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# PROBLEM GAMBLING, DEPRESSION, ANXIETY AND ASSOCIATED DEMOGRAPHICS: FINDINGS AND ETHICAL IMPLICATIONS

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## Abstract

This research aimed to investigate the role of socio-demographic factors in the context of problem gambling. Four hundred and thirty-eight male individuals participated in the research, with an average age of 36.54. Participants completed online questionnaires assessing problem gambling, anxiety, depression, and socio-demographic variables. The results highlighted differences based on the level of education concerning problematic involvement in gambling, with individuals with lower levels of education being more susceptible to develop problem gambling. Furthermore, our findings reveal that age moderates the relationship between anxiety and problem gambling, as well as the relationship between depression and problem gambling, with the association being stronger at higher ages. Based on this pattern of results, we discuss the ethical considerations that must be taken into account in the context of problem gambling, and the theoretical and practical implications of our findings.

**Keywords:** gambling; anxiety; depression; socio-demographics; ethics

## Introduction

Involvement in gambling represents one of the most significant challenges of contemporary society (T.-D. Huțul, 2023a). It is well-known that people have been engaging in activities based on gambling since ancient times, with evidence suggesting that individuals from China were playing dice approximately 5000 years ago (INC, 2017; Schwartz, 2013). While in the past this issue did not receive significant attention, the situation has changed in the last 30 years. This increased focus on the issue of gambling has arisen as a result of two significant factors: (1) pathological gambling was officially recognized in 1980, whereas in the *DSM III-R*, this disorder was categorized under "impulse control disorders" (APA, 1987), and (2) the gambling industry has undergone a pronounced exponential revenue growth in the past decades (Savard et al., 2022). Regarding the progress and evolution of gambling companies, it should be noted that they have started to attract participants from all social backgrounds. In this regard, casinos and physical betting establishments have, understandably, expanded and gained popularity. Simultaneously, owing to the natural advancement of technology, online gambling platforms have also developed. Thus, involvement in gambling is one of the most common activities that people engage in on the internet (Brand et al., 2016; A. Huțul, 2023).

As previously mentioned, involvement in gambling is a challenge of our times, and this addiction can contribute to the deterioration of mental health (Karner-Huțuleac & T.-D. Huțul, 2023). We know that this challenge transcends geographical boundaries, with involvement in gambling being present everywhere in the world. Hence, the prevalence of problem gambling has increased worldwide, across a wide array of communities and diverse geographical contexts. This can be readily discerned from the meta-analysis conducted by Calado and Griffiths (2016), which examined problem gambling in 30 different countries

across North America, South America, Asia, Oceania, Africa, and Europe. Nevertheless, clearly, the motives for people's engagement in gambling can be highly diversified and may be associated with various factors, including social motives, entertainment-related motives, or motives related to coping with negative outcomes of mental health (Tabri et al., 2022).

On another note, it is important to observe that regardless of the reasons people engage in gambling, such involvement can lead to a wide range of difficulties. For example, when people become excessively involved in gambling-related activities, individuals may report financial difficulties, issues in their relationships, or psychological distress (Drummond et al., 2020; Rizeanu, 2015; Suomi et al., 2014). The highly diverse negative outcomes of gambling involvement have led research in the field to focus on the factors contributing to the development of problem gambling, such as anxiety, depression, alcohol consumption, or antisocial personality (Cunningham-Williams et al., 1998; T.-D. Huțul, 2023b; T.-D. Huțul & Karner-Huțuleac, 2022; Rizeanu, 2013b, 2013a).

### **Anxiety and depression in problem gambling**

Past research has highlighted the strong relationship between anxiety, depression, alcohol consumption, antisocial personality disorder or emotional dysregulation, and problematic involvement in gambling (Barrault & Varescon, 2013; Cunningham-Williams et al., 1998; Velotti et al., 2021). In the Romanian context, a study conducted in 2022, involving 920 participants, it was found that depression predicts gambling behavior in 26.3% of cases, while anxiety predicts gambling behavior in 31.5% of cases (T.-D. Huțul & Karner-Huțuleac, 2022)

These results are concerning and provide insight into the mental health of individuals involved in gambling activities.

Typically, individuals engage in gambling as a means to cope with negative emotions (such as anxiety and depression), and this actually contributes to the development of gambling addiction (Abbott, 2001). However, the reverse relationship can also be true, in the sense that gambling can lead to financial and social difficulties, which, in turn, can lead to depression (Dussault et al., 2011).

In addition, the study conducted by Sharman et al. (2021) highlighted that the COVID-19 pandemic has significantly contributed to the rise in levels of depression and anxiety, which have, of course, led to an increase in gambling involvement. Given the previously discussed background, combined with the ongoing effects of the COVID-19 pandemic, concerns regarding problem gambling are becoming increasingly serious and well-founded.

### **The importance of socio-demographic factors in the involvement in problem gambling**

Individuals with a lower level of education tend to be more involved in problem gambling and wager a higher amount compared to individuals with a higher level of education (Davidson et al., 2016; Grönroos et al., 2021; Salonen et al., 2018; Worthington et al., 2003). This suggests that a higher level of education may function as a protective factor against engaging in problem gambling (Bastiani et al., 2013), as individuals with a higher level of education tend to have the ability to counteract irrational thoughts related to gambling (e.g., those related to control and the likelihood of winning).

Studies indicate that gambling expenditure and involvement in gambling increase with age (Tan et al., 2010), as elderly individuals tend to be more involved in this type of activity and bet a larger sum of money. Additionally, age is significantly and positively associated with both the severity of involvement in gambling and depression among problematic gamblers (Moragas et al., 2015).

## Ethical aspects

There are several ethical aspects related to the field of gambling that deserve discussion. We will develop all these aspects in relation to the Romanian context.

Firstly, regarding the situation in Romania, Lupu and Todirița (2013) have highlighted that the prevalence of problematic gambling among Romanian adolescents is a concerning 23.54%, while the prevalence of pathological gambling among adolescents is 3.48%. In this regard, it is crucial for researchers in the field to thoroughly investigate the factors that can contribute to the development and maintenance of problematic involvement in gambling, in order to provide specialist the necessary information for the development and implementation of specific intervention programs for this category of individuals. The development of tailored intervention programs is an extremely important aspect in ensuring the effectiveness of the intervention and individuals' compliance (Aragay et al., 2015; Fortune & Goodie, 2012; Jara-Rizzo et al., 2019). These intervention programs should come in response to gambling advertisements in Romania that do not consider crucial ethical aspects, such as the distance at which billboards can be placed near schools. Future public policies should take into account such common-sense ethical considerations, such as not airing gambling advertisements during hours when adolescents predominantly watch TV or regulating the proximity of a billboard to a school.

Secondly, another ethical aspect that deserves our attention is related to the excessive promotion of gambling in the online environment. This aspect can be problematic for the general population, both young and older individuals. Advertising campaigns aimed at promoting gambling have exponentially increased in recent years, and this undoubtedly represents a risk factor for problematic involvement in gambling. Individuals promoting gambling in the online environment include, on one hand, well-known celebrities who adults trust and may follow the "advice" provided in advertisements (e.g., "if you bet, you can win money for a mountain trip"). On the other hand, there are influencers who are followed by children. Consequently, online promotional campaigns have become much more aggressive. From an ethical standpoint, we need to question how fair it is to promote the idea that one can only win money or other prizes (trips, cars, motorcycles, etc.) without explicitly mentioning the associated risks of financial losses or the risk of addiction. Public policies that would require gambling companies to include information about risks in their online advertisements could potentially reduce the level of engagement in such activities.

Finally, we consider that society plays an extremely important role in the field of gambling, and intervention strategies aimed at addressing this issue should take into account the previously discussed aspects. Given this context, there is no doubt that the ethics of promoting gambling should be frequently brought into public discussions. Furthermore, several prominent figures in the Romanian media have engaged in discussions regarding these issues. Among these, we can mention Silviu Faiăr (Live, 2023), Deliric, Micutzu, Daniel Niculae or Mircea Bravo (PORC TV, 2023). Thus, it is worth noting that in contemporary Romanian society, a strong battle against the promotion of gambling, including ethical considerations, has begun. It is noteworthy, including the petition initiated by Declic in Romania titled "*Ban Gambling and Sports Betting Advertisements!*" (Declic, 2023). This petition had gathered 171,611 respondents as of September 1, 2023.

## The present study

Taking into consideration the results from the literature (Dussault et al., 2011; T.-D. Huțul & Karner-Huțuleac, 2022; Lupu & Todirița, 2013; Rizeanu & Momanu, 2021; Savard et al., 2022; Tan et al., 2010), the present study aims to delve deeper into the relationship between depression, anxiety, and problematic gambling behavior, while considering socio-demographic factors. Thus, the research's objective is to further investigate the influence of

these factors on gambling involvement, with the aim of making a significant contribution to the understanding and addressing of this issue within the realm of mental health.

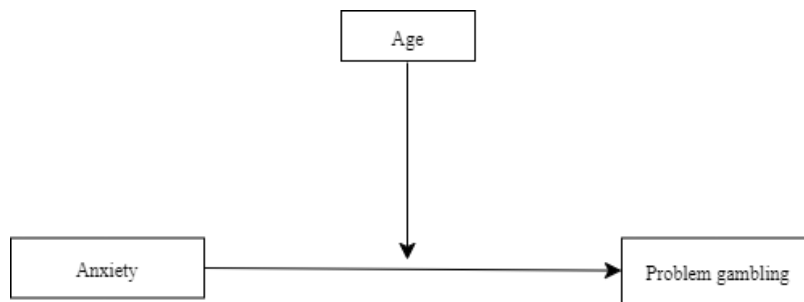
In this regard, the study aimed to investigate the existence of differences based on education level concerning problematic gambling involvement. Furthermore, we aimed to examine the moderating role of age in the relationship between anxiety and problem gambling, as well as depression and problem gambling.

**Hypotheses**

**H1.** There are significant differences between individuals with higher education level and those with lower education level regarding their involvement in problem gambling.

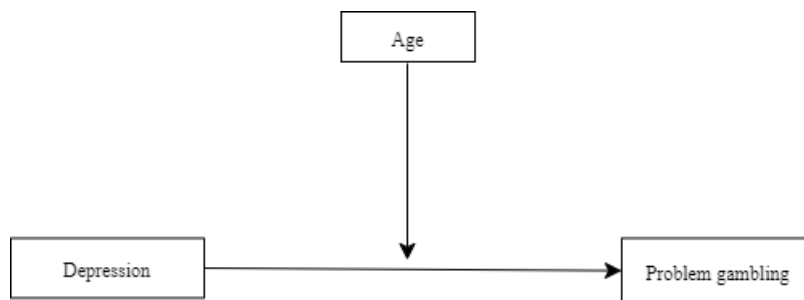
**H2.** The relationship between anxiety and problem gambling is moderated by age. We anticipate that within individuals of older age, the relationship between anxiety and problem gambling will be stronger.

Figure 1. The proposed moderation model for the relationship between anxiety and problem gambling



**H3.** The relationship between depression and problem gambling is moderated by age. We anticipate that within individuals of older age, the relationship between depression and problem gambling will be stronger.

Figure 2. The proposed moderation model for the relationship between depression and problem gambling



**Method**

**Participants and procedure**

Four hundred thirty-eight male individuals participated in this research, ranging in age from 18 to 69 years ( $M = 36.54$ ;  $SD = 8.99$ ). Of the total participants, 238 individuals had lower education levels, i.e., high school (54.3%), while 200 participants had higher education level, i.e., university studies (45.7%). The eligibility criteria for participation in this study were: (1) participants had to be 18 years of age or older at the time of questionnaire completion, (2) they must have engaged in gambling-related activities at least once in the past 12 months, and (3) had to be male – we chose to include only individuals of male gender in our research because studies indicate that males are more prone to engage in such activities

(Merkouris et al., 2016); therefore, we aimed to investigate the mechanisms contributing to problematic involvement within this at-risk category.

The instrument battery was created using Google Forms. The questionnaire's link was exclusively distributed on Facebook groups dedicated to gambling activities (e.g., the "*Betting Together Moderately and Responsibly*" group). Prior to completing the questionnaire, all participants were invited to read the informed consent statement and were informed that they could withdraw from the research at any time.

The research follows the principles outlined in the Declaration of Helsinki and complies with national laws in Romania regarding ethical conduct in scientific research, technological development, and innovation.

### Measures

**Problem gambling.** The *South Oaks Gambling Screen* (SOGS; Lesieur & Blume, 1987, 1993) was used to assess problem gambling. This scale has been previously used for studies in the population of Romania, demonstrating its psychometric properties (T.-D. Huțul & Karner-Huțuleac, 2022; Rizeanu, 2014; Rizeanu & Momanu, 2021). The instrument is a self-report one and assesses the severity of involvement in gambling activities. The scale comprises 16 primary items (e.g., "*Have you ever hidden betting slips, lottery tickets, gambling money, IOUs, or other signs of betting or gambling from your spouse, children or other important people in your life?*") some of which are grouped into multiple sub-questions (for example, item number 16 involves 9 situations where the respondent must respond with "yes" or "no"). Scoring is based on responses to 20 items/situations described in the instrument. For our study, we followed the recommendations from the specialized literature and excluded questions related to specific betting activities that are not popular in Romania, such as golf betting (T.-D. Huțul & Karner-Huțuleac, 2022). Higher scores indicated a higher level of problem gambling. The scale had excellent reliability, with Cronbach's  $\alpha = 0.94$ .

**Depression.** For the assessment of depression, we used the *Beck Depression Inventory* (Beck, 1961; Beck et al., 1988, 1996). This self-report scale, consists of a set of 21 items/symptoms (e.g., "*Past Failure: 0 = I do not feel like a failure; 1 = I have failed more than I should have.; 2 = As I look back, I see a lot of failures; 3 = I feel I am a total failure as a person*"), and is rated on a 4-point Likert scale. Higher scores indicate a higher level of depression. The scale had excellent reliability, with Cronbach's  $\alpha = 0.91$ .

**Anxiety.** *Taylor Manifest Anxiety Scale* (TMAS; Taylor, 1953) was used to assess anxiety. This instrument has been previously used for research about gambling problem in the Romanian population (T.-D. Huțul & Karner-Huțuleac, 2022). The scale comprises 50 items (e.g., "*I must admit that I have at times been worried beyond reason over something that really did not matter.*"), to which respondents are required to respond with "true" or "false" when considering themselves. Higher scores indicate a higher level of anxiety. The scale had excellent reliability, with Cronbach's  $\alpha = 0.92$ .

**Socio-demographic variables.** Male participants reported their age, and level of education.

### Results

#### Overview of the statistical analysis

Firstly, we conducted preliminary analysis, and then we tested for differences based on education level in terms of problem gambling, using Independent Sample t-Test. Finally, we tested the moderating role of age on the relationship between anxiety and problem gambling, as well as on the relationship between depression and problem gambling, using the SPSS macro PROCESS – Model 1, with a 95% confidence interval (CI) and 5000 bootstrapped samples.

**Preliminary data analyses**

We computed the Skewness and Kurtosis values to assess the normality of the distributions (Table 1). All the Skewness values were within the 2/-2 limit and Kurtosis values were within 7/-7, indicating normality, as suggested by Hair et al. (2010) and Byrne (2013). Statistical analyses were performed using the SPSS program, version 26.

Table 1. Descriptive statistic

	<b>M</b>	<b>SD</b>	<b>Skewness</b>	<b>Kurtosis</b>
Problem gambling	39.19	21.58	0.33	-0.97
Anxiety	16.05	10.54	0.60	-0.55
Depression	9.57	11.03	1.62	2.57

**Hypothesis testing**

**Differences based on the level of education**

To test the differences based on the level of education regarding problem gambling, we used the Independent Samples t-Test. The results for the differences between individuals with lower education level and individuals with higher education level are presented in detail in Table 2. The results suggested that are significant differences between individuals with lower education level and individuals with higher education level in terms of problem gambling. As predicted, individuals with lower education level presented higher scores compared to individuals with higher education level in terms of problem gambling.

Table 2. Differences based on the level of education in terms of problem gambling

	<b>N</b>	<b>Mean</b>	<b>t</b>	<b>df</b>	<b>p</b>
Individuals with lower education level	238	41.53	2.47	436	0.01
Individuals with higher education level	200	36.42			

**The moderating role of age on the relationship between anxiety and problem gambling**

We used the SPSS macro program PROCESS – Model 1 (95% confidence interval (CI); 5000 bootstrapped samples) to explore the potential moderating roles of age on the link between anxiety and problem gambling (Hayes & Preacher, 2013). The direct effect of anxiety on problem gambling was moderated by age, as their interactions was significant ( $b = 0.01$ ,  $SE = 0.008$ ,  $p = 0.002$ ), with a  $R^2$  brought by this interaction of .8%. Simple slopes analyses indicated that the association between anxiety and problem gambling was weaker in participants with lower age – under 27 years ( $b = 0.86$ ,  $SE = 0.11$ ,  $p = 0.001$ ) than in those with average age – 28 – 45 years ( $b = 1.04$ ,  $SE = 0.08$ ,  $p = 0.001$ ), and this relationship was strongest for individuals of older age – over 45 years ( $b = 1.21$ ,  $SE = 0.11$ ,  $p = 0.001$ ).

**The moderating role of age on the relationship between depression and problem gambling**

We used the SPSS macro program PROCESS – Model 1 (95% confidence interval (CI); 5000 bootstrapped samples) to explore the potential moderating roles of age on the link between depression and problem gambling (Hayes & Preacher, 2013). The direct effect of depression on problem gambling was moderated by age, as their interactions was significant ( $b = 0.02$ ,  $SE = 0.009$ ,  $p = 0.007$ ), with a  $R^2$  brought by this interaction of 1%. The association between depression and problem gambling was weaker for participants with lower age – under 27 years ( $b = 0.68$ ,  $SE = 0.11$ ,  $p = 0.001$ ) than in those with average age – 28 – 45 years ( $b = 0.90$ ,  $SE = 0.08$ ,  $p = 0.001$ ), and this relationship was strongest for individuals of older age – over 45 years ( $b = 1.12$ ,  $SE = 0.11$ ,  $p = 0.001$ ).



## Discussion

The current study investigated the role of socio-demographic factors in problem gambling, in a Romanian sample of males who have engaged in gambling-related activities at least once in the last 12 months.

Our study results highlighted differences based on the level of education regarding involvement in problematic gambling. In more specific terms, individuals with a lower level of education exhibited a higher predisposition to engage in activities associated with problematic gambling, in line with the existing literature on problem gambling (Bastiani et al., 2013; Davidson et al., 2016; Grönroos et al., 2021; Salonen et al., 2018; Worthington et al., 2003). In Romania, individuals with a lower level of education often earn lower incomes and have fewer opportunities for professional advancement. This may render them more inclined to explore alternative activities that offer the perception of easy financial gain, such as gambling. Moreover, advertisements for sports betting and casinos in Romania promise precisely this: unimaginably large winnings in a very short period, thus offering the illusion of overnight enrichment. In this regard, education acts as a protective factor against succumbing to the illusion of ultra-rapid enrichment (Bastiani et al., 2013).

Building upon the significant predictive roles of anxiety and depression in problematic gambling (Barrault & Varescon, 2013; Dussault et al., 2011; T.-D. Huțul & Karner-Huțuleac, 2022; Rizeanu, 2013b; Rizeanu & Momanu, 2021), we aimed to investigate the moderating role of age in the mentioned relationships. The moderation analysis results highlighted that as the age of the participants increases, the relationship between anxiety and problem gambling, as well as the relationship between depression and problem gambling, becomes stronger. Our results align with findings in the specialized literature (Moragas et al., 2015; Tan et al., 2010). In other words, as participants' age advances, symptoms of depression or anxiety increasingly contribute to problematic gambling involvement, as people may engage in gambling as a mechanism to cope with negative emotions. In the same vein, studies suggest that older individuals tend to wager higher amounts of money compared to younger individuals (Tan et al., 2010). Furthermore, ageing brings about an intensification of negative emotions, feelings of loneliness, psychological distress, and furthermore, withdrawal from various activities (Drummond et al., 2020; Rizeanu, 2015; Suomi et al., 2014), and consequently a more intense need to apply strategies that hold the promise of downregulating these psychological experiences. Also, the moderating role of age that our findings highlighted may be related to the fact that older individuals have less interaction with technology, are more vulnerable in the online environment, or are more resistant to change (when, perhaps, they have been suggested to seek professional help when their problem gambling behavior was seen by a relative).

## Theoretical and practical implications

From a theoretical perspective, the study contributes to our understanding of the factors that contribute to involvement in gambling and the maintenance of this type of behavior, i.e., education and age. It is important to take into account the geographical context in which our study was conducted. In Eastern Europe, such studies are limited, and data is scarce, as the majority of gambling studies are conducted in countries such as England, Germany, France, Italy, or the United States of America. Therefore, in light of our results, the generalization of the data obtained on a global scale can be compared with the situation in the Romanian context.

From a practical perspective, our findings provide guidance on the specific participant groups we should focus our attention on for the prevention or mitigation of the negative consequences associated with involvement in gambling activities. Additionally, our results and the ethical discussions and implications we have highlighted can be relevant for the

design of gambling - related public policies in Romania. All the ethical considerations we have discussed can be taken into account when designing both practical interventions by mental health specialists and initiatives by non-governmental organizations or associations (such as *Joc Responsabil*) that promote the fight against problem gambling in Romania or other countries.

### Limitations and future directions

Firstly, within this study, we did not consider the type of gambler (online vs. offline). Future studies could incorporate this concept, as it is possible that results may differ depending on the mode of betting. Secondly, another limitation of the study is the omission of other relevant individual dynamics in the field, such as cognitive distortions. Future research could also take into account external factors that may contribute to problem gambling, as the literature has predominantly focused on internal factors until now. Such external factors can arise, for example, from the social representation that people hold. Social representation studies have proven their importance in explaining people's engagement in specific behaviors in various contexts, including Romania (De Rosa & Holman, 2011). Therefore, we believe that such an approach is worth considering.

### Conclusions

In conclusion, we believe that our study has brought to light several significant aspects. The two central elements revealed through our research, (1) age moderates the relationship between anxiety and problem gambling, as well as (2) the relationship between depression and problem gambling, with the association being stronger at higher ages, are of particular importance for public policies and psychotherapeutic plans that are to be implemented in Romania. More specifically, both the public policies to be subsequently implemented concerning problem gambling and the psychotherapeutic intervention plans to be developed by mental health professionals must consider the importance of age as a moderating variable.

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