Journal of Gambling Studies
https://doi.org/10.1007/s10899-019-09898-1

ORIGINAL PAPER

A Cross-Cultural Study of Weekly Sports Bettors in Australia and Spain

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Abstract
Betting on sport is one of the fastest developing forms of gambling internationally. Sports betting is attracting considerable scholarly, media, and regulatory attention due to the cultural salience of sport, and the rising public health concerns about the rapid proliferation and penetration of betting products in everyday life. Despite its global expansion, little is known regarding the comparative impact sports betting is having in different territories. This study aims to examine a sample of Australian (n = 738) and Spanish (n = 361) weekly sports bettors to assess their similarities and differences concerning sociodemographic characteristics, channels (i.e., online vs. offline) and devices used, in-play betting, and problem gambling severity. The findings showed high problem gambling scores among sports bettors in both countries, and consistent similarities in the association between problem gambling, in-play betting, and offline betting. Also, clear trends were observed between problem gambling, higher educational level, and female sport betting, particularly in the Australian sample. These results suggest a common pattern of risk factors for problematic sports betting and can help to inform worldwide regulatory efforts to tackle harmful sports betting-specific features such as in-play betting.

Keywords Problem gambling · Sports betting · In-play betting · Online gambling · Australian gambling · Spanish gambling

Introduction

The penetration and popularisation of online gambling has generated a shift in the balance between different gambling forms in many jurisdictions. Globally, sports betting represents 43% of the online gambling market share (Gainsbury and Russell 2015), with similar numbers observed in Europe, where sports betting accounts for 40.3% of the domestic online market (European Gaming and Betting Association 2018). The proliferation of sports betting has been accompanied by concerns about the long-terms effects of the growing and widespread availability and accessibility of betting products (Gordon et al. 2015;

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Published online: 12 October 2019

Lopez-Gonzalezet al. 2017), especially considering its appeal to young adults (Hing et al. 2014b) and its association with sports imagery (Li et al. 2018). Furthermore, the marketing tactics employed by bookmakers have been regarded as aggressive, intrusive, and nearly impossible to avoid, pervading everyday consumption of sport (Milner et al. 2013; Pitt et al. 2016).

From a clinical perspective, there is an ongoing debate about the idiosyncrasies of specific gambling forms and how they relate to problem gambling severity. Correlational studies have shown that some gambling forms are more associated with gambling problems than others with one of the most significant factors being the strategic versus non-strategic nature of games (Merkouris et al. 2016), and engagement in only one or multiple gambling types (Scalese et al. 2016), including online forms of gambling (Gainsbury et al. 2015a). However, the focus on forms of gambling, and gamblers' individual neurobiological, and psychosocial traits (e.g., Bonnaire et al. 2017) does not necessarily view gambling types as a fundamental source of gambling problems, considering involvement with gambling types as a consequence of existing individual traits, not their cause. In contrast, scholars who emphasise the structural characteristics of gambling products are more open to considering the features and design characteristics of gambling products as de facto determinants of gambling-related problems that interact with individual traits, increasing the vulnerability of gamblers to experiencing harm (McCormack and Griffiths 2013; Parke and Griffiths 2007).

High engagement in sports betting has consistently been associated with heightened likelihood of problem gambling (Hing et al. 2014a, b; Welte et al. 2004; Williams et al. 2012). Newer forms of sports betting have introduced a number of features that redefine the structural characteristics of the activity and have substantially changed the gambling behaviour of bettors (Lopez-Gonzalez et al. 2018a). Studies concerning online sports bettors in Europe have identified a prototypical profile of bettors as being male around the age of 26 years (Gassmann et al. 2017). In another study, a sample of 1422 subscribers to the bookmaker *bwin* reported that 27% of sports bettors endorsed at least one of the three items of the *Brief Biosocial Gambling Screen* (Gebauer et al. 2010), which reflects some level of gambling problems (LaPlante et al. 2014). Online sports bettors have been found to be more persistent in their betting than non-sports online gamblers, and to make larger maximum bets than offline gamblers (Estévez et al. 2017).

Most notably, new features include internet-based options that allow gamblers to bet in-play (i.e., placing bets once sporting events have started) including contextual micro-events within games (Russell et al. 2018a, b). In-play betting has quickly become a major form of sports betting in a number of jurisdictions (Killick and Griffiths 2018), and multiple empirical studies suggest that those bettors who engage more frequently in in-play betting are more likely to experience gambling-related problems (Braverman et al. 2013; Hing et al. 2016). The interplay of sport viewing, which is in itself a highly emotional activity considering its identity and group belonging implications (Lopez-Gonzalez et al. 2018), and instant betting, which in turn is related to more impulsive and less planned decision-making (Lamont et al. 2016), arguably makes in-play betting a particularly problematic new characteristic of sports betting products.

Despite this still emerging body of literature exploring the behavioural characteristics of online sports bettors in relation to problem gambling in the past 10 years, little effort has been made to compare the emerging findings obtained from different samples of sports bettors in different parts of the world, particularly considering that the vast majority of these studies come from Australia, and to a lesser extent from Spain, UK, and Germany, and derive from a small number of datasets. There is an absence of cross-cultural endeavours to

explore the common characteristics of sports bettors as a distinct, standalone gambler profile. Furthermore, this absence appears to be at odds with the growing public unease about the normalisation of sports betting, as reflected in the simultaneous efforts in multiple jurisdictions to regulate and limit such activity and protect consumers [e.g., UK (Gambling Commission 2018), Australia (Department of Social Services 2018), Germany (Reiche 2013), or Italy (Stradbrooke 2018)].

Aim and Context for the Present Study

In recent years, several studies from Australia and Spain regarding problem gambling related to sports betting have been published. Although these studies were published independently (e.g., Hing et al. 2015, 2016, 2017; Lopez-Gonzalez et al. 2018a, b, c; Russell et al. 2018a, b), with no previous collaboration between the research groups, the studies shared a common understanding of sports betting, an analogous timeframe, and a number of similar dimensions that made some of the original samples comparable.

Therefore, it was opportune that a cross-cultural approach comprising Australian and Spanish data would reveal underlying patterns of similarity between the countries and would shed further insight into the global prototype of sports bettors. The study explored three specific areas. First, it examined the sociodemographic profiles of Australian and Spanish sports bettors, including age, gender, education, and living situation. Second, it examined the online-based nature of their sports betting, more specifically investigating whether sports bettors preferably bet online or offline, and the devices they used to bet. Third, the involvement of in-play betting was assessed in both countries. All three areas were considered in relation to problem gambling, with the final objective of evaluating similarities between the samples.

Sports Betting in Australia

Australia is widely regarded as a gambling nation. In 2017, Australian adults lost an estimated 1251 AUD on gambling, which is the highest per-capita gambling expenditure worldwide (Queensland Government Statistician's Office 2018). With a population of 24.6 million people, total gambling expenditure in the country in 2017 was 23.7 billion AUD, with sports betting representing only 4% of this (1.1 billion AUD). Electronic gaming machines ('pokies') represent about half of the gambling expenditure, but sports betting is the fastest-growing form of gambling in the country, with a 15.3% increase from 2016 in terms of expenditure, while overall gambling expenditure decreased by 0.5% (Queensland Government Statistician's Office 2018).

The growth of sports betting has occurred despite the fact that online in-play betting is banned in Australia under the *Interactive Gambling Act 2001* (Australian Commonwealth Parliament 2001). In recent years, Australian bettors wanting to engage in in-play betting have had three options: (1) resorting to an offshore gambling site; (2) betting via a telephone (although for a few years several operators provided facilities to make telephone calls via their betting website, which was subsequently banned); and (3) using in-venue facilities at betting shops.

In 2011, it was estimated via a telephone survey with 15,006 Australians that past-year problem gambling prevalence in the country was 0.6% using the Problem Gambling Severity Index (PGSI), with a higher prevalence among online gamblers (2.7%) (Gainsbury et al.

2014). A more recent prevalence study from 2015 estimated that 1.1% of Australian adults can be categorized as problem gamblers, and 7.9% scored 1 or more on the PGSI, meaning they exhibited at least one element of problem gambling (Armstrong and Carroll 2017a). Analysis of disaggregated data for sports betting estimated that for every dollar bookmakers operating in Australia made in 2015, on average 46 cents came from regular bettors experiencing moderate or severe gambling problems (Armstrong and Carroll 2017b). In contrast to regular gamblers, who had a 2.1% problem gambling rate, regular sports bettors showed significantly higher problem gambling rates (6.3%). The analysis calculated that only 59% of at-least monthly sports bettors in Australia are non-problem gamblers, with the remaining percentage exhibiting low to severe gambling-related harm.

Sports Betting in Spain

In comparison to Australia, Spain, although almost twice its population (46.5 million people), is a much smaller industry. According to official data supplied by the Spanish Ministry of Finance, in 2017, gambling in Spain amounted to €23.3 billion in turnover, and a gross gambling yield (GGY) for operators of €0.41 billion. Online gambling represents about one-tenth of the gambling market, and this domain is where sports betting has penetrated the most in the country. Among online gambling, online sports betting represents 55.5% of the GGY and is growing annually at an average pace of 30%, which translates into a revenue of €301 million for Spanish bookmakers. Online in-play betting is completely legal across the country provided the gambling operator has obtained a state-issued gambling license, and accounts for 59% of the bookmakers' GGY derived from online sports betting (Dirección General de Ordenación del Juego [Directorate General for the regulation of gambling; DGOJ], 2017a).

The latest prevalence data for Spain from 2015 used the NODS screening tool (National Opinion Research Center 1999). Results indicated that 0.3% of the Spanish adult population were past-year pathological gamblers, with 0.9% being lifetime pathological gamblers (DGOJ 2016). According to the same source, another 0.6% were problem gamblers (the second most severe category), and altogether, 3.5% of the Spanish adult population experienced some level of risk.

Methods

Recruitment and Sampling Procedure

Participants for the study were recruited via two separate samples. An Australian sample of 1813 sports bettors was recruited in 2016 by *Qualtrics* by means of one of its dedicated online research panels. Participants had to be adults and have bet on sports at least once in the past 12 months. The Spanish sample was recruited in 2017 by an online market research company, and comprised 659 sports bettors who had passed the inclusion criterion of betting on sports in the last 12 months.

The cross-cultural approach to the data was only envisioned once both teams started separately publishing their results. Consequently, several sub-sampling decisions were made to obtain comparable samples. As the objective of the present study was to explore the behaviour of very frequent sports bettors, both samples were narrowed down to weekly bettors (i.e., betting on at least one sports event a week). For definitional purposes, horse

and greyhound race betting, although very popular in the Australian gambling culture, were not considered sports betting forms because of their low popularity in the Spanish market. The procedure produced a final sample of Australian (n = 738) and Spanish (n = 361) weekly sports bettors.

Measures and Compatibility

Problem Gambling Severity Index (PGSI Ferris and Wynne 2001) The scale was originally developed using the English language. The validated Spanish version of the PGSI was used in the Spanish sample (Lopez-Gonzalez et al. 2018b). The PGSI assesses problem gambling behaviours and detrimental social consequences. This nine-item unidimensional PGSI is a self-administered, abbreviated version of the Canadian Problem Gambling Index. Items are rated on a four-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 alphas for both the Australian and the Spanish sample was identical (α = 0.94).

Sociodemographic Variables Data regarding age, gender, living situation, and education were collected. Age and gender were both assessed identically in both samples and required no further manipulation. All participants were adults (18 + years). No quotas for age groups or gender proportion were stipulated. In terms of living situation, the Australian questionnaire provided seven possible responses whereas the Spanish questionnaire provided five. All options were condensed into living: (1) alone, (2) with a partner (either with or without children), (3) with friends, (4) with family (excluding partner), and (5) others. Because only 13 respondents were in the "others" category, this category was combined with the "friends" category, leaving four categories. Education was assessed on a six-degree scale in Australia and a four-degree scale in Spain. Answers were reduced to had: (1) not graduated high school, (2) high school graduate or similar, (3) vocational or professional training, and (4) a university degree. Again, due to a relatively small number of respondents who had not completed high school, particularly in the Spanish sample (n = 4), these respondents were combined into the same category as those who were a high school graduate or similar, leaving three categories.

Gambling-Related Variables Three variables from each country were considered to be of interest: channel used to bet on sports, device used, and engagement with in-play betting. Australian participants had been asked to estimate (from 0 to 100%) how frequently they used the internet, telephone, and land-based facilities to bet on sports. In contrast, Spanish participants were simply asked to state their preferred channel (online or land-based) for betting. Australian responses were recoded to single out the highest percentage response. Such recodification efficiently ascribed the majority of Australian participants to online or offline categories. However, two issues persisted. First, participants who reported betting by telephone calls (which is not available in Spain) did not adhere to the online versus offline classification. Second, some Australian respondents marked identical percentages in more than one channel. Both these issues were addressed by creating a third category ('Other'), into which participants presenting these two issues were re-categorised.

Device selection was equally challenging. Australian respondents had to estimate on a 100-point scale how often they use each device to bet (smartphone, tablet, laptop, desktop, digital TV). Some respondents selected equal percentages for more than one device. Spanish participants were required to select only the preferred device for betting including smartphone, tablet, and desktop/laptop. A fourth option in the Spanish questionnaire was gambling at a

betting shop. The final merged variable included smartphone, tablet, and desktop/laptop. For both samples, a fourth category was created: "combination of two or more devices" for the Australian sample and "betting shops" for the Spanish sample. These two categories were not comparable across countries, and were thus not included in pairwise or interaction analyses.

Finally, in-play betting behaviour was assessed in both countries. The Australian question stated: '*During the last 12 months, about what percentage of your sports bets did you place before the match/during the match*'. This could be rated from 0 to 100%. The Spanish questionnaire asked participants to estimate on a five-point Likert scale the following question: '*I more frequently bet during the games than before the games*'. (1 = *never*; 2 = *a few times*; 3 = *half of the time*; 4 = *most of the time*; 5 = *always*). The Australian percentages were recoded using this conversion table: 0% = never; 1–32% = a few times; 33–66% = half of the time; 67–99% = most of the time; 100% = always.

Data Analysis

The first set of analyses compared the Australian and Spanish samples on all available variables, using Chi square tests of independence (with tests for proportions of comparisons of variables with two or more groups) and Welch tests for continuous variables (age and PGSI), due to unequal variances between groups. Because in-play betting was ordinal, both Chi square tests of independence and Mann–Whitney *U*-tests were conducted.

Analyses then determined which variables were associated with problem gambling in each of the samples, and how the relationship between these variables and problem gambling differed across the samples. First, linear regressions determined how each variable related to PGSI, with PGSI score (log PGSI [+ 1] due to skew) as the dependent variable. Simple slope analyses were performed to determine how each variable related to PGSI separately for the Australian and Spanish samples, and then interactions to test for differences in effects between the samples. Continuous variables were mean-centred prior to calculating interaction terms, with age and proportion of in-play betting being treated as continuous for these analyses. Categorical variables were coded with the following reference groups: gender (female), living with (alone), education (graduated high school or less), preferred channel (online), and preferred device (desktop/laptop).

These analyses determined which variables were related to higher PGSI scores, but this did not necessarily translate to which variables were related to problem gambling, so the analyses were carried out using binary logistic regressions, comparing those who were non-problem gamblers (PGSI 0–7) with problem gamblers (PGSI 8+), dummy coded as 0 and 1 respectively. The same variables were used as predictors. Consequently, the present analyses determined which variables were related to higher PGSI scores, and then problem gambling status, separately for the Australian and Spanish samples, and then determined whether these relationships were stronger in either sample. An alpha of .05 was used throughout, and no data were missing, apart from pairwise and interaction analyses comparing devices used, where data were missing due to incompatibility across samples.

Results

Comparison of Samples

In terms of demographics, Table 1 indicates that, compared to the Spanish sample, the Australian sample: (1) had a higher proportion of male respondents; (2) were more likely to live alone, with their partner or with friends/others, but less likely to live with family (excluding their partner); and (3) were more likely to have graduated high school or less, or have undertaken vocational or professional training, but less likely to have undertaken higher education. No significant differences were observed in terms of age. For gambling-related variables, the Australian sample was significantly more likely to prefer to bet via other channels (not online or offline, i.e. via telephone), while the Spanish sample was significantly more likely to prefer to bet online. No significant differences were observed between the samples in terms of device(s) used. The Australian sample was also significantly more likely to never bet in-play, while the Spanish sample was significantly more likely to bet in-play, including most of the time or always. PGSI scores were significantly higher in the Australian sample, and significantly more Australians were problem gamblers, whereas the Spanish bettors were more likely to be non-problem or low-risk gamblers.

Relationships Between each Variable and Problem Gambling

Linear Regressions Predicting PGSI Scores (log + 1)

For the Australian sample, the following characteristics were associated with higher PGSI scores: being younger; being female; living alone; having undertaken higher education (vs. high school or less); preferring to bet offline or via other channels (vs. online); preferring to bet via smartphone, tablet or combinations of two or more devices (vs. a desktop/laptop); and placing a higher proportion of in-play sports bets (Table 2). For the Spanish sample, those with higher PGSI scores tended to: prefer to bet offline (vs. online); bet via tablet (vs. desktop/laptop), and to place a higher proportion of in-play sports bets (Table 2).

Significant interactions were observed between the samples for some effects. The following associations with PGSI score were significantly stronger for the Australian sample: age, living alone (vs. with a friend or other), preferring to bet via channels other than online, and proportion of in-play sports bets. While the relationship between living with a partner (vs. living alone) and PGSI scores was not significant for either sample, the relationship was reversed between the samples, and sufficiently different for a significant interaction to emerge. Also of interest were non-significant interactions where significant simple slopes were observed. The relationship between preferring to bet offline and PGSI scores, as well as the relationship between preferring to bet via tablet and PGSI scores, were both significant for both samples, and not significantly different in their strength (Table 2).

Logistic Regressions Predicting Problem Gambling Status

While the previous analyses predict higher PGSI scores, they do not necessarily predict being classified as a problem gambler. Thus, the analyses were also conducted with PGSI coded as problem gambler (PGSI 8+, coded as 1) or otherwise (PGSI 0–7, coded as 0). In the Australian sample, being classified as a problem gambler was associated with: being

Table 1 Comparison between Australian and Spanish samples based on all variables (N = 1099)

Variable	Australian sample ($n = 738$)	Spanish sample ($n = 361$)	Inferential statistics
Age [M(SD)]	35.70 (12.25)	36.77 (10.02)	*Welch*(855.33) = 1.54, $p = .124$
Gender [%(n) male]	79.3%* (585)	72.0% (260)	$\chi^2(1, N = 1099) = 7.16$, $p = .007$, $\Phi = .301$
Living with [%(n)]			$\chi^2(3, N = 1099) = 97.87$, $p < .001$, $\Phi = .298$
Alone	20.6%* (152)	9.1% (33)	
Partner	58.9%* (435)	49.0% (177)	
Friends/other	7.7%* (57)	4.4% (16)	
Family (excluding partner)	12.7% (94)	37.4%* (135)	
Education [%(n)]			$\chi^2(2, N = 1099) = 24.73$, $p < .001$, $\Phi = .150$
Graduated high school or less	27.6%* (204)	18.3% (66)	
Vocational or professional training	25.9%* (191)	19.4% (70)	
Higher education	46.5% (343)	62.3%* (225)	
Preferred channel (%[n])			$\chi^2(2, N = 1099) = 40.59$, $p < .001$, $\Phi = .192$
Online	64.4% (475)	80.1%* (289)	
Offline	17.2% (127)	15.0% (54)	
Other	18.4%* (136)	5.0% (18)	
Preferred device [%(n)]			$\chi^2(3, N = 893) = 2.16$, $p = .340$
Desktop/laptop	41.1% (303)	50.4% (182)	
Smartphone	29.5% (218)	29.1% (105)	
Tablet	7.3% (54)	8.6% (31)	
Combinations of 2 or more	22.1% (163)		#
Betting shops		11.9% (43)	#
In-play sports betting [%(n)]			$\chi^2(4, N = 1099) = 139.95$, $p < .001$, $\Phi = .357$
Never	40.0%* (295)	11.6% (42)	Mann–Whitney $U = 85{,}319$, $Z = -10.08$, $p < .001$
A few times	22.5% (166)	30.5%* (110)	
Half of the time	30.5% (225)	31.0% (112)	

Table 1 (continued)

Variable	Australian sample ($n = 738$)	Spanish sample ($n = 361$)	Inferential statistics
Most of the time	6.0% (44)	22.4%* (81)	
Always	1.1% (8)	4.4%* (16)	
PGSI			
Raw score [M(SD)]	10.16* (8.02)	4.80 (5.87)	*Welch* $(936.22) = 12.54$, $p < .001$
Non-problem [%(n)]	14.8% (109)	29.4%* (106)	$\chi^2(3, N = 1099) = 99.52$, $p < .001$, $\Phi = .301$
Low risk [%(n)]	12.2% (90)	25.8%* (93)	
Moderate risk [%(n)]	16.0% (118)	17.7% (64)	
Problem [%(n)]	57.0%* (421)	27.1% (98)	

*Indicates significantly higher values between samples in that variable or category, based on tests of proportions. #Betting shops and combinations of two or more devices were not comparable across surveys, and thus not included in analyses

Table 2 Simple slope (linear regression) analysis determining how each variable relates to PGSI scores by country, and interactions comparing effects between countries (N = 1099)

Variable	Australian sample		Spanish sample			Interaction
	Unstd. coeff. (95%CI LL:UL)	Std. coeff.	Unstd. coeff. (95%CI LL:UL)	Std. coeff.	Unstd. coeff. (95%CI LL:UL)	Std. coeff.
Age	−.031*** (−.037:−.025)	−.272	−.007 (−.017:−.004)	−.035	.024*** (.012:.036)	.121
Gender (ref = female)	−.239* (−.430:−.048)	−.105	−.078 (−.326:.169)	−.029	.160 (−.152:.473)	.060
Living with (ref = alone)						
Partner	−.132 (−.330:.066)	−.057	.367 (−.031:.766)	.119	.500* (.055:.944)	.162
Friend/other	−.335* (−.661:−.009)	−.066	.598 (−.042:1.238)	.063	.933* (.215:1.651)	.099
Family	.158 (−.117:.434)	.039	.121 (−.287:.529)	.035	−.037 (−.529:.455)	−.011
Education (ref = high school or less)						
Vocational or professional training	−.114 (−.325:.097)	−.038	.198 (−.161:.558)	.043	.313 (−.104:.729)	.067
Higher education	.295** (.110:.480)	.121	.150 (−.143:.443)	.053	−.145 (−.492:.201)	−.052
Preferred channel (ref = online)						
Offline	.443*** (.238:.647)	.125	.511** (.208:.815)	.098	.069 (−.297:.435)	.013
Other	.744*** (.545:.944)	.217	−.021 (−.518:.477)	−.002	−.765** (−1.301:−.229)	−.086
Preferred device (ref = desktop/laptop)						
Smartphone	.258** (.074:.442)	.091	.053 (−.201:.307)	.014	−.205 (−.521:.111)	−.059

Table 2 (continued)

Variable	Australian sample		Spanish sample			Interaction
	Unstd. coeff. (95%CI LL:UL)	Std. coeff.	Unstd. coeff. (95%CI LL:UL)	Std. coeff.	Unstd. coeff. (95%CI LL:UL)	Std. coeff.
Tablet	.402* (.095:.708)	.077	.477* (.074:.880)	.070	.076 (−.434:.585)	.012
Combinations of 2 or more	.618*** (.417:.820)	.194			#	
Betting shops			−.153 (−.504:.199)	−.026	#	
Proportion of in-play betting	.517*** (.448:.586)	.385	.310*** (.215:.404)	.178	−.207** (−.324:−.090)	−.119

*$p < .05$, **$p < .01$, ***$p < .001$. Unstd. coeff. and std. coeff. are unstandardized and standardised coefficients, respectively. CI is confidence interval, and LL and UL refer to lower and upper limits respectively. #Not included in interaction analyses due to incompatibility across samples

younger, being female, having undertaken higher education (vs. high school or less), preferring to bet offline or via other channels (vs. online), preferring to bet via a combination of two or more devices (vs. desktop/laptop), and placing a higher proportion of in-play sports bets (Table 3). In the Spanish sample, being classified as a problem gambler was associated with: preferring to bet offline (vs. online), preferring to bet via tablet (vs. desktop/laptop), and placing a higher proportion of in-play sports bets (Table 3). Significant interactions were observed for age and proportion of in-play sports bets, with all relationships being significantly stronger in the Australian sample (Table 3).

Table 3 Simple slope (logistic regression) analysis determining how each variable relates to problem gambler status (PGSI 8 +) by country, and interactions comparing effects between countries (N = 1099)

Variable	Australian sample Odds ratio (95%CI LL:UL)	Spanish sample Odds ratio (95%CI LL:UL)	Interaction Odds ratio (95%CI LL:UL)
Age	.943*** (.931:.956)	.992 (.969:1.015)	1.051*** (1.023:1.080)
Gender (ref = female)	.557** (.382:.812)	.687 (.416:1.134)	1.232 (.658:2.308)
Living with (ref = alone)			
Partner	.904 (.622:1.315)	1.643 (.699:3.862)	1.817 (.715:4.618)
Friend/other	.553 (.299:1.023)	1.875 (.517:6.796)	3.390 (.814:14.124)
Family	1.439 (.840:2.463)	.642 (.257:1.600)	.446 (.155:1.288)
Education (ref = high school or less)			
Vocational or professional training	1.094 (.737:1.624)	1.631 (.734:3.622)	1.490 (.612:3.630)
Higher education	2.022*** (1.420:2.880)	1.656 (.846:3.242)	.819 (.383:1.749)
Preferred channel (ref = online)			
Offline	2.253*** (1.491:3.406)	2.321** (1.270:4.241)	1.030 (.496:2.139)
Other	3.796*** (2.436:5.914)	1.203 (.414:3.494)	.317 (.100:1.006)
Preferred device (ref = desktop/laptop)			
Smartphone	1.266 (.893:1.794)	1.218 (.709:2.092)	.962 (.505:1.832)
Tablet	1.624 (.899:2.935)	3.247** (1.487:7.090)	1.999 (.751:5.325)
Combinations of 2 or more devices	2.795*** (1.850:4.223)		#
Betting shops		.592 (.246:1.423)	#
Proportion of in-play betting	3.242*** (2.673:3.931)	2.047*** (1.596:2.624)	.631** (.461:.865)

*$p < .05$, **$p < .01$, ***$p < .001$. CI is confidence interval, and LL and UL refer to lower and upper limits, respectively. #Not included in interaction analyses due to incompatibility across samples

Discussion

This present paper compared Australian and Spanish sports bettors for factors associated with problem gambling severity, including socio-demographics, preferred sports betting channels and devices, and use of in-play sports betting. Overall, the results provided a sports bettor profile with some context-related differences but many commonalities. The Spanish sample comprised more bettors living with their family, excluding living with partners, whereas Australian bettors more often lived independently (i.e., with friends, partner, or alone). Considering both samples had almost the same mean age, these differences may be explained by young Spanish adults leaving their parents' home later in life as a result of higher youth unemployment rates in the country, estimated in 2017 for the 15–24 year age group at 12.6% for Australia and 38.7% for Spain (Organisation for Economic Co-operation and Development 2018).

The Australian sample had approximately double the proportion of problem gamblers (57%) compared to the Spanish sample (27%), with this 2.1 ratio reflecting the past-year problem gambling differences observed between the countries in representative population samples (DGOJ 2016; Gainsbury et al. 2014). It was unsurprising that problem gambling prevalence in both samples was significantly higher than population estimates, given that all gamblers in the present study were at least weekly bettors. It was also unsurprising that problem gambling prevalence amongst the Australian weekly sports bettors surpassed the rate of 6.3% found among at least monthly Australian sports bettors (Armstrong and Carroll 2017b). No problem gambling prevalence data for sports bettors are available in Spain. Nevertheless, both samples may still be biased towards over-representing problem gambling, as often occurs in panel samples. However (and even after taking into consideration all the possible self-selection biases of the study—discussed later), the results show a disproportionately high rate of problem gambling in both countries, and broadly equate being a regular consumer of sports betting products (i.e., being a weekly sports bettor) with suffering some kind of betting-related harm (only between 14 and 29% of the samples were not at-risk).

A robust finding in both countries was the association of in-play sports betting with problem gambling severity, which aligns well with the findings of previous studies (Braverman et al. 2013; Hing et al. 2017; LaBrie and Shaffer 2011; Russell et al. 2018a, b). This finding is relevant for two main reasons. First, in-play sports betting is much more prevalent in the Spanish sample, which is easily explained considering the restrictions on providing in-play betting in the Australian market versus the freedom to do so in Spain. However, once the higher involvement with in-play betting in Spain was factored out, the Australian in-play sports bettors showed a stronger relationship with problem gambling scores than their Spanish counterparts. Previous evidence has already suggested that the relationship between in-play sports betting and problem gambling does not merely correspond to in-play bettors being more frequent gamblers, and hence more likely to be problem gamblers, but underlines the implications of in-play features as fundamental changes in the structural characteristics of betting products, associated on their own to gambling harm regardless of betting involvement (Gambling Commission 2016; Killick and Griffiths 2018; Lopez-Gonzalez et al. 2018c).

Second, in a context of public debate about the possibility of liberalising in-play sports betting in Australia (Wood et al. 2018), policymakers should be aware of the association between the act of live betting, the difficulties of regulating one's gambling behaviour in situations of immediacy, and the experiencing of gambling problems. In-play sports

betting lies at the heart of the intersection between very powerful industries adjacent to gambling, most notably sport, media and streaming, and mobile technology (especially smartphone) industries. In addition, bookmakers devote a large proportion of their marketing budgets—around 80% in Spain (DGOJ 2017b)—to bonuses and other promotions that capitalise on the instantaneity and impulsivity of synchronous viewing and in-play sport betting (Lamont et al. 2016).

By independently confirming obtained findings, the present study defies a series of long-held presumptions about problem gambling and questions their applicability to the sports betting context. First, problem gambling has been typically associated with lower levels of formal education (Bakken et al. 2009; Myrseth et al. 2009), or no significant effect of education (Afifi et al. 2010; Volberg et al. 2001), but higher levels of education have rarely been associated with problem gambling. In the present samples, the relationship between college education and problem gambling severity was statistically significant in the Australian sample. Although not significant in Spain, the data also follow a similar tendency. A plausible explanation could be that strategic games with more alleged skill-based components are more attractive to those individuals with a higher educational level, which could potentially backfire on university-educated gamblers who consider their knowledge to be a substantial contributor to success in sports betting.

Second, these results suggest that, while female sports betting is less prevalent, female bettors experience more severe gambling problems than males. Again, this result was statistically significant in Australia and showed the same tendency in Spain. Problem gambling has been traditionally considered an essentially male condition, and most studies analysed in a recent systematic review reported higher problem gambling amongst males (Merkouris et al. 2016). Generally, this is also true among adolescents (Huang and Boyer 2007). However, the body of literature disputing gender differences has grown in recent years, defying the stereotypical representations of male and female gambling (Bowden-Jones and Prever 2017; Nelson et al. 2006), and putting into question the supposedly *innate* preferences of women for chance-based games (Wardle 2017). The results in the present study challenge conventional wisdom about female skill-based gambling, and indicate similar trends in both Australian and Spanish female sports bettors and their problem gambling.

Third, the channel and device used by problem gamblers merits careful consideration. On the one hand, using tablets to gamble emerged as a particularly problematic device in both countries, with higher scores on the PGSI when compared to laptops and desktop computers. Also, the more devices bettors used to bet in Australia, the more likely they scored higher on problem gambling. On the other hand, Australian and Spanish bettors both exhibited similar proportions of offline betting, while the 'other channels' group was more populated in the Australian sample, which largely corresponds to gamblers who used telephones to make sports bets. It is likely that this category would be depopulated if restrictions on online in-play betting were relaxed in Australia, and moved to the online betting category, resulting in a very similar distribution between both countries.

Furthermore, and contrary to expectations, higher problem gambling scores were found among offline bettors, with offline gambling also predicting scores of 8 or above (i.e., problem gambling). The evidence on this regard is contradictory, with some studies reporting higher problem gambling for offline gamblers (Hing et al. 2015; Philander and MacKay 2014), others for online gamblers (Papineau et al., 2018), while other studies are inconclusive (Hubert and Griffiths 2018). In general, more engaged gamblers tend to involve themselves in more gambling forms, and also are more likely to become problem gamblers; thus, the tendency would be to have an association in the data between problem gambling and multiple channel use (Gainsbury et al. 2015b). In addition, these gamblers are more

likely to engage in the most harmful forms of gambling, which are channel-dependent—e.g., Electronic Gaming Machines (EGM) in land-based and horse and sports betting in online channels.

Moreover, in the particular case of sports betting, the distinction between offline and online betting is blurry, as offline bettors attend betting shops which are equipped with live sport streams, and bet on fixed-odds betting terminals that are constantly updated and, in that sense, assimilate online betting. The communal experience of betting with significant others could put into motion detrimental psychological mental processes (e.g., peer pressure, social desirability (Deans et al. 2016; Gordon et al. 2015]) that facilitate problem gambling.

Using a cross-cultural approach, the present study has shown evidence to substantiate that sports betting is not only becoming global in its economic impact but also in terms of its deleterious consequences. The market similarities typically found in most countries—e.g., advertising enticements, marketing strategies, platform functionalities, partnerships with the local sports industry, and prize reward schemes—appear to have an echo in how these affect individuals engaging in betting activities. This paper has identified common causes for concern in Spain and Australia regarding female betting, risky betting among college-educated gamblers, and offline betting. Most eloquently, in-play betting, although legislated in completely opposite directions in each market, poses similar threats in both countries. This raises the fundamental question of whether increasingly global gambling markets providing services to a global audience should feature similarly global standards of responsible gambling.

The present study has a number of limitations. Firstly, both cohorts comprised convenience samples, which may not be representative of the population of weekly sports bettors in either country. Furthermore, restricting both samples to at least weekly bettors meant there was a much higher prevalence of problem gambling than for the general populations in Australia and Spain. These higher prevalence rates could be further elevated due to self-selection biases in online research panels used to recruit participants, in which individuals with a stronger personal interest were probably more likely to opt in, with more engaged bettors also more likely to have gambling-related problems. Secondly, given both studies recruited their samples online, they are skewed towards online bettors, arguably underestimating the contribution of land-based-only sports bettors, and perhaps, downsizing the proportion of older and rural respondents. Third, age and education biases might be present, with an overrepresentation of young, college educated, internet-savvy sports bettors in both countries, although these biases are not entirely demonstrable and could also be representative of regular sports bettors. Fourthly, both samples were designed and recruited separately and prior to the cross-cultural integration, resulting in a choice of measures and variables that in some cases were identical, but in others had to be adapted to make meaningful comparisons. Such post-data collection adaptations may (in some cases) lead to the loss of statistical power.

Conclusion

To the best of the authors' knowledge, this paper is the first to provide a cross-cultural perspective of the association between sports betting and problem gambling. The similarities found between the Australian and Spanish weekly bettors arguably emphasise a number of global trends about the public health impact of the proliferation of sports betting,

while questioning some long-lasting preconceptions about female skill-based gambling, online versus offline gambling-related harm, and the association between lower education and gambling problems. Very importantly, the cross-cultural approach allowed the replication of a previously identified associations between in-play betting and problem gambling. Findings about this specific feature are critically important because in-play sports betting represents a large and growing proportion of betting activity, and represents the critical interplay of gambling, sport, instant technology, and media factors. Ongoing debates about in-play betting laws, such as those occurring in Australia, should keep in mind these results when informing their approach to regulation.

Funding Hibai Lopez-Gonzalez has been supported by the Government of the Basque Country, Spain, under grant reference (Eusko Jaurlaritza, POS_2015_1_0062). He and Ana Estévez have been additionally funded by the Spanish Organization of the Blind (ONCE, III International Award). Alex Russell has received funding from Victorian Responsible Gambling Foundation; Queensland Justice and Attorney-General; Gambling Research Australia; National Association for Gambling Studies; Australian Communications and Media Authority and the Alberta Gambling Research Institute. He has received industry funding for an evaluation of problem gambling amongst casino employees from Echo/Star Entertainment Group. He is also affiliated with the University of Sydney. Nerilee Hing has received research funds from the Victorian Responsible Gambling Foundation, Gambling Research Australia, Australian Government Department of Social Services, Alberta Gambling Research Institute, the Australian Gambling Research Centre, the Queensland, New South Wales, Victorian and South Australian Governments, the Australian Research Council, and Australia's National Research Organisation for Women's Safety. She has also received consultancy funds from Echo Entertainment and Sportsbet and an honorarium from Singapore Pools for membership of its International Advisory Committee. Mark Griffiths declares that he has received funding for a number of research projects in the area of gambling education for young people, social responsibility in gambling and gambling treatment from the Responsibility in Gambling Trust, a charitable body which funds its research program based on donations from the gambling industry. He also undertakes consultancy for various gaming companies in the area of social responsibility in gambling.

Compliance with Ethical Standards

Conflicts of interest The authors declare that they have no competing interests.

Ethical Approval Both studies had obtained approval by the respective research ethics committee of their universities in their countries. The Australian study was approved by Southern Cross University Human Research Ethics Committee (Approval ECN-16-201), and reciprocal approval was granted by CQUniversity Australia Human Research Ethics Committee (Approval H16/06-163). The Spanish study was approved (Reference: ETK-13/15-16) in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. In both cohorts, participants were compensated for their time following each panel's protocols. Participants were reassured of their right to withdraw from the respective studies at any time, the confidentiality of their data, and provided informed consent to participate.

References

Afifi, T. O., Cox, B. J., Martens, P. J., Sareen, J., & Enns, M. W. (2010). Demographic and social variables associated with problem gambling among men and women in Canada. *Psychiatry Research, 178*(2), 395–400.

Armstrong, A., & Carroll, M. (2017a). *Gambling activity in Australia*. Melbourne: Australian Gambling Research Centre, Australian Institute of Family Studies.

Armstrong, A., & Carroll, M. (2017b). *Sports betting in Australia*. Melbourne: Australian Gambling Research Centre, Australian Institute of Family Studies.

Australian Commonwealth Parliament. Interactive Gambling Act 2001 (2001). Australia.

Bakken, I. J., Götestam, K. G., Gråwe, R. W., Wenzel, H. G., & Øren, A. (2009). Gambling behavior and gambling problems in Norway 2007. *Scandinavian Journal of Psychology, 50*(4), 333–339.

Bonnaire, C., Kovess-Masfety, V., Guignard, R., Richard, J. B., du Roscoät, E., & Beck, F. (2017). Gambling type, substance abuse, health and psychosocial correlates of male and female problem gamblers in a nationally representative French sample. *Journal of Gambling Studies, 33*(2), 343–369.

Bowden-Jones, H., & Prever, F. (2017). *Gambling disorders in women: An international female perspective on treatment and research*. London: Taylor and Francis.

Braverman, J., Laplante, D. A., Nelson, S. E., & Shaffer, H. J. (2013). Using cross-game behavioral markers for early identification of high-risk internet gamblers. *Psychology of Addictive Behaviors, 27*(3), 868–877.

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), 208.

Department of Social Services. (2018). *National consumer protection framework for online wagering*. Retrieved December 19, 2018, from: https://www.dss.gov.au/sites/default/files/documents/11_2018/ncpfow-fact-sheet28-nov-2018-2.pdf.

Dirección General de Ordenación del Juego. (2016). *Estudio sobre prevalencia, comportamiento y características de los usuarios de juegos de azar en España 2015*. Madrid: Spanish Ministry for Finance and Public Administration.

Dirección General de Ordenación del Juego. (2017a). *Datos del mercado de juego online*. Madrid: Spanish Ministry for Finance and Public Administration.

Dirección General de Ordenación del Juego. (2017b). *Gasto promocional de juego online*. Madrid: Spanish Ministry for Finance and Public Administration.

Estévez, A., Rodríguez, R., Díaz, N., Granero, R., Mestre-Bach, G., Steward, T., et al. (2017). How do online sports gambling disorder patients compare with land-based patients? *Journal of Behavioral Addictions, 6*(4), 639–647.

European Gaming & Betting Association. (2018). *Most popular gambling activities*. Brussels: European Gaming & Betting Association.

Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index*. Ottawa: Canadian Centre on Substance Abuse.

Gainsbury, S. M., & Russell, A. (2015). Betting patterns for sports and races: A longitudinal analysis of online wagering in Australia. *Journal of Gambling Studies, 31*(1), 17–32.

Gainsbury, S., Russell, A., Blaszczynski, A., & Hing, N. (2015a). Greater involvement and diversity of Internet gambling as a risk factor for problem gambling. *European Journal of Public Health, 25*(4), 723–728.

Gainsbury, S., Russell, A., Blaszczynski, A., & Hing, N. (2015b). The interaction between gambling activities and modes of access: A comparison of Internet-only, land-based only, and mixed-mode gamblers. *Addictive Behaviors, 41,* 34–40.

Gainsbury, S. M., Russell, A., Hing, N., Wood, R., Lubman, D. I., & Blaszczynski, A. (2014). The prevalence and determinants of problem gambling in australia: Assessing the impact of interactive gambling and new technologies. *Psychology of Addictive Behaviors, 28*(3), 769–779.

Gambling Commission. (2016). *In-play (in-running) betting: Position paper*. London. Retrieved December 19, 2018, from: https://www.gamblingcommission.gov.uk/pdf/In-running-betting-position-paper.pdf.

Gambling Commission. (2018). Gambling Commission to crackdown on operators who don't treat consumers fairly. Retrieved December 19, 2018, from: https://www.gamblingcommission.gov.uk/news-action-and-statistics/news/2018/Crackdown-on-operators-who-dont-treat-consumers-fairly.aspx.

Gassmann, F., Emrich, E., & Pierdzioch, C. (2017). Who bets on sports? Some further empirical evidence using German data. *International Review for the Sociology of Sport, 52*(4), 391–410.

Gebauer, L., LaBrie, R., & Shaffer, H. J. (2010). Optimizing DSM-IV-TR classification accuracy: A brief biosocial screen for detecting current gambling disorders among gamblers in the general household population. *Canadian Journal of Psychiatry, 55*(2), 82–90.

Gordon, R., Gurrieri, L., & Chapman, M. (2015). Broadening an understanding of problem gambling: The lifestyle consumption community of sports betting. *Journal of Business Research, 68*(10), 2164–2172.

Hing, N., Gainsbury, S., Blaszczynski, A., Wood, R., Lubman, D., & Russell, A. (2014a). *Interactive gambling*. Melbourne: Gambling Research Australia.

Hing, N., Russell, A. M. T., & Browne, M. (2017). Risk factors for gambling problems on online electronic gaming machines, race betting and sports betting. *Frontiers in Psychology, 15*(8), 775.

Hing, N., Russell, A. M. T., Gainsbury, S. M., & Blaszczynski, A. (2015). Characteristics and help-seeking behaviors of Internet gamblers based on most problematic mode of gambling. *Journal of Medical Internet Research, 17*(1), E13.

Hing, N., Russell, A. M. T., Vitartas, P., & Lamont, M. (2016). Demographic, behavioural and normative risk factors for gambling problems amongst sports bettors. *Journal of Gambling Studies, 32*(2), 625–641.

Hing, N., Vitartas, P., Lamont, M., & Fink, E. (2014b). Adolescent exposure to gambling promotions during televised sport: An exploratory study of links with gambling intentions. *International Gambling Studies, 14*(3), 374–393.

Huang, J. H., & Boyer, R. (2007). Epidemiology of youth gambling problems in Canada: A national prevalence study. *Canadian Journal of Psychiatry, 52*(10), 657–665.

Hubert, P., & Griffiths, M. D. (2018). A comparison of online versus offline gambling harm in Portuguese pathological gamblers: An empirical study. *International Journal of Mental Health and Addiction, 16*(5), 1219–1237.

Killick, E. A., & Griffiths, M. D. (2018). In-play sports betting: A scoping study. *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-018-9896-6.

LaBrie, R., & Shaffer, H. J. (2011). Identifying behavioral markers of disordered Internet sports gambling. *Addiction Research & Theory, 19*(1), 56–65.

Lamont, M., Hing, N., & Vitartas, P. (2016). Affective response to gambling promotions during televised sport: A qualitative analysis. *Sport Management Review, 19*(3), 319–331.

LaPlante, D., Nelson, S. E., & Gray, H. M. (2014). Breadth and depth involvement: Understanding Internet gambling involvement and its relationship to gambling problems. *Psychology of Addictive Behaviors, 28*(2), 396–403.

Li, E., Langham, E., Browne, M., Rockloff, M., & Thorne, H. (2018). Gambling and sport: Implicit association and explicit intention among underage youth. *Journal of Gambling Studies*. https://doi.org/10.1007/s10899-018-9756-0.

Lopez-Gonzalez, H., Estévez, A., & Griffiths, M. D. (2017). Marketing and advertising online sports betting: A problem gambling perspective. *Journal of Sport & Social Issues, 41*(3), 256–272.

Lopez-Gonzalez, H., Estévez, A., & Griffiths, M. D. (2018a). Internet-based structural characteristics of sports betting and problem gambling severity: Is there a relationship? *International Journal of Mental Health and Addiction*. https://doi.org/10.1007/s11469-018-9876-x.

Lopez-Gonzalez, H., Estévez, A., & Griffiths, M. D. (2018b). Spanish validation of the Problem Gambling Severity Index: A confirmatory factor analysis with sports bettors. *Journal of Behavioral Addictions, 7*(3), 814–820.

Lopez-Gonzalez, H., Griffiths, M. D., & Estévez, A. (2018c). In-play betting, sport broadcasts, and gambling severity: A survey study of Spanish sports bettors on the risks of betting on sport while watching it. *Communication & Sport*. https://doi.org/10.1177/2167479518816338.

McCormack, A., & Griffiths, M. D. (2013). A scoping study of the structural and situational characteristics of internet gambling. *International Journal of Cyber Behavior, Psychology and Learning, 3*(1), 29–49.

Merkouris, S. S., Thomas, A. C., Shandley, K. A., Rodda, S. N., Oldenhof, E., & Dowling, N. A. (2016). An update on gender differences in the characteristics associated with problem gambling: A systematic review. *Current Addiction Reports, 3*(3), 254–267.

Milner, L., Hing, N., Vitartas, P., & Lamont, M. (2013). An exploratory study of embedded gambling promotion in Australian football television broadcasts. *Communication, Politics and Culture, 46,* 177–198.

Myrseth, H., Pallesen, S., Molde, H., Johnsen, B. H., & Lorvik, I. M. (2009). Personality factors as predictors of pathological gambling. *Personality and Individual Differences, 47*(8), 933–937.

National Opinion Research Center. (1999). *Gambling impact and behavior study: Report to the National Gambling Impact Study Commission*. Chicago: National Opinion Research Center at the University of Chicago.

Nelson, S. E., LaPlante, D. A., LaBrie, R. A., & Shaffer, H. J. (2006). The proxy effect: Gender and gambling problem trajectories of iowa gambling treatment program participants. *Journal of Gambling Studies, 22*(2), 221–240.

Organisation for Economic Co-operation and Development [OECD]. (2018). *Youth unemployment rate*. Paris. Retrieved December 19, 2018, from: https://data.oecd.org/unemp/youth-unemployment-rate.htm.

Papineau, E., Lacroix, G., Sévigny, S., Biron, J. F., Corneau-Tremblay, N., & Lemétayer, F. (2018). Assessing the differential impacts of online, mixed, and offline gambling. *International Gambling Studies, 18*(1), 69–91.

Parke, J., & Griffiths, M. D. (2007). The role of structural characteristics in gambling. In G. Smith, D. Hodgins, & R. Williams (Eds.), *Research and measurement issues in gambling studies* (pp. 211–243). New York: Elsevier.

Philander, K. S., & MacKay, T.-L. (2014). Online gambling participation and problem gambling severity: Is there a causal relationship? *International Gambling Studies, 14*(2), 214–227.

Pitt, H., Thomas, S., Bestman, A., Stoneham, M., & Daube, M. (2016). "It's just everywhere!" Children and parents discuss the marketing of sports betting in Australia. *Australian and New Zealand Journal of Public Health, 40*(5), 480–486.

Queensland Government Statistician's Office. (2018). *Australian Gambling Statistics* (34th ed.). Queensland: Queensland Government Statistician's Office.

Reiche, D. (2013). The prohibition of online sports betting: A comparative analysis of Germany and the United States. *European Sport Management Quarterly, 13*(3), 293–314.

Russell, A. M. T., Hing, N., Browne, M., Li, E., & Vitartas, P. (2018a). Who bets on micro events (microbets) in sports? *Journal of Gambling Studies*. https://doi.org/10.1007/s10899-018-9810-y.

Russell, A. M. T., Hing, N., Li, E., & Vitartas, P. (2018b). Gambling risk groups are not all the same: Risk factors amongst sports bettors. *Journal of Gambling Studies*. https://doi.org/10.1007/s10899-018-9765-z.

Scalese, M., Bastiani, L., Salvadori, S., Gori, M., Lewis, I., Jarre, P., et al. (2016). Association of problem gambling with type of gambling among Italian general population. *Journal of Gambling Studies, 32*(3), 1017–1026.

Stradbrooke, S. (2018). Italy gambling advertising ban targets January 1, 2019 start. Retrieved December 19, 2018, from: https://calvinayre.com/2018/06/27/business/italy-advertising-ban-january-2019/.

Volberg, R. A., Abbott, M. W., Rönnberg, S., & Munck, I. M. E. (2001). Prevalence and risks of pathological gambling in Sweden. *Acta Psychiatrica Scandinavica, 104,* 250–256.

Wardle, H. (2017). The re-feminisation of gambling. In H. Bowden-Jones & F. Prever (Eds.), *Gambling disorders in women: An international female perspective on treatment and research* (pp. 173–186). Oxford: Routledge.

Welte, J. W., Barnes, G. M., Wieczorek, W. F., Tidwell, M. C. O., & Parker, J. C. (2004). Risk factors for pathological gambling. *Addictive Behaviors, 29*(2), 323–335.

Williams, R. J., Volberg, R. A., & Stevens, R. M. (2012). *The population prevalence of problem gambling: Methodological influences, standardized rates, jurisdictional differences, and worldwide trends*. Ottawa: Ontario Problem Gambling Research Centre.

Wood, J., Howman, D., & Murrihy, R. (2018). *Report of the review of Australia's sports integrity arrangements*. Canberra: Department of Health, Australian Government.

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