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**Gender and Responsible Gambling in Spain
The Social Gambling Questionnaire for Women (SGQW-47), a new screening
instrument**

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Abstract

Objective: The aim of this study is to develop a questionnaire to assess responsible gambling habits in females of the general population, to explore its psychometric properties and to compare the results between a community sample and a clinical sample of patients with gambling disorder. We also aim at providing empirical evidence of the gambling habits among Spanish females. *Method:* Two samples were selected to develop the questionnaire and to explore gambling habits in female Spanish population. The clinical sample was recruited from the Pathological Gambling Unit at the University Hospital of Bellvitge (Barcelona, Spain), comprising 30 patients. The community sample was recruited from individuals visiting the hospital for the Dentistry and Chiropody Departments, placed at the same university hospital and it comprised 316 females. *Results:* The questionnaire showed high values for sensitivity and specificity, discriminating between patients with gambling disorder and healthy controls. More than a 3% of the females from the community sample presented a problematic gambling behavior. In relation to predictors of gambling behavior, low socioeconomic status emerged as the unique socio-demographic factor for problematic gambling. Moreover, the illusion of winning money through gambling or feeling better by gambling were powerful stimulators of gambling behavior. *Conclusions:* Despite being male is strongly associated with the development of problem gambling, females can also be considered “at risk gamblers” themselves. To explore gambling habits of this population, identifying potentially harmful behaviors, in order to maintain responsible gambling habits, may contribute to the development of prevention and education programs promoting the general health of the community.

Key words: gambling disorder, responsible gambling, females, assessment, Spain.

Introduction

Gambling has been a common activity across societies and cultures. For many, it only is a distraction without negative consequences. To better understand gambling gender differences in Spain it is interesting to consider cultural aspects as well as the epidemiology of gambling and pathological gambling in this country. In Spain, gambling was legalized in 1977. Since then, there has been a very important increase of gambling behaviors. Spain is a country that has high indices of pathological gamblers; being its estimated prevalence between 1.5-2.5% (Becoña, 2009; Jiménez-Murcia, Fernández-Aranda, Granero, Menchón, 2013). However, it is important to highlight that no national epidemiologic studies have yet been conducted in Spain as a whole and, the estimated prevalence results from regional studies carried out in Catalonia, Andalusia and Galicia. An epidemiological study in Catalonia (n=3000) identified the following gambling prevalence: 2% at-risk gamblers, 0.5% problem gamblers and 0.2% pathologic gamblers. Furthermore, 90.2% of the sample population above 18 years old stated to gamble regularly, 52.2% had gambled during the last year and 30% gambled at least once per monthly (Departament de Salut, 2008).

Despite women constitute around 30% of the pathological gambling population, only 10-15% of them go to treatment (usually alone), although they do often accompany men with gambling problems. Women do not usually seek treatment for their disorder and when they do, the situation has become chronic and of difficult recovery.

Few studies have explored gender differences and very few have been conducted so far in Spain. However significant differences have already been identified, suggesting that risk and maintenance factors for gambling behavior and pathological gambling may differ between men and women. One of the most important gender differences is gambling behavior preference (Blanco et al., 2006; Grant; Ibáñez, White, Moreryra, & Saiz-Ruiz, 2003; Diez, Aragay, Soms, Prat, Casas, 2014). Slot machine gambling and lotteries are the most prevalent gambling behaviors in Spain, especially in men. Still, the non-strategic (e.g.: bingo) are the most popular ones among Spanish women (Becoña, 1999; Ibáñez et al., 2003, Echeburúa, González-Ortega, de Corral, Polo-López, 2011). Furthermore there is evidence of an association between game preferences and age in women. For instance, girls usually play more lotteries and older women also do bingo (Jimenez -Murcia et al., 2007). Besides some cultural factors (i.e.: bingo being socially acceptable in Spain) (Fernández-Montalvo, 2006), women describe the atmosphere of bingo as a comfortable situation and report gambling as an optimal strategy to avoid facing their problems and isolation (Granero et al., 2009).

Another described gender difference among the Spanish population is the higher betting amounts and more arguments within the family in males than in females. Also, female gamblers are usually older than men and more likely to be divorced or widowed and to have a lower annual income (Echeburúa, González-Ortega, de Corral, Polo-López, 2011). There is also evidence that women play to distract themselves as a social activity and also for motivation or enthusiasm in getting a reward. These findings might also be associated with sociocultural factors.

With regards to the age of onset and development of the pathological gambling, studies conducted with Spanish women samples describe a later onset when compared to men, as it is usual in this disorder. However, its course is faster than the one observed in men and develop problems in a shorter time, which is known as telescope effect (Ibáñez, 2014; Echeburúa et al., 2011, Diez, Aragay, Soms, Prat, Casas, 2014; Jiménez-Murcia et al., 2015; Tavares et al., 2001). Accordingly these findings have also been reported in studies conducted in other

countries (Ladd & Petry, 2002; Potenza et al., 2001). According to Diez et al. (2014), this effect could be associated with some variables such as higher level of stigma, lower economic status and preferences for continuous forms of gambling, greater difficulty hiding debts and gambling behavior from relatives, and greater exposure or difficulty coping with psychosocial stressors. These variables have been described to be particularly linked to women and it is important to remember that in Spain, gambling has traditionally been considered a male entertainment. The explanation from a cultural perspective is related to the social acceptance of this recreational activity.

Finally, concerning gambling behavior during treatment, a recent study describes different gambling patterns between sexes in a Spanish sample population (Diez, Aragay, Soms, Prat, Casas, 2014). Specifically, women were more likely than men to maintain their gambling behavior at the time treatment was started. According to Diez et al. (2014), social factors may be involved in this differentiation although it has not yet been clarified. Also, women tend to have less legal and financial problems; therefore women families tend to control their gambling behavior in a lesser extent than the men families at the time treatment is initiated (Echeburúa et al., 2011; Diez, Aragay, Soms, Prat, Casas, 2014).

Given the lack of studies in female gambling behaviors, the aim of the present study is to provide a self-report questionnaire for enabling the assessment of responsible gambling behaviors in Spanish females. Accordingly, the specific objectives are the following ones: a) to develop a questionnaire to assess responsible gambling habits among females in the general population, b) to explore its psychometric properties and to compare results between a community sample and a clinical sample of pathological gambling patients, and c) to provide empirical evidence of the habits of gambling among Spanish females.

Material and Methods

For the completion of this study two different instruments were used and methods have been divided in three main stages:

Diagnostic questionnaire for pathological gambling (Stinchfield, 2003). This 19-item self-report questionnaire briefly assesses the 10 specific diagnostic criteria for PG according to DSM-IV (APA, 1994). It has demonstrated adequate internal consistency reliability and convergent validity. This study was implemented with the Spanish adaptation (Jiménez-Murcia *et al.*, 2009), with adequate psychometric properties. Internal consistency reliability in our samples was good ($\alpha = .79$).

Social Gambling Questionnaire for Women (SGQW-47). It was developed according to the following sequence (a copy of the questionnaire could be provided by the corresponding author):

Stage 1: Item construction

We adopted the guidelines proposed by Streiner and Norman (2008). Responsible gambling was defined as something that its unique objective is entertainment and where the betting never exceeds what the person can afford. If there is a desire to recover losses, it is brief and of low intensity, and does not generate concern or disrupt any area of the individual's life. Responsible gambling is used as a relaxing activity, without harmful or detrimental impact to the individual. Taking this definition as a starting point, three clinical psychologists with

more than 15 years of experience in the pathological gambling field were asked to write 40 items each, independently, considering cognitive, emotional, and behavioral aspects of responsible gambling. The response format of the items is a Likert scale with 5 alternative responses (0: *never*; 4: *always*), with statements being referred to the last 12 months. In addition, a section with demographic information was also designed.

After the initial poll of 120 questions, a first selection of items was conducted with the criteria of not repeating its contents and the adequacy to the construct definition. The final preliminary version was considered a pilot tool and it consisted of 92 items, containing 6 items about type of gambling behavior (section 1) and 86 Likert-type items about responsible gambling (section 2).

Stage 2: Pilot analysis

The purpose of this phase was to evaluate and reduce the preliminary 92-item version with a pilot sample comprised by 40 females aged 18-75, recruited from the administration staff of the hospital and their family members and friends, with a mean age of 38.3 years ($SD = 17.7$). Most of them were born in Catalonia (an autonomous community of Spain) (70.0%), single (52.5%), employed (48.6%) or studying (16.2%), and had undergraduate (37.5%) or secondary (47.5%) studies. In addition, a cognitive interview was conducted with five participants, in order to clarify doubts and to propose alternative wording to the doubtful questions.

The Ethics Committee of our institution approved this study. With the opportunity to clarify any doubts, the SGQW pilot version was administered during February 2010 and was filled in voluntarily, anonymously and without any economic compensation. For section 2, the total score was calculated from the sum of the scores obtained in each item, after recoding the reverse items, and higher score indicate more problematic gambling behavior.

The psychometric analysis was carried out with SPSS20 for windows. A combination of quantitative criteria was used for the scale depuration and the reduction of the number of items. Items were removed when they showed: a) low discrimination, based on extreme endorsement ($> 95\%$ or $< 5\%$ of the sample answering never or always; Streiner & Norman, 2008); b) deterioration of the total internal consistency, based on the contribution of each item to Cronbach's alpha if deleted; c) corrected correlation lower than .20 (Nunnally & Bernstein, 1994); and d) redundant items, based on bivariate correlation coefficients above .65. According to the aforementioned criteria, 45 items were removed from the questionnaire and the subsequent final version consisted of 47 items: 6 for gambling behaviors in section 1 and 41 for responsible gambling in section 2.

Stage 3: Empirical application of the final version of the questionnaire

The purpose of this phase was to study the psychometric properties of the final 47-item version (SGQW-47) in both a community sample and a clinical sample of pathological gambling patients.

The community sample was recruited from individuals visiting the hospital for the Dentistry and Chiropody Departments, which is located at the University Hospital of Bellvitge (Barcelona, Spain). We took into account the prevalence of each level of gambling behavior in the population of females aged 18-75 in Catalonia (Generalitat de Catalunya, n.d.).

Therefore, the community sample was composed of 316 females: 94 (29.7%) aged 18-34, 149 (47.2%) aged 35-54, and 73 (23.1%) aged 55-75. The mean age for the whole sample was 42.5 ($SD = 13.3$), most of them were married or with partner (56.8%), employed (60.1%), and were born in Catalonia (72.1%) or the rest of Spain (21.8%). The socioeconomic status, based on occupation and level of education (Hollingshead, 1975) was: 22.2% high, 36.4% middle-high, 12.7% middle, 9.5% middle-low and 19.3% low.

The clinical sample was recruited from the Pathological Gambling Unit at the University Hospital of Bellvitge. It comprised 30 female pathological gambling patients aged 18-75, with a mean age of 54.6 ($SD = 10.5$), who consecutively attended consultation and agreed to take part in the study. Regarding civil status, 40.0% were separated or divorced, 23.3% single, 23.3% married, and 13.3% widowed. Most of them were unemployed (38.5%) or retired (19.2%), and were born in Catalonia (73.3%) or the rest of Spain (20.0%). The socioeconomic status (Hollingshead, 1975) was: 6.7% high, 23.3% middle-high, 23.3% middle, 13.3% middle-low, and 33.3% low. The SGQW-47 and DSM questionnaires were voluntarily completed with no economic compensation.

The 47 items selected in the previous phase were considered. For section 2, the format of responses and the calculation of the total score was the same as that described in phase 1 and 2. Analyses of this third phase were also performed with SPSS20. For section 2, the internal consistency was determined with Cronbach's alpha coefficient, with listwise deletion, and homogeneity was evaluated with the corrected correlation (between item and the total score after removing the item). Next, chi-square tests examined the discriminative accuracy of each of the SGQW-47 items to discriminate between cases and controls, and the total score was compared between both groups with t-test. In addition, ROC procedure was used to determine the best cut-off point for the total score. Finally, backward stepwise (BSTEP) binary logistic models explored predictors for exceeding the cut-off of the SGQW-47, for each section separately. Probability for stepwise entry and removal were .05 and .10, respectively.

Results

For phase 3, females of the community sample ($N = 316$) met on average 0.05 diagnostic criteria for pathological gambling ($SD = 0.24$; range 0 to 2), whereas females of the clinical sample (10 cases available; $N = 30$) met 6.80 diagnostic criteria ($SD = 1.48$; range 4 to 9), based on the Diagnostic questionnaire for pathological gambling (Stinchfield, 2003).

Section 1

Table 1 (left, first column) shows the results for the main questions of section 1 of SGQW-47 for both the community and the clinical subsamples. For the former, state lotteries and ONCE (lottery from the National Organization of blind people in Spain) were, respectively, the most frequent type of gambling (55.9% and 22.8%) and the most preferred games (36.4% and 11.6%). The mean and maximum amount of money spent per episode were €7.7 ($SD = 21.3$) and €20.2 ($SD = 36.8$) respectively, and the age of onset was 15.0 years ($SD = 14.9$). The 30.7% of the sample did not gamble, 62.7% gambled one or two games, and only the 6.6% gambled from three to six different games over the last year. Results shown in the three right columns of Table 1 will be commented later.

Insert table 1 here

Section 2

Table 2 displays descriptive statistics, homogeneity, and internal consistency for the 41 items of section 2 of SGQW-47 in the community sample. Most of the items (80.5%) showed corrected correlation coefficient values above .20. Internal consistency was satisfactory, with $\alpha = .831$ and most of the items (82.9%) contributed to the internal consistency of the scale. In addition, 32 of the 41 items (78.0%) discriminated between the community and the clinical group.

Insert table 2 here

The total score of section 2 of SGQW-47 in the community sample ($M = 27.3$; $SD = 13.2$) did not differ among the three age groups ($p = .126$), and was lower than the one for the clinical sample ($M = 75.2$; $SD = 15.9$) (mean difference: $p < .001$; 95% CI [42.9; 53.0]). In addition, the total score adequately discriminated between both cohorts (AUC = .983; 95% CI [.969; .998]). Moreover, SGQW-47 correlated positively with the number of diagnostic criteria ($r = .52$), providing evidence on the convergent validity of SGQW-47 scores, and the quantitative measures of section 1: average amount usually spent by episode ($r = .43$), maximum money spent/episode ($r = .49$), and age of onset betting ($r = .57$) (all p -values $< .001$).

Cut-off Point

The cut-off point of 56 was selected, showing an excellent sensitivity of 93.3 (95% CI [77.9; 99.2]) and specificity of 96.5% (95% CI [93.9; 98.3]). Comparison for gambling behaviors for section 1 between healthy females scoring below (low-risk group; $n = 305$) and above (high risk group; $n = 11$) the cut-off points selected are displayed in Table 1 (right, three last columns). Community females scoring below the cut-off point, on average, gambled in fewer different games ($M = 1.2$; $SD = 1.0$; range 0 to 2) than the community females scoring above the cut-off point ($M = 2.9$; $SD = 1.5$; range 2 to 6; $p < .001$). Regarding section 2, mean scores for both low and high risk community groups were 25.86 ($SD = 11.01$) and 65.91 ($SD = 9.76$) respectively.

Table 3 presents the results of the binary logistic regression model for each section of the SGQW-47, considering the cut-off point of 56. For section 1 and demographics, the factors more highly related to problematic or risk gambling behavior were frequent bingo gambling, slot machines and ONCE, higher amounts of maximum money spent per episode, and low socioeconomic status (Table 3, top). For section 2, the items more associated with a problematic or risk gambling behavior were 7, 13, 14, 15, 19, 29 and 33 (see Table 3 (bottom) for item description), with higher scores indicating more probability for exceeding the cut-off point. For both models predictive validity (Nagelkerke's $R^2 > .66$), discriminant validity (AUC $> .93$), and goodness-of-fit (Hosmer-Lemeshow's test; H-L $> .17$) were satisfactory.

Insert Table 3 here

Discussion

The main objective of the study was to develop and validate a self-reported questionnaire to obtain empirical evidence of gambling habits among Spanish females. Here we provide the

preliminary results of the completed questionnaire, which shows adequate psychometric properties in the studied sample.

Concerning internal consistency and homogeneity, further research with larger samples should be conducted to evaluate the items that show a low performance (higher values for α if item deleted and lower values for corrected correlation coefficients). However, this 47-item questionnaire version demonstrates adequate sensitivity and specificity and it discriminates pathological gambling patients from healthy controls.

In addition, results show that 3.5% of the females from our sample presented problematic gambling behavior, which is aligned with the prevalence described in problematic gambling level 2 (Shaffer *et al.*, 1999 and Ladouceur, 1996). Despite being male is strongly associated with the risk of developing problem gambling behaviors (Bondolfi *et al.*, 2000; Volberg *et al.*, 2001; Wardle *et al.*, 2007), females can also be considered “at risk gamblers” themselves (Boughton & Falenchuk, 2007; Wardman *et al.*, 2001). Moreover this prevalence can be partly explained by gambling accessibility variables (Ladouceur *et al.*, 1999; Walker, 1992), especially in urban areas (Volberg *et al.*, 2001). Also the number of the different sort of games that have been gambled over the last year significantly differed between females showing responsible gambling and females showing problematic gambling. Accordingly, it has previously been reported that the number of games is higher in level 2 and 3 than in level 1 of gambling behavior (NRC, 1999).

As for predictors of gambling behavior, low socioeconomic status emerged as the unique socio-demographic factor for problematic gambling. These results support the ones obtained in previous studies (Feigelman *et al.*, 1995; Hall *et al.*, 2000; NRC, 1999; Potenza *et al.*, 2001; Volberg *et al.*, 2001). Additionally, the illusion of winning money and/or the emotion of feeling better by gambling are both powerful stimulators of such behavior (Ocean & Smith, 1993).

Few studies have been conducted so far exploring gambling behavior among females. This study, despite not being randomized, provides preliminary findings of gambling behavior in Spanish females.

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