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Abstract

Fans watching live sport events, both mediated or in stadia, have witnessed an increase in sports betting products. Most of these products feature in-play betting, that is, the ability to bet on a game once it has started while watching it. In-play betting has raised many concerns among responsible gambling advocates due to its perceived relationship with problem gambling behaviour. This study explored the association between in-play betting and problem gambling. More specifically, the study examined how motives for consuming sport and how involved sports fans were in watching sport affected their gambling. Also, adjacent risk behaviours to in-play betting (such as consuming junk food and alcohol) during live sports betting were examined. Using a survey comprising 659 sports bettors from Spain, the study found that compared to participants not engaging in in-play betting, in-play bettors reported higher (i) problem gambling severity, (ii) sport watching involvement, (iii) consumption of sport to escape from everyday preoccupations, and (iv) consumption of junk food and/or alcohol while watching sport. These findings make the case that in-play betting regulators and providers should be cognizant of the interplay of sport-specific, media-related, and other risks, involved in the act of in-play betting while watching live sport.

Keywords: Gambling, in-play betting, sports betting, sport watching, problem gambling

Introduction

In recent years, sports betting has increased worldwide in terms of money wagered and revenue (European Gaming & Betting Association, 2016), and has become the fastest growing type of gambling in multiple territories while other gambling products have stagnated (Gainsbury & Russell, 2015). Unlike the majority of gambling forms, sports betting is based on a pre-existent cultural manifestation, namely sport, that is theoretically independent from gambling upon it. Gambling on sports, inasmuch a sporting activity,

interacts with a broader range of psychosocially significant elements including (among others) sports fandom, sport team identity, televised sport viewing (i.e., media psychology), sport consumption-related behaviours (i.e., communal viewing, eating junk food, drinking alcohol), and emotionally-laden situations (Gordon, Gurrieri, & Chapman, 2015). This singularity has multiple implications for tackling problem gambling as well as raising important questions for the appropriateness of all-encompassing solutions to treat, minimise, and prevent sports betting-related harm (Lopez-Gonzalez, Estévez, & Griffiths, 2018a).

A particularly paradigmatic expression of sports betting is in-play betting (Killick & Griffiths, 2018). In-play betting (alternatively called in-running or live action betting) is the kind of gambling that occurs when gamblers place their bets once sport events have commenced, as opposed to bets placed before the start of games, as was the case of traditional match-based betting, before online gambling emerged. In-play bets have become the most popular type of gambling among sports fans, and constitute as much as 70% of the money wagered in sports betting in Spain (Directorate General for the regulation of gambling [DGOJ], 2017) where the present study was carried out. *Bet365*, the global leading bookmaker, reported that up to 80% of their sports books revenue derives from in-play betting (Jackson, 2015). Consequently, some jurisdictions in Europe and elsewhere (e.g., Australia) have banned or severely limited the placing of in-play bets due to their perceived addictive component, despite the paucity of empirical evidence regarding the detrimental effects of in-play betting (Hing, Russell, Li, & Vitartas, 2018).

The singularities of in-play betting

In-play betting has been associated with instantaneous, less planned gambling behaviours, and therefore it appears theoretically plausible to associate it with reckless and irresponsible gambling, for which some preliminary scientific evidence already exists (see Killick & Griffiths [2018] for a recent review). The first group of studies to assess in-play betting in relation to gambling frequency found that heavy gamblers bet more frequently with in-play options than occasional gamblers in a sample of approximately 45,000 subscribers to *Bwin* sports betting operator (Braverman, Laplante, Nelson, & Shaffer, 2013; Broda et al., 2008; LaBrie, LaPlante, Nelson, Schumann, & Shaffer, 2007; LaPlante, Schumann, LaBrie, & Shaffer, 2008; Nelson et al., 2008). However, those studies did not include a validated screening tool for problem gambling, and therefore

could only assess the relationship of in-play betting and the responsible gambling standards set by the bookmaker. A more recent study with sports bettors from Australia – wherein in-play betting represents approximately 50% of bets, despite its restrictive regulation – suggested that in-play betting was associated with greater impulse betting, higher problem gambling severity, and more frequent gambling and expenditure (Hing, Li, Vitartas, & Russell, 2018).

In-play betting has a number of characteristics that make an association with problem gambling more likely. Most notably for the media and communication field, in-play betting typically occurs in a context of sport viewing, since being able to bet upon what individuals are watching is the principal selling proposition of the product. This gives form to a very specific gambling setting characterised by multiple determinants. First, in-play betting comprises a simultaneous watching and betting of/on sport – an activity that has consequences. For example, when sport fans and bettors watch a live sport event they face multiple temptations. A neuroimaging study investigating neural activation found that those bettors who felt confident about a match outcome experienced more activation in their reward processing and less inhibitory control (Brevers et al., 2018). It is apparent that bettors are not emotionally indifferent to what happens at live sporting events because they bring their team identification, social identity, and overall emotional connection into the sport-gambling mix (Giulianotti, 2002). This adds to the stereotypical characterisations of sports fans as individuals with tendencies to engage in potentially reckless activities, with drinking alcohol ranking high among these (Ostrowsky, 2018).

In addition, the simultaneous interaction between viewing and live betting requires speed and adaptation to live game events, and higher game speeds and event frequencies tend to have a higher association with problem gambling (Harris & Griffiths, 2018). In-play betting is also allied with second screen devices (i.e., smartphones, tablets, and to a lesser extent, laptops) that facilitates an immersive betting and watching experience alongside the watching of televised or streamed sport (typically the primary screen although some fans will also bet via mobile devices while watching the sport in stadia and/or while listening to a match on the radio). Bookmakers have been able to capitalise on the penetration of second screen devices in individuals' everyday lives. The latest data publicly available concerning sport consumption indicated that in Western countries, individuals very frequently use second screen devices while watching sport (45% of the

time in the USA, 43% in the UK, 42% in Australia, 35% in Germany, and 40% in France). These numbers are even higher in newly industrialised countries such as India, China, Turkey, and Indonesia (SportBusiness Group, 2014). An illustration of this alliance is ‘eyes-free’ technology, which allows watching sport and betting on a second screen device without looking away from television or computer-based streaming (Centieiro, Romão, & Dias, 2014). When bookmakers’ advertising and marketing materials accentuate their online platform’s responsiveness, intuitiveness, and speed (Lopez-Gonzalez, Estévez, & Griffiths, 2018b), they are also fostering an immersive, synchronous sport watching experience.

Second, in-play betting is often accompanied by drinking alcohol (among other risk behaviours) when the watching of sport happens in the context of a bar, pub, or other environments where alcohol is sold and consumed on-site. From a cultural perspective, the steep increase of soccer ticket prices in the past two decades, combined with the penetration of televised sport, has facilitated the migration of many working class soccer fans from stadium terraces into pubs, particularly in the UK (Dixon, 2013). Until they started broadcasting live sport, pubs were generally viewed as pre-match and post-match meeting points, but not in-match venues. Alcohol and sport viewing have become ever more inextricably intertwined, with pubs turning into “the fabric of masculine culture” (Dixon, 2014, p. 388), although women have progressively occupied this masculine space as a way of transgressing feminine boundaries (Fuchs & Le Hénaff, 2014; Palmer, 2015).

From a clinical perspective, there is empirical evidence that even a small quantity of alcohol can impair self-control and make gamblers persist in their gambling (Kyngdon & Dickerson, 1999). Similar results have been obtained in nationally representative samples of citizens in which more frequent use of alcohol was significantly correlated to more gambling-related problems in the US (French, Maclean, & Ettner, 2008) and the UK (Griffiths, Wardle et al., 2010). A recent study using behavioural tracking data from player cards also reported that slot machine gamblers lost more money in environments that sold alcohol compared to those environments that did not (Leino, Sagoe et al., 2017). However, other researchers have discrepancies with such conclusions and determined that only gamblers with disordered alcohol use allowed their drinking to interfere with their gambling behaviour, finding no statistically significant association between sub-clinical

alcohol use and gambling disorder (Harries, Redden, Leppink, Chamberlain, & Grant, 2017).

Third, sports fans who are also bettors have to reconcile their inner conflicts in real time. For instance, bettors who support a specific soccer team might feel compelled to bet money on the match result as an act of ‘wishful’ betting (i.e., betting on the outcome they desire to see happening or because they feel like ‘traitors’ if they bet against their own team). It has been demonstrated in the context of National League Football (NFL) that fans exhibit a durable optimistic bias that makes them more likely to foresee their team winning (Massey, Simmons, & Armor, 2011). On the other hand, some other bettors might want to offset a potential emotional loss by securing at least a financial gain by betting against their own team – what has been called ‘hedging against future failure’ (Agha & Tyler, 2017). Another source of conflict is the supposedly collective nature of watching sport/betting. Both sports viewing and sports betting are typically portrayed in media outputs as group activities (e.g., in adverts), although there is strong evidence indicating that many fans watch sport alone (ESPN, 2010). Similarly, in an Australian-based sample, 31.5% of sports bettors reported watching sport alone (Hing, Lamont, Vitartas, & Fink, 2015b). The combination of solitude and gambling can be problematic, as many anxiety-coping gambling habits derive from solitary gambling (Bristow et al., 2018).

Fourth, in-play betting opportunities run in parallel to in-game gambling promotions and advertising stimuli when consumed via television or streaming devices. Several scholars have expressed their concerns about the gradual normalisation of betting habits in sport contexts (Deans, Thomas, Daube, & Derevensky, 2016; Lopez-Gonzalez, Guerrero-Solé, Estévez, & Griffiths, 2018d; Pitt, Thomas, & Bestman, 2016). Furthermore, a content analysis of British and Spanish sports betting advertising showed that 46.7% of the advertisements portrayed at least one fictional character betting in-play (Lopez-Gonzalez, Guerrero-Solé, & Griffiths, 2018e). Sport fans are usually exposed to numerous betting enticements during live sport viewing (Milner, Hing, Vitartas, & Lamont, 2013), which results in greater implicit recall for betting brands (Thomas, Pitt, Bestman, Randle, & Daube, 2016).

Additionally, there is evidence that shows that non-traditional bets (among them in-play bets) promoted by bookmakers tend to have lower expected returns for bettors and larger implicit benefits for bookmakers (Newall, 2018). Also, promotions designed for in-play betting (e.g., live odds displayed on screen) typically reinforce cognitive biases related to erroneous probabilistic thinking, often fostering urgent and impulsive betting, as seen in a sample of advertisements during the broadcasts of 2018 soccer World Cup (Newall, Thobhani, Walasek, & Meyer, 2018).

The archetypical depiction of in-play betting in advertising is sometimes coupled with other risk behaviours such as the consumption of junk food and/or alcohol (Lopez-Gonzalez, Estévez, Jiménez-Murcia, & Griffiths, 2018c). The association between these three products has been a long-held preoccupation, with studies demonstrating that up to 77% of Australian children aged 5-12 were able to remember at least one risk behaviour product associated with their favourite sport teams (Bestman, Thomas, Randle, & Thomas, 2015). It has also been established that alcohol promotions are more frequent in sport rather than in non-sport television broadcasts (O'Brien et al., 2015), and that such promotions are among the more pervasive advertisements in sport (Lamont, Hing, & Gainsbury, 2011). Also in Australia, a very recent study identified unhealthy food, alcohol, and gambling companies to be the most prevalent sponsors in the Australian Football League (AFL), with 88% of the teams being sponsored by at least one of such companies (Sartori, Stoneham, & Edmunds, 2018). Similarly, in a previous analysis, it was estimated that spectators watching a sport competition were exposed to unhealthy food, alcohol or gambling products approximately two-thirds of their viewing time (Lindsay et al., 2013).

The present study

To bridge the knowledge gap in the relationship between in-play betting and sport viewing, a survey-based study was carried out with regular sports bettors to explore whether in-play betting and in-play betting-related behaviours that typically take place during sport viewing situations were associated with problem gambling severity. The study was conceived based on the assumption that in-play betting is a distinct mechanism of gambling, defined by a series of specific structural characteristics (Griffiths, 2005; McCormack & Griffiths, 2013) that differentiate it from other gambling mechanisms. Structural characteristics are defined as design features of gambling product (e.g., stake

size, jackpot size, illusion of control features, near miss opportunities, etc.) that can affect the way gamblers play (Parke & Griffiths, 2007). Such design features can be facilitate harm in some cases (e.g., high event frequencies), fostering frequent and excessive sports betting (Lopez-Gonzalez, Estévez, & Griffiths, 2018c).

Consequently, the study explored two main domains that were considered as interacting with in-play betting behaviour. First, sport-specific characteristics were explored, including psychological motives for sport consumption such as desire for drama or evasion. Related to this, sport watching was further assessed by asking sports bettors the extent to which they were involved in watching sport, and how frequently they watched sports alone. Second, the situational risks of in-play betting were examined. Sports bettors were asked about their alcohol and junk food intake during sport watching and betting sessions. To build on the impulsive and instantaneous component of in-play betting, the role of impulsivity was also examined. The present study is the first exploratory attempt to empirically examine the interaction and association between live sports watching and live sports betting, and the potential negative consequences from a problem gambling perspective. It departs from previous studies on in-play betting (e.g., Hing, Li, et al., 2018) in its understanding of in-play betting as a mediated behaviour, engrained in a sport watching context, and further conditioned by sport-specific determinants.

Method

Sample and recruitment

The recruitment of the sample was conducted via an online research panel. The company owning the panel identified 1,200 individuals who had previously reported betting on sports. These users were contacted to participate in the present study in March 2017. Approximately 70% of those on the panel responded to the request and activated the link directing them to a *Qualtrics*-based survey. However, some of them did not pass the filter question (i.e., *Have you placed at least one bet on sport in the last 12 months?*) and were consequently omitted from being included in the study. Additionally, other respondents were removed as study participants due to missing data. Consequently, the final sample comprised 659 Spanish sports bettors who had bet on sports in the past year. Anticipating a male-biased sample, the panel company was requested to recruit a sample with a minimum of 10% of female participants to ensure gender-based comparisons could be carried out. However, this recruitment requirement was not necessary to implement

because a 25% female composition was obtained naturally without any quota sampling being employed.

Participants were informed of their right to withdraw from the study at any point, to retrieve their data from the study, as well as the confidentiality and anonymity of the data they provided. The research project was granted permission by the first author's university research ethics committee according to the guidelines of the Declaration of Helsinki. Participants obtained points depending on the time they spent answering the survey and the number of questions answered. These points could be later redeemed for gifts in the research panel company's online store.

Measures

The Motivation Scale for Sport Consumption (MSSC; Trail & James, 2001). The MSSC was originally intended to assess the motivation of sports fans in watching sporting events (both attending live at the stadium or watching them on television). The scale is derived from previous instruments that attempted to assess the same motivational construct (Wann, 1995). The authors reported an overall reliability of .87. The scale comprises 27 items divided into nine subscales of three items each, rated on a 7-point Likert scale. The nine subscales are (1) achievement (e.g., *I feel like I have won when my teams wins*); (2) knowledge (e.g., *I read the box scores and statistics regularly*); (3) aesthetics (e.g., *I appreciate the beauty inherent in the game*); (4) drama (e.g., *A game is more enjoyable to me when the outcome is not decided until the very end*); (5) escape (e.g., *Games represent an escape for me from my day-to-day activities*); (6) family (e.g., *I like going to games with my family*); (7) physical attraction (e.g., *I enjoy watching players who are physically attractive*); (8) physical skills (e.g., *I enjoy a skilful performance by the team*); and (9) social (e.g., *Games are great opportunities to socialise with other people*). The Cronbach alphas for reliability in the present study were very good to excellent ranging from .81 to .95.

Sport Watching Involvement Scale (SWIS). The SWIS instrument was adapted from Kyle et al. (2007) to the sport domain by Hing et al. (2015a) to ascertain how important watching sport becomes to sports bettors. It is assessed on a 5-point Likert scale, where 1=Strongly disagree, and 5=Strongly agree. The scale comprises five items (e.g., *I find a*

lot of my life is organised around sport). The Cronbach alphas for reliability in the present study were very good ranging from .82 to .86.

Simultaneous in-play betting and sport watching-related risk behaviours. These measures were designed *ad hoc* for the study by the authors. Participants reported whether they placed their bets more frequently before and/or during (i.e., in-play) sports events. Also, participants were asked how often they drank alcohol and ate junk food while betting during sports events, how difficult it was for them to watch sports and bet without engaging in such behaviours, and how often they had bet on sports while being drunk. In addition, participants were also asked how often they watched sports events alone. All responses were rated on a 5-point Likert scale (ranging from 1=never to 5=almost always). All these were conceived as single-item measures.

The Spanish short version of the UPPS-P model of impulsivity (Candido et al. 2012, adapted to Spanish from the original by Lynam et al. 2006). This scale comprises 20 items, divided into five subscales. For the present study only two of the subscales were used: “lack of premeditation” (i.e., the tendency of individuals to act before thinking about the possible consequences of their actions) and “positive urgency” (i.e., tendency to act rashly under extreme positive emotions). Each subscale comprises four items, with scores based on 4-point Likert, ranging from 1=totally disagree to 4=totally agree. The Cronbach alphas for reliability in the present study were good (positive urgency = .73) to excellent (lack of premeditation = .93). These two subscales were selected on the basis that they better captured the essence of in-play betting. ‘Positive urgency’ reflects more closely the emotional live viewing of sport (whereas ‘negative urgency’ would assume irritation), while ‘lack of premeditation’ concerns less planned bets and spontaneous betting opportunities (e.g., live odds), which are key in live sport viewing. ‘Lack of perseverance’ and ‘sensation seeking’ were also impulse-related subscales, but these were not considered to be particularly relevant in the context of in-play betting.

Problem Gambling Severity Index (PGSI, Ferris & Wynne, 2001). The PGSI was adapted and validated into Spanish by Lopez-Gonzalez, Estévez and Griffiths (2018d). The PGSI screens for problem gambling behaviours and gambling-related detrimental consequences. This 9-item unidimensional PGSI is an abbreviated version of the Canadian Problem Gambling Index. Items are rated on a 4-point scale (0=never, 3=almost

always). The final score ranges from 0 to 27, and can be interpreted as follows: 0=non-problem gamblers; 1–2 = low-risk gamblers; 3–7 = moderate-risk gamblers; and 8 and more = problem gamblers. Cronbach's alpha for reliability in the present study was excellent (.945).

General sociodemographic variables. The participants were also asked a number of general sociodemographic questions including age, gender, occupation, education, and who were they living with.

Data analysis

IBM SPSS 23 for Mac was used to conduct the statistical analysis. The data did not meet the requirements of normal distribution and homoscedasticity. Therefore, non-parametric tests were utilized. Kruskal–Wallis (for PGSI group differences) and Mann–Whitney *U* tests (for gender) were calculated, as well as chi-squares for differences between categorical variables. Spearman's rho was used for non-parametric partial rank correlations. Bonferroni corrected coefficients are reported in the MSSC *p*-value scores to minimise false positives.

Results

Sample characteristics

The participants' age ranged from 18 to 66 years ($M = 35.1$ years, $SD = 10.1$). In terms of gender, the sample comprised 489 men (74.2%) and 170 women (25.8%). Occupation was distributed as follows: studying ($n=84$, 12.7%), working ($n=517$, 78.5%), unemployed ($n=42$, 6.4%), retired ($n=6$, .9%), other ($n=10$, 1.5%). Participants lived alone ($n=76$, 11.5%), with a partner ($n=292$, 44.3%), with friend(s) ($n=24$, 3.6%), with family (other than partner) ($n=259$, 39.3%), or other ($n=8$, 1.2%). As to their education: did not complete high school ($n=5$, .8%), completed high school ($n=114$, 17.3%), vocational or educational training ($n=139$, 21.1%), or university education ($n=401$, 60.8%).

Participants varied greatly in terms of their problem gambling severity. The mean score for the PGSI was 3.58 ($SD = 5.29$), which resulted in the following distribution: 38.8% non-problem gamblers ($n=256$), 26.6% low-risk gamblers ($n=175$), 15.5% moderate-risk gamblers ($n=102$), and 19.1% problem gamblers ($n=126$) (see Lopez-Gonzalez, Estévez,

& Griffiths [2018] for a more detailed account of the sample characteristics). No statistical significance was found between gambling severity groups and gender (Mann Whitney $U = 39,394$, $Z = -1.050$, $p = 0.294$), age ($\chi^2[3] = 5.215$, $p = .157$), education ($\chi^2(9) = 10.015$, $p = .349$), occupation ($\chi^2[12] = 11.376$, $p = .497$). The only statistically significant association concerning who the individuals lived with. Bonferroni adjusted p -values showed that compared to non-problem gamblers, problem gamblers were more likely to live with their partner ($Z = 3.6$), and less likely to be living with their families ($Z = -3.4$) ($\chi^2[12] = 27.210$, $p = .007$).

Sport-specific measures

Table 1 provides a summary of the scores for sport-specific dependent variables and how they varied depending upon which problem gambling severity group participants belonged to. Betting while watching sport (i.e., in-play betting) was generally more frequent among problem gamblers compared to other groups. More specifically, problem gamblers favoured in-play betting rather than betting before the sports event compared to any other group. There were highly significant differences between problem gamblers and the remaining groups, and also between non-problem gamblers and any other at-risk group ($\chi^2[3] = 87.024$, $p < .001$).

It was anticipated that the higher the motivation for sport consumption, the higher the severity of gambling problems would be. Overall, this was found to be true between non-problem gambling and problem gambling groups ($\chi^2[3] = 17.642$, $p < .001$). However, a more detailed look into the subscales offered a more nuanced picture. More specifically, knowledge and drama did not show any significant differences between groups, whereas motivation to escape was greater among problem gamblers ($\chi^2[3] = 17.642$, $p < .001$) as compared to non-problem gamblers. Conversely, physical attraction to sportspeople on the screen ($\chi^2[3] = 158.89$, $p < .001$) and familial motives ranked higher among problem gamblers ($\chi^2[3] = 27.961$, $p < .001$), and showed significant differences between almost every severity group. Compared to non-problem gamblers, problem gamblers had greater sport watching involvement ($\chi^2[3] = 8.472$, $p < .037$). Finally, problem gamblers were the group who watched sports alone more frequently, but this was not statistically significant ($\chi^2[3] = 5.907$, $p < .116$).

INSERT TABLE 1 ABOUT HERE

Risks associated with betting while watching sport

Without exception, all risk behaviours explored in this paper were found to be significantly associated with problem gambling severity (see Table 2). Consumption of junk food ($\chi^2[3] = 15.770, p < .001$) and alcoholic beverages ($\chi^2[3] = 10.747, p < .013$) were both highly associated with problem gambling severity. Similarly, problem gamblers had more difficulties than other bettors in watching sport without eating junk food and drinking alcohol. Additionally, problem gamblers reported more frequently being drunk while betting and watching sport than the other groups ($\chi^2[3] = 167.28, p < .001$), something that was also statistically significant between non-problem gamblers and at-risk gamblers. Furthermore, problem gamblers scored higher on the impulsivity-related scales than the other groups. Problem gamblers showed greater lack of premeditation in their betting ($\chi^2[3] = 31.741, p < .001$), and more positive urgency ($\chi^2[3] = 10.828, p < .013$) than other types of gamblers. Some significant differences were also observed between non-problem gamblers and low-risk gamblers in the case of lack of premeditation.

INSERT TABLE 2 ABOUT HERE

To check whether in-play betting and the consumption of alcohol and junk food were associated beyond the role problem gambling might play in it, additional tests were conducted. Rank correlations were performed controlling for problem gambling severity (see Table 3). The results show modest but statistically significant correlations between all food and alcohol intake items and in-play betting ($Rho = .105-.250$), indicating in-play betting is associated with such risk behaviours regardless of how severe the gambling behaviour is.

INSERT TABLE 3 ABOUT HERE

Discussion

The present study is the first to explore the relationship between in-play betting-specific factors and problem gambling severity in the context of sport viewing. The findings provide support for the contention that in-play betting is associated with gambling problems, and provides a preliminary foundation for the understanding of the specific

factors involved concerning in-play betting. Overall, the study found limited evidence of sport-specific factors influencing the association between in-play sports betting and problem gambling. The evidence concerning in-play betting-related risk behaviours was more compelling, with problem gamblers showing greater alcohol and junk food consumption while watching sports events.

The present study found that the frequency of in-play betting was significantly related to severity of gambling problems. This aligns with the findings from a previous study of Australian sample of sports bettors (Hing, Li, et al., 2018; Hing, Russell, Vitartas, & Lamont, 2016), and initial findings obtained over a decade ago (e.g., LaBrie et al., 2007; LaPlante et al., 2008) about the relationship between in-play betting and problem gambling. None of these results provide a causal relationship between in-play betting and problem gambling because plausible alternative explanations include that both in-play betting and problem gambling are caused by a third factor, or that those already experiencing gambling problems tend to engage more often in in-play betting. However, it appears clear that a sizable portion of bookmakers' gross gambling revenue comes from in-play products (Directorate General for the regulation of gambling [DGOJ], 2017; Hing, Li, et al., 2018; Jackson, 2015), which generally offer disadvantageous (that is, *more* disadvantageous than normal) odds to bettors and more often facilitates cognitive biases (Newall, 2018).

The findings concerning the impact of motives for sport consumption on problem gambling are difficult to interpret. Overall, the findings demonstrate that those bettors who have higher motivation to consume sport were more likely to be problem gamblers. However, a closer inspection of individual subscale scores provides a more nuanced picture. There is no obvious reason why factors relating to *family* and *physical attraction* showed a statistically significant association with problem gambling. In contrast, *knowledge* shows how important statistics and analysis are for bettors. It is plausible that those reporting more gambling problems in sports betting focus more on quantitative aspects of the game that have a direct impact on personal betting outcomes (Wann, 1995). Nevertheless, the results did not warrant such an interpretation. Likewise, *drama* (i.e., the preference for close matches) did not rank higher among those with more severe gambling problems, perhaps because close matches cause an increase in anxiety and psychological discomfort. Such an explanation would make sense in combination with the results in the

escape subscale, which associated problem gambling with the desire to use sports as a way to forget about day-to-day problems, an association previously reported (e.g., Wood & Griffiths, 2007).

The fact that heavier sports bettors also reported greater sport watching involvement is not a novel finding (Hing, Lamont, Vitartas, & Fink, 2015a) but does require explanation. One explanation could be that a hard-core engagement with sports betting makes bettors more likely to have open bets that need constant checking, increasing the consumption of televised sport. An alternative explanation, in line with the results concerning *escape*, would be that betting on sport and watching it are both coping mechanisms to reduce the effect of underlying stressors. Although not expressly from a psychological perspective, sport has previously been viewed as a consumptive habit with properties for emotional regulation (Crawford, 2004; Wann, Waddill, Polk, & Weaver, 2011).

Findings also demonstrated that problem gamblers reported a higher consumption of junk food and alcohol. In the case of alcohol, consistent differences were found between most risk groups. However, regarding junk food, the only a significant difference was obtained between problem and non-problem gamblers. These results partially confirm the association between alcohol, junk food, and gambling consumption in sports contexts already observed in stereotypical media representations of sports betting as well as in the sponsorship of sport teams and leagues in Europe and Australia (Bestman et al., 2015; Lopez-Gonzalez et al., 2018c; Sartori et al., 2018).

The mixed results found in the literature concerning the role of alcohol in gambling behaviour – with alcohol generally driving (Kyngdon & Dickerson, 1999) or amplifying gambling only at clinical use level (Harries et al., 2017) – makes it reasonable to think that alcohol and junk food consumption were not caused by factors specific to live betting situations but by overall individual biopsychological characteristics of those bettors experiencing gambling problems. The results of the rank correlations performed to control for problem gambling severity further supported the contention that, although presenting small effect sizes, in-play betting circumstances and risk behaviours such as consuming alcohol and junk food are associated, even when controlling for those bettors whose gambling is more problematic. The relationship is even stronger in the case of bettors reporting episodes of inebriation, meaning that the act of watching sport, drinking

excessively, and betting are not necessarily mediated by gambling disorder. This suggests further research is needed to explore the potential negative effects of the synchronised consumption of mediated sport, and other potentially harmful products, and the increased risks associated with doing so in emotionally charged live situations.

On a separate note, in-play betting, and overall problem gambling severity did not discriminate between gender with both women and men displaying similarly problematic behaviours. This gender-neutral scenario has been recently reported in the context of sports betting, observing that while men show higher intentions to bet among general population, when controlling for regular bettors, both men and women obtain similar scores in problem gambling severity (Hing et al., 2015a). This situation was not detected in the earlier studies with live sport bettors (e.g., Broda et al., 2008; LaPlante et al., 2008) and constitutes a relevant finding. Male-centric atmospheres of betting shops (Cassidy, 2014), and the overall greater involvement of men in gambling activities (Hing, Russell, Tolchard, & Nower, 2016), contribute to characterise gambling problems as solely a masculine issue. However, there is a latent but persistent body of literature that has highlighted that among those experiencing gambling-related harm, women present as severe problems as men (Hraba & Lee, 1996), and sometimes greater (Kim, Hodgins, Bellringer, & Abbott, 2016).

The present study situated in-play betting opportunities and problem gambling in the very specific context of sport watching. It was argued that in-play betting is particularly problematic because it happens under circumstances susceptible to being problematic. As shown in the study, in-play bettors behave more impulsively than non-in-play bettors, exhibiting more positive urgency and lack of premeditation. On average, they also drink more alcohol and eat more junk food while watching sport. Gambling severity scores also correlated with their in-play behaviour. They also showed higher sport watching involvement and willingness for using sport as an escape. These all combined describe a picture wherein the emotion-laden act of watching live sport and betting on it gets complicated by factors that increase the risk of bettors to experience gambling-related harm.

To further complicate things, sports spectators in Spain and elsewhere in most Western countries are subject to continuous marketing stimuli to bet on sports (e.g., Lamont, Hing,

& Gainsbury, 2011; Lindsay et al., 2013; O'Brien et al., 2015). Sport broadcasts are increasingly populated by betting inducements that promote context-specific, innovative in-play bets – also known as microbets, for example, the outcome of a penalty kick in soccer – that require an immediate, impossible to delay response from spectators (Russell, Hing, Browne, Li, & Vitartas, 2018). Such proliferation has major implications for the media industry, which has seen a growing number of stations being incentivised to obtain a return for their massive investment in sports media right via sports betting promotions during live broadcasts. This situation has produced a dependency on gambling-origin money by means of sponsorship deals for competitions, media corporations, and even sport journalists (Bunn et al., 2018). The case of sports journalists in Spain is particularly troublesome, as one study found that among the top ten sports writers in terms of number of followers on *Twitter*, all of them had in the past (or still had) gambling endorsements (Lopez-Gonzalez & Tulloch, 2015). The legalisation of online betting in the United States is very likely to similarly incentivise networks (and especially, *ESPN*) to foster an in-play betting-friendly industry in their broadcasts, particularly considering their declining viewing rates (Deitsch, 2018).

A number of limitations of the present paper are worth mentioning when interpreting the findings. First, the respondents were self-selected among a pool of approximately 1,200 contacted bettors. Although having bet on sports once in the past twelve months was the only inclusion criterion, it is possible that those more involved in sports betting were more likely to opt-in, resulting in an overrepresentation of problem gamblers in the present sample. Second, the data were all self-reported and collected via the internet, and are subject to well-known biases such as social desirability and memory recall. Third, the statistical procedures using cross-sectional data do not imply causality, and its scope is limited to merely suggesting concurrent associations between alcohol, junk food, and sport-specific factors in the context of in-play betting, without being able to affirm any causality between them.

Conclusion

In-play betting has brought about a major change in the structural design of sports betting products and the activity has raised concerns since its popularisation in most territories. In a 2016 position paper, the British Gambling Commission, declared that in-play betting had ‘changed formerly “slow” forms of betting that traditionally had been considered to

pose less risk of harm' into a more rapid and potentially harm-inducing type of gambling (Gambling Commission, 2016, p.7) echoing previous claims by academic scholars that in-play betting had fundamentally changed the structural characteristics of sports betting from a discontinuous form of gambling to a continuous one increasing the risk of potential gambling-related harm (Parke & Griffiths, 2007; Griffiths & Auer, 2013).

The present study offers preliminary evidence of the association between in-play betting and other potentially risky consumptive behaviours. In-play betting has been presented as a complex behaviour against which junk food, and alcohol consumption could increase. These associations are defined by the intersection of sport-specific features such as team identity and media sport features such as live watching, instantaneity, and impulse. Stakeholders involved with overseeing in-play regulation and provision should be aware of the potentially negative and cross-fertilising nature of the interaction of these features, and inform decisions related to in-play betting taking into account the totality of individual behaviours and not just each of them individually.

Regulators and other policymakers have lamented the scarcity of scientific evidence regarding the detrimental effects of in-play betting in gambling-related harm (Cassidy, Loussouarn, & Pisac, 2013). However, this has not prevented states from passing laws that diminish or ban online in-play betting, as in the case in Australia (Friend, 2018). The present paper has argued that in-play betting is associated with impulsivity under situations of emotional involvement, and therefore, spectators should be protected by authorities against operators that prompt immediate, biased, poor decision-making, and draw on deep-rooted sporting connections to maximise benefits.

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