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## **Abstract**

Gambling disorder is known to have a negatively detrimental impact on affected individual's physical and psychological health, social relationships, and finances. Via remote technologies (e.g., Internet, mobile phones, and interactive television), gambling has come out of gambling venues and has brought the potential for online gambling to occur anywhere (e.g., the home, the workplace, and on the move). Alongside the rise of online gambling, online gambling advertising have spread throughout all type of media. In a sample of 201 Spanish university students, the present study explored the perceived influence of online gambling advertising. More specifically it examined the Third-Person Effect (TPE), and its consequences on individuals' willingness to support censorship or public service advertising. The findings demonstrate that despite the difference on the perception of the effects of online gambling advertising, it scarcely accounts for the behavioural outcomes analysed. On the contrary, awareness of problem gambling and, above all, paternalistic attitudes appear to explain this support.

## **Introduction**

Online gambling has rapidly expanded over the last two decades (Canale, Griffiths, Veino et al., 2016; Gainsbury, Wood, Russell, Hing, & Blaszczynski, 2012), and has become one of the fastest growing online businesses in the world (Gainsbury, 2015), with revenues surpassing those of movies, theme parks or music (Mizerski, 2013). At the same time, online gambling has become more socially accepted in contemporary societies and it has been integrated into many individual's everyday lives (Cotte and Latour, 2009; Kuss and Griffiths, 2012). However, technological advances and the growth of remote gambling (via the internet, mobile phones, and interactive television) can be negatively detrimental to some individuals (Wardle, Moody, Griffiths et al., 2011). Individuals experiencing gambling disorder represent a very small proportion of gamblers (Mizerski, 2013). However, it is known that gambling disorder can have a seriously damaging impact on affected gamblers' mental and physical health, their interpersonal relationships, and their finances (Griffiths, 2004). As the integration of gambling into everyday lives has shown individuals losing track of their spending (Auer and Griffiths, 2016; Siemens and Kopp, 2011), the concern about individual and social harm has grown

(Canale, Veino & Griffiths, 2016; Yani-de-Soriano et al., 2012). In this sense, online gambling has been considered to be more harmful and less regulated than traditional gambling (Cotte and Latour, 2009; Kuss and Griffiths, 2012).

Empirical studies have shown that disordered gambling is related to an increase in the availability of gambling activities (Jacques et al., 2000), and that online gamblers are more likely to be problem gamblers than those who only gamble offline (e.g., Yani-de-Soriano et al., 2012; Griffiths and Barnes 2008; Ladd and Petry 2002) although almost all online gamblers also gamble offline (Wardle et al., 2011), and vulnerable individuals (e.g., problem gamblers) appear to be more susceptible to online gambling problems (Griffiths, Wardle, Orford et al., 2009). The new technological environment has forced governments worldwide to adapt their legislation. In particular, in Spain, where the present study was conducted, the legislation was changed in 2011. The 2011 Act (13/2011) that regulates gaming activities was the first legal framework for gambling since 1977 (Jiménez-Murcia et al., 2013). This legal change led to a large increase in the number of online gamblers and a rise of individuals with gambling problems (Castilla et al., 2013). The increase in disordered gambling observed in Spain after liberalising legislation has been also reported in other countries such as Sweden, Australia and the United Kingdom (Castilla et al., 2013).

### **The influence of gambling advertising**

One of the most serious public health concerns is the extent to which online gambling advertising mediates the gambling behaviours of individuals and triggers their impulse to gamble. In this sense, the growth and expansion of online gambling companies has been accompanied by an increase in expenditure on all types of gambling advertising, in particular television commercials (Ofcom, 2013). It is generally accepted that gambling advertising induces playing activity, conveys messages that stress the positives aspects of gambling, and promotes the belief that personal talent is decisive to success in gambling (McMullan and Kervin, 2012). However, many organizations and scholars claim that the question about the impact of advertising on the consumption is still unclear (Binde, 2007). Anti-gambling lobbies maintain that advertising increases gambling and contributes to its social acceptance (Griffiths, 2005).

On the contrary, some authors state that advertising affects the market share between the online gambling companies but not the consumption (Hing et al., 2014). They argue that only a small

proportion of individuals begin gambling for the first time after having been exposed to online gambling advertising (Hing et al., 2014). Despite of the fact that online gambling advertising has a smaller impact on gambling disorder than other influential factors (Binde, 2007), it can be viewed as an impulse trigger to gamble and has a negative effect on those who attempt to cease gambling (Binde, 2009). In one of the largest ever studies evaluating the impact of gambling advertising, Hanss, Mentzoni, Griffiths and Pallesen (2015) surveyed over 6,000 Norwegians and examined three specific dimensions of gambling advertising impacts: gambling-related attitudes, interest, and behaviour (“involvement”); knowledge about gambling options and providers (“knowledge”); and the degree to which individuals are aware of gambling advertising (“awareness”). The study compared the responses from problem gamblers against those of recreational (non-problem) gamblers and found that problem gamblers were more likely than recreational gamblers to agree that gambling advertising increased their gambling involvement and knowledge, and that they were more aware of gambling advertising.

Those who consider that online gambling advertising has an impact on individuals’ desire to gamble have advocated to apply preventive strategies to fight against gambling disorder, such as banning advertising and promoting public service campaigns, similar to those used to prevent cigarette smoking (Friend and Ladd, 2009). However, public service advertising that aims increasing individuals’ awareness of gambling disorder have been shown to have a limited impact (Najavits et al., 2003).

The aim of the present research is to analyse the perceived effects of (i) online gambling advertising, (ii) online gambling advertising with bonuses, and (iii) public service advertising involving gambling disorder on others and on the self, as well as (iv) the rectifying actions individuals are likely to support in relation to online gambling advertising. This study extends the work of Youn, Faber and Shah (2000) who examined the perceived effects of gambling advertising on individuals and their willingness to support the prohibition of gambling advertising applying the Third-Person Effect (TPE; Davison, 1983). To the best of the authors’ knowledge, Youn et al.’s study is the only study that has been devoted to the analysis of the TPE in relation to gambling advertising and the increasing call to restrict or prohibit this specific form of advertising. The conclusion of their study was that the discrepancy between the perception of the effects of gambling advertising on others and on the self was related to individuals’ propensity to support the restriction of such advertising (Youn et al., 2000). The

present study aimed to go a step further and investigate how the association between the perceptual and behavioural components of the TPE can be affected by five mediating variables (Internet self-efficacy, vulnerability, awareness, ego-involving, and paternalism).

### **The perceived influence of media content**

According to Davison's (1983) Third-Person Effect (TPE), individuals are likely to perceive that they are more protected from media influence than when compared to others. As proposed by Davison, the effect has two main components: the perceptual (individuals' perception of their protection from media influence) and the behavioural (as a reaction to this perception, they are impelled to take specific rectifying actions). The TPE has been widely analysed over the past 30 years. A large number of scholarly works have found support for the perceptual component of the TPE in a great variety of contexts, such as pornography (Gunther, 1995), controversial advertising (Shah, Faber and Youn, 1999), political advertising (Meirick, 2004), and online gaming (Zhong, 2009). TPE usually emerges in the context of undesirable messages, and vanishes (Gunther and Mundy, 1993), or reverses (the so-called First-Person Effect) when the message is perceived as desirable (Eveland and McLeod, 1999). Some of the suggested psychological processes underlying TPE are optimistic bias (Gunther and Mundy, 1993; Salwen and Dupagne, 2003), ego involvement (Perloff, 1989), and social comparison (Atwood, 1994). Social distance (Brosius and Engel, 1996), education (Paul et al., 2000), age, gender, racial group, and group identity (Hoffner and Rehkoff, 2011) have been shown as factors that impact on the TPE discrepancy.

Taking into consideration previous literature and findings, the first set of hypotheses was as follows:

- H1: Individuals will perceive both (H1a) online gambling advertising, and (H1b) online gambling advertising with bonuses to have a greater influence on others than on themselves.

As has been noted, TPE reverses or vanishes for messages involving public service advertising. Consequently, the second hypothesis was:

- H2: Individuals will perceive public service advertising involving online gambling harms to have a lesser influence on others than on themselves.

Because the perceptual component in the TPE has been considered universal, research efforts have focused on the behavioural component. In this sense, studies of the TPE behavioural

component have mainly focused on the support to ban or censor controversial content, such as explicit sexual content (Gunther, 1995), misogynistic songs (McLeod et al., 1997), unfair and misleading political messages (Hoffner and Rehkoff, 2011), and trash talk-shows (Guerrero-Solé et al., 2014). Even though censorship is associated with authoritarian societies, citizens in democratic societies express their willingness to censor specific controversial media content if it is perceived as socially harmful (McLeod et al., 2001). In addition to censorship, scholars have also analysed other behavioural outcomes such as expression of opinion (Mutz, 1989), residential mobility (Tsfati and Cohen, 2003), political decision-making (Golan et al., 2008), strategic voting (Cohen and Tsfati, 2009), and seeking information about the flu (Ran et al., 2008).

However, one of the most disputable questions in TPE theory is the relationship between the perceptual and the behavioural components of TPE (Atwood, 1994). In comparison to the strength of the perceptual TPE perceptual component, the effect magnitude of the behavioural component is weak (Xu and Gonzenbach, 2008), and the research has shown disparate results. While some authors have found no association (Haridakis and Rubin, 2005) or a weak association between both TPE components (Atwood, 1994), others have reported a strong association between them (Salwen and Dupagne, 1999; Boyle et al., 2008; Cohen and Weimann, 2008). In this sense, the work of Wan and Youn (2004) is noteworthy. They explored the TPE for online gambling sites and found a significant discrepancy between the perceived impact of gambling sites on the others and on oneself. They also provided support for the association between the perceptual and the behavioural components of TPE. Consequently, considering the controversy about the association between both components of TPE, the following research questions are posited:

- RQ1: Does the discrepancy between the perceived impact of online gambling advertising, online gambling advertising with bonuses and public service advertising on others and on the themselves lead individuals to take actions, such as (a) supporting the prohibition of online gambling, (b) supporting the prohibition of online gambling advertising, (c) supporting clear warnings about online gambling harm, and (d) supporting public service advertising about online gambling harm?

Behavioural outcomes were considered drawing on Sun, Shen and Pan's (2008) classification of the rectifying behavioural outcomes in relation with the perceived severity of message

influence. Although only online gambling was investigated, two restrictive actions were proposed (prohibition of online gambling advertising and prohibition of online gambling), one corrective (warnings about online gambling), and one promotional (public service advertising about online gambling).

Finally, to determine which other factors may contribute to individual's willingness to support these actions, the present study included variables that have been previously related to the TPE. Considering the technological characteristics of online gambling, individuals were asked about their perceived Internet-efficacy on others and on the self. They were then asked about how vulnerable they perceived themselves and others to be towards problem gambling (vulnerability), how aware they were about the gravity of problem gambling (awareness), to what extent close individuals to them had experienced problem gambling (ego-involvement), and about their desire to convince individuals about the effects of online gambling (paternalism). Thus, the final research question was as follows:

- RQ2: Does perceived Internet self-efficacy, perceived vulnerability, awareness, ego-involvement, and paternalism predict individuals' willingness to support the proposed rectifying actions?

## **Methods**

A survey of undergraduate students (N=201 students; 154 females and 47 males) taking a course in Sociology of Communication at a major university in Barcelona was used to collect data. Ages ranged from 18 to 24 years old, with mean age of 20.05 years. To clarify to participants what was meant by online gambling advertising, an advert featuring the Barcelona Online Casino was shown. The advert emphasized the fact that gambling has become an everyday leisure activity in our lives, with the slogan 'gambling at home was never that real', and offered to the viewers a promotional bonus of 300 Euros (accessible at <https://www.youtube.com/watch?v=MARVbV41tzs>). Afterwards, they were asked to complete two surveys related to (1) the perceived effects of online gambling advertising on others, and (2) the perceived effects of online gambling advertising on the self and their willingness to support censorship, explicit warnings, and public service advertising against problem gambling.

To assess the magnitude of the Third-Person ‘perceptual’ component, the participants were asked about their perceived influence of: (i) online gambling advertising on others and on the self (e.g., “*In your opinion, the level of influence of online gambling advertising on people is...*”), (ii) online gambling advertising that offers promotional bonuses on others and on the self (e.g., “*Do you think online gambling advertises in which bonus money to start gambling is offered have an influence on people?*”), and (iii) public service advertising to raise awareness about the effects of online gambling on others and on the self (e.g., “*Do you think awareness campaigns about online gambling addiction are effective on people?*”). Depending upon the question asked, students rated the perceived influence using a 5-point Likert scale, ranging from 1 (‘no influence’ or ‘not all’) to 5 (‘strong influence’ or ‘absolutely’). Similarly, participants were asked about their willingness to support specific rectifying actions related to censorship and public service campaigns, including support for (i) increasing the efforts on public service advertising raising individuals’ awareness about the effects of online gambling (e.g., “*Are you in favour of awareness campaigns that inform about the perils of online gambling?*”), (ii) clear and explicit warnings about the effects of online gambling in online gambling advertising (e.g., “*Are you in favor of warning clear and explicitly about the negative effects of online gambling?*”), (iii) the prohibition of online gambling advertising (e.g., “*Are you in favor of banning online gambling advertising?*”), and (iv) the prohibition of online gambling (e.g., “*Are you in favor of banning online gambling?*”). Participants rated their willingness to support these actions using the same 5-point Likert scales, ranging from 1 (‘not at all’) to 5 (‘absolutely’). Finally, the mediating factors included in the study were perceived internet self-efficacy and perceived vulnerability:

*Perceived Internet self-efficacy.* Self-efficacy concerning new technologies has been found to predict individual’s behavioural outcomes (Chia et al., 2004), although other studies (e.g., Lee and Tamborini, 2005) have concluded that there is no support for considering self-efficacy as a moderator of TPE. In the present study, participants were asked about their perceived confidence when connected online and their perceived control when gambling online in relation to others and themselves (e.g., “*Are you confident on your skills as an Internet user?*”). A composite measure was created by adding the two variables, and dividing the result by two ( $M = 2.35$ ,  $SD = .63$ ,  $r = .26$ ,  $p < .001$  for others;  $M = 4.00$ ,  $SD = 0.85$ ,  $r = .36$ ,  $p < .001$  for the self).

*Perceived vulnerability and awareness.* As optimistic bias has been suggested as a process underlying TPE (Gunther and Mundy, 1993; Salwen and Dupagne, 2003). Consequently, participants were asked for the perceived likelihood as suffering from gambling problems

relating to others and themselves (“*Do you think you’re exposed to suffering gambling addiction?*” [M = 3.50, SD = .85, for others; M = 1.59, SD = 0.75 for the self]). Participants were also asked questions relating to awareness of problem gambling (“*Do you think gambling addiction is a major social problem?*” [M = 3.69, SD = .86]),

*Ego-involvement.* Ego-involvement has been also shown as being a moderator variable of TPE. Those involved with a specific issue tend to overestimate the effects of media messages about this issue on others (Perloff, 1989; Duck et al., 1995). In this sense, participants were asked to what extent any close person had been affected by problem gambling (e.g., “*Have any members of your family or friends been affected by a gambling problem?*”). Almost three-quarters of the participants (71%) responded that no-one close to them had been affected by problem gambling (M = 1.98, SD = .96).

*Paternalism.* Individual’s level of paternalism has been found to be a key variable in the support for censorship (McLeod et al., 1997), although Schmierbach et al. (2011) considered paternalism and maternalism as control variables that are not sufficient to explain the support for censorship of media content. Respondents were asked about their desire to convince individuals about the harmful effects of online gambling (e.g., “*Would you like to be able to convince people of the negative effects of online gambling?*” [M = 3.69, SD = .86]).

## **Results**

*Online gambling advertising, awareness, gambling bonuses, and the Third Person Affect:* In accordance with a great majority of the studies on TPE, individuals perceived (i) online gambling advertising and (ii) online gambling advertising with bonuses to have a greater influence on others than on themselves, and institutional campaigns as having a greater influence on the self, confirming H1 and H2. Paired samples t-test confirmed that the discrepancy between the perceived effects on others and on the self was significant in the cases of both online gambling advertising and online gambling advertising with bonuses (see Table 1). On the contrary, the perceived influence of awareness campaigns on others and on the self were quite similar, and the discrepancy was not significant. Thus, a neutralization of the TPE was observed, but not a reversion of the First-Person Effect. In addition, it was found that online gambling advertising offering promotional bonuses were perceived as more influential than online gambling advertising without offering promotional bonuses, with a larger discrepancy between the influence perceived on others and on the self. It must also be pointed

out that despite the discrepancy observed in online gambling advertising, the mean value of the influence perceived on others (2.80) is smaller than the median (3.00). Thus, in general, online gambling advertising is not perceived as having a strong influence on individuals.

**Table 1. Paired t-tests of differences between perceived effects of online gambling advertising and perceived effects of online gambling awareness campaigns**

	Mean	SD	t	p
<i>Third-Person Effect</i>				
Online gambling advertising on others	2.80	.76		
Online gambling advertising on the self	1.20	.47		
Discrepancy	1.60	.81	27.83	<.001
Online gambling advertising with bonuses on others	3.46	.92		
Online gambling advertising with bonuses on the self	1.30	.63		
Discrepancy	2.16	.97	31.62	<.001
<i>First-person Effect</i>				
Institutional Campaigns on others	3.04	.76		
Institutional Campaigns on the self	3.13	1.00		
Discrepancy	-0.10	.90	-1.512	.132

*Perceived vulnerability, self-efficacy and the Third Person Effect:* Paired t-tests on those variables related to optimistic bias and self-efficacy (Table 2) were also performed. As in the case of the perceptual component, the discrepancies between the perceived vulnerability and self-efficacy were notable and significant.

**Table 2. Paired t-tests of perceived vulnerability and efficacy on others and on the self**

	Mean	SD	t	p
Perceived vulnerability (others)	3.50	.85		
Perceived vulnerability (self)	1.59	.76		
Discrepancy	1.91	.98	27.76	<.001
Perceived efficacy (others)	2.40	.65		
Perceived self-efficacy	4.00	.85		
Discrepancy	-1.60	0.95	-19.88	<.001

Correlations between TPE discrepancies, perceived vulnerability, and self-efficacy were performed, as well as a multiple regression to examine which of the proposed factors had an impact on those discrepancies. Discrepancies on TPE were found to be significantly correlated with discrepancies on perceived vulnerability, and only discrepancies on online gambling advertising with bonuses was slightly correlated with discrepancies on perceived efficacy (Table 3).

**Table 3. Correlations between TPE, First-Person Effect, perceived vulnerability and self-efficacy**

Discrepancy	1	2	3	4
1. Online gambling advertising				
2. Online gambling advertising with bonuses	.523**			
3. Public Service Advertising	-.006	-.041		
4. $\Delta$ Vulnerability	.201**	.246**	-.135	
5. $\Delta$ Efficacy	-.130	-.213*	.083	-.279**

\*  $p < 0.05$ ; \*\*  $p < 0.01$

*Discrepancies in the Third Person Effect:* Despite the significant correlations, the multiple regression analysis (Table 4) demonstrated that only awareness and efficacy partially explained the discrepancies on the perceptions of online gambling advertising and online gambling advertising offering bonuses, respectively. However, these variables scarcely explain the variance of those discrepancies, emphasizing the necessity of looking at other factors that could help explain these differences. On the contrary, paternalism was found to explain the discrepancy between the perceived effect of public service advertising on others and on the self.

**Table 4. Multiple regression predicting TPE discrepancies**

	Online gambling advertising	Online gambling advertising bonus	Public service advertising
Gender	-.016	.068	.106
$\Delta$ Vulnerability	.072	.082	-.084
$\Delta$ Efficacy	-.156	-.202*	-.005
Awareness	.209*	.168	.027
Paternalism	.099	-.024	-.492**
Ego-Involvement	-.112	.023	-.008
R <sup>2</sup>	.053*	.054*	.240**

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ;  $\Delta$  stands for the difference between others and the self

Given that gender is considered to be a moderator factor of problem gambling, and also to have an influence on the TPE and its behavioural outcomes, a one-way analysis of covariance was performed. The results showed only differences in online gambling advertising with bonus on the self,  $F(1,193)=8.687, p<0.05$ , public service advertising on the others,  $F(1,194)=15.121, p<0.001$ , and on the self,  $F(1,192)=7.730, p<0.05$ , were significantly different. However, the differences in the discrepancies on the Third-Person and First-Person Effects were not significant in all three cases.

*Support for awareness campaigns and censorship:* The results demonstrated that individuals are willing to support corrective and promotional actions ( $M = 4.15, SD = .90$  for public service advertising, and  $M = 4.18, SD = .91$ , for warnings), and less likely to support the prohibition of online gambling advertising and online gambling ( $M = 3.24, SD = 1.17$  for online gambling advertising, and  $M = 2.65, SD = 1.14$  for online gambling). Given that research has demonstrated that women are more likely to support censorship than men (McLeod et al., 1997; McLeod et al., 2001), a one-way analysis of variance for the behavioural outcomes was performed. The results showed that compared to men, women were more likely to support not only restrictive, but also corrective and promotional actions. However, these differences were only significant in the case of the prohibition of online gambling,  $F(1, 193) = 4.372, p<0.05$ , and the support to provide warnings,  $F(1,192) = 4.371, p<0.05$ .

To answer RQ1 and RQ2, three different statistical tests were performed to determine the extent that third-person perceptions and the mediating factors can explain such outcomes. As done in the perceptual component, first the correlations between variables were analysed, followed by a multiple linear regression. Finally, a hierarchical multiple regression was performed to investigate which factors better explained the actions individuals were willing to support.

Correlation analysis (Table 5) showed that only the support to institutional campaigns was correlated with TPE and FPE, and to a lesser degree, the support to place warnings was correlated with online gambling advertising. It was also found that the four behavioural outcomes were correlated with each other. In particular, support to the prohibition of online gambling advertising and the prohibition of online gambling were strongly correlated ( $r = 0.707, p<0.001$ ). The results were similar when behavioural outcomes were correlated with the perceived effects on others. However, when the behavioural outcomes were correlated with the perceived influence on the self, a significant correlation between all the four outcomes and the

perceived effects of institutional campaigns on the self was found ( $r = .477, p < .001$  for public service advertising;  $r = .306, p < .001$ , for warnings;  $r = .190, p < .001$  for online gambling advertising; and  $r = .171, p < .05$  for online gambling advertising with bonuses). In general, the more severe the rectifying behaviour was (from promotional to restrictive), the weaker the correlation.

**Table 5. Correlations between TPE, First-Person Effect and behavioural outcomes**

	1	2	3	4	5	6
1. Online gambling advertising (others - self)						
2. Online gambling advertising with bonuses (others - self)	.523**					
3. Public service advertising (others - self)	-.006	-.041				
4. Support to institutional campaigns	.230**	.112	-.166*			
5. Support to place clear warnings	.160*	.080	-.124	.511**		
6. Support to the prohibition of online gambling advertising	.131	.111	-.085	.402**	.453**	
7. Support to prohibition of online gambling	.005	.004	-.059	.337**	.335**	.707**

\*  $p < 0.05$ ; \*\*  $p < 0.01$

*Perceptual component of the Third Person Effect:* A series of hierarchical regressions were performed for the four behavioural outcomes to test the predictive power of the perceptual component of the TPE. Before conducting the analysis, the recommendations by Petrocelli (2003) were taken into consideration. In particular, the hypothesis considered the theoretical basis of TPE, and tried to guarantee the causal priority in establishing the order of the different blocks of variables. Thus, the variables from general characteristics were first introduced, followed by specific attitudes, and, finally, by those related with TPE and First-Person Effect. As stated by Petrocelli (2003), a non-theoretically based hierarchical regression can lead to different results and, as a consequence, to different and misleading interpretations.

The first block included the socio-demographic variables, the second the control variables and, finally, the third block included TPE and First-Person Effect on others and on the self. All four of the hierarchical multiple regressions (Table 6) showed that the variables that more contributed to the variability of the dependent variables (behavioural outcomes) were those in the second block. In particular, paternalism was the variable that most contributed to this variability, except in the most severe of the rectifying actions (prohibition of online gambling),

where there was no variable significantly contributing to the variability of the outcome. Thus, once paternalism is introduced in the hierarchical regression model before the perceived effects of online gambling advertising and public service advertising, the contribution of these effects to the variability of the behavioural outcomes is, in all the cases, negligible. On the other hand, the third block of independent variables (i.e., those related to the Third-Person and the First-Person Effect) do not contribute at all to the variability of any of the behavioural outcomes, and only in the case of the support to providing clear warnings, a small contribution of public service advertising on others was observed. In consequence, media perceptual variables did not contribute or decrease the explanatory power of the regression model. These results led to the rejection of one of the hypothesis related to RQ2. In these findings, there is no relation between the perceptual and the behavioural components of the TPE. On the contrary, the paternalism variable appears to be the only good predictor of the analysed behavioural outcomes.

**Table 6. Hierarchical Multiple Regression predicting willingness to (a) support to public service advertising, (b) support to clear and explicit warnings about online gambling harm, (c) support to the prohibition of online gambling advertising, and (d) support to prohibit online gambling**

	Public service advertising	Clear warnings	Online gambling advertising	Online gambling
Block 1				
Age	.009	.022	-.213*	-.122
Gender	-.114	-.065	-.137	.010
R <sup>2</sup>	.004	.005	.023	.022
Block 2				
Vulnerability	-.066	.022	-.040	.024
Efficacy	-.013	.095	-.079	-.092
Awareness	.161	.051	.247*	.153
Ego-Involvement	.066	.151	.135	.058
Paternalism	.388 **	.396**	.250*	.114
R <sup>2</sup>	.386**	.249**	.218**	.088
Block 3				

Online gambling advertising others	.112	-.002	-.012	-.085
Online gambling advertising bonus others	.017	.041	-.037	-.064
Public service advertising others	.132	.211*	-.003	-.005
Online gambling advertising others	-.077	-.155	.058	.067
Online gambling advertising bonus others	.012	.075	-.222	-.201
Public service advertising others	.158	-.006	.085	.141
R <sup>2</sup>	.439	.288	.257	.139

\*  $p < 0.05$ ; \*\*  $p < 0.01$

Considering the already noted conservative nature of the hierarchical regression, a multiple regression analysis for the four behavioural outcomes was performed (Table 7). However, this analysis confirmed the results of those already obtained. Paternalism was the only variable that explained individual's willingness to support rectifying actions in relation to online gambling. As already noted, the correlations with paternalism and the R<sup>2</sup> values decreased as the suggested rectifying measures became more severe.

**Table 7. Multiple regression analysis of support to institutional campaigns, clear warnings about gambling harm, prohibition of online gambling advertising, and prohibition of online gambling**

	Public service advertising	Clear warnings	Online gambling advertising	Online gambling
Gender	-.093	-.027	-.046	.065
Vulnerability	-.066	.037	-.006	.055
Efficacy	-.014	.111	-.028	-.058
Awareness	.143	.007	.167	.095
Paternalism	.631**	.489**	.347**	.264*
Ego- Involvement	.065	.146	.141	.052
TPE - Online gambling advertising	.107	.036	.013	-.054
TPE- Online gambling	.036	.049	.062	.020

advertising bonus				
First-Person Effect	.191*	.056	.084	.143
R <sup>2</sup>	0.430**	0.264**	0.217**	0.105

\*  $p < 0.05$ ; \*\*  $p < 0.01$

These results confirm those of Golan and Banning (2008). In their work, they found that paternalism was a good predictor of TPE behavioural outcomes when there is something to correct. However, it does not explain the behavioural outcomes when the message is perceived as positive (first-person behavioural outcomes). In the same sense, McLeod et al. (1997) showed that the level of paternalism is a key factor of support for censorship.

## Discussion

Online gambling growth and law changes have been accompanied by a rise in television gambling adverts (Ofcom, 2013). Given the impact of advertising on individual's gambling activities is still unclear, the objective of the present study was to analyse individual's perceived impact of online gambling advertising and public service advertising concerning disordered gambling, and the rectifying actions the participants were willing to support. In accordance with the large amount of research into TPE, the present study demonstrated the existence of the effect for online gambling advertising, and its neutralization when individuals assess the effects of institutional advertising that provide warnings about the harmful effects of online gambling. Given that previous literature has demonstrated that TPE can be considered a universal perceptual tendency that goes beyond media effects (Peiser and Peter, 2000), scholars have tended to focus on its behavioural consequences. However, it must be noted that individual's perceived invulnerability to online gambling advertising deserves further research.

The results suggest that specific characteristics of the message (e.g., the inclusion of promotional bonuses) can widen the perceptual discrepancy. Among the factors analysed, awareness about disordered gambling as a social and public health problem and Internet self-efficacy were mediating factors of TPE. On the contrary, ego-involvement or perceived vulnerability to problem gambling did not have any impact on individual's perception of the impact of online gambling advertising, and only paternalism contributed (negatively) to explain the discrepancy in the perception of the effects of public service advertising on others and on

the self. It was also found that gender – that is a moderator of problem gambling and a mediator variable of TPE (Lo and Wei, 2002) – had a weak impact on the effect.

However, the present study did not support one of the most controversial premises of the effect (i.e., the association between its perceptual and its behavioural components). To analyse this association, four rectifying actions were proposed (from less to more severe), and five control variables (vulnerability, efficacy, awareness, paternalism and ego-involvement) were examined. The results showed that, in all the four cases, the association between both components was weak or non-existent, in accordance with Xu and Gonzenbach (2008), and only the support for public service advertising was slightly correlated with TPE. These findings contrast with those of Youn et al. (2000) who demonstrated a strong association between the perceptual component of TPE and the willingness to censor gambling advertising, and those of Wan and Youn (2004), that also provided empirical support for the association between TPE and censorship, even after controlling for other possible mediating variables, such as Internet usage, ideology, and political involvement.

On the contrary, in the present study, paternalistic attitude was found to be the variable that better explained the variability in the support for rectifying actions. Paternalistic attitude has been proven to be a good predictor of support for censorship. This attitude, that leads individuals to take actions to protect others and reveal a sense of superiority (McLeod et al., 2001), has also been found to have a positive correlation with the discrepancy between the effects of media on others and on the self, and is considered an antecedent variable of TPE (Schmierbach, Boyle et al., 2011). This antecedence was confirmed in the present study. The association between paternalism and the four behavioural outcomes was found independently of the statistical test used, and in all cases it was strong and statistically significant. The absence of association between both the components of TPE begs the question of whether there should be any further research into the TPE. On the other hand, if paternalistic attitudes explain the variability of the behavioural variables, it would not be unwise to consider that the perceived effects of media do not play any mediating role in individual's willingness to support rectifying actions, and that such support is completely explained by an antecedent attitude.

However, as noted in the introduction, other researchers have found that the association between both components can be strong. It leads to two considerations. Firstly, scholars should perform the most conservative statistical test to guarantee the reliability of the association. The

use of inappropriate methods can lead researchers to make misleading conclusions. Secondly, scholars must make an effort to analyse all the characteristics of the message that lead individuals to perceive a discrepancy between the effects of the messages on others and on the self. Instead of focusing on different controversial messages, the focus must be on the different characteristics of messages that can explain the presence or not of an association between both components. In this sense, it was found that online gambling advertising with bonuses was considered to have more impact on individuals than online gambling advertising. One explanation of this result could be that individuals may think that promotional activities are more persuasive and, as stated by Griffiths (2010), can be more powerful in fuelling addictions.

Consequently, gambling operators and regulators should be aware of the characteristics of these messages and take action not to prohibit online gambling advertising, but only those online gambling adverts that can be considered to have a more negative impact on individuals. Individuals perceived themselves and the others to be more influenced by public service advertising than by online gambling advertising, but the most influential of the three adverts on others was online gambling advertising with bonuses. However, considering the potential effect of online gambling advertising on individuals, gambling operators should also be aware that despite online gambling advertising with bonuses being perceived as the most influential strategy on others, individuals perceive that they are invulnerable to this persuasive strategy, and the discrepancy observed is much larger than that observed for online gambling advertising. Finally, the results indicated that the more severe the rectifying measure, the less willingness to support such actions. In most societies, gambling is a socially acceptable activity, and individuals do not consider that it should be prohibited, and that neither online gambling advertising should be banned from media. Individuals are more likely to support corrective and promotional campaigns to raise awareness of the consequences of gambling.

The present study has several limitations. As in many other studies concerning TPE, one of the major limitations is the sample and methodology selected (i.e., a self-selected, self-report study open to many well-known biases including social desirability and recall biases). Despite the large number of studies where the participants in the study were undergraduate students (see Xu and Gonzenbach, 2008), the effect of this non-representative sample on the findings of this study cannot be ignored. Some studies have shown that the differences between students' judgments and those of non-students are inconsequential (Guerrero-Solé et al., 2014). However, it is widely accepted that in a research on disordered gambling, samples should

include participants that have experienced or are experiencing the problem, or a more significant sample in terms of age, gender and education – even more so if the purpose is to challenge the theory underpinning TPE. Furthermore, the present study may be biased by the fact that young students may not be heavy users of online gambling, and that the present sample was predominantly female students that may be more likely to have a stronger paternalistic outlook than the general public. Another potential limitation is that the number of variables in the present study was relatively small. In future studies, other mediator variables should be considered that could complement the explanations on rectifying actions, as well as finding new methods beyond general measures that reveal more about individual's thinking (Jensen and Hurley, 2005). Despite these limitations, the fact that paternalism accounted for such a variability of the rectifying actions suggests that paternalistic attitudes have a much greater influence on individual's willingness to support those actions than the perceived effects that advertising has.

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