

## Gambling motives, problem gambling predictors and differences from problematic alcohol use

### *Motivos de juego, predictores del juego problemático y diferencias con el consumo problemático de alcohol*

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Received: 16/12/2020 · Accepted: 04/06/2021

#### **Abstract**

Despite the seriousness of problem gambling, its relationship with many factors has not yet been studied. This investigation sought, on the one hand, to verify the predictability of improvement over problem gambling, with irresponsible gambling being a mediator in this relationship. In addition, we sought to analyze whether predictors of problem gambling are related to problematic alcohol use. The sample consisted of 258 adults (59.5% women) with an average age of 20.95 years (SD = 2.19). Questionnaires were applied to measure gambling addiction, alcohol addiction, reasons for gambling, depression, coping with stress, prosocial behavior, and susceptibility to framing; and correlations, multiple linear regressions and a simple mediation model were analyzed. Results indicated on the one hand that 32.45% of variance in problem gambling is explained by reasons for gambling, with the maximum amount of money bet mediating this relation. On the other hand, an integrative model that explains 16.8% of problem gambling does not work for alcohol addiction. The results provide a new explanatory model of problem gambling and emphasize the need for interventions in problem gambling to be developed in accordance with the special characteristics of this addiction. These findings are relevant in the field of health psychology for their potential contribution to prevention and intervention programs.

#### **Key Words**

Problem gambling; addiction; gambling motives; alcohol abuse; predictors.

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## Resumen

A pesar de la gravedad del juego problemático, la relación que guarda con muchos factores todavía no ha sido estudiada. Esta investigación perseguía, por un lado, comprobar la capacidad predictora del motivo de mejora sobre el juego problemático, siendo el juego irresponsable un mediador en esta relación. Por otro lado, analizar si los factores predictores del juego problemático lo son del consumo problemático de alcohol. La muestra estuvo compuesta por 258 adultos (59.5% mujeres) con una edad media de 20.95 años ( $SD= 2.19$ ). Se aplicaron cuestionarios para medir los problemas de juego, los problemas con el alcohol, los motivos para jugar, la depresión, el afrontamiento del estrés, la conducta prosocial y la susceptibilidad al efecto marco; y se analizaron las correlaciones, regresiones lineales múltiples y un modelo de mediación simple. Los resultados indican por un lado que el 32.45% de la varianza de los problemas con el juego es explicada por los motivos de juego, mediando la cantidad máxima de dinero apostado esta relación; por otro lado, un modelo integrador que explica el 16.8% de los problemas de juego, no funciona en la adicción al alcohol. Los resultados aportan un nuevo modelo explicativo del juego problemático y recalcan la necesidad de que la intervención en estos problemas se desarrolle atendiendo a las características propias de esta adicción. Estos hallazgos resultan de relevancia en el campo de la salud por su aportación a los programas de prevención e intervención.

## Palabras Clave

Juego problemático; adicción; motivos de juego; abuso de alcohol; prevención; predictores.

Gambling addiction is defined as a maladaptive, persistent gambling pattern in a person's life, which can generate lasting clinical problems (Rash, Weinstock, & Van Pattern, 2016). Its importance has led to it being the first addiction recognized by DSM-5 that is not directed at a substance. On the other hand, it presents a high comorbidity with substance abuse pathologies, and shares a large part of its diagnostic and neurological bases with them (Mann, Fauth-Buhler, Higuchi, Potenza, & Saunders, 2016). For example, there is a positive relation between gambling problems and alcohol problems (Zavala, 2018), and there seem to be more problems with gambling in people with alcohol addiction than in people with-

out such problems (Bodor, Ricijas, Zoricic, Hundric, & Filipcic, 2018).

In addition to this positive relation, both pathologies share a similar symptomatology, with sufferers showing signs of depression, anxiety and antisocial personality (Hugget, Winiger, Corley, Hewitt, & Stallings, 2019). However, despite the characteristics that the two addictions share, they differ in their development (Edgerton, Keough & Roberts, 2019). They could thus be derived from divergent processes involved in the development of personality, since there are differences in the personality traits associated with different addictions (Zilberman, Yadid, Efrati, Neumark, & Rassovsky, 2018).



## **The motives that lead to the problem**

People's motives for gambling seem to be associated with the development of gambling addiction (Esparza-Reig, Martí-Vilar, González-Sala, 2021; MacLaren, Ellery & Knoll, 2015). Self-enhancement, associated with internal positive reinforcement, stands out as one of the motives for playing that seems to be most associated with gambling problems (Barrault, Mathieu, Brunault, & Varescon, 2019; Esparza-Reig et al., 2021; Grande-Gosende, Martínez-Loredo, & Fernández-Hermida, 2019; MacLaren, Harrigan, & Dixon, 2012). A relationship has also been found with financial motives (Barrault et al., 2019), coping mechanisms (Grande-Gosende et al., 2019; MacLaren et al., 2012) and social motivations (Grande-Gosende et al., 2019). Cognitive distortions, irresponsible gambling, health problems, and social and cognitive factors have also been shown to be good predictors of gambling addiction (Esparza-Reig, González-Sala, & Martí-Vilar, 2020).

## **Factors involved in gambling problems**

Given the impact that problem gambling has on society, Psychology has extensively investigated the factors and processes involved in these problems. The relationship between depression and substance addiction problems (Moustafa et al., 2020) or addictive behaviors (Haand, & Zhao, 2020) is one of the most studied. The case of problem gambling is no different, and the relationship has been extensively investigated (i.e., Altintas, 2018; Churchill, & Farrell, 2018).

Problem gambling and depression are directly related, and evidence has been found that places gambling addiction problems as a predictor of depression and vice versa (Altintas, 2018; Churchill, & Farrell, 2018;

Vaughan, & Flack., 2021), so it seems that both problems feedback. Despite the fact that research on the relationship between depression and problem gambling makes clear the high comorbidity between both pathologies, the cause of this relationship is not yet clear (Krause et al., 2018).

Some recent research (i.e., Schuler et al., 2019; Takamatsu, Martens, & Arterberry, 2016) suggests that the relationship between both problems is mediated by the use of maladaptive stress coping techniques, such as avoiding coping with problems. For this reason, it is important that, in the cases of people who are presenting both problems, the treatment also works on the coping strategies (Edgerton, Keough, & Roberts, 2018).

Beyond depression problems, there is a direct relationship between problems in gambling behavior and strategies for coping with stress (Reid, Di Tirro, & Fong, 2014). This relationship is reflected in the fact that people with problem gambling seem to show more maladaptive coping strategies than people who do not experience these problems (Slecicka, Braun, Grune, Buhringer, & Kraus, 2016; Sydonas, Anagnostopoulos, Niakas, & Triadafyllidou, 2016).

## **The present study**

The objectives of this study are, first of all, to check whether the fact that people gamble for self-enhancement will act as a predictor of gambling problems, with the maximum amount of money being wagered, similarly to cognitive distortions, as a mediator of this relationship. The second objective is to analyze whether the integrative model designed by Esparza-Reig et al. (2020) works with problematic alcohol use, being common to both cases.



Hypothesis 1 states that self-enhancement will be a predictor of gambling problems, with irresponsible gambling (measured by the maximum amount of money gambled) mediating this relationship. Hypothesis 2 states that the integrative model of health, social and cognitive factors will not predict problematic alcohol use, despite the fact that this is related to problem gambling.

## METHOD

### Participants

The final sample consisted of 258 participants between 18 and 26 years old. 59.5% of the participants were women ( $n = 153$ ), the mean age of the total sample being 20.95 years ( $SD = 2.19$ ). The complete sociodemographic characteristics of the sample are displayed in Table 1.

### Measures

To measure problem gambling, the South Oaks Gambling Screen (SOGS; Lesieur and Blume 1987) was applied in a version previously validated in Spanish (Echeburúa Odriozola, Báez Gallo, Fernández-Montalvo, & Páez Rovira, 1994). It is made up of 20 items (mostly dichotomous) and the score ranges from 0 to 19; a score higher than 4 indicates possible gambling problems. This version evaluates the addiction throughout the entire lifetime of the subject. The Cronbach's alpha value for this questionnaire was .80. Additionally, the participants also indicated the maximum amount of money they had wagered at any one time.

The Alcohol Identification Disorders Questionnaire (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) was used to assess problematic alcohol use. This scale is made up of ten items that measure people's

**Table 1.** Sociodemographic characteristics

Characteristics	Total ( $n = 258$ )
Women (%)	153 (59.5%)
Mean age ( $SD$ )	20.95 (2.19)
Nationality (%)	
Spanish	249 (96.5%)
Other	9 (3.5%)
Marital status (%)	
Single	150 (58.2%)
In a relationship	102 (39.5%)
Married	6 (2.3%)
Work status (%)	
Without work	183 (71%)
In part-time work	66 (25.6%)
In full-time work	9 (3.5%)



alcohol-related problems. The Cronbach's alpha value for this questionnaire was .76.

To evaluate the reasons why people gamble, the Gambling Motives Questionnaire (GMQ; Stewart & Zack, 2008) was applied in a version previously validated in Spanish (Cerdà Salom, Nebot Ibáñez, Campos Bacas, & Quero Castellano, 2016). This Likert-type scale is made up of fifteen items that are grouped into three factors: self-enhancement, social motivations and coping mechanisms. The factor structure was taken from Grande-Gosende, Martínez-Loredo, & Fernández-Hermida (2019), since it was better suited to the factor structure of this sample. Analyses were performed only on the enhancement subscale, which obtained a Cronbach's alpha value of .90.

The Basic Depression Questionnaire (CBD; Peñate 2001), validated in the Spanish population, was used to measure depression. This instrument asks about a series of twenty-one symptoms typical of depression, presented in a Likert format with four alternatives. It has shown good psychometric properties and is valid for the specific diagnosis of depressive disorders versus anxiety disorders (Guillot-Valdés, Guillen-Riquelme, & Buela-Casal, 2019). The Cronbach's alpha value for this questionnaire was .87.

Coping with stress was measured using the Stress Coping Questionnaire (CAE; Sandín and Chorot 2003), validated in the Spanish population. This questionnaire is made up of 42 items that are grouped into 7 subscales that measure different types of coping with stress. In this case, only the religion subscale was used, since it was the one that was significant in the model developed by Esparza-Reig et al. (2020). The Cronbach's alpha value for this subscale was .95.

To measure prosocial behavior, the Pro-sociality Scale of Caprara, Steca, Zelli, and Capanna (2005) was used in the adapted version deployed by Martí-Vilar, Merino-Soto, and Rodríguez (2020). This 16-item Likert-type scale is used to measure prosocial behavior in youth and adults. The Cronbach's alpha value for this scale was .89.

Parts 2 and 4 of the inventory developed by Lepore (2018) were applied to assess the susceptibility of the participants to framing effects. These present a series of five scenarios (in each part) in which the participants have to make decisions on economic issues or life-and-death issues. The responses are dichotomous: the closer average scores is to 1, the greater the susceptibility to framing of the participant.

## Procedure

This cross-sectional study is part of a larger study that seeks to explain the functioning of gambling addiction and its consequences; This has the approval of the ethics committee of the Universitat de València (procedure number 1040164). The questionnaires were applied between May and December 2019 on paper and in the presence of one of the researchers, with a duration of about 50-60 minutes. The sample was collected at the Universitat de València, all the participants being university students. Participants received no incentives and signed an informed consent form before starting.

## Analysis

First of all, the distribution and response frequency of each of the measured variables were analyzed. Next, Pearson's correlation analyses were performed to explore the relationship between alcohol addiction and



gambling addiction. Subsequently, a series of simple and multiple regression analyzes were carried out between the relevant variables; and finally, a simple mediation model was analyzed. Statistical analyses were performed with SPSS 20.0 statistical software, using an additional macro for the mediation analysis.

amount of money wagered being a mediator in this relationship. The model explained 32.5% of the variance ( $p < .01$ ) and the indirect effect was .45 ( $p < .01$ ).

## RESULTS

### Self-enhancement and gambling

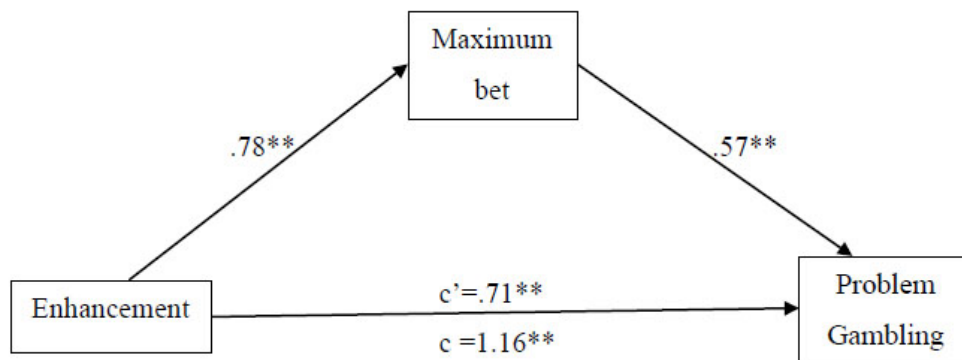
First of all, a simple linear regression analysis was performed in which problem gambling was the dependent variable and self-enhancement was the independent variable. The slope was statistically significant,  $\beta = .47$ ,  $t(1) = 8.58$ ,  $p < .01$ , so that the linear relationship between problem gambling and self-enhancement was accepted. The  $R^2$  value was .22 and the data fitted the assumptions of a linear regression model. Next, a simple mediation model was tested (Figure 1) in which enhancement is a predictor of problem gambling, with the maximum

### Health-related, social and cognitive factors in gambling addiction

A Pearson's correlation analysis between problem gambling and problematic alcohol use was performed. The two variables showed a direct positive relationship ( $r = .14$ ,  $p < .05$ ). Next, a multiple linear regression was conducted in which the dependent variable was problem gambling and the independent variables were health-related factors (depression and coping with stress through religion), a social factor (prosocial behavior) and a cognitive factor (susceptibility to framing).

The regression model was statistically significant,  $F(4) = 8.08$ ,  $p < .01$ , and all the predictor variables (Table 2) were significant in this model. The corrected  $R^2$  value was .17, indicating that 17% of the variance in

Figure 1. Mediated regression model



\*\* $p < .001$ ;  $c'$  = direct effect;  $c$  = effect with mediating variable



problem gambling was explained by variance in the predictor variables. Analysis of the residuals indicated that the data fitted well with the assumptions of the linear regression model.

Finally, this multiple linear regression model was reapplied with the difference that the dependent variable was problematic alcohol use. In this case, using the successive steps method, the variables of susceptibility to framing and coping with stress through religion were eliminated; so that the final model included only depression and prosocial behavior.

The model was statistically significant,  $F(2) = 4.84, p < .01$  (see Table 3). The corrected  $R^2$  value was .029, indicating that 2.9% of the variance in problematic alcohol use was explained by variance in the predictor variables. Analysis of the residuals indicated that the data fitted well with the assumptions of the linear regression model.

## DISCUSSION

This research sought to deepen our knowledge of problem gambling, especially with respect to certain aspects of the problem that can help improve prevention and intervention programs for this addiction problem. Hypothesis 1 predicted that, as was the case with cognitive distortions in the study of Esparza-Reig et al. (2020), playing for motives of self-enhancement would correlate with problem gambling (MacLaren et al., 2015), with this relationship mediated by the maximum amount of money wagered. The results corroborate this hypothesis since motives of self-enhancement (Barrault et al., 2019; Esparza-Reig et al., 2021; Grande-Gosende et al., 2019; MacLaren et al., 2012) predicted 22% of the variance in problem gambling, with this figure rising to 32.45% when the maximum amount of money wagered was included as a mediator.

**Table 2.** Multiple linear regression model of problem gambling

Predictor	$\beta$	t	P
Depression	.24	3.01	< .01
Framing susceptibility	.25	3.27	< .01
Prosocial behavior	-.18	-2.28	< .05
Religion	.17	2.18	< .05

**Table 3.** Multiple linear regression model of problematic alcohol use

Predictor	$\beta$	t	P
Depression	.13	2.06	< .05
Prosocial behavior	-.15	-2.38	< .05



Hypothesis 2 argued that the integrative model designed by Esparza-Reig et al. (2020) to explain problem gambling will not work in the case of problematic alcohol use, both being addictions problems to legal activities in Spain and being directly related in other ways. The results of the current study are consistent with this hypothesis, since although both addictions problems are directly related (Bodor et al., 2018; Hugget et al., 2019; Zavala, 2018), the model only explains less than 3% of variance in problematic alcohol use, while in the case of problem gambling it explains more than 15% of the variance. Furthermore, it has been found that while prosocial behavior (Esparza-Reig, 2020; Paleologou et al., 2019) and depression (Altintas, 2018; Churchill, & Farrell, 2018; Vaughan, & Flack, 2021) are predictors of both addiction problems, neither resorting to religion as a coping mechanism for stress nor susceptibility to framing act as predictors of problematic alcohol use. Despite the similarities between the two, there seem to be different processes and characteristics of each addiction that cannot be generalized to the other one (Edgerton et al., 2019; Zilberman et al., 2018).

From the findings of this research, it can be concluded that attention should be paid to the motives for gambling in the design and implementation of intervention or prevention programs for problem gambling. Our findings show that the motive of self-enhancement, which refers to the search for internal positive reinforcements, is directly related to the development of problems with gambling, and may be aggravated by the presence of behavioral problems or difficulties with the regulation of gambling behavior. Furthermore, the results support the idea that such programs should be designed with the specific characteristics of problem gambling in mind. We should try to avoid using models that have turned out to be

useful in the treatment of other addictions – even though these may be related to gambling addiction – without first proving them effective in the case of gambling.

This study has the limitation of sampling a population that does not include the elderly, despite the fact that they may also present problems with gambling. This limitation is common in the investigation of gambling addiction, and so for future studies it would be interesting to replicate these models in senior populations. On the other hand, another limitation of this research is not including data on the religion of the participants to analyze if there are differences based on this in the case of coping with stress. In addition, in future studies other variables such as the number of years that someone has been gambling or the age of onset of the behavior could be considered.

In conclusion, this research delved into the phenomenon of problem gambling, stressing the importance of people's motives for gambling and emphasizing the need to attend to all the factors involved in problem gambling when developing intervention and prevention programs. The findings are relevant to diverse professionals who work on problem gambling.

**Declarations of interest:** none.

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