# ADOLESCENTS, ONLINE GAMBLING, PROBLEMATIC INTERNET USE AND SUBSTANCE CONSUMPTION

## *ADOLESCENTES, JUEGO ONLINE, USO PROBLEMÁTICO DE INTERNET Y CONSUMO DE SUSTANCIAS*

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## Abstract

Recent research has warned of the growing participation of minors in online gambling, an illegal behaviour with an enormous addictive potential. The present study was proposed with a double objective: (1) having updated data about online gambling among adolescents and, (2) analysing its relationship with substance use and Problematic Internet Use [PIU]. For this purpose, a sample of 3188 Spanish adolescents between 12 and 17 years of age (Mean=14.44; SD=1.67) was gathered, to whom was applied an ad hoc questionnaire with items regarding their internet use and substance consumption, as well as specific screening instruments (Alcohol Use Disorders Identification Test -AUDIT-, Cannabis Abuse Screening Test -CAST-, the Substance Use and Abuse subscale of the Problem Oriented Screening Instrument for Teenagers -POSITuas-, and the Problematic Internet Use Scale for Adolescents-PIUSa-). The results showed that 8.4% of the sample had participated in online gambling during the prior year. It was also found that those who gambled on the Internet had higher rates of PIU and different online risky behaviours, as well as higher rates of substance consumption. Therefore, these are not isolated problems, making it necessary to employ an integral preventive approach to address them.

## Resumen

Recientes investigaciones han alertado de la creciente participación de los menores en el juego online, una conducta ilegal con un enorme potencial adictivo. El presente estudio se planteó con un doble objetivo (1) disponer de datos actualizados sobre el juego online entre los adolescentes y, (2) analizar su relación con el consumo de sustancias y el Uso Problemático de Internet [UIP]. Para ello, se recogió una muestra de 3188 adolescentes españoles de entre 12 y 17 años (Media=14.44; DT=1.67), a los que se les aplicó un cuestionario ad hoc con ítems relativos al uso de Internet y consumo de sustancias, así como instrumentos de cribado específicos (Alcohol Use Disorders Identification Test -AUDIT-, Cannabis Abuse Screening Test -CAST-, Substance Use and Abuse subscale of the Problem Oriented Screening Instrument for Teenagers -POSITuas- y la Escala de Uso Problemático de Internet para Adolescentes -EUPIa-). Los resultados mostraron que el 8.4% de la muestra había participado en juegos de azar en línea durante el año anterior. También se comprobó que los que jugaban a través de Internet presentaban tasas más elevadas de PIU y de diferentes comportamientos de riesgo online, así como tasas más elevadas de consumo de sustancias. Por tanto, no se trata de problemas aislados, por lo que es necesario emplear un enfoque preventivo integral para abordarlos.

## Keywords

Adolescence, Online Gambling, Substance Use, Problematic Internet Use

## Palabras clave

Adolescencia, juego online, consumo de sustancias, uso problemático de Internet

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## Introduction

The consumption of alcohol and other substances among adolescents constitutes one of the main social and health problems in Spain, with alcohol being the most consumed substance, followed by tobacco and cannabis. According to the latest *State Survey on the use of Drugs in Secondary Education* [ESTUDES 2018-2019], 75.9% of schoolchildren between 14 and 18 years old admit to having consumed alcohol in the last year, 35% tobacco and 27.5% cannabis (Plan Nacional sobre Drogas [PND], 2019). Added to this problem is the one derived from the use of the Internet, social networks and the technologies as a whole, which includes the use of video games and online gambling. The Spanish *National Strategy on Addictions 2017-2024* indicates the existence of "a growing concern about the increase in the pathological use of the Internet, digital media and social networks, as well as the role of new technologies as facilitators of access to and enhancers of other addictive behaviours, especially gambling and online gambling among adolescents, largely mediated by aggressive advertising" (PND, 2018, p. 20). The negative consequences that can derive from gambling, both socially and in terms of health, have led to it being raised as a public health issue (Clotas et al., 2019). In turn, the *Report on behavioral addictions*, published by the Observatorio Español sobre Drogas y Adicciones [OEDA] jointly with the PND (OEDA & PND, 2019), highlights the high participation in gambling in our country. In 2019, 64.2% of the population aged 15 to 64 had participated in some type of gambling (OEDA & PND, 2021) and 6.7% in online gambling, three points more than in 2017 (2.7%).

Estimating the volume of adolescents who gamble and the circumstances surrounding said practice seems especially appropriate, since it has been found that an early onset is a predictor of the severity and affectation of a subsequent gambling problem (Calado et al., 2017; Gupta and Derevensky, 2000). In this sense, European regulations had already designated minors as a particularly vulnerable group in 2011 (European Commission, 2011). In Spain, participation in gambling as an illegal practice for minors is included in Article 6 of the *Gambling Regulation Law* (Law 13/2011 of May 27, regulating gambling). Despite this, the latest data from ESTUDES (2019) report a 22.7% participation in person and a 10.3% participation in online gambling among students aged 14 to 18 years old. Secades-Villa et al. (2016) indicated that the prevalence rates of problem gambling in adolescents could be comparatively higher than in adults. It has been estimated that between 0.9 and 0.3% of the total Spanish population could be considered pathological gamblers (Dirección General de la Organización del Juego [DGOJ], 2015), while in the case of adolescents, a 4.6% rate of problematic gambling has been found in Galician students aged 11 to 16 years old (Míguez & Becoña, 2015).

Online gambling, in particular, can pose a greater risk to gamblers (Goldstein et al., 2016; Griffiths & Wood, 2000), with studies having found higher problem gambling rates than in the face-to-face gambling, although the latter has more participation (Gómez-Yáñez, 2016; Olason et al., 2011; Potenza, et al., 2011). Hubert & Griffiths (2018) highlighted the situational characteristics of online gambling as a possible explanation: availability, accessibility and affordability. Data from the DGOJ also showed that online gambling is a changing reality, with a rapid and constant increase in the number of gamblers. In Spain there were 1,303,513 active online gamblers in 2016, while in 2018 there were 1,476,385 (DGOJ, 2019). All of this underlines the importance of a constant effort to update the data in this area and to study the variables that may be related to gambling.

On the other hand, the association between gambling and other problems such as the consumption of alcohol and other substances has already been explored in the literature (Barnes et al., 2009; De Luigi et al., 2017; Scholes-Balog and Hemphill, 2012; Míguez & Becoña, 2015), reporting higher rates of consumption among those who play online (Brunelle et al., 2012; Potenza et al., 2011). Other works have provided evidence of the relationship between substance use and Problematic Internet Use (Gómez et al., 2017; Tsitsika et al., 2011), and even with accessing to inappropriate or dangerous content through the Internet (Montiel et al., 2013). However, despite the data pointing to the risk of early gambling initiation (Calado et al., 2017; Gupta & Derevensky, 2000), only a small number of these studies include data on children under 14 years of age.

For all the aforementioned, the present work was proposed with a double objective: (1) having updated data on online gambling among children between 12 and 17 years old from the Autonomous Community of Galicia (Spain), both globally and for different socio-demographic segments; and (2) analysing in the current context its possible relationship with the consumption of substances and Problematic Internet Use [PIU].

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## Method

### Participants

To account for the proposed objectives, a selective methodology was employed, consisting of the administration of a paper survey among Secondary Education students from the Galician community (Spain), both in the Obligatory and Baccalaureate level. An intentional sampling was used, contacting 13 schools in the metropolitan area of Santiago de Compostela, agreeing to participate in the study 12 of them (9 public and 3 charter schools). The initial number of questionnaires collected was 3431, of which 323 were eliminated, either because they contained an excessive number of missing values, incoherent response patterns, or because they were individuals of legal gambling age. The final sample was made up of 3108 adolescents between 12 and 17 years old (Mean = 14.44; SD = 1.67): 34.5% were between 12 and 13 years old, 34.1% were between 14 and 15 and the 31.4% remaining were between 16 and 17 years old. The 50.4% of the sample were girls and 49.6% boys.

### Instruments

The data were collected through an *ad hoc* questionnaire, divided into two blocks, with a last section dedicated to sociodemographic information (sex, age, grade and school).

In the first block, self-developed questions by the researchers were included, referring to habits of use of the Internet, mobile phone and social networks, along with risky behaviours on the Internet and participation in betting or online gambling during the last year (understood as the prior 12 months to the data gathering). The internet and mobile usage habits assessed were: whether they connected daily, the numbers of hours they used internet per day, the number of Networks they had a profile in and used, whether they took the mobile to school and used it in the classroom, whether they slept with the mobile in the bedroom and used it passed midnight, and whether they had arguments with their parents for their use of mobile and internet. The risk behaviours explored were: accessing erotic websites, exchanging self-produced images or videos with erotic or sexual content (active or passive sexting), accepting or contacting strangers through social networks, and meeting with these strangers in person. This block also included the Spanish version of Scale for Problematic Internet Use for Adolescents (PIUS-a) by Rial et al. (2015). This scale has 11 items that describe situations related to the use of the Internet during the last year (eg: *"When I go online I feel that time flies and hours pass without realizing it"; "Sometimes I get irritated or get in a bad mood for not being able to connect to the Internet or having to disconnect"; "On some occasions I have gotten into trouble or problems because of the Internet"*). The response options were presented on a Likert-type scale with five response options, being 0 Not at all agree and 4 Totally agree. The sum of all the responses determines the existence of PIU with a score equal to or greater than 11. The internal consistency evaluated through Cronbach's alpha coefficient was .88 in the present study.

The second block collected information regarding the consumption of alcohol and other substances, both at the level of consumption and risk consumption. Items based on the ESTUDES (PND, 2019) and three specific screening tools were included, one to identify risky cannabis use (the Cannabis Abuse Screening Test, CAST, cut 4) (Legleye et al., 2013, Rial et al., 2022), another for risky alcohol consumption (the Alcohol Use Disorders Identification Test, AUDIT, cut 4) (adapted and validated for Spanish adolescents by Rial et al., 2017) and another for drug use in general (the Substance Use and Abuse subscale of the Problem Oriented Screening Instrument for Teenagers, POSIT-UAS, cut 2) (adapted and validated for Spanish adolescents by Araujo et al., 2018). All three instruments presented a high internal consistency (Hinton et al., 2004), with Cronbach's alpha values even higher than those obtained by the original authors (AUDIT = .84; POSIT = .84; and CAST = .86). The substances evaluated with the items extracted from the ESTUDES have been alcohol, tobacco, cannabis, cocaine, amphetamines and hallucinogens, registering consumption for both in the whole year and month prior of the administrations of the survey through dichotomous Yes/No questions. Following the work of Golpe et al. (2017), to operationalize Intensive Alcohol Consumption or Binge Drinking, three complementary Yes/No items with the same temporal frame (whole year and month prior to the data gathering) were used: (1) the consumption of 3 or more alcoholic beverages in the same consumption episode, (2) the consumption of 6 or more alcoholic beverages in the same consumption episode, and (3) the fact

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of having gotten drunk.

## Procedure

In the first place, the consent and collaboration of the management of the schools was guaranteed. The management teams delivered letters to the students explaining the purpose and date of data collection and asking their parents for consent to include their children in the study. The data were collected in the classrooms themselves, in small groups (between 15 and 20 individuals), using a paper questionnaire that each student had to fill out individually. The information was collected by a team of psychologists with experience in carrying out this type of task. Participants were informed of the purpose of the study, as well as the confidentiality and anonymity of their responses. Individual participation was completely voluntary and the time for completing the questionnaire was approximately 25 minutes. The work was approved by the Bioethics Committee of the University of Santiago de Compostela.

## Data analysis

After a first descriptive analysis, bivariate tabulations were carried out, with the application of $\chi^2$ contrasts to compare the rates of consumption and risky consumption of online gamblers versus non-gamblers, including contingency coefficients (CC) for estimating size of the effect. In a complementary manner, Student's $t$ tests were applied to compare the mean scores of both groups in the four screening instruments used, calculating the eta coefficients ($\eta$) to estimate the effect size. The analyses were performed with the statistical package IBM SPSS Statistics 24 (IBM Corp. Released, 2016).

## Results

The online gambling rate found for the global sample aged 12 to 17 was 8.4%. Table 1 shows the percentage for the global sample and by sex and age of the students who have played online in the last year (hereinafter referred to as "gamblers"). The rate of online gamblers was significantly higher among boys than among girls (14.2% versus 2.7% respectively; $\chi^2$ = 130.97; $p$ < .001) and increased significantly with age ($\chi^2$ = 70, 88; $p$ < .001), reaching 13.5% for the sample of 16-17 years-olds. It is worth highlighting three data: firstly, the percentage of children under 12-13 years of age who acknowledge having gambled money on online gambling or on betting websites is 3.3%; secondly, that said percentage triples in the transit to the next age group (14-15 years), standing at 9.9%; Lastly, if sex and age are taken into account at the same time, an online gambling rate of up to 25.9% can be found among 16–17-year-old males. The mean age of the gamblers was 15.27 years (SD = 1.47), 15.34 (SD = 1.35) for boys and 15.07 (SD = 1.92) for girls.

**Table 1.** *Online gamblers rates, overall and by age and sex*

| | 12-13 years (n=1072) | 14-15 years (n=1061) | 16-17 years (n=975) | Overall Sample (n=3108) |
|---|---|---|---|---|
| Girls | 2.3% | 2% | 3.9% | 2.7% |
| Boys | 3.9% | 15.3% | 25.9% | 14.2% |
| Overall | 3.3% | 9% | 13.5% | 8.4% |

On the other hand, regarding Internet use habits, online gamblers have a higher frequency of Internet connection and more intensive use than non-gamblers. They also have a greater presence on social networks: 30.5% are registered in more than 5 social networks compared to 15.7%. They take their mobile phone to class more frequently and use it during classes, they sleep with their mobile phone in the room and tend to go online to a greater extent

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after midnight. These differences are also reflected in a higher rate of discussions at home due to Internet or mobile use. With respect to other practices that could be considered risky, online gamblers present significantly higher rates of both active sexting and passive sexting, as well as higher rates of contact with strangers. They also access erotic content to a greater extent and the PIU rate is double that of those who do not play online. All these data are presented in detail in Table 2.

**Table 2.** *Internet and mobile usage habits and online risky behaviours. Gamblers vs. Non-Gamblers*

| Mobile and internet use habits | Gamblers | Non-Gamblers | χ² | CC |
|---|---|---|---|---|
| Connecting every day/almost every day | 95.8% | 83.3% | 27.43** | .09 |
| Connecting 5 hours or more per day | 38.5% | 27.3% | 14.47** | .07 |
| Having more than 5 social networks | 30.5% | 15.7% | 36.42** | .11 |
| Taking the mobile to school everyday | 76.3% | 51.8% | 57.06** | .14 |
| Using the mobile while in class | 29.8% | 9.5% | 96.76** | .18 |
| Sleeping with the mobile in the bedroom | 76.2% | 61.1% | 22.65** | .08 |
| Using the mobile passed midnight | 42.7% | 19.3% | 77.62** | .16 |
| Arguments for the use of mobile and internet | 43.1% | 34.4% | 7.59* | .05 |
| Online risky behaviours | Gamblers | Non-Gamblers | χ² | **CC** |
| Active *Sexting* | 16.2% | 7.5% | 22.14** | .08 |
| Passive S*exting* | 47.9% | 19.3% | 113.19** | .19 |
| Accepting friend requests from strangers | 73.3% | 49.6% | 52.94** | .13 |
| Contacting with strangers online | 55.4% | 36.4% | 35.49** | .11 |
| Meeting in person with online acquaintances | 34.4% | 14.8% | 65.46** | .14 |
| Accesing pornographic websites | 74.8% | 31.7% | 192.64** | .24 |
| Problematic Internet Use | **Gamblers** | **Non-Gamblers** | χ² | **CC** |
| Positives PIUS-a (Cut 16) | 28% | 14.3% | 33.39** | .11 |
| Mean PIUS-a | 12.30 | 8.20 | *t*=-7.14** | η = .15 |

Note: * $p < .05$; ** $p \le .001$; *n* Gamblers = 262; *n* Non-Gamblers = 2846

Regarding the consumption of substances (Table 3), online gamblers present significantly higher rates of consumption of all substances, both in the last year and in the last month. The differences are more noticeable in relation to the last month, doubling in the case of alcohol (50.8% vs. 22.3%) and tobacco (29% vs. 13.4%) and tripling in the case of cannabis (21% vs. 6.3%) and binge drinking, in any of its three indicators (36.6% vs. 12.5%, 18.3% vs. 5% and 27.9% vs. 9.4 %). Finally, the rates of positives in the different screening tools are significantly higher among online gamblers, both in the case of the AUDIT (49.8% vs. 20.7%) and the CAST (17.2% vs. 3.7%), as well as POSIT (55.2% versus 26.7%). Similarly, the mean scores of both groups present statistically significant differences in the three cases.

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**Table 3.** *Substance consumption and risky consumption. Gamblers vs. Non-Gamblers*

**Consumption**

| Last year | Gamblers | Non-Gamblers | $\chi^2$ | CC |
|---|---|---|---|---|
| Alcohol | 78.2% | 44.3% | 109.28** | .18 |
| 3 or more consumptions/episode | 61.1% | 26.6% | 135.04** | .21 |
| 6 or more consumptions/episode | 37% | 12.9% | 108.59** | .18 |
| Having gotten drunk | 52.3% | 23.1% | 105.71** | .18 |
| Tobacco | 45.8% | 22.7% | 67.45** | .15 |
| Cannabis | 34.7% | 12.3% | 97.34** | .17 |
| Cocaine | 5% | 0.8% | 31.18** | .11 |
| Amphetamines / Hallucinogens | 6.9% | 1.2% | 42.23** | .12 |
| **Last month** | **Gamblers** | **Non-Gamblers** | $\chi^2$ | **CC** |
| Alcohol | 50.8% | 22.3% | 103.21** | .18 |
| 3 or more consumptions/episode | 36.6% | 12.5% | 110.49** | .19 |
| 6 or more consumptions/episode | 18.3% | 5% | 72.72** | .15 |
| Having gotten drunk | 27.9% | 9.4% | 82.22** | .16 |
| Tobacco | 29% | 13.4% | 45.44** | .12 |
| Cannabis | 21% | 6.3% | 73.03** | .15 |
| Cocaine | 2.3% | 0.3% | 21.59** | .08 |
| Amphetamines / Hallucinogens | 1.9% | 0.4% | 8.08* | .06 |
| **Risky consumption** | **Gamblers** | **Non-Gamblers** | $\chi^2$ | **CC** |
| AUDIT Positives (cut 4) | 49.8% | 20.7% | 112.42** | .19 |
| CAST Positives (cut 4) | 17.2% | 3.7% | 91.02** | .17 |
| POSIT Positives (cut 2) | 55.2% | 26.7% | 92.54** | .17 |
| | **Gamblers** | **Non-Gamblers** | **t** | **η** |
| AUDIT mean | 5.36 | 2 | -8.92** | .23 |
| CAST mean | 1.56 | 0.36 | -5.75** | .17 |
| POSIT mean | 2.82 | 1.28 | -7.67** | .18 |

Note: * $p < .05$; ** $p \leq .001$; *n* Gamblers = 262; *n* Non-Gamblers = 2846

## Discussion

Regarding the main findings or contributions of this study, it should be noted in the first place that 8.4% of the sample who would have gambled money on online gambling or on betting websites in the course of the last year. Although this figure is somewhat lower than the 10.3% collected in ESTUDES 2018-2019 (PND, 2019), it should be noted that the ESTUDES includes students from 14 to 18 years-old, while the present study includes only minors and incorporates the 12 to 13 age range. We are, therefore, before a relatively common practice, which affects almost 1 in 10 adolescents in the sample. If this result is compared to those obtained in previous studies carried out in the same autonomous community and with the same age group by Gómez et al. (2017) and Gómez et al. (2020), there is a considerable increase in the rate of gamblers, doubling in just 3 years. This coincides with the findings of some authors, who emphasize that online gambling is a growing behaviour among adolescents (Olason et al., 2011). According to Chóliz (2016), that has resulted in an increase in problematic gamblers after the legalization of online gambling in 2012, especially among youth.

After this first global result, a segmentation by sex and age has revealed three specific data that should not go unnoticed. On the one hand, the fact that 3.3% of the 12-13-year-old who participated in the study were already gambling money online. A second data refers to the evolution of the rate of gamblers based on age, which, far from being linear, experiences a huge increase (triples) in the transition from 12-13 years to 14-15, from the first to the second cycle of secondary education. This reveals the need to intensify prevention efforts at these ages, and to start

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it earlier. It should be remembered that different studies have insisted that the earlier young people start gambling, the greater the probability of later developing an addiction (Gupta & Derevensky, 2000; Secades-Villa et al., 2016; Wong, 2010). The third relevant data refers to the fact that behind the 8.4% global online gamblers, very different figures and realities can be hidden. Specifically, among males aged 16-17, the rate of online gamblers rises to 25.9%, revealing a relatively common practice at these ages. It is important to add that online gambling is not an exclusive phenomenon for men, but that girls seem to be joining this practice. Although the rate of girls who play online is 6-7 times lower than that of boys (results coincide with those obtained by Barnes et al., 2009; Calado et al., 2017; Chóliz & Lamas, 2017; or Wong, 2010), this is already 2.7%, almost double (1.4%) of that found in the work of Gómez et al. (2020).

Regarding the second major objective of this work, the results confirm that online gambling, Problematic Internet Use [PIU] and substance use are not isolated phenomena but are closely related to each other. It has been found that adolescents who play money online, in comparison with their peers who do not, seem to present a maladaptive pattern in their use of the Internet, mobile phones and social networks, with higher rates of risky practices (as is the case with sexting or contact with strangers) and with twice the PIU (28% vs. 14.3%). Regarding the consumption of alcohol and other substances, online gamblers present significantly higher rates of consumption in all the substances explored, doubling the rate of positives in the AUDIT and POSIT, and tripling in the case of CAST. Similar results are obtained when binge drinking was analysed, with rates that tripled again.

These results, which coincide with those obtained by Brunelle et al. (2012), De Luigi et al. (2017), Míguez & Becoña (2015) and Tsitsika et al. (2011), only reinforce the need to adopt a more holistic approach when it comes to understanding the phenomenon of addictions in adolescence, conceiving prevention in a comprehensive way and not so much focused on specific behaviours or problems. From the healthcare point of view, some experts advocate precisely addressing addictions from the "transdiagnosis" (Kim & Hodgins, 2018; Yücel et al., 2019), so that different particular disorders can be treated based on their common factors, processes and mechanisms (Sandín et al., 2012). At the same time, it is a challenge to address addictions without substance and not end up pathologizing the behaviour itself, which can even be adaptive as long as it does not involve a significant damage or disturbance in the life of the person (Kardefelt-Winther et al., 2017). However, the latter is applicable in the present study only to the use of Internet, as in the case of gambling with a sample of only minors it is illegal and maladaptive.

But beyond the different ways of understanding and addressing addictions in adolescence, literature shows that participation in gambling seems to be becoming a serious public health problem (Clotas et al., 2019). This requires a decisive response from the institutions, both from the legal, health and social levels (Chóliz & Lamas, 2017; Hernández-Ruíz, 2019). This response must involve a stricter regulation of online gambling advertising (Hanss et al., 2015; Lopez-Gonzalez et al., 2018), to help achieve a denormalization of betting as a form of youth leisure (Grande-Gosende et al., 2019). Also, from the family environment it is necessary to adopt a more responsible attitude. Works such as that of Valkenburg et al. (2013) or Khurana et al. (2015) found that when parents establish norms and limits on the use that their children make of technology (like not allowing mobile use after midnight), risky behaviours are reduced by half.

Regarding the possible limitations of this study, it is worth mentioning the generalizability of the results. Despite having a relatively large sample (more than 3000 adolescents), it corresponds to a very specific geographic area and was selected through non-probability sampling. Secondly, this work is cross-sectional, so the relationships between the variables under study can never be interpreted in causal terms. Therefore, we cannot conclude that it is gambling that causes the rest of the behaviours studied, but simply that they are related. Thirdly, it is worth mentioning the fact that the variables have been self-reported, so that adolescents may be underestimating or overestimating the behaviours they carry out and their possible implications. However, as different authors in the field of addictions have pointed out, self-report measures have proven to be reliable and even better than other methods when it comes to assessing levels of substance use (Babor et al., 1989; Winters et al., 1990). In contrast, the guarantee of confidentiality and anonymity that the researchers have offered at all times, together with the voluntary nature of participation in the study and the fact that the data were collected by personnel outside the school and with specific training in working with adolescents, helps to alleviate possible underlying biases. Finally, although the cut-off points recommended in the validations and adaptations of the screening instruments were the ones employed in

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the present study, the literature evidence supporting cut-off point 4 of the Spanish version of the AUDIT is limited so far, so the results regarding said instrument should be interpreted with caution.

## References

Araujo, M., Golpe, S., Braña, T., Varela, J., & Rial, A. (2018). Psychometric validation of the POSIT for screening alcohol and other drugs risk consumption among adolescents. *Adicciones*, *30*, 130–139. https://doi.org/10.20882/adicciones.958

Babor, T. F., Kranzler, H. R., & Lauerman, R. J. (1989). Early detection of harmful alcohol consumption: Comparison of clinical, laboratory, and self-report screening procedures. *Addictive Behaviors*, *14*, 139–157. https://www.journals.elsevier.com/addictive-behaviors

Barnes, G. M., Welte, J. W., Hoffman, J. H., & Tidwell, M-C. O. (2009). Gambling, Alcohol, and Other Substance Use Among Youth in the United States. *Journal of Studies on Alcohol and Drugs, 70*(1), 134–142. https://doi.org/10.15288/jsad.2009.70.134

Brunelle, N., Leclerc, D., Cousineau, M-M., Dufour, M., Gendron, A., & Martin, I. (2012). Internet Gambling, Substance Use, and Delinquent Behavior: An Adolescent Deviant Behavior Involvement Pattern. *Psychology of Addictive Behaviors, 26*(2), 364–370. https://doi.org/10.1037/a0027079

Calado, F., Alexandre, J., & Griffiths, M. D. (2017). Prevalence of Adolescent Problem Gambling: A Systematic Review of Recent Research. *Journal of Gambling Studies, 33*(2), 397–424. https://doi.org/10.1007/s10899-016-9627-5

Chóliz, M. (2016). The challenge of online gambling: The effect of legalization on the increase in online gambling addiction. *Journal of Gambling Studies, 32*(2), 749-756. https://doi.org/10.1007/s10899-015-9558-6

Chóliz, M., & Lamas, J. (2017). "¡Hagan juego, menores!" Frecuencia de juego en menores de edad y su relación con indicadores de adicción al juego ["Make gambling, minors!" Frequency of gambling in minors and its relationship with indicators of gambling addiction]. *Revista española de drogodependencias*,1, 34–47. https://www.aesed.com/es/

Clotas, C., Bartroli, M., Caballé, M., Pasarín, M. I., & Villalbí, J. R. (2019). El negocio de los juegos de azar: una perspectiva desde la salud pública [The business of gambling: a public health perspective]. *Revista Española de Salud Pública, 94*(1), e1-e10. https://medes.com/publication/151906

European Commission (2011). *Green Paper on online gambling in the Internal Market*. European Commission. http://www.europarl.europa.eu/meetdocs/2009_2014/documents/com/com_com(2011)0128_/com_com(2011)0128_es.pdf

De Luigi, N., Gibertoni, D., Randon, E., & Scorcu, A. E. (2017). Patterns of Gambling Activities and Gambling Problems Among Italian High School Students: Results from a Latent Class Analysis. *Journal of Gambling Studies, 34*(2), 339–359. https://doi.org/10.1007/s10899-017-9694-2.

Dirección General de Ordenación del Juego [DGOJ] (2015). *Estudio sobre prevalencia, comportamiento y características de los usuarios de juegos de azar en España 2015* [Study on prevalence, behaviour and characteristics of gambling users in Spain 2015]. Dirección General de Ordenación del Juego. http://www.ordenacionjuego.es/es/estudio-prevalencia

Dirección General de Ordenación del Juego [DGOJ] (2019). *Informe del Jugador online* [Online Player Report]. Direc-

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ción General de Ordenación del Juego. https://www.ordenacionjuego.es/es/informe-jugador-online

Golpe, S., Isorna, M., Barreiro, C., Braña, T., & Rial, A. (2017). Binge Drinking among Adolescents: Prevalence, Risk Practices and Related Variables. *Adicciones, 29*, 256–267. https://doi.org/10.20882/adicciones.932.

Goldstein, A. L., Vilhena-Churchill, N., Stewart, S. H., Hoaken, P. N. S., & Flett, G. L. (2016). Mood, motives, and money: An examination of factors that differentiate online and non-online young adult gamblers. *Journal of Behavioral Addictions, 5*(1), 68-76. https://doi.org/10.1556/2006.5.2016.003.

Gómez, P., Feijóo, S., Braña, T., Varela, J., & Rial, A. (2020). Minors and Online Gambling: Prevalence and Related Variables. *Journal of Gambling Studies, 36*(3), 735–745. https://doi.org/10.1007/s10899-019-09923-3.

Gómez, P., Rial, A., Braña, T., Golpe, S., & Varela, J. (2017). Screening of Problematic Internet Use Among Spanish Adolescents: Prevalence and Related Variables. *Cyberpsychology, Behavior, and Social Networking, 20*(4), 259–267. https://doi.org/10.1089/cyber.2016.0262.

Gómez-Yáñez, J. A. (2016). La transformación del juego problemático en España [The transformation of problem gambling in Spain]. *Revista Española de Sociología, 26*(2), 219–252. https://doi.org/10.22325/fes/res.2017.1.

Grande-Gosende, A., Martínez-Loredo, V., & Fernández-Hermida, J. R. (2019). Gambling Motives Questionnaire validation in adolescents: Differences based on gambling severity and activities. *Adicciones, 31*(3), 212-220. https://doi.org/10.20882/adicciones.1057.

Griffiths, M. D., & Wood, R. (2000). Risk Factors in Adolescence: The Case of Gambling, Videogame Playing, and the Internet. *Journal of Gambling Studies, 16* (2), 199–225. https://www.springer.com/journal/10899

Gupta, R., & Derevensky, J.L. (2000). Adolescents with Gambling Problems: From Research to Treatment. *Journal of Gambling Studies, 16*(2), 315–342. https://www.springer.com/journal/10899

Hanss, D., Mentzoni, R. A., Griffiths, M. D., & Pallesen, S. (2015). The impact of gambling advertising: Problem gamblers report stronger impacts on involvement, knowledge, and awareness than recreational gamblers. *Psychology of Addictive Behaviors, 29*(2), 483–491. https://doi.org/10.1037/adb0000062.

Hinton, P. R., Brownlow, C., McMurray, I., & Cozens, B. (2004). *SPSS Explained*. Routledge.

Hernández-Ruiz, A. (2019). Consumer protection on online gambling websites hosted by licensed operators in Spain. Adicciones, 32(3), 216–224. https://doi.org/10.20882/adicciones.1262

Hubert, P., & Griffiths, M. D. (2018). A comparison of online versus offline gambling harm in portuguese pathological gamblers: An empirical study. *International Journal of Mental Health and Addiction, 16*(5), 1219-1237. https://doi.org/10.1007/s11469-017-9846-8.

IBM Corp. Released (2016). *IBM SPSS Statistics for Windows, Version 24.0* [Software]. IBM Corp.

Kardefelt-Winther, D., Heeren, A., Schimmenti, A., van Rooij, A., Maurage, P., Carras, M., Edman, J., Blaszczynski, A., Khazaal, Y., & Billieux, J. (2017). How can we conceptualize behavioral addiction without pathologizing common behaviors? *Addiction*, 112(10): 1709–1715. https://doi.org/10.1111/add.13763.

Kim, H. S., & Hodgins, D. C. (2018). Component model of addiction treatment: a pragmatic transdiagnostic treat-

Health and Addictions / Salud y Drogas**. Vol. 22 (2) 255-266 2022.

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ment model of behavioral and substance addictions. *Frontiers in psychiatry*, 9, 406. https://doi.org/10.3389/fpsyt.2018.00406.

Khurana, A., Bleakley, A., Jordan, A. B., & Romer, D. (2015). The protective effects of parental monitoring and internet restriction on adolescents' risk of online harassment. *Youth Adolescence*, 44(5), 1039–1047. https://doi.org/10.1007/s10964-014-0242-4.

Legleye, S., Piontek, D., Kraus, L., Morand, E., & Falissard, B. (2013). Validation of the Cannabis Abuse Screening Test (CAST) using a latent class analysis of the DSM-IV among adolescents. International *Journal of Methods in Psychiatric Research, 22*(1), 16–26. https://doi.org/10.1002/mpr.1378.

Ley 13/2011, de 27 de mayo, de regulación del juego. *Boletín Oficial del Estado, número 127, de 28 de mayo de 2011*, 52976-53022. https://www.boe.es/boe/dias/2011/05/28/pdfs/BOE-A-2011-9280.pdf

Lopez-Gonzalez, H., Guerrero-Solé, F., Estévez, A., & Griffiths M. (2018). Betting is Loving and Bettors are Predators: A Conceptual Metaphor Approach to Online Sports Betting Advertising. *Journal of Gambling Studies, 34*(3), 709–726. https://doi.org/10.1007/s10899-017-9727-x.

Míguez, M. C., & Becoña, E. (2015). Do cigarette smoking and alcohol consumption associate with cannabis use and problem gambling among Spanish adolescents? *Adicciones, 27*(1), 8–16. https://doi.org/10.20882/adicciones.189

Montiel, I., Carbonell, E., & Salom, M. (2013*).* Estudio cuantitativo sobre juego de azar online en adolescentes [Quantitative study on online gambling in adolescents]. In Carbonell, E., & Montiel, I. *El juego de azar online en los nativos digitales*. Tirant Humanidades.

Observatorio Español de las Drogas y las Adicciones [OEDA] & Plan Nacional sobre Drogas [PND] (2021). *Informe sobre adicciones comportamentales. Juego y uso compulsivo de internet en las encuestas de drogas y adicciones en España EDADES y ESTUDES* [Report on behavioral addictions. Gambling and compulsive internet use in drug and addiction surveys in Spain EDADES and ESTUDES]. Delegación del Gobierno para el Plan Nacional sobre Drogas, Ministerio de Sanidad, Servicios Sociales e Igualdad.

Olason, D. T., Kristjansdottir, E., Einarsdottir, H., Haraldsson, H., Bjarnason, G., & Derevensky, J. L. (2011). Internet Gambling and Problem Gambling Among 13 to 18 Year Old Adolescents in Iceland. *International Journal of Mental Health Addiction, 9*, 257–263. https://doi.org/10.1007/s11469-010-9280-7.

Plan Nacional sobre Drogas [PND] (2018). *Estrategia Nacional sobre Adicciones 2017 – 2024* [National Strategy on Addictions 2017 - 2024]. Delegación del Gobierno para el Plan Nacional sobre Drogas, Ministerio de Sanidad, Servicios Sociales e Igualdad.

Plan Nacional sobre Drogas [PND] (2019). *Encuesta sobre el uso de drogas en enseñanzas secundarias en España (ESTUDES) 2018/2019* [Survey on drug use in secondary education in Spain (ESTUDES) 2018/2019]. Delegación del Gobierno para el Plan Nacional sobre Drogas, Ministerio de Sanidad, Servicios Sociales e Igualdad.

Potenza, M. N., Wareham, J. D., Steinberg, M. A., Rugle, L., Cavallo, D. A., Krishnan-Sarin, S., & Desai, R. A. (2011). Correlates of at-risk/problem internet gambling in adolescents. *Journal of American Academy of Child and Adolescent Psychiatry, 50*(2), 150–159. https://doi.org/10.1016/j.jaac.2010.11.006.

Rial, A., García, N., Gómez, P., Mallah, N., Varela, J., Flórez, G. & Isorna, M. (2022). Psychometric properties of CAST for early detection of problematic cannabis use in Spanish adolescents. Addictive Behaviors, 129, 107288. https://doi.org/10.1016/j.addbeh.2022.107288

Health and Addictions / Salud y Drogas**.** Vol. 22 (2) 255-266 2022.

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Rial, A., Golpe, S., Araujo, M., Braña, T., & Varela, J. (2017). Validación del Alcohol Use Disorders Identification Test (AUDIT) en población adolescente española [Validation of the Alcohol Use Disorders Identification Test (AUDIT) in a Spanish adolescent population]. *Behavioral Psychology, 25*(2), 371–386. https://www.behavioralpsycho.com/

Rial, A., Gómez, P., Isorna, M., Araujo, M., & Varela, J. (2015). PIUS-a: Problematic Internet Use Scale in adolescents. Development and psychometric validation. *Adicciones, 27*(1), 47–63. https://doi.org/10.20882/adicciones.193.

Sandín, B., Chorot, P., & Valiente, R. M. (2012). Transdiagnóstico: nueva frontera en psicología clínica [Transdiagnosis: new frontier in clinical psychology]. *Revista de psicopatología y psicología clínica, 17*(3), 185-203. https://doi.org/10.5944/rppc.vol.17.num.3.2012.11839.

Scholes-Balog, K. E., & Hemphill, S. A. (2012). Relationships between online gambling, mental health, and substance use: a review. *Cyberpsychology, Behavior, and Social Networking*, *15*(12), 688-692. https://home.liebertpub.com/publications/cyberpsychology-behavior-and-social-networking/10/overview

Secades-Villa, R., Martínez-Loredo, V., Grande-Gosende, A., & Fernández-Hermida, J.R. (2016). The Relationship between Impulsivity and Problem Gambling in Adolescence. *Frontiers in Psychology, 7*, artículo 1931. https://doi.org/10.3389/fpsyg.2016.01931.

Tsitsika, A., Critselis, E., Janikian, M., Kormas, G., & Kafetzis D., A. (2011). Association Between Internet Gambling and Problematic Internet Use Among Adolescents. *Journal of Gambling Studies, 27*(3), 389–400. https://doi.org/10.1007/s10899-010-9223-z.

Valkenburg, P. M., Piotrowski, J. T., Hermanns, J., & Leeuw, R. (2013). Developing and validating the perceived parental media mediation scale: A self-determination perspective. *Human Communication Research, 39*(4), 445–469. https://academic.oup.com/hcr

Winters, K. C., Stinchfield, R. D., Henly, G. A., & Schwartz, R. H. (1990). Validity of adolescent self-report of alcohol and other drug involvement. *International Journal of the Addictions*, 25, 1379–1395. https://doi.org/10.3109/10826089009068469.

Wong, I. L. K. (2010). Gambling Behavior among Underage Adolescents in Hong Kong. *Asian Journal of Gambling Issues and Public Health*, 1(1), 47–60. https://doi.org/10.1007/BF03342118.

Yücel, M., Oldenhof, E., Ahmed, S. H., Belin, D., Billieux, J., Bowden-Jones, H., Carter, A., Chamberlain, S. R., Clark, L., Connor, J., Daglish, M., Dom, G., Dannon, P., Duka, T., Fernandez-Serrano, M. J., Field, M., Franken, I., Goldstein, R. Z., Gonzalez, R., ... Verdejo-Garcia, A. (2019). A transdiagnostic dimensional approach towards a neuropsychological assessment for addiction: an international Delphi consensus study. *Addiction*, 114(6), 1095-1109. https://doi.org/10.1111/add.14424.

Health and Addictions / Salud y Drogas. Vol. 22 (2) 255-266 2022.

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