to determine predictors of relapse during the 6 months of PG therapy and the subsequent 6 months of follow-up, and predictors of dropout over the entire therapeutic protocol. In addition, the time to the first relapse and the relapse pattern were investigated over the extended follow-up period using a survival analysis.

For the purposes of the study, gambling events were divided into two categories: lapse and relapse. Lapse was defined as an isolated episode of gambling associated with mild negative consequences on the patients' economy and family. Relapse was defined as more than two episodes of gambling documented at two consecutive visits or one gambling episode that showed no sense of control, with loss of control defined as total expenditure higher than that of 1 week of gambling prior to entering therapy [6,7]. In the present study, we analyzed the predictive factors related to relapses.

Based on the fact that poor adherence to treatment is common in PG patients and missing a single treatment session could be due to many reasons [5,17], dropout was established when 3 or more sessions had been missed without previous notification.

2.4. Predictors

Predictors of relapse and dropout were selected based on the findings of published research [5,6]. These were categorized into three blocks—socio-demographic and clinical factors, gambling behavior, and personality traits— and recorded during the first session.

2.4.1. Socio-demographic and clinical factors

The socio-demographic data included age, sex, employment status, marital status, and years of education. The clinical data comprised other psychiatric comorbidities, use/abuse of illegal substances, and family history of gambling, and were assessed according to DSM-IV-TR criteria [20].

2.4.2. Gambling behavior

To establish the severity of past-year gambling behavior, we used the Spanish-language version of theNational Opinion Research Center (NORC) DSM-IV Screen for Gambling Problems (NODS) [21,22]. The NODS questionnaire is based on DSM-IV criteria and contains 17 past-year items. Scores range from 0 to 10 and establish 4 levels of severity, categorized as no gambling behavior (NODS 0), risk gambling (NODS 1–2), problem gambling (NODS 3–4), and PG (NODS ≥5). The test–retest reliability of this instrument is 0.98 [21].

In addition, we questioned patients about their lifetime history of gambling (main and secondary game of choice, age at gambling onset, duration of the gambling disorder, frequency of gambling, and amount of money spent on this activity weekly). We also recorded legal problems related with gambling, self-exclusion from bingo halls andwhether patients were gambling at the time of starting therapy (abstinence was defined as more than 1 month without gambling).

2.4.3. Personality traits

To investigate whether certain personality traits might be associated with relapse or dropout, we applied two self- administered scales, the Temperament and Character Inventory-Revised and the Millon Clinical Multiaxial Inventory-III questionnaires, which were given to patients to fill out at home.

Temperament and Character Inventory-Revised (TCI-R) [23]. The TCI-R is a valid, reliable, 240-item questionnaire, which, like the original TCI version [24], measures seven personality dimensions: four related to temperament (harm avoidance, novelty seeking, reward dependence, and persis- tence) and three to character (self-directedness, cooperativeness, and self-transcendence). All items are measured with a 5-point Likert scale. Performance on the Spanish version of the original questionnaire [25] and the revised version [26] has been validated. The scales in the revised version showed high internal consistency (mean Cronbach's alpha value, 0.87).

The Millon Clinical Multiaxial Inventory-III (MCMI-III) [27] is a self-report instrument that assesses Axis I and Axis II disorders based on the DSM-IV. The Spanish version of the MCMI-III consists of 175 items that identify normal personality traits (schizoid, avoidant, depressive, dependent, histrionic, narcissistic, antisocial, aggressive, compulsive, passive–aggressive–negative and self-defeating) and person- ality disorders (schizotypal, borderline and paranoid). The instrument also contains several measures of symptoms and clinical syndromes (anxiety, somatoform, bipolar–hypomania, dysthymia, alcohol dependence, and drug abuse, psychotic thinking, major depression, and delusional disorder). This questionnaire has shown an alpha coefficient between 0.65 and 0.88 and a test retest reliability of 0.91 [28].

2.5. Statistical analysis

The list of potential predictors considered in all the regression models (binary logistic regression, negative binomial regression, and Cox regression) included patient age, sex, marital status, educational level, employment status, presence of comorbid psychiatric disorders, family history of gambling, tobacco use, drug use, severity of gambling (NODS-score), age at gambling onset, main addiction (slot machines vs other), duration of gambling disorder, frequency and money spent on gambling, and scores on the MCMI-III and TCI-R scales. Due to the low prevalence of some of the outcomes and the high number of potential predictors, independentmodelswere estimated for the socio-demographic data and clinical and personality measures.

Potential predictors of relapse were assessed by stepwise binary logistic regression with the automatic algorithms for- ward-selection and backward-elimination. Overall predictive accuracy was evaluated with the Nagelkerke R2 coefficient and goodness-of-fit with the Hosmer–Lemeshow test.

The potential predictors of dropout were assessed through step-wise negative binomial regression (for the count outcome number of therapeutic sessions missed) and binary logistic regression (for the binary outcome at least three sessions missed during therapy). The negative binomial distribution constitutes the probability distribution of the number of events in a sequence of Bernoulli trials. This has proven to be a robust, useful, and powerful alternative modeling to Poisson distribution for counting outliers.

Survival analysis was used to investigate the time to the first relapse over the 6-month treatment period and an extended follow-up. Survival analyses involved modeling of time-to-event data (in this study, occurrence of the first relapse after starting treatment) with censored values (in this study, right-censored data identified patients without relapses at the end of follow-up) [29]. For this analysis, the Kaplan–Meier procedure was used to estimate the survival function (defined as the probability that the time of the event was later than some specified time) and stepwise Cox regression (proportional hazard models) was used to select the main explanatory variables of relapses to the survival time (ie, the relapse rate).

Statistical significance was considered at a p value of less than $\leq .05$. All analyses were performed using the SPSS software (version 20, SPSS Inc., Chicago, Illinois).

3. Results

Over the study period, 622 patients were seen at our Pathological Gambling Unit. Fifty-six patients were exclud- ed from the study because they sought treatment for behavioral addictions other than gambling (eg, compulsive buying, internet addiction, sex addiction). Hence, the final study population included 566 patients with PG.

The mean age of the sample was 43.5 [standard deviation (SD) 13.0] years, and 92.2% were men. With regard to marital status, 53.7% lived with their partners, 29.3% were divorced or separated, and 17% were single. Most patients (62.5%) had only achieved a primary school education, whereas 37.5% had completed secondary school or university studies. Only 51.2% of patients were active in the workforce. The mean age of gambling onset was 25.4 (SD 10.3) years. The main addiction involved problems with slot machines in 90.3% of patients, bingo in 2.3%, casinos in 2%, online games in 2.1%, lotteries or pools in 1.8%, and roulette in 1.2%. At the time they first consulted, 42.8% of patients played daily, 45.2% weekly, and 12% monthly. Regarding clinical factors, 45% reported having at least one other comorbid psychiatric disorder, mainly mood disorder (7.2%), adjustment disorder (7.1%), and psychotic disorder (5.4%). Furthermore, 11% had a concurrent substance use disorder, specifically alcohol (14%), cannabis (5.4%), and cocaine (5.5%) use.

3.1. Outcomes

3.1.1. Relapses

Of the total sample (N = 566), 80 (14.1%) experienced at least one relapse: 65 (11.5%) reported a single relapse and 15 (2.7%) 2 or more relapses. Relapse occurred during the 6 months of therapy in 50 patients (8.8%), and during the first phase of follow-up (within 6 months after completing therapy) in 12 (2.1%) patients. In addition, 18 patients (3.1%) experienced relapse during the subsequent follow-up (more than 6 months after completing therapy).

3.1.1.1. Predictors of relapse during 6-month treatment.

Marital status at inclusion was a significant predictor of relapse during this period. Single patients showed a higher risk of relapse compared with married/partnered patients (OR = 5.41; 95% CI 2.70–10.9) or divorced/separated/ widowed patients (OR = 3.60; 95% CI 1.68–7.70).

A smaller amount of money spent on gambling per week wasmarginally associatedwith the risk of relapse (OR = 1.60; 95% CI 100–2.91). The risk of relapse was 12.7% in patients who spent 0–100 euros/week, 5.5% in those reporting 100– 500 euros/week, and 7.6% in those spending more than 500 euros/week. Finally, a high score on the TCI-R Harm Avoidance personality dimension was a soft predictor of relapse (OR = 1.09; 95% CI 1.01–1.19) (Table 1).

3.1.1.2. Predictors of relapse during 6-month follow-up.

During the first 6 months following therapy completion, single patients again showed a higher risk of relapse compared with married/partnered or divorced/separated/ widowed patients (OR = 2.99; 95% CI 1.47–6.10; OR = 3.32; 95% CI 1.77–6.21, respectively).

A smaller amount of money spent on gambling per week at inclusion was also a significant predictor of relapse during follow-up (OR = 1.96; 95% CI 1.13–3.42). The risk of relapse was 16.3% in patients who spent 0–100 euros/week, 5.9% in those reporting 100–500 euros/week, and 10.6% in patients spending more than 500 euros/week. Lastly, active gambling behavior at inclusion was a significant predictor of relapse during the 6 months following therapy completion (OR = 1.89; 95% CI 1.08–3.30) (Table 1).

3.1.2. Predictors of dropout over the entire therapeutic program

One hundred fifty-seven (27.7%) patients missed 3 or more therapeutic sessions without notification during the therapeutic program. Single marital status at inclusion was related with drop-out, as these patients tended to miss more therapeutic sessions than married/partnered patients (OR = 0.29; 95% CI 0.02–0.57).

Younger age and high scores on the TCI-R Novelty Seeking personality dimension were related with the number of sessions missed and were predictors of drop-out (OR = 0.98; 95% CI 0.97–0.99 and OR = 1.07; 95% CI 1.00–1.14, respectively) (Table 2).

3.1.3. Time to relapse over extended follow-up

To determine the pattern of relapses over the entire time patients were attended at the PG Unit (including the treatment and the extended follow-up periods), a survival analysis to the first relapse was performed (Fig. 1). The relapse rate decreased slowly and consistently over the first 12 months since therapy initiation. The first relapses were reported in the first month (3 patients reported an event during this period, which yielded a cumulative survival proportion of 0.99 at the end of the fourth week). Cumulative survival was 0.88 at 6 months (88% of patients had survived without relapses) and 0.83 at 12 months. An additional 9.3% of patients reported relapses during the next year. Hence, at the end of the second year of follow-up, cumulative survival was 0.73. Four years after the beginning of treatment, 61.8% of patients had survived without relapses.

Cox regression analysis determined that single patients had a higher risk of relapse than married/partnered or divorced/ separated/widowed patients (OR = 2.62; 95% CI 1.57–4.39 and OR = 2.47; 95% CI 1.36–4.48, respectively). A smaller amount ofmoney spent on gambling per week at inclusionwas also a significant predictor of relapse over long-term follow-up (OR = 1.79; 95% CI 1.09–2.72) (Table 3).

4. Discussion

This study endeavored to define predictors of relapse and dropout in large cohort of PG outpatients. In the sample studied, 14% experienced at least one relapse during therapy and the subsequent follow-up. This rate is similar to the reported incidence in some studies [7,17], but it differs from others [10,30]. In a review article, Ledgerwood and Petry highlighted the disparity between reported PG relapse rates and attributed it to methodological heterogeneity. Most studies describing relapse rates similar to ours also used cognitive–behavioral treatment, whereas some of those reporting higher rates applied other treatment modalities, such as the 12-step program of Gamblers Anonymous [6].

The definition of relapse in PG is controversial [6]. Blaszczynski et al. [31] consider that a gambling episode in itself should not be considered a relapse if it is not associated with a feeling of loss of control, whereas Hodgins and el- Guebaly [10] consider that a relapse after 2 weeks of sustained abstinence is a violation of personal goals regarding gambling behavior. Regardless of the definition used (including the one established here), a relapse should not be considered a purely negative event, as it can be used in the psychological intervention to increase the patients' awareness of the risk situations of PG and generate behavioral changes. The probability of relapse in our patients was highest during the 6-month treatment period and gradually decreased thereafter. A high early relapse rate has also been reported in previous studies [6,10].

In our study, patients who were single had a higher risk of relapse during the treatment period than those who were married/separated/divorced or widowed. Nonetheless, some authors report no differences [5,13] in the frequency of relapses according to the marital status and suggest that having any family member to rely on or even social support will increase the probability of remaining on therapy and obtaining better outcomes [32,33]. The amount of money invested in the game was also a predictor of early relapse. Patients who spent less than 100€ a week had a higher risk of relapse than those who spent larger sums. To the best of our knowledge, this factor has not emerged in any previous study. Professionals involved in managing these patients should be aware that patients tend to minimize the harmful effects of spending smaller amounts of money on gambling. Although we cannot know whether these bets are accompanied by a feeling of a lack of control, since we did not explore this variable, our results show that the risk of relapse is higher in patients who gamble with smaller amounts of money.

With regard to personality traits, high scores on the TCI-R Harm Avoidance dimension were also associated with an increased risk of relapse during treatment. Previous studies analyzing the personality profile of pathologic gamblers have highlighted Harm Avoidance as a core feature of this disorder and have related it with difficulties coping with challenging situations [34]. In this sense, people with higher Harm Avoidance scores may have a lower perception of self- efficacy in managing risk situations associated with gambling, and therefore, would present a higher risk of relapse. In the review by Lerdgerwood and Petry [6], a lack of resources to address problems and the use of avoidant and/ or impulsive strategies were precipitants of relapse. There- fore, an intervention to prevent relapse during treatment should aim to increase the patient's ability to detect and deal with situations of gambling risk.

Marital status and spending a smaller amount of money on gambling were also significant predictors of relapse during the subsequent six-month follow-up period, as was active gambling behavior at inclusion in the therapy program. This last factor could be related to an initial lack of motivation on the part of the patient, an element that has been associated with treatment outcome in previous studies [35]. The study by Gomez-Peña et al. [17] concluded that the motivation to change is important when working with pathologic gamblers because a lack of motivation may be an obstacle for successful therapy.

Dropouts are common in PG patients. In our series, the dropout rate was almost 30%, which is similar to the results found in a review focusing on dropouts in PG [5]. Younger age, single marital status, and high scores on the TCI-R Novelty Seeking personality dimension were the main predictors of dropout. As in the case of relapse, dropout

does not necessarily have only negative implications. It could also indicate that patients feel they are doing well and can afford to skip some sessions. However, it is often a sign of premature discontinuation of therapy or poor treatment adherence, which could lead to a poorer prognosis.

Age as a dropout factor in PG treatment has received little attention in the literature. In a study including 64 outpatients with PG, Echeburúa et al. [36] found that older patients were at higher risk of dropping out. However, these findings were not replicated in subsequent studies [7,13,37]. In their review, Melville et al. [5]. concluded that there is little evidence of a relationship between age and treatment dropout. Although there are no studies reporting an association between marital status and dropping out [5,15], it is reasonable to assume that single people would have less social support during treatment than those living with a partner, and this factor is, indeed, associated with an increased dropout risk [32]. High scores for Novelty Seeking on the TCI-R indicate a preference for new and unfamiliar things. These patients are impulsive, overspend money, and do not tolerate set rules. Our results are in accordance with previous studies that found a strong association between this personality trait and treatment dropout [13–15]. In their review,Melville et al. [5] found that impulsivity could have a negative influence on persevering with treatment. Impulsive gamblers are more sensitive to the immediate reinforcement provided by gambling than to the benefits of treatment, which require time and effort. Jimenez-Murcia et al. [16] described an association of starting to gamble at an early age and high novelty seeking and low self-direction on the TCI-R with a more severe gambling disorder and higher dropout rate.

Our study has some strengths and limitations that should be noted. The main strength is the large sample size. To our knowledge, this is the most extensive study performed in PG patients. The large sample size enabled proper statistical analysis, which lends robustness to the results. Although there was no pre- and post-treatment evaluation to assess significant changes after the therapeutic intervention, or a control group or other treatment settings (eg, group therapy) for purposes of comparison, these aspects are beyond the aim of the study, which was focused on defining factors related to relapse and dropout in clinical practice. The lack of consensus in defining relapse and dropout, and the optimal time for the analysis, are limitations that currently affect most studies in this line.

In conclusion, in patients with PG, relapses mainly occur during the 6 months after inclusion to treatment and are significantly more frequent in single individuals who gamble small amounts of money and show avoidance traits on the TCI-R scale. Young, single patients with high scores on the TCI-R Novelty Seeking personality dimension are at a higher risk of dropping out of therapy. These findings could be useful for physicians dealing with PG patients.

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Figure 1

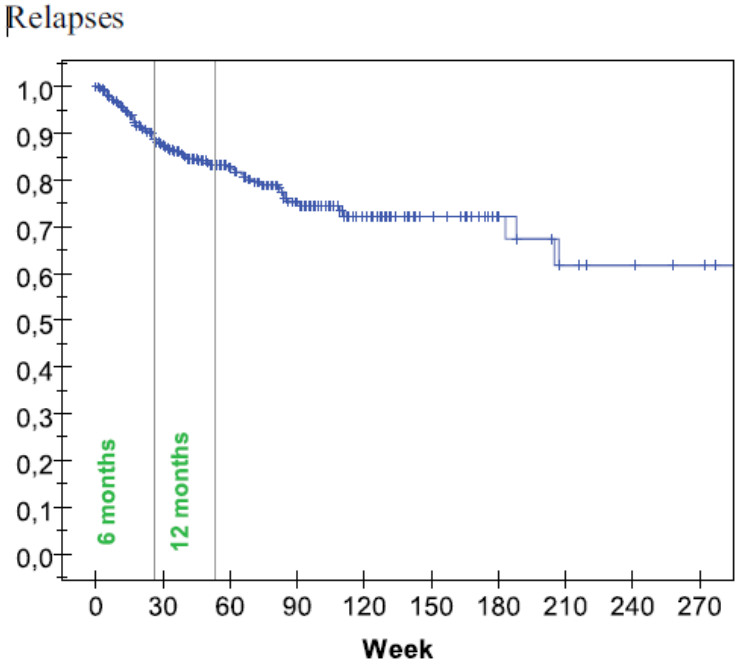

Table 1

Relapses during the treatment period	*p*	OR	95% CI (OR)	
Sociodemographics				
Marital status	<.001			
Single vs married	<.001	5.41	2.70	10.9
Single vs divorced	.001	3.60	1.68	7.70
Married vs divorced	.306	0.66	0.31	1.45
Employment status: unemployed	.064	1.78	0.96	3.30
Gambling behavior				
Money invested on gambling	.034			
Linear trend	.303	0.69	0.34	1.39
Quadratic trend	.021	1.60	1.00	2.91
Main addiction: slot machines	.090	1.68	0.91	3.07
Personality traits				
MCMI-III scales [NSP]				
TCI-R scales				
Harm avoidance	.049	1.09	1.01	1.19
Relapses during 6-months of follow-up	*p*	OR	95% CI (OR)	
Sociodemographics				
Marital status	.001			
Single vs married	.003	2.99	1.47	6.10
Single vs divorced	<.001	3.32	1.77	6.21
Married vs divorced	.763	0.90	0.46	1.76
Gambling behavior				
Money spent on gambling	.004			
Linear trend	.317	0.73	0.40	1.35
Quadratic trend	.017	1.96	1.13	3.42
Active gambling at inclusion	.025	1.89	1.08	3.30
Main addiction: slot machines	.099	2.86	0.67	12.3
Personality (MCMI-III and TCI-R) [NSP]				

Table 2

Number missed sessions	*p*	B	95% CI (B)	
Sociodemographics and clinical variables				
Marital status	.050			
Single vs married	.038	0.291	0.02	0.57
Single vs divorced	.251	0.176	−0.12	0.48
Married vs divorced	.330	−0.115	−0.35	0.12
Age, years	.034	−0.009	−0.017	−0.001
Personality traits				
MCMI-III scores				
Antisocial	.042	0.012	0.001	0.025
Schizotypical	.049	0.009	0.001	0.018
TCI-R scores				
Novelty seeking	.031	0.038	0.004	0.072
Harm avoidance	.099	0.024	−0.005	0.054

Presence of at least 3 missed sessions	*p*	OR	95% CI (OR)	
Sociodemographics and clinical variables				
Age, years	.027	0.98	0.97	0.99
Gambling behavior				
Active gambling at inclusion	.099	1.37	0.94	2.00
Money spent on gambling	.048			
Linear trend	.024	0.67	0.42	1.04
Quadratic trend	.316	1.20	0.84	1.70
Personality traits				
MCMI-III scores [NSP]				
TCI-R scores				
Novelty Seeking	.043	1.07	1.00	1.14

Table 3

	p	OR	95% CI (OR)	
Sociodemographics and clinical variables				
Marital status	.001			
Single vs married	.001	2.62	1.57	4.39
Single vs divorced	.001	2.47	1.36	4.48
Married vs divorced	.835	0.94	0.54	1.64
Age, years	.059	0.98	0.97	1.01
Gambling behavior				
Money invested on gambling	.010			
Linear trend	.364	0.78	0.46	1.33
Quadratic trend	.021	1.72	1.09	2.72
Personality traits				
MCMI-III scores [NSP]				
TCI-R scales				
Harm avoidance	.070	1.07	1.00	1.15