

December 2014

CITATION: Hing, N., Lamont, M., Vitartas, P., & Fink, E. (2015, online 19-03-15). How sports bettors respond to sports-embedded gambling promotions: Implications for compulsive consumption. *Journal of Business Research*. doi:10.1016/j.jbusres.2015.03.003

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Conflicts of interest

The authors have no conflicts of interest to declare in relation to this paper.

Acknowledgement

This study was funded by a Responsible Gambling Research Grant from the Queensland Department of Justice and Attorney General.

**Sports bettors' responses to sports-embedded gambling promotions:
Implications for compulsive consumption**

ABSTRACT

Commercial arrangements between sport organizations and gambling operators are resulting in extensive promotion of gambling during televised sport. This study aims to explore sports bettors' responses to these promotions, and whether this varies with problem gambling severity. Surveys with 544 Australian sports bettors with varying degrees of problem gambling severity indicate that problem gamblers have highest approval of these promotions. Compared to non-problem and at-risk gamblers, problem gamblers also report most encouragement and influence to gamble from these promotions. Problem gamblers are also more influenced to sports bet by contextual factors, particularly certain bet types and promotional appeals. Three theories are discussed to explain these results – product involvement, cue induced craving and classical conditioning. Given the rapid growth of sports betting, increasing sports betting problems, and inability to avoid gambling advertising while watching televised sport, further research is critical to understand how sports-embedded gambling promotions impact on gambling consumption and problem gambling. Research is also important to inform policy, given that sports-embedded advertising is a controversial practice prompting recent changes to broadcasting codes of practice. This exploratory study provides some foundations and future directions to inform this research effort.

Keywords: sports betting; gambling, problem gambling, sport, advertising, promotion

INTRODUCTION

Harmful and unhealthy products, including alcohol, tobacco and fast food, have historically been promoted via professional sport in some countries, with sports events and associated broadcasts providing widespread exposure for advertisers and sponsoring brands. A recent entrant is the gambling industry, particularly sports betting operators. Promoting gambling through sport is raising concerns that the practice is normalising gambling, exposing minors to gambling marketing, and fuelling increased problem gambling (Derevensky, Sklar, Gupta & Messerlian, 2010; Lamont, Hing & Gainsbury, 2011, McMullan, 2011; Milner, Hing, Vitartas & Lamont, 2013; Pettigrew, Ferguson & Rosenberg, 2013). Further, research into gambling advertising reports that it has most effect on existing gamblers, particularly problem gamblers (Binde, 2009; Grant & Kim, 2001; Hing, Cherney, Blaszczyński, Gainsbury & Lubman, 2014), raising questions over whether this sports-associated gambling marketing is contributing to compulsive consumption of gambling.

However, little is known about how sports bettors, including those who meet criteria as problem gamblers, perceive and act on embedded gambling promotions during sports broadcasts. Embedded promotion is defined as ‘any means of inserting brands and sponsor references into entertainment vehicles’, which might include ‘product or brand placement, sponsorship and celebrity endorsement where these occur in the context of mediated entertainment’ (Hackley & Tiwsakul 2006, p. 64). Embedded gambling promotions refer to those that are integrated into broadcasts of match play, in contrast to paid advertising that occurs during commercial breaks in those broadcasts. While two studies examine community attitudes to and interactions with sports-embedded marketing (Pettigrew et al., 2013, Thomas, Lewis, McLeod & Haycock, 2012), none specifically focus on responses of sports bettors in general nor sports bettors who are also problem gamblers. Against this backdrop, this study aims to explore how sports bettors respond to these gambling promotions, and whether this response varies with problem gambling severity. This study, conducted in Queensland Australia, is the first known quantitative research into this issue and is therefore considered exploratory. It seeks to provide foundational information on sports bettors’ attitudes to gambling promotions during televised sport, how much these promotions encourage them to gamble, and whether the promotions are perceived to influence their sports betting behavior. A secondary aim of the paper is to identify directions for future research based on these initial findings.

Growth of sports betting in Australia

Sports betting is the practice of wagering on the ultimate outcome and component outcome elements of sporting events which may be local, national or international events other than horse and greyhound racing (Macpherson, 2007). Sports betting is growing rapidly in many countries, including Australia, where a recent nationally representative telephone survey of 15,000 people reports an adult participation rate of 13 per cent compared to 6 per cent in 1999 (Hing, Gainsbury et al., 2014; Productivity Commission, 1999).

The National Rugby League (NRL) and Australian Football League (AFL) are the two largest betting sports in Australia, representing approximately 50 per cent of all sports betting and earning sports betting operators margins of AU\$13.4 million on NRL and AU\$15.5 million on AFL betting, with turnover expected to double in the next five years (Deloitte, 2012, p. 6). Product fees of 5 per cent of gross betting win are reportedly paid to the NRL and AFL, while sports betting operators also contribute approximately AU\$45 million per year to NRL and AFL related products through sponsorship and advertising expenditure (Deloitte, 2012, p. 6). This symbiotic relationship suggests that both sports betting operators and sporting codes have a continuing interest in providing competitive and innovative market offerings that maximize returns to both parties.

The growth of sports betting marketing in Australia

Gambling companies now embed promotional messages within sport broadcasts to obtain heightened brand presence and avoid ad-skipping (Devecioglu, 2013). Lamont et al. (2011, p. 248) confirm the practice as widespread in Australia by 2009 when, for example, 43 gambling companies sponsored 14 of the 16 NRL teams. This sponsorship provides sponsor exposure at sporting grounds, during sports broadcasts on free-to-air and Pay TV and radio, in print media, and via the Internet and mobile phones (JSCGR, 2011). Paid sports betting advertising during sport telecasts is also increasing, with a purchased Ebiquity Research List identifying 3,069 individual advertisements relating to sports betting in 2012, not including on social media. Sports betting operators also purchase television advertising rights with the major Australian football leagues, reportedly for sums of AU\$40-\$50 million per year (Gardner, 2014, p. 20).

This ‘blizzard of advertising’ in Australian sports broadcasts (Horn, 2011, not paginated) includes promotions embedded into broadcast match play including gambling sponsored segments, on-screen displays of logos and betting websites, logos on player uniforms, stadium signage, and celebrity endorsement of gambling brands, as well as paid advertisements during commercial breaks (Lamont, Hing & Vitartas, 2012; McMullan, 2011; Milner et al., 2013; Thomas, Lewis, Duong & McLeod, 2012). Until recently, corporate bookmakers joined match commentary teams to facilitate vigorous advertorial discussion around live betting odds for each match, as well as odds for upcoming events. These live odds refer to updates, during an event, of the odds for particular outcomes relating to that event (Nettleton, 2013). Other marketing techniques have included promotion of novelty and exotic bets on match events embedded into in-match commentary, accompanied by on-screen displays of changing odds and live studio cross-overs to bookmakers discussing the movement of odds (Lamont et al., 2011; Milner et al., 2013). However, community outcry and concerns debated during three government inquiries (DBCDE, 2013; JSCGR, 2011, 2013) prompted Australian Government pressure to curtail the promotion of live odds during televised sport. Broadcast advertising codes were amended accordingly, effective from 1 August 2013 (Nettleton, 2013). However, the other promotional

practices continue, including the promotion of live odds in sports broadcasts immediately before match commencement.

Research confirms the proliferation of gambling promotions during televised sport. An audit of eight AFL match broadcasts in 2011 reveals that seven leading wagering brands were promoted during 50.5 separate marketing episodes totalling 4.8 minutes per match (Thomas, Lewis, Duong et al., 2012). Similarly, an audit of two weeks of NRL and AFL programs in early 2012, comprising five matches and two associated entertainment programs, identifies 72 gambling promotions and advertisements, constituting 2.5 per cent of observed broadcast time (Milner et al., 2013). Embedded promotions are the dominant technique. The researchers conclude that extensive product integration potentially optimizes these promotions' effectiveness, while their personal relevance, empathy, information and congruence align well with young male target audiences with interests in football and sports betting. Other researchers comment on the synergetic relationship between sport and betting, with related advertising capitalising on fan loyalty, notions of masculinity, sporting knowledge and the image of sport as healthy, harmless fun (Hing et al., 2013; Lamont et al., 2011; McMullen, 2011; Thomas, Lewis, McLeod et al., 2012).

Gambling advertising research

One stream of gambling advertising research focuses on effects on problem gamblers. In a qualitative study of 31 treatment-seeking and 50 non-treatment seeking Internet gamblers (Hing, Cherney et al., 2014), promotions for sports betting and other Internet gambling forms invoked urges to gamble, including amongst those actively attempting to limit or cease gambling. A proportion of treatment-seekers reported increased gambling, particularly associated with bonus offers for sports bets requiring matched deposits, but this was less common amongst non-treatment seekers. These findings are consistent with previous studies finding that gambling advertising triggers gambling amongst some problem gamblers, with 46 per cent of 131 pathological gamblers in one study reporting this effect from television, radio and billboard advertisements (Grant & Kim, 2001). Similarly, Binde (2009) reports that gambling advertisements and promotions remind problem gamblers about gambling, arouse urges to gamble, provide inducements to gamble, increase already high gambling involvement and undermine decisions to curtail gambling. Derevensky et al. (2010) conclude that gambling advertising helps to maintain established gambling patterns, including amongst problem gamblers, although it is less effective in converting non-gamblers to gamblers (Hing, Cherney et al., 2014).

Little research focuses on gambling promotions during televised sport. A qualitative study provides insights into young Australian men's views on these promotions, which they consider aggressive, unnecessary and unavoidable (Thomas, Lewis, McLeod et al., 2012). Men describe feeling pressured to gamble to avoid isolation from peers, with betting odds embedded in peer discussions. A quantitative study of 131 Australian adolescents (12-17 years) reports that greater intention to sports bet once of legal age is associated with higher frequency of watching televised

sports where gambling is promoted (Hing, Vitartas, Lamont & Fink, 2014). This study also reports that 42.0 per cent of adolescents could recall at least one gambling brand from watching televised sport, with the most recalled brand nominated by 26.0 per cent of respondents. Another Australian study reports that three-quarters of 228 children (4-15 years) surveyed could correctly assign at least one sponsor to at least one sport or team (Pettigrew, Ferguson & Rosenberg, 2012). Reflecting the lasting impacts of brand association, the children also had strong recall of previous sponsors and many children endorsed gambling brands not specifically associated with a team demonstrating transference from other advertising. A related survey was completed by 209 adults at sporting events with 63 per cent concerned about gambling companies sponsoring sports (Pettigrew et al., 2013). In fact, these respondents were more concerned about sponsorship by gambling operators than by alcohol or fast food companies.

Causal pathways between exposure to gambling promotions during sport and development of gambling problems have not been examined, but Australian treatment services report increased clientele seeking help for sports betting problems. For example, one service reports increases from less than 5 per cent of clients in 2006-07 to 15-20 per cent of new clients in 2010-11, and that the pervasive promotion of sports betting and its easy online accessibility contribute substantially to client problems and relapses (University of Sydney Gambling Treatment Clinic, 2011). Further, 16 per cent of problem and moderate risk Internet gamblers in a weighted sample of 4,688 adult Australian gamblers nominated sports betting as their most problematic gambling form (Hing, Gainsbury et al., 2014).

In summary, whether embedded promotions during sporting events are fuelling increased sports betting related problems is not known. However, evidence from previous advertising studies suggests that these promotions are likely to most affect problem gamblers who bet on sports by maintaining or increasing their sports betting behavior. While longitudinal studies are needed to identify causality, the current study contributes formative knowledge about responses of sports bettors and problem gamblers to this type of marketing.

METHODS

Recruitment and sampling

Given the small proportion of sports bettors in the population, it was too cost prohibitive to gain a random sample through a CATI survey. Additionally, it was essential to obtain adequate numbers of problem gamblers to enable rigorous analysis. Thus, a representative sample of sports bettors was not sought; instead, a purposive sample of roughly equal numbers of regular and non-regular sports bettors was targeted to enable comparisons amongst groups based on problem gambling severity. Oversampling regular gamblers is a method used in gambling research to increase the likelihood of capturing problem gamblers (Productivity Commission, 1999). Thus, a research panel was purchased from a market research company, with targets of 250

regular (at-least fortnightly) and 250 non-regular sports bettors. Other inclusion criteria were residing in Queensland and aged 18 years or over. Gender balance was not required of the panel sample, given that sports betting participation in the general population is also not balanced between males and females (Hing, Gainsbury et al., 2014).

While the market research company exceeded the number of non-regular sports bettors, it was able to recruit only 186 regular sports bettors. To help ensure the sample contained sufficient numbers of problem gamblers for analysis, the research team recruited another 56 regular Queensland sports bettor participants from respondents to a previous gambling survey. A AU\$20 shopping voucher was offered as reimbursement, while the research panel was compensated by the market research company.

Research panels comprise pools of registered people invited to participate in research, including online surveys, and assembled to researchers' requirements (Görizt, Reinhold & Batinic, 2000). Online panels are increasingly popular for their significant cost savings, higher response rates than unsolicited surveys (Görizt et al., 2000) and more reliable data due to survey completeness (Behrend, Sharek, Meade & Wiebe, 2011). Online surveys also increase anonymity and privacy, which should increase response accuracy, particularly about sensitive subjects such as gambling (Shih & Fan, 2008). Disadvantages of online panels include restriction to Internet users, although this bias is now very small with 82.3 per cent of Australians being Internet users (World Bank, 2014). Online survey panels may be biased in other unknown ways such as attitudes, but no more so than representative samples based only on demographic variables. A further potential limitation is that respondents in purchased panels agree to participate in return for remuneration, which may differentiate them from the general public.

These advantages can offset low response rates typically obtained in general population surveys and the significantly biased samples obtained, even when expensive CATI systems are used that necessarily rely on landlines alone due to the non-availability of all-inclusive mobile phone lists. The Australian Communication and Media Authority (2014) reports that 19 per cent of the Australian adult population were mobile-only users at the end of 2012, with 18-24 year olds being the largest age group. Thus, CATI surveys are inherently biased towards older Australians and miss substantial proportions of younger Australians. CATI surveys are also particularly expensive for hard-to-reach populations such as regular sports bettors, hence dismissal of their use in this study in favour of recruitment via a market research firm.

Participants

The final sample for analysis was N = 544, comprising 242 regular sports bettors (186 from the panel plus 56 extra recruits), 266 non-regular sports bettors (from the panel) and 36 respondents who were sports bettors but did not specify the overall frequency of their sports betting (also from the panel).

Of the 544 sports bettor respondents, 63.6 per cent were men and 36.4 per cent were women, with a mean age of 42.2 years ($SD = 14.26$, range = 18 to 80). Just under half the respondents were married (47.4%), with the next most common marital status being never married (20.8%). Most common household type was couple with children (34.4%) followed by couple with no children (28.5%). Most common educational qualification was a trade/technical certificate or diploma (29.2%), followed by undergraduate degree (22.6%). Respondents were typically employed full-time (50.2%), followed by working part-time (15.4%). Household income ranged from \$0 to over \$200,000, with the most common category being \$40,000-\$59,999 (13.6%).

Compared with the profile of sports bettors in the most recent Queensland Household Gambling Survey (Queensland Government, 2012) conducted in 2011-12, our sample contains a higher proportion of females (36.4% in our sample/16.7% in Queensland) and a smaller proportion of those aged 18-34 years (38.1% in our sample/57.1% in Queensland). Average household income in our sample also appears lower, although direct comparisons are not possible due to different income brackets being asked in the two surveys. However, sports betting participation has increased markedly in the last few years (Hing, Gainsbury et al., 2014), so the 2011-12 profile of Queensland sports bettors may no longer be accurate. Additionally, our sample was purposive and not a random sample of sports bettors in Queensland.

Procedure

A university ethics committee approved this research. The panel survey was administered online by the market research company during October 2012, just after the NRL and AFL seasons had ended to optimize respondent recollection of gambling promotions embedded in these sports. The survey of extra sports bettors was conducted online during December 2012. Both surveys were conducted before curtailment of the promotion of live betting odds during sport in Australia.

Measures

Several questions were administered in relation to gambling behavior. Previous sports betting was ascertained by asking frequency of betting on the eight most prominent wagering sports during the past 12 months. Previous gambling behavior was measured by frequency of gambling on seven main gambling types, excluding lottery-type gambling and sports betting. Both variables were measured on 7-point scales from 1 = 'never' to 7 = 'daily'. Problem gambling status was measured using the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001), a 9-item scale yielding scores between 0-27. Cut-off scores are 0 = 'non-problem gambler', 1-2 = 'low risk gambler', 3-7 = 'moderate risk gambler', and 8-27 = 'problem gambler'. Reliability of the PGSI was excellent, Cronbach's $\alpha = .97$.

Other aspects of sports betting behavior were measured, including the number of sports betting operators the respondent had an account with; proportion of sports bets placed by Internet, telephone and at land-based venues; proportion of bets placed before and during a match; proportion of bets that were planned and on impulse;

proportion of pre-match bets that were on the outcome of a match and on key events within a match; and proportion of bets placed during a match that were on the outcome, key events and micro-events. These questions were all framed within the previous 12 months. Respondents were also asked the number of bets and expenditure on sports betting for the most recent sports event they had gambled on.

Several variables related to gambling promotions. Exposure to gambling promotions during televised sport was measured as the frequency of watching eight televised sports during the most recent season, identified as the most heavily sponsored by gambling operators. The response scale ranged from 1 = 'never' to 7 = 'daily'. Eleven promotional techniques utilized during televised sport (e.g., 'on-screen displays of live betting odds'; 'gambling logos on player uniforms') were identified from a previous stage of the study reported elsewhere (author withheld for anonymity). Respondents were asked their approval of the 11 techniques, and also how much each encouraged them to bet on the sport. Respondents were also asked how much 16 contextual factors, again derived from an earlier stage of the study, influenced the likelihood that they would place impulse bets during a match. Each of these scales was measured using 5-point Likert scales.

Subjective responses about the impact of gambling promotions on sports betting were collected through five questions assessing whether gambling promotions during televised sport had increased the respondent's frequency, expenditure and time spent on sports betting, caused them to spend more time and money than intended on sports betting, and caused them or someone close to them sports betting-related harm. Basic socio-demographic data were also collected.

Analysis

Following data cleaning and removal of cases with missing data, data were analyzed using SPSS v. 20. Analyses comprised computing all scales, checking their reliability, and generating descriptive data for all key variables. An analysis of group differences across PGSI categories was conducted using ANOVA, with follow-up pairwise comparisons controlling for Type I error using Tuckey's HSD ($p < 0.01$).

RESULTS

Sports betting and gambling behavior

NRL was the sport attracting most frequent betting, with 25.7 per cent of the sample placing bets on NRL matches at least weekly and 45.1 per cent doing so at least monthly. This was followed by AFL with 18.6 per cent of sports bettors betting on it at least weekly and 33.1 per cent doing so at least monthly. Less popular betting sports were soccer (12.7% weekly/24.8% monthly), rugby union (12.4%/23.8%), cricket (10.0%/21.8%), motor racing (8.1%/18.3%), tennis (8.5%/18.9%), and golf (6.4%/15.0%). Highest monthly sports betting expenditure in the previous 12 months was reported for NRL (\$61.56) and AFL (\$60.77) matches, followed by soccer (\$31.93). Overall, 37.0 per cent of the sports bettors participated in sports tipping competitions at least weekly, while 55.2 per cent did so at least monthly.

On average, the sports bettors were quite frequent gamblers on other gambling activities, including horse/greyhound races (27.8% at least weekly/51.9% at least monthly), EGMs (15.3%/41.2%), keno (1.1%/35.4%), casino games on the Internet (11.0%/23.0%), table games at land-based casinos (9.9%/22.5%), and poker (9.0%/18.3%).

Amongst the 544 sports bettors, 273 (50.2%) were classified as non-problem gamblers, 97 (17.8%) as low risk gamblers, 54 (9.9%) as moderate risk gamblers, and 120 (22.1%) as problem gamblers, with the latter substantially higher than the national average of 1.0 per cent amongst past-year gamblers (Gainsbury, Russell, Hing, Wood, Lubman & Blaszczynski, 2014). The high numbers of problem gamblers were expected given the purposive sampling methods.

Betting modes and types

The vast majority of respondents (80.9%) had at least one account with a sports betting agency, 15.6 per cent had accounts with two different agencies, 5.3 per cent with three different agencies, 2.0 per cent with four different agencies and 4.0 per cent with five or more different agencies. While there was no significant relationship between age and number of betting accounts, more females (31.8%) than males (11.8%) had no online betting account (31.8% of females/11.8% of males) or had only one online betting account (58.6% of females/51.2% of males). On average, 57.0 per cent of all sports betting took place via the Internet, 35.6 per cent at land based venues, and 7.4 per cent by telephone.

Overall, 38.4 per cent of all bets were placed before the day of the match, and 39.7 per cent at least an hour before match commencement. Participants reported that 61.5 per cent of bets were researched and planned in advance of the match, while 30.3 per cent were made on impulse before match commencement. Only 8.5 per cent of bets were made on impulse during a match.

Of all bets placed before match commencement, 79.9 per cent were on the final outcome, while 20.3 per cent were on key events within a match. About one-fifth (20.6%) of respondents reported placing a bet after match commencement. Of these, 54.6 per cent were on the final outcome, 24.3 per cent were on key events (e.g., the first try), and 21.1 per cent were on micro-events (e.g., outcome of the next ball in cricket, or the next point in tennis). On average, respondents reported placing 3.4 bets and betting \$50.90 on the most recent event they had bet on.

Exposure to gambling promotions during sport

Table 1 shows the frequency of watching eight televised sports where gambling is promoted. The most frequently watched televised sport was NRL, watched by three-fifths (61.1%) of the sports bettors at least weekly and over three-quarters (79.6%) at least monthly. The second most frequently watched televised sport was AFL, watched by 45.4 per cent at least weekly and 64.0 per cent at least monthly. Further, problem gamblers watched sport where gambling is promoted significantly more frequently than non-problem, low risk and moderate risk gamblers

[$F_{(3, 36)} = 27.57, p \leq .001$]. Only seven respondents reported never watching televised sport.

The most frequent context for watching televised sport was at home (85.7% of 537 sports watchers), and with family and/or friends (67.8%), with 31.5 per cent usually watching sport alone. Quite substantial minorities of sports watchers watched sport at least sometimes with minors, with 21.6 per cent doing so with children aged 0-5 years, 25.1 per cent with children aged 6-11 years and 29.6 per cent with adolescents aged 12-17 years, indicating that some minors are routinely exposed to sports-embedded gambling promotions. The majority of sports watchers (72.3%) reported at least sometimes consuming alcohol while watching televised sport.

The vast majority of respondents (86.6%) could recall at least one gambling brand from watching televised sport, with the most frequently remembered brand recalled by 51.8 per cent of respondents. Average number of brands identified was 2.5 (SD = 2.0) with sports betting/wagering brands comprising four of five most frequently recalled gambling brands.

Table 1 here

Approval of different types of sports-embedded promotions

Respondents were asked how much they approved of 11 different techniques commonly used to promote gambling during televised sport, with Table 2 showing results and comparisons amongst PGSI groups. Highest approval overall was for pre-match commentary on betting odds and stadium signage promoting gambling operators, while lowest approval was for celebrity endorsement of gambling, although differences between mean scores were small.

However, significant differences were found amongst the four PGSI groups for all items in Table 2, and follow-up pairwise contrasts show significant differences between groups, in particular between the non-problem gambler and problem gambler groups. For each item, mean score was highest for the problem gambler group, indicating they had the highest approval of all gambling promotional techniques. Table 2 also shows a general pattern of increased approval as problem gambling severity increased. Further, the mean scores show that, on average, the problem gambler group approved of all promotional techniques. In contrast the non-problem gambler group, on average, did not approve of most techniques.

Table 2 here

Encouragement to bet from different types of sports-embedded promotions

The sports bettors were asked how much they agreed that each of the 11 gambling promotional techniques encouraged them to bet on the sports where gambling is promoted. Overall, respondents disagreed that any of the promotional techniques encouraged them to bet on the sport (Table 3).

However, significant differences were found amongst the four PGSI groups for all items and follow-up pairwise contrasts showed significant differences in particular between the non-problem gambler and the low-risk, moderate-risk and problem gambler groups. For each item, the mean score was highest for the problem

gambler group indicating they had highest agreement that all gambling promotions encouraged them to bet on the sport. Table 3 also shows a general pattern of increased agreement as problem gambling severity increased. On average, the problem gambler group agreed that all the gambling promotional techniques encouraged them to gamble on the sport. In contrast, the non-problem and low risk gambler groups, on average, disagreed that the promotions encouraged them to bet on the sport. Moderate risk gamblers indicated marginal agreement for some items.

Table 3 here

Contextual factors reported as influencing impulse bets

Respondents were asked how much various contextual factors increased their likelihood of placing impulse bets during a sports match. Mean scores in Table 4 indicate that the sports bettors were most likely to place impulse bets if good odds were available, when it was a special match (e.g., grand final) and when their favourite team was playing. Ease of access to sports betting facilities was also influential, with watching the match in a venue with sports betting facilities, having an account with a sports betting operator and having Internet access during the match reported as increasing the likelihood of placing impulse bets, as was watching the match with other adults who have bet on it.

As shown in Table 4, significant differences were found amongst the four PGSI groups for all items and follow-up pairwise contrasts show significant differences in particular between the non-problem gambler and the low-risk, moderate-risk and problem gambler groups. For each item, the problem gambler group on average considered these contextual factors were more likely to result in them placing impulse bets during a match, compared to the non-problem gambler group. Table 4 also shows a general pattern of increased likelihood as problem gambling severity increased, although the moderate risk gamblers showed the same or higher level of agreement as the problem gamblers for some items.

Of interest are the reported influential contextual factors between the non-problem and moderate risk/problem gambler groups. Both groups reported that good odds available, a special match, their favourite team and player competing, watching with other adults who have bet on the match and are barracking for the same team, and easy access to sports betting facilities (watching in venues with these facilities, having a sports betting account and having Internet access during the match) increased the likelihood of them placing impulse bets during the match, and there was a significant difference between non-problem gambler and problem gamblers for all these items. However, in contrast to non-problem gamblers, problem gamblers reported that gambling promotions that emphasize ease of placing a bet, are humorous and promote novelty bets significantly increased the likelihood of them placing impulse bets. This was also true for the remaining items in Table 4. Thus, the problem gamblers appeared more persuaded by the types of bets promoted and the appeal used to promote them compared to other PGSI groups.

Table 4 here

Perceived influence of gambling promotions on sports betting behavior

Subjective responses were collected about the influence of sports gambling promotions on respondents' sports betting. As indicated in Table 5, respondents on average disagreed that gambling promotions during televised sport had increased the frequency, expenditure and time spent on sports betting or that it had caused them to spend more money and time on sports betting than intended or caused related harms to them or those close to them.

However, significant differences were found amongst the PGSI groups for all items (Table 5) and follow-up pairwise contrasts show significant differences between the non-problem gambler and the low-risk, moderate-risk and problem gambler groups. For each item, the mean score was significantly higher for the problem gambler group indicating that this group had highest agreement that gambling promotions during televised sport had increased their frequency, expenditure and time spent on sports betting, had caused them to spend more money and time on sports betting than intended, and had caused them or someone close to them sports betting-related harm. The mean scores show that, on average, the problem gambler group agreed with each item, whereas all other PGSI groups disagreed.

Table 5 here

DISCUSSION

Results of this study indicate that problem gamblers have highest approval of, feel most encouragement to gamble, and report being influenced to gamble most from gambling promotions in televised sport, compared to the other PGSI groups of sports bettors. Results also indicate that problem gamblers are more influenced to sports bet by contextual factors, and particularly types of bets promoted and the appeals used to promote them, than the lower risk gambling groups. These results are consistent with previous findings that problem gamblers report more stimulus to gamble from gambling advertising (Binde, 2007, 2009; Derevensky et al., 2010; Grant & Kim, 2001; Hing, Cherney et al., 2014).

Various theories are proposed which may explain this stronger reported impact of gambling advertising on problem gamblers. One explanation is that advertisements have greater impact on consumers with higher product involvement because they are more motivated to devote the cognitive effort required to evaluate the product's merits (Petty, Cacioppo & Schumann, 1983). That is, as consumers become more involved they are thought to pay more attention to the advertising message (Lacniak et al., 1989). An international review of the sponsorship literature concludes that recall of sponsors' messages increases with spectator involvement with the sponsored activity (Walliser, 2003). Binde (2007) proposes that some problem gamblers may be more conscious of and drawn to gambling advertising because of the impulses, emotions, and thoughts it stimulates in those with an active interest in gambling. Extensive research across numerous domains shows that mere repeated exposure to particular stimuli has positive effects leading to formation of preferences

(Zajonc, 2001). In this way, Krugman (1968) notes, recurring exposure to promotional messages leads to subtle shaping of positive attitudes towards advertised brands and products. Thus, problem gamblers, who are clearly highly involved gamblers, are more exposed to and may pay more attention to sports-embedded gambling promotions which may lead to more positive attitudes to sports betting and its promotion, as found in this study.

A second explanation for the findings is that gambling advertising induces cravings to gamble. Research into the role of marketing cues in contributing to and maintaining addictive behaviors and excessive patterns of consumption reports that advertising cues may induce craving which can lead to higher purchase and consumption, especially for addicted users (Carter & Tiffany, 1999). Bernheim and Rangel (2004) explain that marketing of addictive products increases the likelihood of triggering hot decision-making modes (in which individuals always choose to consume irrespective of underlying preferences) by exposing addicted consumers to these cues. They confirm that pathological gamblers describe their experience as involving strong and often overwhelming cravings and that they respond to cues such as advertisements, exhibiting cycles of binges and abstention. Binde (2007) and Hing, Cherney et al. (2014) also conclude that gambling advertising had a major impact on some problem gamblers in their studies by inducing urges to gamble, an effect reported by almost half of pathological gamblers in Grant and Kim's (2001) study. Similar results have been found in studies of other addictive substances and behaviors. For example, a meta-analysis of 41 cue-reactivity studies amongst drug addicts (alcohol, tobacco, cocaine, heroin) concludes they display significant cravings and physiological responses in response to drug-related stimuli (Carter & Tiffany, 1999). Similarly, studies of binge-eating have found that food cues reliably elicit craving, with reactivity being greater amongst adults and children with greater eating pathology (Jansen et al., 2003; Sobik, Hutchison & Craighead, 2005). These insights suggest that problem gamblers risk having gambling urges triggered when watching televised sport due to the proliferation of embedded gambling cues, which in turn reinforce or increase sports betting behavior, as reported by problem gamblers in the current study.

Not only does gambling advertising appear to induce cravings to gamble in problem gamblers, but these urge-inducing triggers are also thought to reinforce gambling behavior over time through a classical conditioning effect (Grant & Kim, 2001; Griffiths, 2005). Narayanan and Manchanda (2012) report that the long-term impact of casino marketing is significantly higher for addicted gamblers, due both to a higher direct effect of complementary goods and services provided by casinos, and the additional indirect effect that incremental gambling has on future gambling. Hing, Cherney et al. (2014) also conclude that 'free' bets offered by online sports betting operators, which problem gamblers find particularly tempting, reinforce problematic gambling behavior by extending gambling time and engagement in a potentially addictive activity. Grant and Kim (2001) conclude that it is this reinforcement of

gambling urges through advertising that influences some people to progress quickly to pathological gambling. Martin (2003) explains that numerous studies demonstrate that moderate to heavy users of addictive products tend to have automatic responses when exposed to related cues, which may also thwart attempts to curtail usage by interfering with the process of how usage is managed. Thus, this conditioning effect of advertising is a third possible explanation for the current findings.

Naturally, this study cannot determine which theory has the best explanatory value. However, the finding that sports-embedded gambling promotions elicit higher approval, encouragement and influence on sports betting amongst problem gamblers compared to non-problem and at-risk gamblers should catalyze further research.

FUTURE RESEARCH DIRECTIONS

This study is exploratory, illuminating only self-reported responses to sports-embedded gambling promotions. These responses may reflect a desire by problem gamblers to attribute their gambling problems to external causes rather than reflect the actual effect of these promotions on sports betting behavior. Further, use of a non-representative respondent panel may limit generalizability of results, while the cross-sectional design does not enable identification of causal pathways. Much scope remains to advance research in this area.

An obvious need is for longitudinal research that untangles cause and effect between exposure to sports-embedded gambling marketing and sports betting behavior and related gambling problems. Presently, it is uncertain whether this exposure increases sports betting consumption, sustains addiction to gambling, or has minimal effect on problem gamblers.

Three explanations have been proposed to elucidate why problem gamblers report most influence to gamble from sports-embedded gambling promotions. Research is needed to identify whether heightened exposure and attention to advertising by highly involved consumers, cravings induced by gambling advertising, or classical conditioning effects provide the best explanation, although all of these factors may contribute.

Research is also needed to determine the impact of sports-related gambling marketing on recovering problem gamblers and those attempting to curtail their gambling. Relapse is a common experience amongst recovering problem gamblers (Battersby et al., 2010; Hodgins & el-Guebaly, 2004) and the impacts of sports betting promotions during sport on relapse are currently unknown.

This study also provides some preliminary evidence that certain bet types and appeals provide more encouragement to bet amongst problem gamblers compared to non-problem and at-risk gamblers. Research is needed to ascertain the differential effects of various bet types and promotional appeals and techniques on gamblers at varying levels of problem gambling severity to inform efforts to curtail those that provide distinctive inducements for problem gamblers.

Not only might marketing cues elicit cravings and triggers amongst addicted consumers, they are also implicated in shifting consumers from benign consumption to highly harmful, high dependence and excessive consumption (Grover et al., 2011). Research is needed to determine whether gambling marketing cues during sports broadcasts facilitate the development of gambling problems and progression along the problem gambling continuum to higher levels of risk and harm. Research suggests that any feature that increases consumption puts people at greater risk of gambling-related harm (Currie et al. 2006). Research is yet to determine whether sports-embedded marketing contributes to increased gambling-related harm and new cases of problem gambling.

Little is known about the impacts of sports-integrated gambling marketing on children and young people (Derevensky et al, 2010; Lamont et al., 2011; Monaghan, Derevensky & Sklar, 2008), with preliminary evidence suggesting this exposure can increase gambling intention (Hing, Vitartas et al., 2014). Studies are clearly warranted on children and young people who may be more affected than adults due to their impressionability at a time when values, attitudes and beliefs are being established, their susceptibility to media as a key socialising agent, and because they may be unable to distinguish the persuasive intent of integrated marketing (Arnett, 1995; Larson & Richards, 1994; Said 2010; Wright et al. 2010).

Further research is also needed on how this marketing affects young adult males, given they are clearly the target market for gambling promotions during sport. Problem gambling rates are highest amongst 18-25 year old males (Delfabbro, 2012; Williams, West & Simpson, 2012), and the contribution of sports betting marketing to their gambling consumption and gambling problems is unknown.

CONCLUSION

Problem gambling can be considered a form of compulsive consumption and both behaviors are explained by biopsychosocial models that acknowledge a variety of physiological, genetic, psychological, social and cultural factors as contributing to their development (O'Guinn & Faber, 1989; Williams et al., 2012). Models of both problem gambling and compulsive consumption also identify that one contributing factor is marketing, given that external stimuli can trigger episodes of the behavior (O'Guinn & Faber, 1989; Productivity Commission, 1999) and the apparent correlation between exposure to marketing cues and increased engagement with potentially addictive behaviors (Martin, 2013; Pollay, 1990, 1996). Previous gambling advertising research identifies most effect on problem gamblers, with theories of high involvement, cravings and conditioning effects being possible explanations.

Thus, frequent exposure of sports bettors to the proliferation of gambling and sports betting promotions that are now firmly integrated into televised sports broadcasts may provide marketing cues that drive additional consumption, particularly amongst problem gamblers. Consistent with this contention, this study found that problem gamblers report viewing these gambling promotions more

favourably compared to non-problem and at-risk gamblers and to feel more encouraged and influenced to bet by this type of marketing. Given the increasing growth of sports betting, early evidence of increased sports betting problems, and the inability to avoid gambling advertising while engaging in the highly popular pastime of watching televised sport, further research is critical to understand the impacts of sports-embedded gambling promotions on gambling consumption and problem gambling. This exploratory study has laid some groundwork and provided future directions to inform this research effort.

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Table 1: Frequency of watching sport on television (N = 544)

	Never	<Once a month	Once a month	2-3 times month	Once a week	2-3 times week	Daily
	%	%	%	%	%	%	%
Rugby league (NRL)	10.1	10.3	7.4	11.2	20.2	34.6	6.3
Australian Rules football (AFL)	26.3	9.7	9.0	9.6	17.1	23.9	4.4
Rugby union	29.6	16.7	15.4	11.9	14.9	9.0	2.4
Soccer	41.4	17.3	9.0	10.3	9.4	8.3	4.4
Cricket	27.9	12.9	9.7	11.9	12.9	19.5	5.1
Motor racing	36.8	17.8	13.8	12.3	10.8	6.4	2.0
Golf	50.9	17.3	9.0	8.3	6.6	5.1	2.8
Tennis	31.6	23.3	14.2	9.9	8.6	8.5	3.9

Stem question: During the most recent season, how often did you watch the following sports on television (including free-to-air and Pay TV)?

Table 2: Comparison of mean scores (std dev.) amongst PGSI groups for approval of promotional techniques (N = 544)

	Mean (std dev.)	Non- Problem Gambler (n=273)	Low Risk Gambler (n=97)	Moderate Risk Gambler (n=54)	Problem Gambler (n=120)	<i>F</i> -Value	Pair-wise comparisons
Pre-match commentary on betting odds	3.2 (1.1)	3.0 (1.1)	3.1 (1.1)	3.3 (1.2)	3.5 (0.9)	7.18***	Non < Prob
Stadium signage promoting gambling operators	3.2 (1.0)	3.1 (1.0)	3.1 (1.0)	3.2 (1.0)	3.4 (1.0)	4.57**	Non < Prob
Segments sponsored by gambling companies	3.1 (1.0)	3.0 (1.0)	3.1 (1.0)	3.2 (1.0)	3.4 (1.0)	4.49**	Non < Prob
Gambling logos on players' uniforms	3.0 (1.0)	2.9 (1.0)	2.9 (1.1)	3.2 (0.9)	3.4 (1.0)	6.08***	Non < Prob Low < Prob
On-screen displays of live betting odds	3.0 (1.1)	2.7 (1.2)	3.0 (1.2)	3.1 (1.2)	3.4 (1.0)	10.37***	Non < Prob Low < Prob
Gambling advertisements in commercial breaks	3.0 (1.0)	2.9 (1.1)	2.9 (1.0)	3.1 (1.0)	3.4 (1.0)	7.82***	Non < Prob Low < Prob
Live studio crosses to gambling operators discussing betting odds	2.9 (1.2)	2.7 (1.1)	2.8 (1.2)	3.0 (1.1)	3.4 (1.1)	12.97***	Non < Prob Low < Prob
On-screen displays of gambling logos and websites	2.9 (1.1)	2.8 (1.0)	2.9 (1.0)	2.9 (1.1)	3.4 (1.1)	11.04***	Non < Prob Low < Prob Mod < Prob
Promotion of novelty bets	2.9 (1.1)	2.6 (1.1)	3.0 (1.0)	3.1 (1.1)	3.4 (1.0)	18.07***	Non < Low Non < Mod Non < Prob Low < Prob
In-match commentary about betting odds from match commentators	2.8 (1.2)	2.5 (1.1)	2.7 (1.2)	2.8 (1.2)	3.4 (1.0)	17.00***	Non < Prob Low < Prob Mod < Prob

Celebrity endorsement of gambling	2.7	2.5	2.5	2.7	3.3	17.00***	Non < Prob
	(1.1)	(1.1)	(1.0)	(1.1)	(1.0)		Low < Prob
							Mod < Prob

Stem question: How much do you approve or disapprove of the following types of promotions during televised sport? Measured on a 5-point Likert scale where 1 = 'strongly disapprove', 5 = 'strongly approve'. ** $p < 0.01$, *** $p < 0.001$

Note: Non = Non-Problem; Low = Low Risk Gambler; Mod = Moderate Risk Gambler; Prob = Problem Gambler.

Table 3: Comparison of mean scores (std dev.) amongst PGSI groups for perceived encouragement to bet of different gambling promotions (N = 544)

	Mean (std dev.)	Non- Problem Gambler (n=273)	Low Risk Gambler (n=97)	Moderate Risk Gambler (n=54)	Problem Gambler (n=120)	<i>F</i> -Value	Pair-wise comparisons
Live studio crosses to gambling operators discussing betting odds	2.9 (1.2)	2.6 (1.2)	2.9 (1.1)	3.0 (1.0)	3.5 (1.0)	18.65***	Non < Prob Low < Prob Mod < Prob
Promotion of novelty bets	2.9 (1.2)	2.5 (1.1)	3.0 (1.2)	3.1 (1.0)	3.6 (1.1)	30.99***	Non < Low Non < Mod Non < Prob Low < Prob Mod < Prob
Pre-match commentary on betting odds	2.9 (1.1)	2.6 (1.1)	3.0 (1.0)	3.2 (1.1)	3.4 (1.0)	16.57***	Non < Low Non < Mod Non < Prob Low < Prob
On-screen displays of live betting odds	2.9 (1.2)	2.6 (1.2)	2.9 (1.1)	3.0 (1.0)	3.6 (0.9)	24.19***	Non < Low Non < Prob Low < Prob Mod < Prob
In-match commentary about betting odds from match commentators	2.8 (1.1)	2.5 (1.1)	2.9 (1.1)	2.9 (1.0)	3.4 (1.0)	22.34***	Non < Low Non < Mod Non < Prob Low < Prob Mod < Prob
Segments sponsored by gambling companies	2.7 (1.1)	2.3 (1.1)	2.7 (1.1)	2.7 (1.0)	3.5 (1.1)	29.97***	Non < Prob Low < Prob

							Mod < Prob
On-screen displays of gambling logos and websites	2.7 (1.1)	2.4 (1.2)	2.6 (1.1)	2.7 (1.0)	3.4 (1.0)	25.43***	Non < Prob
							Low < Prob
Stadium signage promoting gambling operators	2.7 (1.1)	2.3 (1.1)	2.6 (1.0)	2.7 (0.9)	3.5 (1.1)	33.99***	Mod < Prob
							Non < Prob
							Low < Prob
Gambling advertisements in commercial breaks	2.7 (1.1)	2.4 (1.1)	2.7 (1.1)	2.8 (1.0)	3.5 (1.0)	26.88***	Mod < Prob
							Non < Mod
							Non < Prob
							Low < Prob
Gambling logos on players' uniforms	2.6 (1.1)	2.3 (1.0)	2.5 (1.0)	2.6 (1.0)	3.4 (1.0)	34.21***	Mod < Prob
							Non < Prob
							Low < Prob
							Mod < Prob
Celebrity endorsement of gambling	2.6 (1.2)	2.2 (1.1)	2.4 (1.0)	2.6 (1.0)	3.5 (1.2)	38.74***	Non < Prob
							Low < Prob
							Mod < Prob

Stem question: How much do you agree or disagree that the following gambling promotions encourage you to bet on the sports where gambling is promoted? Measured on a 5-point Likert scale where 1 = 'strongly disagree', 5 = 'strongly agree'. *** $p < 0.001$

Note: Non = Non-Problem; Low = Low Risk Gambler; Mod = Moderate Risk Gambler; Prob = Problem Gambler.

Table 4: Comparison of mean scores (std dev.) amongst PGSI groups for perceived influence of contextual factors on sports betting during a match (N = 544)

	Mean (std dev.)	Non- Problem Gambler (n=273)	Low Risk Gambler (n=97)	Moderate Risk Gambler (n=54)	Problem Gambler (n=120)	F-Value	Pair-wise comparisons
Good odds available	3.5 (1.0)	3.2 (1.1)	3.7 (1.1)	3.7 (1.0)	3.7 (0.9)	8.78***	Non < Low Non < Mod Non < Prob
The match being a quarter, semi or grand final, or other special match	3.4 (1.1)	3.1 (1.1)	3.5 (1.2)	3.7 (1.0)	3.6 (0.9)	9.06***	Non < Mod Non < Prob
Your favourite team(s) playing in the match	3.4 (1.0)	3.2 (1.1)	3.4 (1.1)	3.6 (1.0)	3.6 (0.9)	5.11**	Non < Prob
Watching the match in a venue where there are sports betting facilities	3.3 (1.1)	3.0 (1.1)	3.3 (1.1)	3.5 (0.9)	3.6 (0.9)	10.32***	Non < Low Non < Mod Non < Prob
Having an existing account with one or more sports betting agencies	3.2 (1.0)	3.0 (1.0)	3.3 (1.0)	3.7 (0.9)	3.6 (0.9)	14.13***	Non < Mod Non < Prob
Watching the match with other adults who have bet on it	3.2 (1.0)	3.0 (1.0)	3.4 (1.1)	3.5 (0.8)	3.7 (0.9)	18.27***	Non < Low Non < Mod Non < Prob
Having internet access during the match	3.2 (1.0)	2.9 (1.0)	3.2 (1.0)	3.4 (0.9)	3.7 (0.9)	19.85***	Non < Low Non < Mod Non < Prob
Your favourite player(s) playing in the match	3.1 (1.0)	2.9 (1.0)	3.1 (1.1)	3.5 (0.8)	3.5 (1.0)	17.30***	Low < Prob Non < Mod Non < Prob Low < Mod Low < Prob

Watching the match with other people barracking for the same team	3.1 (0.9)	2.8 (0.9)	3.0 (0.9)	3.2 (0.7)	3.6 (0.8)	20.86***	Non < Prob Low < Prob Mod < Prob
Watching the match with other people barracking the opposite team	3.0 (1.0)	2.7 (0.9)	3.0 (1.1)	3.1 (0.8)	3.5 (0.9)	19.55***	Non < Low Non < Mod Non < Prob Low < Prob
Gambling promotions that emphasise how easy it is to place a bet	2.9 (1.0)	2.6 (1.0)	2.9 (1.0)	2.9 (0.7)	3.5 (0.9)	26.17***	Non < Prob Low < Prob Mod < Prob
Gambling promotions that are funny or humorous	2.9 (1.0)	2.6 (1.0)	2.8 (1.0)	2.9 (0.9)	3.5 (0.9)	24.65***	Non < Prob Low < Prob Mod < Prob
The availability of novelty bets only open for a limited time	2.9 (1.1)	2.6 (1.0)	2.9 (1.1)	2.9 (1.0)	3.6 (0.9)	30.15***	Non < Low Non < Mod Non < Prob Low < Prob Mod < Prob
Watching the match with no children or adolescents present	2.9 (1.0)	2.7 (0.9)	2.9 (0.9)	2.9 (0.9)	3.5 (0.9)	23.84***	Non < Prob Low < Prob Mod < Prob
Watching the match on your own	2.9 (1.0)	2.5 (1.0)	2.8 (1.0)	3.1 (0.9)	3.6 (0.9)	38.32***	Non < Low Non < Mod Non < Prob Low < Prob Mod < Prob
Watching the match with other adults who have not bet on it	2.8 (1.0)	2.6 (0.9)	2.7 (1.0)	2.9 (0.8)	3.5 (0.9)	32.98***	Non < Prob Low < Prob Mod < Prob

Stem question: How much do the following factors make it more or less likely that you will place impulse bets during a sports match? Measured on a 5-point Likert scale where 1 = 'much less likely', 5 = 'much more likely'. ** $p < 0.01$, *** $p < 0.001$

Note: Non = Non-Problem; Low = Low Risk Gambler; Mod = Moderate Risk Gambler; Prob = Problem Gambler.

Table 5: Comparison of mean scores (std dev.) amongst PGSI groups for perceived influence of gambling promotions on sports betting behavior (N = 544)

	Mean (std dev.)	Non- Problem Gambler (n=273)	Low Risk Gambler (n=97)	Moderate Risk Gambler (n=54)	Problem Gambler (n=120)	F-Value	Pair-wise comparisons
Increased your frequency of sports betting	2.6 (1.1)	2.2 (1.0)	2.6 (1.0)	2.8 (1.1)	3.5 (0.9)	52.43***	Non < Low Non < Mod Non < Prob Low < Prob Mod < Prob
Increased your expenditure on sports betting	2.5 (1.1)	2.1 (0.9)	2.4 (1.0)	2.8 (1.0)	3.5 (0.9)	67.83***	Non < Low Non < Mod Non < Prob Low < Prob Mod < Prob
Increased the time you spend on sports betting	2.5 (1.1)	2.1 (0.9)	2.5 (1.0)	2.7 (1.0)	3.5 (0.9)	65.80***	Non < Low Non < Mod Non < Prob Low < Prob Mod < Prob
Caused you to spend more money on sports betting than you had intended	2.4 (1.1)	2.0 (0.9)	2.2 (0.9)	2.6 (1.0)	3.5 (1.0)	78.41***	Non < Mod Non < Prob Low < Prob Mod < Prob
Caused you to spend more time on sports betting than you had intended	2.4 (1.1)	2.0 (0.9)	2.3 (0.9)	2.6 (1.0)	3.5 (0.9)	79.82***	Non < Mod Non < Prob Low < Prob Mod < Prob

Caused you or those close to you any sports betting-related harm	2.3 (1.1)	1.9 (0.9)	2.0 (0.8)	2.2 (1.0)	3.4 (1.0)	86.77***	Non < Prob Low < Prob Mod < Prob
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Stem question: How strongly do you agree or disagree that gambling promotion during televised sport has...? Measured on a 5-point Likert scale where 1 = 'strongly disagree', 5 = 'strongly agree'. *** $p < 0.001$

Note: Non = Non-Problem; Low = Low Risk Gambler; Mod = Moderate Risk Gambler; Prob = Problem Gambler.