

ORIGINAL

Gambling advertising and gambling behavior in Spanish adolescents and young adults

Publicidad de apuestas y conducta de juego en adolescentes y adultos jóvenes españoles

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Abstract

The profits obtained by the gambling industry in Spain represent almost one point of GDP and the proportion of minors who have gambled has reached a quarter. This situation occurs despite the law regulating gambling, which included among its objectives the prevention of addictive behaviors, as well as the protection of minors and other vulnerable groups. Recently, an additional regulation was approved to control gambling advertising. Bearing in mind the new regulatory context, we analyze the relationship between advertising and gambling in adolescents and young adults, studying especially young people who have already gambled and minors. We conducted an empirical investigation with a sample of 2,181 adolescents and young adults who filled out a questionnaire on gambling and advertising. We found that the variables associated with advertising are significantly related to gambling behavior and that, in addition, this correlation occurs with greater magnitude in men. We obtained higher scores in advertising influence among those subjects who have ever gambled compared to those who have not, highlighting the importance of discouraging the arrival of new gamblers. Regarding minors, we found significant differences in the different variables of advertising influence compared to young adults. These findings point to the need to evaluate this influence considering the new habits and interests of minors today.

Keywords: gambling, adolescent, young adults, advertising, gambling behavior

Resumen

Los beneficios obtenidos por la industria del juego de apuestas en España representan casi un punto del PIB y el porcentaje de menores de edad que han debutado en el juego alcanza la cuarta parte. Esta situación se produce pese a la ley de regulación del juego que incluye entre sus objetivos la prevención de conductas adictivas, así como la protección de menores y otros grupos vulnerables. Recientemente se ha aprobado un reglamento que regula la publicidad sobre apuestas. Teniendo presente el nuevo contexto normativo, analizamos la relación entre publicidad y apuestas en adolescentes y adultos jóvenes, estudiando la vulnerabilidad de jóvenes que ya han debutado en el juego y menores de edad. Realizamos una investigación empírica con una muestra de 2.181 adolescentes y adultos jóvenes que rellenaron un cuestionario sobre juego y publicidad. Encontramos que las variables asociadas a la publicidad se relacionan significativamente con la conducta de juego y que, además, esta correlación se da con mayor magnitud en hombres. Obtenemos mayores puntuaciones en influencia publicitaria entre aquellos sujetos que han jugado alguna vez frente a los que no, concluyendo la importancia de frenar el debut de nuevos jugadores. En cuanto a los menores, encontramos diferencias significativas en influencia publicitaria frente a los mayores. Estos hallazgos señalan la necesidad de evaluar la influencia teniendo en cuenta los nuevos hábitos e intereses de los menores en la actualidad.

Palabras clave: juego de apuestas, adolescentes, adultos jóvenes, publicidad, conducta de juego

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The profits obtained by the gambling industry in Spain represent 0.8% of GDP. In 2019, real gambling revenue (the difference between the amounts bet and the prizes paid out) was €10,226 million, 3.6% more than the previous year. Gambling contributed €1,707.3 million to state tax income (Dirección General de Ordenación del Juego DGOJ, 2019; DGOJ, 2020; Gómez-Yáñez & Lalanda-Fernández, 2020).

Abundant literature is available on the influence of advertising on gambling behaviour (Deans, Thomas, Daube, Derevensky & Gordon, 2016; Deans, Thomas, Daube & Derevensky, 2017; López-González & Tulloch, 2015; López-González, Guerrero-Solé & Griffiths, 2018; Thomas, Lewis, McLeod & Haycock, 2012). The results of different studies suggest that advertising presents a normalized impression of gambling behaviour, in addition to generating a positive attitude towards gambling and a favourable social perception (King, Delfabro & Griffiths, 2010; Parke, Harris, Parke, Rigby & Blaszczynski, 2015; Pitt, Thomas, Bestman, Stoneham & Daube, 2016).

During 2019, the amount invested in advertising, promotion and sponsorship of gambling reached €369 million, an increase of 10.87% on 2018. Since 2013 there has been a rise of 215.24% in advertising investment, with an average annual growth rate of 24.59% (DGOJ, 2020). It is in this same period that online gambling has increased as a percentage of total gambling, growing at 239%, compared to the 16.5% increase in total gambling (Gómez-Yáñez & Lalanda-Fernández, 2020).

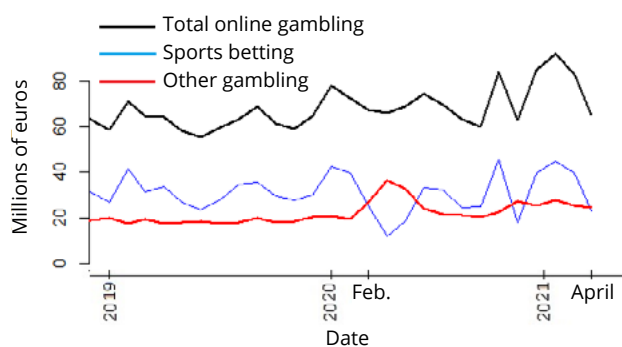
Several studies suggest that greater exposure to advertising is related to greater frequency of gambling and higher percentages of problem gambling, both in adults and in young people (Clemens, Hanewinkel & Morgenstern, 2017; Derevensky, Sklar, Gupta & Messerlian, 2010; Estévez, López-González & Jiménez-Murcia, 2018; Griffiths, 2005; Hanss, Mentzoni, Griffiths & Pallesen, 2015; Hing, Cherney, Blaszczynski, Gainsbury & Lubman, 2014). Fifteen per cent of the general population and 35% of the clinical population report being more aware of seeing gambling advertising (Hanss et al., 2015), gambling to a greater degree when seeing such advertising (Salonen, Hellamn, Latvala & Castrén, 2018) or taking greater risks in their betting after seeing advertising (Hing et al., 2018), effects which are all greater in men than in women (Felsher, Derevensky & Gupta, 2004; Lloret et al., 2017).

During 2020, the Covid-19 pandemic had a significant impact on gambling. Between the months of January and October, in-person gambling revenue fell by 54% against the same period in 2019. The arrival of the second wave then reduced in-person gambling again to 57.5% of the October 2019 level (Gómez-Yáñez & Lalanda-Fernández, 2020).

Conversely, online gambling showed an increase of 13.7% in 2020 compared to 2019 (DGOJ, 2020). Exploring

the data offered by the DGOJ (2021), it can be seen that the money bet on poker rose by 36%. In total, an increase of 32% was registered in Spain during 2020 in money bet online in pure games of chance, while that placed on games of chance with a skill component (excluding sports) rose by 26%. Figure 1 shows how the fall in the total amount played in sports betting due to the suspension of events during the pandemic was compensated by the rise in the total amount gambled in other forms of betting (“Datos mercado juego online”, 2021).

Figure 1
Total amount gambled in sports betting, non-sports gambling and the sum of both



Betting and Spanish youth

The ESPAD European survey, which includes 15-year-olds from 37 European countries, reported that 17% of Spanish adolescents aged 15-16 years had gambled in the previous year. Of these, 10% registered excessive gambling and 3.2% problematic gambling (ESPAD Group, 2020). Similarly, research by Carbonell and Montiel (2013) concluded that 20% of adolescents had gambled online before coming of age. Other studies agree that 28% of young people aged between 13 and 17 years declare having gambled at some time in their lives (Dirección General Ordenación del Juego, 2015; Lloret, Cabrera & Castaños, 2016).

Regarding risky and problematic gambling, epidemiological research shows that between 4%-5.6% of Spanish adolescents meet the criteria for risky gambling and 1.2% for problematic gambling (Becoña, Míguez & Vázquez, 2001; Chóliz & Lamas, 2017; González-Roz, Fernández-Hermida, Weidberg, Martínez-Loredo & Secades-Villa, 2017; Lloret et al., 2016).

Onset before the age of 18 is a good predictor of serious gambling-related problems when reaching adulthood (Lloret et al., 2017). In this sense, the proportion of non-problematic gamblers who started gambling before the age of 18 is 13.4%, while among pathological gamblers this same proportion is three times higher, rising to 44.8% (Dirección General de Ordenación del Juego, 2015). Thomas et al. (2012) pointed out that older women, young men, risky gamblers and people with a low socioeconomic

profile are groups which are especially vulnerable to the influence of the gambling industry.

Regulatory framework for betting in Spain

Law 13/2011, of May 27, governing gambling in Spain, established the regulatory framework for gambling activities at state level. Among the objectives of this law are: the prevention of addictive behaviours, the protection of the rights of minors and other especially vulnerable groups, and the protection of the general public. However, the worrying prevalence of gambling in minors, which continues to rise, indicates that regulation has not been effective in terms of these objectives. In addition, various authors have warned about how some advertising messages are aimed at younger audiences (Abarbanel, Gainsbury, King, Hing & Delfabbro, 2016; Lloret, Cabrera, Falces, García & Mira, 2020; Sklar & Derevensky, 2011). After some regional regulations or other exceptional measures, and almost a decade after the Spanish Law on Gambling, the government published Royal Decree 958/2020, of November 3, on commercial communications of gambling activities. It came into force in August 2021, and among other measures legislates and restricts advertising broadcasting schedules in audiovisual media, bans the use in gambling advertising of well-known characters and people in the public eye, prohibits sports sponsorship, such as club shirts carrying the names of gambling firms, as well as the presentation of gambling as an alternative solution to financial problems or unemployment and the use of promotions of any kind.

These measures are based on the need to minimize the impact of media pressure on the audience, especially the most vulnerable groups (e.g., adolescents, the unemployed). Various studies have shown how effectively attitudes towards betting and gambling behaviour can be changed through the principles of influence, such as economic incentives, the principle of reciprocity, the change in normative perception or the presentation of gambling as an alternative solution to financial problems (Cialdini, 2009; Deans et al., 2016; Deans et al., 2017; Gordon & Chapman, 2014; Kim, Wohl, Gupta & Derevensky, 2017; López González & Tulloch, 2015; Thomas et al., 2012).

The objective of the present study was to analyse the relationship between exposure to gambling advertising and gambling behaviour among adolescents and young adults. This is evinced through the attitude shown towards advertising and the frequency and/or intensity of gambling behaviour. In addition, the analysis will focus on differences between groups that may be more vulnerable, such as those beginning to gamble and minors. In addition, some of the measures of the new Spanish gambling advertising regulations will be related to our study variables and the literature cited.

Our hypotheses are as follows:

- *H1*: The attitude towards advertising, the impact and media pressure of advertising will be positively correlated with gambling behaviours, using frequency, intensity, maximum expenditure and intention as representative variables of this behaviour.
- *H2*: Individuals who have gambled at some point will score significantly higher on average than those who have not previously gambled in the variables advertising impact (H2.1), media pressure (H2.2) and attitude towards advertising (H2.3).
- *H3*: Minors will score significantly higher on average than older adults in the variables advertising impact (H3.1), media pressure (H3.2) and attitude towards advertising (H3.3).

Method

Participants

A total of 2,181 adolescents and young adults (46.6% men) aged between 15 and 25 years ($M = 17.18$, $SD = 1.7$) participated. Of these, 1,726 were secondary school students from state-run school in 13 municipalities located in 9 counties of the province of Alicante. The remaining 343 were students from different degree courses at the Miguel Hernández University, aged between 18 and 25 years. Another 87 were excluded for incorrectly completing some questionnaire items considered essential. The university sample comprised 168 women (49%), randomly selected from among the female students, and 175 men (51%). Mean age was 19.76 years, $SD = 2.8$. The age distribution was 18 (26.83%), 19 (20.93%), 20 (17.70%), 21 (10.91%), 22 (7.08%), 23 (3.54%), 24 (3.23%), 25 (1.46%), from 26 to 30 (1.83%) and did not answer (6.49%). Students came from the following degree courses: Physical Activity and Sports Sciences (36.44%), Psychology (24.78%), Business Administration and Management (11.07%), Physiotherapy (10.49%), Audiovisual Communication and Journalism (7.87%), Podiatry (5.83%) and Occupational Therapy (3.49%). Field work was carried out during the months of October 2019, and February and March 2020.

Variables and Instruments

Seven variables were measured: gambling frequency, gambling intensity, maximum spending (measured in Euros), gambling intention, media pressure, attitude towards advertising, impact of gambling advertising.

Gambling frequency: 8-item questionnaire adapted from the European ESPAD survey (Arpa et al., 2016) recording the number of times gambling took place in the last 30 days. It includes eight gambling modes: online sports betting, sports betting in lounges and/or bars, slot machines in lounges and/or bars, online poker, poker with friends in person, online casino games, roulette lounges and other bets.

Gambling Intensity: 8-item questionnaire adapted from the European ESPAD survey (Arpa et al., 2016) recording the money spent in the last 30 days in the 8 gambling modalities mentioned in the previous instrument.

Maximum spending: The South Oaks Gambling Screen (SOGS) item was used: “What is the largest amount you have gambled in the last 12 months?” (Winters, Stinchfield & Fulkerson, 1993).

Gambling intention: Questionnaire composed of the items: “Do you intend to play gambling games?” and “Are you planning to bet online soon?”; rated using a Likert scale, 1 = “Absolutely not” and 7 = “Absolutely yes”. Thus, scores 1, 2 and 3 indicate no gambling intention, score 4 a neutral intention, while scores 5, 6 and 7 indicate a positive gambling intention.

Media pressure: Measured with the questionnaire used in Lloret et al. (2017) comprising 12 items that ask about the perception of exposure to advertising in three dimensions: sports betting (dimension 1), online casinos and poker (dimension 2) on television, internet, radio, magazines, outdoor advertising and the presence of gambling halls on public streets. Participants are also asked about the frequency with which they have seen gambling games being advertised by a famous person, or casinos or gambling in movies (dimension 3).

Attitude towards advertising: Degree of acceptance of advertising messages. This is assessed with the Attitudes to Gambling Advertising Scale (EAPA, Lloret et al., 2017), a self-applied questionnaire of 13 items with Likert-type responses ranging from 1 = “Strongly disagree” to 5 = “Strongly agree”. It assesses three factors of the perception of gambling advertising, creating three subscales: advertisement recall (3 items), critical opinion about the effects of advertising (6 items) and affective evaluation (4 items). Higher scores indicate a more positive attitude towards gambling advertising. Internal consistency (Cronbach’s α) was .719.

Impact of gambling advertising: Impact of Gambling Advertising Scale IGAS (Gervilla-García, Cabrera-Perona, & Lloret-Irles, 2021; Hanss et al., 2015). This self-applied scale has 9 items with 4-point Likert-type responses ranging from 1 = “Strongly disagree” to 4 = “Strongly agree” and assesses three factors: involvement, awareness and knowledge about betting options. Examples of items in each factor are: “Gambling advertisements increase my interest in gambling” (involvement), “Gambling advertising does NOT influence my decision to gamble” (awareness) and “Advertising has increased my knowledge of available gambling options” (knowledge). A higher score indicates a greater impact of gambling advertising. Internal consistency was 0.78.

Procedure

An expert entered each class involved to administer the paper questionnaire to all students present. Participation was voluntary and appropriate consent was requested from parents/guardians in the case of minors and from the school management. Anonymity was guaranteed. Completion time ranged from 25 to 35 minutes. Given the majority of women in the university population, a random subsample was selected in order to avoid gender bias in the analysis of the total sample. The study was authorized by the Responsible Research Office of the UMH (COIR TFM.MPG.DLI.SPG.201217).

Data analysis

A descriptive analysis of the data (means and standard deviations for age, percentage of men and women, etc.) was carried out. The Pearson correlation was used to study the relationships between advertising and gambling behaviour variables. To find significant differences between mean scores of different groups, a hypothesis test was used to compare means (Student’s t) together with a measure of effect size (Cohen’s d). When it was not possible to use a test such as Student’s t because the necessary hypotheses were not fulfilled, the Mann-Whitney U-test, which does not assume that the groups follow any specific distribution, was used. When using the U test, the correlation coefficient $r = w\frac{z}{\sqrt{n}}$ chosen to estimate the effect size.

The level of statistical significance for correlations and hypothesis testing was set at $\alpha = 0.05$. Data analysis was performed with the IBM-SPSS 26.0 and R Studio programs.

Results

In the last year, 62% of the total sample bet an average of €16.91 (SD = 32.58), with men betting €20.89 on average (SD = 37.13) compared to €6.26 for women (SD = 7.48). Minors bet €15.56 on average (SD = 23.3) compared to €19.06 for young adults (SD = 46.7).

The variables advertising impact, media pressure and attitude towards advertising were positively and significantly related to gambling behaviour. In addition, this correlation occurred with greater magnitude in men (table 1).

We found, on average, a significantly greater impact of advertising and media pressure among those participants who had previously gambled at some point compared to those who had not, with small effect sizes close to moderate. Tables 2 and 3 show the results of the Student’s t -tests¹ performed.

1 In view of the histogram, we assume the variables Advertising Impact (AI) and Media Pressure to be normal and, applying the respective Levene tests, do not reject the null hypothesis ($p = 0.07$ and $p = 0.24$ respectively) so that similar variances are assumed.

Table 1
Correlation of impact, media pressure and attitude towards advertising with gambling behaviours

Pearson correlation	Frequency	Intensity	Maximum expenditure	Intention
Advertising Impact				
Total sample	.147**	.129**	.212**	.253**
Men / Women	.161**/.131**	.170**/.025	.228**/.151**	.284**/.185**
Media Pressure				
Total sample	.099**	.104**	.154**	.146**
Men / Women	.111**/.045	.131**/.023	.186**/.056	.152**/.097**
Attitude towards Advertising				
Total sample	.251**	.242**	.291**	.393**
Men / Women	.272**/.107**	.309**/.07	.295**/.89**	.412**/.230**

Note. **correlation significant at the 0.01 level (bilateral).

Table 2
Comparison of means in Advertising Impact (AI)

Groups	Means AI	t	df	p	d
Gamblers					
Had gambled (660)	19.89 (SD =4.764)	9.780	2168	3.9E-22	0.46*
Had not gambled (1510)	17.68 (SD =4.893)				

Note. DT. SD: standard deviation; t: Student's t test; df: degrees of freedom; d: Cohen's d effect size *small (0.2-0.5).

Table 3
Comparison of means in media pressure (MP)

Groups	Means MP	t	df	P	d
Gamblers					
Had gambled (659)	30.13 (SD=7.624)	-7.709	2177	1.9E-14	0.36*
Had not gambled (1520)	27.48 (SD=7.284)				

Note. DT. standard deviation; t: Student's t test; df: degrees of freedom; d: Cohen's d effect size *small (0.2-0.5).

Table 4
Comparison of means in Attitudes towards Advertising (AA)

Groups	Means AA	Mann Whitney U	p	r
Gamblers				
Had gambled (660)	32.73 (DT=6.03)	340434.5	<0.001	.25*
Had not gambled (1514)	28.99 (DT=6.73)			

Note. SD: standard deviation; r: correlation coefficient with effect size *small (0.1-0.3).

Table 5
Comparison of means in Advertising Impact (AI).

Groups	Means AI	Mann Whitney U	p	r
Age				
Minors (1580)	18.12 (SD=4.77)	477124	<0.01	.06
Adults (563)	18.83 (SD=5.31)			

Note. DT. SD: standard deviation; r: correlation coefficient with effect size *small (0.1-0.3).

Table 6
Comparison of means in media pressure (MP) by age

Groups	Means MP	Mann Whitney U	p	r
Age				
Minors (1589)	27.25 (SD=7.2)	573817.5	<0.001	.22
Adults (563)	31.01 (SD=7.63)			

Note. DT. standard deviation; r: correlation coefficient with effect size *small (0.1-0.3).

Table 7
Comparison of means in total Attitudes towards Advertising (AA) and the AA beliefs subscale

Groups	Means	t	df	p	d
Age					
Total AA					
Minors (1584)	30.78 (SD=6.352)	8.084	2145	1.03E-15	0.39*
Adults (563)	28.23 (SD=6.657)				
AA Beliefs					
Minors (1584)	11.66 (SD=3.50)	10.35	2145	1.56E-24	0.5**
Adults (563)	9.87 (SD=3.55)				

Note. SD: standard deviation; t: Student's t test; df: degrees of freedom; d: Cohen's d effect size *small (0.2-0.5) ** moderate (0.5-0.8).

In addition, we also found a significantly higher mean score in the variable attitude towards advertising among those participants who had previously gambled compared to those who had not, with a small effect size close to moderate measured with the Pearson correlation coefficient in people who had previously gambled against those who had not (table 4).

Advertising impact was not found to be greater among minors; if anything, there were significant differences in the reverse direction, but with negligible effect size (table 5). The same applied to the media pressure variable, where a significantly higher mean score was found in adults, but this time with a small effect size close to moderate (table 6). Finally, a significantly more favourable attitude towards advertising was found in minors compared to adults (table 7). In addition, an analysis of the subscales of this variable of attitude towards advertising revealed a more favourable attitude in the beliefs subscale, with a moderate effect size (table 7).

Discussion

This study analysed the relationship between exposure to gambling advertising and gambling behaviour in a sample of 2,181 adolescents and young adults.

The results show that the variables advertising impact, media pressure and attitude towards advertising were significantly linked to gambling behaviour and, furthermore, that this correlation was greater in men. These data are consistent with those provided by Hanss et al. (2015), who reported greater conscious advertising impact on men. Of the three advertising variables analyzed, it is attitude towards advertising that had a higher correlation with gambling behaviours.

Regarding the influence of advertising on gambling behaviour, Bouguettaya et al. (2020), in a recent meta-analysis, pointed out the lack of longitudinal and experimental studies relating gambling advertising to behaviour. This is mainly the result of methodological difficulties in analyzing this phenomenon experimentally. One way of looking for evidence in favour of causality between advertising and gambling behaviour is provided by the possibility of carrying out quasi-experimental designs when a change in government regulation occurs, as is the case in Spain. Thus, with the data that we will collect in the coming months, after the new regulation comes into force and with an expected return to normality, we will be able to carry out a new study to analyse this circumstance.

In any case, the literature points to an influence of gambling advertising on attitudes through its normalization of gambling and the association with positive status (Deans et al., 2017).

We found studies in Europe and Australia that show how the gambling industry has used different areas of

social entertainment beyond sports (media, shows, etc.) to normalize sports betting by giving it positive connotations associated with the rituals and characteristics that surround sports (Deans et al., 2016; López-González et al., 2018; Thomas et al., 2012). López-González and Tulloch (2015) even outline a scenario where such levels of influence may have been reached that it is sport itself that is adapting to the gambling industry.

The interest groups that the present study focussed on are those who had previously gambled as opposed to those who had not, and minors as opposed to young adults.

Regarding the first group, the results show the existence of a significantly higher mean score in the variables of advertising impact, media pressure and attitude towards advertising among those who had previously gambled compared to those who had not. The effect sizes of these differences, although small, are close to the moderate range limit. It is true that the group of people who have already gambled can include both people who have gambled only once and problem gamblers, and can form a very heterogeneous group; however, we decided on this cut-off due to the interest generated by the difference between people who have already tried gambling, even if this was merely a simple first contact, versus those who have never had the experience. In this way, we can analyze the potential implications of regulatory measures intended to make it more difficult for people to start gambling. It is expected that these measures act on the ability to attract new customers, such as the prohibition of introductory promotions.

Regarding the second group of interest, we expected to find a difference in the influence of betting advertising between minors and adults; this would be in line with studies such as those by Alhabash et al. (2020) in the case of alcohol, which found that the use in advertising campaigns of models who appeared to be under 25 years (the minimum age agreed by self-regulation) significantly increased the intention among minors to drink. Similarly, Chou, Rashad and Grossman (2008) found a relationship between fast food advertisements and childhood obesity in the United States, and there are many other examples where the influence of advertising on minors has been demonstrated (Borzekowski & Robinson, 2001; Emond et al., 2019; Pine & Nash, 2002).

Our results show that minors felt less advertising impact and media pressure than the older participants, although they scored significantly higher in the attitude towards advertising variable, according to our results. Exploring this significant difference in the attitude to advertising variable, we found that the effect size in the belief subscale was moderate ($d = 0.5$), pointing to a stronger attitude in the belief subscale which measures a critical view towards deception and manipulation. It is surprising to find that it was only the attitude towards advertising that scored

significantly higher in minors, while the opposite occurred in the other two variables. An analysis of the instrument contents may shed light on this: regarding media pressure, three groups of items refer to magazines, radio and television, while a single group refers to the Internet. Thus, it is reasonable to assume that minors do not consume the same media as adults, and the scores would therefore differ. In the same way, the questionnaire asked about movies and not about video games, and some celebrities who promote gambling are not as popular among minors as others. In conclusion, the media pressure scale is not suitable for making comparisons between both groups. Regarding advertising impact, the item scores all reflect a conscious influence of advertising on behaviours and cognitions, while the variable attitude towards advertising asks for affective evaluations, and questions about beliefs are asked in the third person. The difference in maturity between minors and older participants means that the impact variable is therefore not suitable for comparing these groups either.

Two important limitations of our comparisons of means should be mentioned: on the one hand, regarding the groups of young people who had previously gambled versus those who had not, we lack data on other variables that have been shown to be related to gambling, such as personality, socioeconomic status, or family relationships, which can all be variables that mediate the initiation to gambling (Dowling et al., 2017; Thomas et al., 2012). Therefore, it would be important to consider some of these variables in future samples that allow us to explore this effect. Along similar lines, the group of older adults is made up of university students and is compared with younger secondary school students; here, socioeconomic and personality variables may also influence the results. Furthermore, at the age of 16, when compulsory education ends, a part of the sample is lost that would be necessary to study given that, taking into account socioeconomic variables, they probably present a greater incidence of gambling. For this reason, it is proposed to extend the research to the general adult population to make comparisons.

As for gender, the low correlation of advertising variables with gambling intensity in the case of women is noteworthy. This, together with our data on the percentage of women who gambled online compared to in person, leads us to wonder whether some women go to gambling places as an act of socialization, and whether this socialization occurs in mixed groups or is led by their partners. Although gambling among young women today is not a concern, there are other types of games, such as bingo, where women appear to be more vulnerable (Ibáñez, Blanco, Moreryra & Sáiz-Ruiz, 2003). In addition, in the case of other addictive behaviours with a large industry behind them, such as tobacco, there are examples of how the industry has known how to find the right time and conditions to target women in its campaigns (which were originally more associated

with men) (Mackay & Amos, 2003). Therefore, the problem of gambling should also be investigated from a gender perspective to warn of any changes in this regard.

Similarly, the limits marking what constitutes a gambling game are increasingly blurred: in recent years, financial companies or brokers offering a large number of trading services (including commission-free) with very aggressive online advertising campaigns have become popular among non-professional investors (Fink, 2021). Among these services, many are created in the image of betting games; for example, binary options would be equivalent to betting that a share price will rise, fall or reach a certain threshold. Numerous authors equate these financial practices with gambling (Dorn, Dorn & Sengmueller, 2015; Gao & Lin, 2015; Núñez, 2017).

In addition, it is no longer audiovisual channels that have the greatest influence on younger generations, but digital ones. The video game industry uses monetization strategies such as loot boxes where the same psychological variables operate as in gambling (Drummond & Sauer, 2018; Zendle, Meyer & Over, 2019). Video games and gambling are currently expanding into new decentralized applications around the blockchain ecosystem and opening a new digital divide given the complexity of their foundations. Beyond some news items in the general media, there is widespread ignorance about the rise of cryptocurrencies and decentralized finance, where more than half of the frequent gamblers have invested (Mills & Nower, 2019). In short, beyond regulating advertising, which we see as a positive move, it is urgently necessary to adopt strong measures focused on improving education, prevention and intervention.

Conflict of interests

The authors declare no conflicts of interest.

References

- Abarbanel, B., Gainsbury, S. M., King, D., Hing, N. & Delfabbro, P. H. (2016). Gambling games on social platforms: How do advertisements for social casino games target young adults? *Policy & Internet*, 9, 184–209. doi:10.1002/poi3.135.
- Alhabash, S., Mundel, J., Deng, T., McAlister, A., Quilliam, E. T., Richards, J. I. & Lynch, K. (2020). Social media alcohol advertising among underage minors: Effects of models' age. *International Journal of Advertising*, 1-30. doi:10.1080/02650487.2020.1852807.
- Arpa, S., Kraus, L., Leifman, H., Molinaro, S., Monshouwer, K., Trapencieris, M. & Vicente, J. (2016). *ESPAD Report 2015 Results from the European School Survey Project on Alcohol and Other Drugs*. European Monitoring Centre on Drugs and Drug Addiction. Lisbon. doi:10.2810/022073.

- Becoña, E., Míguez, M. C. & Vázquez, F. L. (2001). El juego problema en los niños de Galicia. Madrid: Sociedad Española de Psicopatología Clínica, Legal y Forense.
- Borzekowski, D. L. & Robinson, T. N. (2001). The 30-second effect: An experiment revealing the impact of television commercials on food preferences of preschoolers. *Journal of the American Dietetic Association*, 101, 42-46. doi:10.1016/S0002-8223(01)00012-8.
- Bouguettaya, A., Lynott, D., Carter, A., Zerhouni, O., Meyer, S., Ladegaard, I.,... O'Brien, K. S. (2020). The relationship between gambling advertising and gambling attitudes, intentions and behaviours: A critical and meta-analytic review. *Current Opinion in Behavioral Sciences*, 31, 89-101. doi:10.1016/j.cobeha.2020.02.010.
- Carbonell, E. J. & Montiel, I. (2013). *El juego de azar online en los nativos digitales*. Valencia: Tirant Humanidades.
- Chóliz, M. & Lamas, J. (2017). ¡Hagan juego, menores! Frecuencia de juego en menores de edad y su relación con indicadores de adicción al juego. *Revista Española de Drogodependencias*, 42, 34-47.
- Chou, S. Y., Rashad, I. & Grossman, M. (2008). Fast-food restaurant advertising on television and its influence on childhood obesity. *The Journal of Law and Economics*, 51, 599-618. doi:10.1086/590132.
- Cialdini, R. B. (2009). *Influence: Science and practice* (Vol. 4). Boston, MA: Pearson education.
- Clemens, F., Hanewinkel, R. & Morgenstern, M. (2017). Exposure to gambling advertisements and gambling behavior in young people. *Journal of Gambling Studies*, 33, 1-13. doi:10.1007/s10899-016-9606-x.
- Datos mercado juego online (2021). Dirección General de Ordenación del Juego. <https://www.ordenacionjuego.es/>.
- Deans, E. G., Thomas, S. L., Daube, M., Derevensky, J. & Gordon, R. (2016). Creating symbolic cultures of consumption: An analysis of the content of sports wagering advertisements in Australia. *BMC Public Health*, 16, 1-11. doi:10.1186/s12889-016-2849-8.
- Deans, E. G., Thomas, S. L., Daube, M. & Derevensky, J. (2017). The role of peer influences on the normalisation of sports wagering: A qualitative study of Australian men. *Addiction Research & Theory*, 25, 103-113. doi:10.1080/16066359.2016.1205042.
- Derevensky, J., Sklar, A., Gupta, R. & Messerlian, C. (2010). An empirical study examining the impact of gambling advertisements on adolescent gambling attitudes and behaviors. *International Journal of Mental Health and Addiction*, 8, 21-34. doi:10.1007/s11469-009-9211-7.
- Dirección General de Ordenación del Juego (2015). Memoria anual 2014. Ministerio de Hacienda y Función Pública. España.
- Dirección General de Ordenación del Juego (2019). Memoria anual 2018. Ministerio de Hacienda y Función Pública. España.
- Dirección General de Ordenación del Juego (2020). Memoria anual 2019. Ministerio de Hacienda y Función Pública. España.
- Dorn, A. J., Dorn, D. & Sengmueller, P. (2015). Trading as gambling. *Management Science*, 61, 2376-2393. doi:10.1287/mnsc.2014.1979.
- Dowling, N. A., Merkouris, S. S., Greenwood, C. J., Oldenhof, E., Toumbourou, J. W. & Youssef, G. J. (2017). Early risk and protective factors for problem gambling: A systematic review and meta-analysis of longitudinal studies. *Clinical psychology review*, 51, 109-124. doi:10.1016/j.cpr.2016.10.008.
- Drummond, A. & Sauer, J. (2018). Video game loot boxes are psychologically akin to gambling. *Nature human behaviour*, 2, 530-532. doi:10.1038/s41562-018-0360-1.
- Emond, J. A., Longacre, M. R., Drake, K. M., Titus, L. J., Hendricks, K., MacKenzie, T.,... Dalton, M. A. (2019). Influence of child-targeted fast food TV advertising exposure on fast food intake: A longitudinal study of preschool-age children. *Appetite*, 140, 134-141. doi:10.1016/j.appet.2019.05.012.
- ESPAD group (2020). Results from the European school survey project on alcohol and other drugs. European Monitoring Centre for Drugs and Drug Addiction.
- Estévez, A., López-González, H. & Jiménez-Murcia, S. (2018). La influencia de la publicidad comercial en la conducta de riesgo en las apuestas deportivas: Recomendaciones para reguladores, operadores, instituciones y medios. Informe técnico. Madrid: ONCE. doi:10.13140/RG.2.2.23040.48645.
- Felsher, J. R., Derevensky, J. L. & Gupta, R. (2004). Lottery playing amongst youth: Implications for prevention and social policy. *Journal of Gambling Studies*, 20, 127-153. doi:10.1023/B:JOGS.0000022306.72513.7c.
- Fink, C. (2021). Why millennials gravitate to new brands in online investing. *Journal of Brand Strategy*, 9, 401-407.
- Gao, X. & Lin, T. C. (2015). Do individual investors treat trading as a fun and exciting gambling activity? Evidence from repeated natural experiments. *The Review of Financial Studies*, 28, 2128-2166. doi:10.1093/rfs/hhu075.
- Gervilla-García, E., Cabrera-Perona, V. & Lloret-Irles, D. (2021). Adaptación española de la Escala de Impacto de la Publicidad de Apuestas en adolescentes. *Atención Primaria* (in press).
- Gómez-Yáñez, J. A. & Lalanda-Fernández, C. (2020). Anuario del Juego en España. Instituto de Política y Gobernanza de la Universidad Rey Juan Carlos y Grupo Codere. Madrid.
- González-Roz, A., Fernández-Hermida, J. R., Weidberg, S., Martínez-Loredo, V. & Secades-Villa, R. (2017). Prevalence of problem gambling among adolescents: A comparison across modes of access, gambling activities, and levels of severity. *Journal of gambling studies*, 33, 371-382. doi:10.1007/s10899-016-9652-4.

- Gordon, R. & Chapman, M. (2014). Brand community and sports betting in Australia.
- Griffiths, M. (2005). Does gambling advertising contribute to problem gambling? *International Journal of Mental Health & Addiction*, 3, 15-25. doi:10.11575/PRISM/9487.
- 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, 483. doi:10.1037/adb0000062.
- Hing, N., Cherney, L., Blaszczynski, A., Gainsbury, S. M. & Lubman, D. I. (2014). Do advertising and promotions for online gambling increase gambling consumption? An exploratory study. *International Gambling Studies*, 14, 394-409. doi:10.1080/14459795.2014.903989.
- Hing, N., Russell, A., Rockloff, M., Browne, M., Langham, E., Li, E.,... Thorne, H. (2018). Effects of wagering marketing on vulnerable adults. Melbourne, Australia: Victorian Responsible Gambling Foundation.
- Ibáñez, A., Blanco, C., Moreryra, P. & Sáiz-Ruiz, J. (2003). Gender differences in pathological gambling. *The Journal of clinical psychiatry*, 64, 295-301. doi:10.4088/jcp.v64n0311.
- King, D., Delfabbro, P. & Griffiths, M. (2010). The convergence of gambling and digital media: Implications for gambling in young people. *Journal Gambling Studies*, 26, 175-87. doi:10.1007/s10899-009-9153-9.
- Kim, H. S., Wohl, M. J., Gupta, R. & Derevensky, J. L. (2017). Why do young adults gamble online? A qualitative study of motivations to transition from social casino games to online gambling. *Asian Journal of Gambling Issues and Public Health*, 7, 6. doi:10.1186/s40405-017-0025-4.
- Lloret, D., Cabrera, V. & Castaños, A. (2016). Estudio juego de apuestas en adolescentes de la provincia de Alicante. Diputación de Alicante. <http://www.pnsd.msssi.gob.es/profesionales/publicaciones/catalogo/bibliotecaDigital/publicaciones/BDMenoresyDrogas.htm>.
- Lloret, D., Cabrera, V., Castaños, A., Segura, J. V., Antón, M. A. & Caselles, P. (2017). El juego de apuestas en adolescentes de la provincia de Alicante II. Estudio longitudinal de los hábitos de juegos de apuestas y los predictores psicosociales. Informe técnico. Diputación de Alicante.
- Lloret, D., Cabrera, V., Falces, C., García, H. & Mira, S. (2020). ¡¡Jóvenes a jugar!! Análisis del impacto de la publicidad en el juego de apuestas en adolescentes. Madrid: Centro Reina Sofía sobre Adolescencia y Juventud, Fad. doi:10.5281/zenodo.3629535.
- López-González, H. & Tulloch, C. D. (2015). Enhancing media sport consumption: Online gambling in European football. *Media International Australia*, 155, 130-139. doi:10.1177%2F1329878X1515500115.
- López-González, H., Guerrero-Solé, F. & Griffiths, M. D. (2018). A content analysis of how 'normal' sports betting behaviour is represented in gambling advertising. *Addiction Research & Theory*, 26, 238-247. doi:10.1080/16066359.2017.1353082.
- Mackay, J. & Amos, A. (2003). Women and tobacco. *Respirology*, 8, 123-130.
- Mills, D. J. & Nower, L. (2019). Preliminary findings on cryptocurrency trading among regular gamblers: A new risk for problem gambling? *Addictive behaviors*, 92, 136-140. doi:10.1016/j.addbeh.2019.01.005.
- Núñez, J. (2017). A clinical economy of speculation: Financial trading and gambling disorder in Spain. *Cultural Anthropology*, 32, 269-293. doi:10.14506/ca32.2.08.
- Parke, A., Harris, A., Parke, J., Rigbye, J. & Blaszczynski, A. (2015). Responsible marketing and advertising in gambling: A critical review. *The Journal of Gambling Business and Economics*, 8, 21-35.
- Pine, K. J. & Nash, A. (2002). Dear Santa: The effects of television advertising on young children. *International Journal of Behavioral Development*, 26, 529-539. doi:10.1080/01650250143000481.
- Pitt, H., Thomas, S. L., Bestman, A., Stoneham, M. & Daube, M. (2016). "It's just everywhere!" Children and parents discuss the marketing of sports wagering in Australia. *Aust N Z J Public Health*, 40, 480-486. doi:10.1111/1753-6405.12564.
- Salonen, A. H., Hellman, M., Latvala, T. & Castrén, S. (2018). Gambling participation, gambling habits, gambling-related harm, and opinions on gambling advertising in Finland in 2016. *Nordic Studies on Alcohol and Drugs*, 35, 215-234. doi:10.1177%2F1455072518765875.
- Sklar, A. & Derevensky, J. L. (2011). Way to play: Analyzing gambling ads for their appeal to underage youth. *Canadian Journal of Communication*, 35.
- Thomas, S. L., Lewis, S., McLeod, C. & Haycock, J. (2012). 'They are working every angle'. A qualitative study of Australian adults' attitudes towards, and interactions with, gambling industry marketing strategies. *International Gambling Studies*, 12, 111-127. doi:10.1080/14459795.2011.639381.
- Winters, K. C., Stinchfield, R. D. & Fulkerson, J. (1993). Toward the development of an adolescent gambling problem severity scale. *Journal of gambling studies*, 9, 63-84. doi:10.1007/BF01019925.
- Zendle, D., Meyer, R. & Over, H. (2019). Adolescents and loot boxes: Links with problem gambling and motivations for purchase. *Royal Society Open Science*, 6, 190049. doi:10.1098/rsos.190049.

