

## SYSTEMATIC REVIEW

# Impact of Sports Betting Advertising on Gambling Behavior: A Systematic Review

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## Main Points

- The volume of gambling advertising is increasing, as is the popularity of sports betting.
- Based on a review of 22 studies, most empirical research is limited to self-reported cross-sectional data.
- Sports betting marketing has a positive relationship with sports betting attitudes, intentions, and behaviours.
- The influence of sports betting marketing appears to be strongest among those who score higher on measures of problem gambling severity.
- Much of the research to date has been conducted using Australian samples therefore findings should be interpreted with caution.

## Abstract

In the UK and elsewhere, the volume of gambling advertising is increasing, as is the popularity of sports betting. Through a systematic review, the available literature was synthesized to identify the ways in which sports betting advertising influences sports betting attitudes, intentions, and behaviors. A total of 22 studies were identified and included in the review. Overall, the marketing of sports betting was found to have a positive relationship with sports betting attitudes, intentions, and behaviors. This relationship appears to be the strongest among high-risk problem gamblers. Some marketing strategies elicited greater behavioral responses, for example, direct messages. There was also a difference in preference for the advertised wagering inducements between problem gambling groups. Although there has been a recent increase in experimental methodologies examining sports betting marketing, to date, empirical research has been largely limited to self-reported cross-sectional data.

**Keywords:** Gambling, advertising, sports betting, systematic review, marketing

## Introduction

In many countries, there has been an increase in the availability of online gambling (Gainsbury, 2015), and this has been accompanied by an increase in the frequency of gambling advertisements, in particular television advertisements and sponsorship (Lamont et al., 2011). The advertising and marketing spend for sports betting products has dramatically increased in recent years. For example, statistics show that in the UK, sports betting sponsorship has doubled, from £30m to £60m, in a three-year period (GambleAware, 2018). Research has indicated that 95% of soccer shirt sponsorships deals with English

soccer clubs had been made after the UK legislation was relaxed in 2007 (Bunn et al., 2019).

The growth of gambling marketing and advertising, together with developments in technology, has resulted in concerns about the potentially negative effects of marketing and advertising, especially upon children and young and vulnerable individuals (Responsible Gambling Strategy Board, 2016). Binde (2014) noted that it is important to differentiate and understand the impact of various forms of advertising on different population subgroups so that educators, researchers, regulators, and legislators can respond accordingly. The impact of advertising on

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the development of gambling problems remains largely unknown, and this is the case for different types of gambling activity, including sports betting, and across different types of advertisements (Labrador et al., 2021). Moreover, the evidence of particular effects on specific groups is inconclusive, as is the process in which advertising facilitates problem gambling (Labrador et al., 2021).

A “rapid evidence review” by Planzer and Wardle (2012) highlighted two main themes within the empirical studies examining the impact of gambling advertising. They suggested that advertising might work by: (i) triggering consumption among at-risk and problem gamblers; and (ii) altering how gambling is perceived within particular population groups. According to the theory of planned behavior (Ajzen, 1992), behaviors such as gambling participation are mediated by an individual’s attitudes, subjective norms, and perceived behavioral control (Flack & Morris, 2015). Previous research has identified an association between gambling advertising, attitudes, intentions to gamble, and gambling behavior (Bouguettaya et al., 2020; Derevensky et al., 2010; Korn et al., 2005).

Over the past few years, there has been an increase in attention paid to the role of gambling advertising in gambling-related behaviors. As a result, there has been an increase in peer-reviewed research published on this topic. A recently published critical and meta-analytic review (Bouguettaya et al., 2020) attempted to establish the relationship between exposure to gambling advertising and gambling-related attitudes, intentions, and behaviors across all types of gambling. The results suggested a positive association between exposure to gambling advertising and gambling-related attitudes, intentions, and behavior, and that the association was greatest for gambling behavior. Since the publication of this review, nine additional studies have been published which have specifically examined the impact of sports betting advertising.

The aim of the present study was to systematically review the available literature to synthesize and critically evaluate empirical evidence published concerning sports betting advertising strategies, with particular attention to studies that concern the impact of such advertising on participation in sports betting. The specific research objectives of the study were to: (i) describe the selected literature (study locations, populations, research methods, and outcomes); (ii) review the associations between gambling exposure and sports betting attitudes, intentions, and behaviors; (iii) describe how these features differ across sports bettors with differing problem gambling status; (iv) assess the methodological quality of the studies included; and (v) identify future research needs to inform policy makers and researchers, regarding future policy on sports betting advertising.

**Methods**

Relevant studies were identified by searching three electronic databases: PsycINFO, PubMed, and Scopus. The search was restricted to papers published in the English language and before August 1, 2021. The search words included “online gambling,” “internet gambling,” “remote gambling,” “interactive gambling,” “sports bet\*,” “football bet\*,” “in-play,” “sponsorship,” “advertis\*,” “marketing,” and “promotion.” The present authors took a similar approach to Bouguettaya et al. (2020) and did not use a strict definition or measure of attitudes, intentions, or behaviors, but included any studies that described one or more of these features within the findings. The search resulted in an initial retrieval of 658 journal papers. Reference lists of papers were also read to identify research that did not appear in the initial screening procedure. All searches were conducted from August 1 to August 14 (2021). After duplicates were removed, a total of 458 papers were searched by their title, and abstracts with 59 of

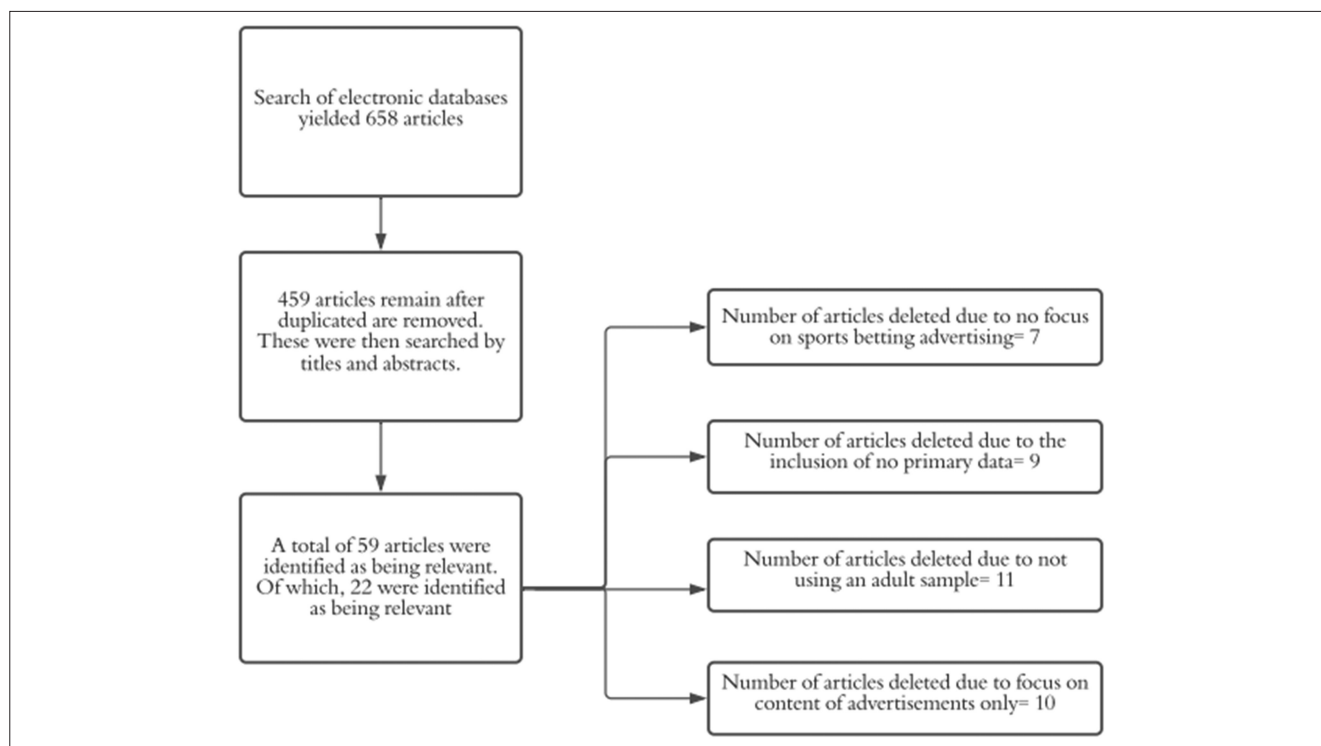


Figure 1. PRISMA Flowchart of Study Selection for the Systematic Review.

those papers being identified as potentially relevant. The full text of the remaining 59 papers was inspected, and 22 papers met the inclusion and exclusion criteria (Figure 1).

### Inclusion Criteria

To be included as an output to be evaluated, the published paper had to: (i) be written in the English language; (ii) report an empirical study collecting primary data on sports betting advertising and sports betting outcomes; (iii) address sports betting marketing only (rather than other gambling types); (iv) employ an adult sample; and (v) be published in a peer-reviewed journal.

## Results

### General Characteristics

A total of 22 studies that were identified as meeting the inclusion criteria are summarized in Table 1. The overall sample sizes of the participants in the studies ranged from 39 to 1813. Most of the studies had been conducted in Australia ( $n = 16$ ). Other studies were carried out in Spain ( $n = 2$ ), the UK ( $n = 3$ ) and the US ( $n = 1$ ). There were few studies that employed an experimental ( $n = 5$ ) or longitudinal methodology ( $n = 3$ ). The remaining studies were qualitative ( $n = 5$ ), cross-sectional ( $n = 8$ ), or used a mixed-methods design ( $n = 1$ ).

### Sports Betting Advertising and Sports Betting Attitudes

Ten studies reported an association between sports betting advertising and sports betting-related attitudes (see Table 1; Hing et al., 2013, 2015b, 2017a; Killick & Griffiths, 2020; Lamont et al., 2016; Lopez-Gonzalez et al., 2020; Rockloff et al., 2019; Roderique et al., 2020; Thomas et al., 2012). Attitude measures comprised of affect toward different promotional techniques, perceived affect, and attitude. Quantitative studies, using a cross-sectional design, reported the association of attitudes to various types of exposure, including the promotion of gambling during televised sport (Hing et al., 2013, 2015b, 2017a; Roderique et al., 2020), sports betting television commercials (Lole et al., 2020), and simulated televised sports matches (Rockloff et al., 2019).

Five studies adopted a qualitative approach (Deans et al., 2017; Killick & Griffiths, 2020; Lamont et al., 2016; Lopez-Gonzalez et al., 2020; Thomas et al., 2012), all of which reported an association between sports betting advertising and sports betting-related attitudes. Four of these studies set out to explore the perceived influence of sports betting advertising (Deans et al., 2017; Killick & Griffiths, 2020; Lopez-Gonzalez et al., 2020; Thomas et al., 2012), while Lamont et al. (2016) examined the way in which sports betting promotional techniques evoked positive affect among sports viewers.

Participants in these studies reported frequent exposure to sports betting advertising through multiple marketing channels, including radio, billboards, and pop-ups on social media sites. However, a key theme that was identified was the saturation of advertising within sporting environments (Deans et al., 2017). Gamblers felt that sports betting advertising was difficult to avoid during the live broadcast of sports betting matches (Killick & Griffiths, 2020; Thomas et al., 2012). Male participants who often watched sporting events were the most aware of sports-embedded advertising (Thomas et al., 2012), and some sports bettors negatively viewed this advertising as intrusive and were angry

that it has become so prevalent during sporting events (Killick & Griffiths, 2020; Lamont et al., 2016). However, one study by Lopez-Gonzalez et al. (2020) found that sports bettors currently undergoing treatment for gambling disorder reported that the “attention-grabbing” forms of marketing were advertisements they saw when in betting shops and the direct advertising messages sent to them by bookmakers.

Many sports betting advertisements include inducements or incentives to gamble. Lopez-Gonzalez et al. (2020) reported that participants perceived sports betting bonuses as the most pervasive marketing technique used by sports betting operators. Four of the qualitative studies (Deans et al., 2017; Killick & Griffiths, 2020; Lamont et al., 2016; Lopez-Gonzalez et al., 2020) explored whether particular types of wagering inducement were more appealing to sports bettors than others. Deans et al. (2017) reported that inducements and incentives such as cash-back offers and bonus bets lowered participants’ perceptions about the risks associated with sports betting. Similarly, Killick and Griffiths (2020) found that sports bettors reported new customer offers, enhanced odds, and customized sports bets that reduced feelings of risk, while enhanced odds offers gave participants the perception that they had a higher likelihood of winning the bet. Lamont et al. (2016) reported that sports bettors typically viewed advertisements positively, particularly if they displayed practical information about bonuses or odds perceived as attractive.

Three of the qualitative studies employed the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001) to assess problem gambling risk (Deans et al., 2017; Killick & Griffiths, 2020; Thomas et al., 2012), and one study consisted of a sample of sports bettors undergoing treatment for gambling disorder (Lopez-Gonzalez et al., 2020). Deans et al. (2017) found that problem gamblers were more likely to report that sports betting advertising stimulated betting during large sporting events, and advertisements which offered promotions prompted them to bet more than they normally would. Killick and Griffiths (2020) reported that inducements were attractive to both low-risk, moderate-risk, and problem gamblers within the sample. Another study found that problem gamblers were more likely to focus on the positive benefits of online gambling incentives, instead of the long-term risk they posed (Thomas et al., 2012). These incentives encouraged them to begin betting online, and to opening up an account to take up new offers that were available (Thomas et al., 2012).

Sports betting advertising appears to influence gambling attitudes by normalizing sports betting (Deans et al., 2017; Killick & Griffiths, 2020; Lamont et al., 2016; Thomas et al., 2012). The constant exposure of sports betting advertising removes the stigma traditionally associated with sports betting (Deans et al., 2017). Specific marketing techniques, such as using celebrities and humorous advertisements, contributed to this normalization of sports betting by promoting gambling as harmless, fun, and an avenue to success (Lamont et al., 2016). Young men in one study reported that over-exposure to gambling advertising also prompted more frequent discussions about sports betting among peers, as well as feeling more influenced to bet due to gambling advertising cues (Thomas et al., 2012). However,

Table 1.  
Sample Characteristics of Studies Included in the Systematic Review

Author(s)	N	Location	Study design	Age range (years)	Independent variables	Outcome variables	Exposure to advertising/ type of advertising	Advertising recall	Self-report for outcome measures	Relationship found
Browne et al. (2019)	597	Australia	Longitudinal (repeated measure/ecological momentary assessments across three weeks)	18 – 84 years, race bettors (M = 41.3, SD = 13.7) Sports bettors (M = 40.7, SD = 14.1)	Advertising observed (recall—immediate, through ecological assessment)	Intent, problem gambling, and gambling behavior (actual betting, amount spent—split on race vs. sport bet)	Various forms of advertising and inducements	No	Yes	Yes and no; exposure to advertising associated with higher betting and spend, but not with intentions (apart from for direct advertising).
Deans et al. (2017)	50	Australia	Cross-sectional qualitative	20 – 37 years (M = 28, SD = 4)	Advertising observed (recall)	Attitude and problem gambling	Various forms of gambling marketing	Yes	N/A	Yes, the marketing of inducements and incentives reduced feelings of risk and created feeling of control, as well as normalizing sports betting.
Hing et al. (2015a)	544	Australia	Cross-sectional survey	18 – 80 years (M = 42.2 years, SD = 14.26)	Self-report of watching show with embedded advertising	Gambling behavior and problem gambling	Gambling promotions during televised sport	Yes and no	Yes	Yes and no, all participants reported that ads did not influence them. However, problem gamblers self-reported impacted frequency and increased problems.
Hing et al. (2015b)	1000	Australia	Cross-sectional survey	18 – 85 years, mean age and SD not stated	Self-report of watching show with embedded advertising	Attitude, intent, gambling behavior, and problem gambling	Gambling promotions during televised sport	No	Yes	Yes, main finding that intent to bet is higher in those who saw ads. Problem gamblers felt more favorable toward gambling.

(Continued)

Table 1.  
Sample Characteristics of Studies Included in the Systematic Review (Continued)

Author(s)	N	Location	Study design	Age range (years)	Independent variables	Outcome variables	Exposure to advertising/ type of advertising	Advertising recall	Self-report for outcome measures	Relationship found
Hing et al. (2017b)	455	Australia	Cross-sectional survey	18 – 55 years+, mean age and SD not stated	Self-report of watching sports show with embedded advertising	Problem gambling	Gambling promotions during televised sport	Yes	Yes	Yes and no, problem gamblers were more likely to have the self-reported perception that advertising had a greater impact on their gambling but exposure was not a significant predictor of higher PGSI score.
Hing et al. (2018)	1813	Australia	Cross-sectional survey	(M = 35.3 years, SD = 12.7)	Self-report of watching show with embedded advertising, frequency of using sports betting inducements	Gambling behavior	Promotions during televised sport and other media advertising	Yes	Yes	Yes and no, higher frequency of watching sport (embedded with gambling promotions) was associated with placing bets in-play. Less frequent exposure to marketing was associated with a higher number of bets being placed in-play.
Hing et al. (2019)	722	Australia	Longitudinal (repeated measure/ ecological momentary assessments across one week)	18 – 84 years, race bettors (M = 43.1, SD = 13.2) Sports bettors (M = 40.7, SD = 14.1)	Advertising observed (recall, but immediate through ecological assessment)	Problem gambling and gambling behavior (split on race vs. sport bet)	Direct messages, TV ads, and websites	No	Yes	Direct messages were the types of advertisements perceived to be most influential on betting behavior.

(Continued)

Table 1.  
Sample Characteristics of Studies Included in the Systematic Review (Continued)

Author(s)	N	Location	Study design	Age range (years)	Independent variables	Outcome variables	Exposure to advertising/ type of advertising	Advertising recall	Self-report for outcome measures	Relationship found
Hing et al. (2013)	212	Australia	Cross-sectional survey	18 – 68 (M = 28.8 years)	Advertising observed during sponsored sporting match (recall, aided, and unaided)	Attitude, intention, and gambling behavior	Gambling promotions during televised sport	Yes	Yes	Yes, sports bettors have significantly higher exposure to advertising, and have more positive attitudes.
Hing et al. (2017a)	611	Australia	Experimental	18 – 75+, mean age and SD not stated	Presented mock advertisements with different attributes to participant	Attitude and gambling behavior (likelihood of placing a bet on the video presented)	Mock gambling adverts	No	To a certain degree; asked “would you bet right now?”	Yes, presenting “typical” advertisement increased behavior more than “neutral” in most gamblers. The attractive non-expert female presenter gained more attention from all PGSI groups than other presenter types. The bet type in the advertisement was associated with turning attention into action.
Houghton & Moss (2020)	145	Great Britain	Experimental and cross-sectional survey	18 – 64 years (M = 27.84, SD = 9.01)	Presented Twitter postings from either sports betting operators or affiliate accounts advertising sports bets of various complexities	Intention to gamble	Mock sports betting advertisements on Twitter	No	Yes	Yes, participants reported higher likelihood to bet when they were presented on an affiliate account than an operator account.

(Continued)

Table 1.  
Sample Characteristics of Studies Included in the Systematic Review (Continued)

Author(s)	N	Location	Study design	Age range (years)	Independent variables	Outcome variables	Exposure to advertising/ type of advertising	Advertising recall	Self-report for outcome measures	Relationship found
Johnston et al. (2015)	551	Australia	Cross-sectional survey	18+, the mean age ranged from 45 to 49	Sports sponsorship advertising exposure	Intention to gamble	Exposure to gambling sponsorship advertising	No	Yes	Yes, participants who perceived that sponsorship advertising had an effect on them significantly predicted intention to use the sponsor's products.
Killick & Griffiths, 2020	19	United Kingdom	Cross-sectional, qualitative	21 – 32 years (M = 25.5, SD = 3.25)	Advertising observed (recall)	Attitude and problem gambling	Various marketing strategies	No	N/A	Yes, advertisements influenced gambling and the uptake of wagering inducements.
Lamont et al. (2016)	39	Australia	Cross-sectional, qualitative	18 – 60 years, mean and SD not stated	Presented real gambling adverts	Attitude	Gambling promotions during televised sport	No	N/A	Yes, generally positive reactions (joy, arousal, optimism, and excitement) were reported.

Note: M = mean; SD = standard deviation; N/A, not applicable.

the study by Lopez-Gonzalez et al. (2020) reported that sports bettors undergoing treatment did not believe that gambling advertising contributed to any long-term effects of advertising exposure. Rather, they perceived their gambling-related problems to be present before the proliferation of betting advertising started.

Four studies that utilized an experimental design and reported significant associations between advertising and more positive responses to specific types of wagering requirements (Hing et al., 2017; Lole et al., 2020; Rockloff et al., 2019; Roderique et al., 2020). Hing et al. (2017) examined which elements and attributes of mock advertisements that participants found most attractive. There were four different advertising elements that were tested: three types of presenters (sports betting operators, match presenter, and attractive non-expert presenter); four types of appeal (ease of placing the bet, sense of urgency, jovial, and neutral); and three message formats (studio crossover, commentary, and on-screen display). They also examined the appeal of four bet types: a traditional bet on the match winner; a “risk free” bet where the individual receives a refund if the team loses; an exotic bet on a key event in that match which was which team will score first; and a micro bet based on which team will receive the next penalty. The commentator and bet type were rated as the most important feature being advertised. For commentator, the attractive “non-expert” had the highest utility, and the “risk free” bet type was the most appealing attribute in the advertisements.

Lole et al. (2020) collected data utilizing eye-tracking and tonic electrodermal activity (skin conductance level), and subjective ratings of desire in response to advertisements ( $n = 59$ ). A significant relationship was identified between the type of inducement advertised and subjective ratings of desire, whereas eye-tracking fixation data (relative exposure) were not correlated with ratings of desire. Non-gamblers were significantly less likely to desire the offers presented, in comparison to lower-risk and higher-risk gamblers. There was no significant difference in promotion desire between lower-risk and higher-risk gamblers.

Roderique et al. (2020) ( $n = 60$ ) presented different types of recorded video (sport vs. non-sport) containing gambling advertising or no gambling advertising. Sports students (compared to non-sports students) reported the highest urges to gamble after exposure to a video of a televised football match containing embedded gambling promotion. Rockloff et al. (2019) reported significant differences for attractiveness ratings between different types of wagering inducements, with better odds/winnings found to be the most attractive incentive ( $n = 299$ ). The authors found no significant differences based on problem gambling severity.

The final study that examined sports betting advertisements and sports betting-related attitudes was a cross-sectional survey by Hing et al. (2015b). The study examined how sports betting promotions during televised sports influence gambling behavior ( $n = 1000$ ). The results indicated that a more positive attitude to these gambling promotions and greater exposure during televised sports were both positively associated with increased intended sports betting frequency in the next six months. Problem gamblers were found to hold more positive attitudes toward these promotions compared to non-problem and low-risk gamblers.

### Sports Betting Advertising and Sports Betting Intentions

Seven studies have examined the association between exposure to sports betting advertising and sports betting-related intentions or expectancies (Browne et al., 2019, Hing et al., 2013, 2015b; Houghton & Moss, 2020; Johnston et al., 2015; Russell et al., 2018a; Xu et al., 2021). Overall, exposure to sports betting advertising appears to be associated with higher intentions to gamble. Four studies were cross-sectional, one study employed an experimental method, and two studies used a longitudinal method that required bettors to complete daily surveys over a 1-week period (Russell et al., 2018) or a 3-week period (Browne et al., 2019).

The studies asked participants if they intended betting within a set time period, with the period ranging from over the next 24 hours (Browne et al., 2019; Russell et al., 2018a), to two weeks (Hing et al., 2013, 2015b), the coming months (Xu et al., 2021), or 12 months (Johnston et al., 2015). The types of advertisements studied included exposure to promotions during televised sport (Hing et al., 2013, 2015b), live-odds during American football league matches (Xu et al., 2021), and various advertisements and wagering inducements (Browne et al., 2019). One study used ecological momentary assessment (EMA) surveys to collect data for actual direct advertising messages (email, text phone; Russell et al., 2018a).

Those who self-reported higher exposure to advertising during televised sport reported higher intentions to gamble (Hing et al., 2013, 2015b). Two studies used ecological monetary methods in order to reduce recall bias (Browne et al., 2019; Russell et al., 2018a). Browne et al. (2019) reported that direct messaging (rather than other forms of advertising) was positively associated with betting intentions in the sports betting group, although this effect was not found for race bettors. Russell et al. (2018a) reported that receiving emails increased betting intent, for both sports bettors and race bettors, whereas no other form of direct advertising increased intent.

Houghton and Moss (2020) conducted an experimental study with 145 regular sports bettors to examine how individuals respond to social media sports betting advertisements and whether these responses differ depending on the social media account that the advertisements originated from (a sports betting operator or affiliate account) and the complexity of the bet. The results indicated that bettors were more likely to place a bet in the future if the bet came from an affiliate account for medium-complexity bets.

Johnston et al. (2015) conducted an online survey ( $n = 511$ ) to examine whether the perceived effects of sport sponsorship advertising were positively associated with intentions to gamble with sponsors. The results demonstrated a significant relationship between participants perceiving that sponsorship advertising had an effect on them and predicted the intention to use the sponsorship product in the future. Betting frequency and sponsorship exposure were also found to predict intentions to use the sponsorship product.

Xu et al. (2021) used qualitative comparative analysis to examine whether live on-screen betting odds displayed during XFL (an American football league) could enhance gambling intentions ( $n = 47$ ). Live-odds portrayed in sports broadcasts through



presenter commentaries, odds displayed on television, sponsored segments, and visual displays at venues can be construed as advertisements (Gainsbury & Blaszczynski, 2017). The perceived enjoyment of individuals when seeing live on-screen betting odds was found to be an important condition for both spectator enjoyment and higher levels of gambling intention (Xu et al., 2021).

Three studies reported no association between betting intention and problem gambling status (Browne et al., 2019; Houghton et al., 2020; Russell et al., 2018a), whereas two studies reported problem gambling status to be positively correlated with gambling intentions (Hing et al., 2013, 2015b), and the intended betting frequency was predicted by a higher PGSI score and exposure to promotions. Two studies did not assess problem gambling status (Johnston et al., 2015; Xu et al., 2021). In addition, gambling intentions were also related to gambling attitudes (Hing, 2013, 2015b).

### Sports Betting Advertising and Sports Betting Behaviors

The present review identified 12 studies examining the relationship between gambling advertising and sports betting behavior (Browne et al., 2019; Hing et al., 2013, 2015a, 2015b, 2017a, 2017b, 2018a, 2019; Lopez-Gonzalez & Griffiths, 2019; Rockloff et al., 2019; Russell et al., 2018a, 2019). Overall, the studies suggest a positive relationship between exposure to gambling marketing and gambling-related behavior. This appears to be highest for those with self-reported gambling problems.

Eight studies used cross-sectional methods to assess the relationship (Browne et al., 2019; Hing et al., 2013, 2015a, 2015b, 2017b, 2018; Lopez-Gonzalez & Griffiths, 2019; Russell et al., 2019). Three studies conducted a longitudinal EMA to collect data during a 1-week period (Hing et al., 2019; Russell et al., 2018a) and a three-week period (Browne et al., 2019), and two studies adopted an experimental approach (Hing et al., 2017a; Rockloff et al., 2019). Most studies assessed exposure to sports betting promotions during televised sport (Hing et al., 2013, 2015a, 2015b, 2017b, 2018; Russell et al., 2019). Two EMA surveys collected data on exposure to various types of advertising and wagering inducements (Browne et al., 2019; Hing et al., 2019), whereas one study used EMA surveys to collect data for actual direct advertising messages (email, text phone; Russell et al., 2018a). Two experimental studies used mock advertisements (Hing et al., 2017a) and simulated highlight reels for sporting events (Rockloff et al., 2019).

Sports betting behavior was assessed in several ways, including previous betting behavior, recent betting behavior, immediate betting behavior, and response to betting inducements. These measures included self-reported betting behavior during the previous 12 months (Hing et al., 2013, 2015a, 2018; Russell et al., 2019), the number of bets and the expenditure for the most recent sport gambled upon (Hing et al., 2015a), the self-reported impact of gambling promotions on behavior, including the question "Would you bet right now?" (Hing et al., 2015b, 2017b; Lopez-Gonzalez & Griffiths, 2019), and the likelihood that participants would place a bet after watching an advertisement containing particular attributes (Hing et al., 2017a). Hing et al. (2019) examined the type of influence from wagering advertisements and inducements (e.g., bet larger amounts and more bets). Rockloff et al. (2019) assessed what type of bet the participants placed (e.g., long or "riskier bet" vs. short odds) in response to wagering requirements. Two EMA surveys collected

data for actual monetary betting spend (Browne et al., 2019; Russell et al., 2019) and one EMA survey (Hing et al., 2019), and data on the perceived influence and type of influence of the wagering inducements and advertisements they had been exposed to during the week.

Several different findings were noted for the effect of advertising on gambling behavior. Hing et al. (2015a) reported that in general, respondents disagreed that promotions during televised sport had increased their frequency, expenditure, and time spent on sport. However, problem gamblers reported an increase in frequency of gambling as a result of exposure to promotions. Similarly, Hing (2015b) reported that only the problem gambler group self-reported that gambling promotions were positively associated with gambling behavior (whereas the non-problem gambling group did not). Other research reports that those who self-perceived gambling promotions to influence betting behavior were more likely to have a higher PGSI score (Hing et al., 2017b; Lopez-Gonzalez & Griffiths, 2019).

In EMA studies, Browne et al. (2019) found that advertising exposure was associated with sports betting behavior ( $n = 597$ ). Hing et al. (2019) found direct messages and advertisements on betting websites or apps to be the most influential on betting behaviors ( $n = 722$ ). Russell et al. (2018a), found that direct messaging (text messages) were positively associated with betting expenditure ( $n = 202$ ). Russell et al. (2019) reported two predictors of engaging in micro-betting (betting in-play on micro events) behaviors ( $n = 1813$ ). Firstly, the self-report of watching sport (with embedded advertising) had a positive association with betting behavior. Conversely, self-report of advertising exposure showed a negative association.

Hing et al. (2017a) presented fake advertisements ( $n = 611$ ) containing various attributes, including the type of presenter and wagering inducement type advertised. Bet type (risk-free) was the most persuasive message attribute when it came to converting attention into the likelihood of placing a bet. Rockloff et al. (2019) showed a simulated sports highlights reel with four different inducement types. Longer (riskier) odds were more likely to be bet on when incentives were offered ( $n = 299$ ). Hing et al. (2018) reported that less exposure to gambling-related marketing when exposed to the media was a significant factor related to a higher number of bets placed before the start of a match, but the authors added that there were relatively small correlations which may only have been significant because of the large sample size ( $n = 1813$ ). More frequent sport-watching (which contains embedded advertising) and less exposure to marketing when exposed to the media were related to a higher number of impulse bets being placed during a match.

Three studies compared the results between sports bettors and race bettors (Browne et al., 2019; Hing et al., 2019; Russell et al., 2018). Some differences between the two groups were found. For example, Russell et al. (2018) reported differences between the responses to exposure to promotions. For race bettors, receiving more refund stake offers and bonus odds were associated with placing a bet, whereas for sports bettors, receiving direct messages with no inducements, and more bonus winning and inducements, were associated with placing a bet. Hing et al. (2019) found that race bettors were more likely to place riskier bets after exposure

to wagering inducements, whereas the opposite was more likely for sports bettors. Browne et al. (2019) found that for race bettors (but not sports bettors), advertising was associated with spending more than intended and betting when not intended.

Sports betting attitudes and intention have been found to be positively associated with gambling behavior (Hing et al., 2013). One study found that lower intention to bet was associated with a higher likelihood of actually betting for race bettors, but for sports bettors there was no relationship between intention and betting behavior (Russell et al., 2018a).

Eight studies exclusively examined differences between problem gambling categories (as assessed using the PGSI) and sports bettors' responses to advertising (Browne et al., 2019; Hing et al., 2015a, 2015b, 2017b, 2019; Lopez-Gonzalez & Griffiths, 2019; Russell et al., 2018a, 2019). Problem gamblers in some of these studies perceived that sports betting promotions increased their sports betting behavior, whereas other problem gambling groups and non-problem gamblers did not (Hing, 2015a, 2015b). Hing et al. (2017) reported that problem gamblers were more likely to perceive that advertising had a greater impact on their sports betting. Lopez-Gonzalez and Griffiths (2019) reported that those with higher PGSI scores were more likely to report a higher perceived influence of sports betting advertising. Hing et al. (2019) found that problem gamblers were more likely to report being influenced by commentary promoting betting during live and televised events, and the promotion of betting brands during televised events. No significant differences between groups were found for any other forms of advertising.

Some studies reported no significant differences between exposure to advertising and sports betting behavior between PGSI groups (Browne et al., 2019; Hing et al., 2018). Rockloff et al. (2019) reported no differences between problem gamblers, at-risk gamblers, and non-problem gamblers in terms of the type of bet placed in response to wagering inducements. Russel et al. (2018) found no statistically significant interaction with problem gambling status, for both direct advertising messages and actual betting spend.

### Discussion, Future Research, and Conclusion

The present systematic review identified 22 studies that examined the impact of sports betting advertising on gambling attitudes, intentions, and behaviors. All of the papers have been published in the past 10 years, 16 of which were published in the past 3 years. The majority of studies that have been published to date have been conducted in Australia. An analysis of the results shows that exposure to sports betting-related advertising and advertising of wagering inducements is generally associated with more positive gambling-related attitudes, greater gambling intentions, and increases in gambling and problem gambling behavior, mirroring the findings of Bouguettaya et al. (2020), who assessed the impact of advertising across all types of gambling activity rather than focus on sports betting advertising only.

Many studies demonstrated significant effects across a range of different exposure variables and outcome measures. These measures included exposure to direct advertising (text/email/phone),

television advertisements, gambling promotion embedded in televised sport, gambling operator websites, social media, and other forms of marketing strategies. Measures of attitudes, intentions, and sports betting behavior varied but largely relied on cross-sectional self-report measures, and often developed their own definitions and measures in order to assess these features. Additionally, many of the studies collected data using self-report of exposure to the media, which is accompanied by issues relating to validity and reliability and can be subject to recall bias. For example, when it comes to self-reported general television exposure, individuals tend to under-report the viewing duration and over-report the frequency of watching (Wonneberger & Irazoqui, 2016). Sports bettors can estimate exposure to advertising of various kinds, but it is likely that these estimates are biased by recall errors, differing interest in the products' marketing, and other individual and psychological factors (Binde & Romilde, 2019).

There are several issues with the studies included in this review. One notable area is the issue of causality, which is made worse by the limitations regarding the measure of advertising exposure. Because advertising exposure is predominantly self-reported and based on factors such as the frequency of watching specific televised sports that contain gambling advertising and the amount of attention paid to sports betting advertising, it is probable that engaging in sports betting determined exposure to advertising (the attention paid to the adverts), or other factors (such as preferences for sports shows), which when combined, determine exposure and sports betting behaviors. As Bouguettaya et al. (2020) suggest, using standardized definitions and measurement of advertising exposure and gambling behavior would aid in the understanding of the causal mechanisms involved.

Some studies utilized a real-time and ecologically valid measure of exposure to sports betting marketing through EMA, which is suitable for capturing intermittent experiences in the real world, such as exposure to sports betting marketing. Ecological momentary assessment can offer real-time tracking of exposure and attitudes toward sports betting marketing closer to the moment of exposure, instead of relying on retrospective recall. However, a more reliable approach to study cause-effect relationships is to use an experimental methodology in order to examine the relationship between variables. This allows researchers to control exposure to advertisements and behavioral response data collected in response to advertising. Two studies in the current review assessed exposure by collecting eye-tracking data, which allows for the measure of potential, actual (total number of fixations), relative (the amount of visual attention related to the total amount of time the information was available), and the perceived exposure to gambling advertisements (Binde et al., 2014).

As Lole et al. (2020) note that in their research, although ecologically valid stimuli were used, the results were still collected in a laboratory setting and were therefore subject to associated biases, including participant fatigue and lack of external validity. Additionally, the media channels for advertising were limited to what could be shown there and then (as opposed to receiving direct messages, for example). Some of the studies controlled the type of advertisement that was shown to the participant, either using real events that contained advertising (i.e., pre-recorded televised

sporting events) (Roderique et al., 2020), specially designed mock advertisements (Hing et al., 2017a), or simulated highlight reels (Rockloff et al., 2019). One obvious benefit includes a high level of control over the advertising variables being studied.

Several inducement types were found to be more attractive than others. The inducement type that was cited most often as being the most popular for sports bettors was the “risk-free” or reduced risk inducement (Hing et al., 2017a, 2019a; Lole et al., 2019). Other inducements that were reported as popular with sports bettors were cashback offers, bonus bets, and better odds. To date, there has been little research into how these wagering promotions influence betting behavior. In the present review, sports betting inducements resulted in several changes in behavior, including placing bets on longer (riskier) odds, placing bets on impulse during matches, or increasing the likelihood of betting when not planned. However, the causes for these behaviors remain unclear.

Research on sports betting advertising has previously focused on marketing during televised sporting events, television commercial break advertisements, and advertising at stadiums. Recently, there has been a shift in focus toward the type of advertising, including the effects of communication methods such as direct messages, which the present review reported to influence sports betting behavior (Hing et al., 2019; Russell et al., 2018a). Studying direct messages using EMA allows researchers to measure the volume, content, and the bettors’ self-reported responses to these messages. Direct messages may contribute to problem gambling in several ways, including (i) being delivered straight to the bettors, with a link to a betting website/app, which may in turn facilitate impulse betting and betting more money than planned; (ii) using inducements that are effective in encouraging increased betting expenditure and riskier betting (on bets with longer odds); and (iii) higher numbers of direct messages being delivered to those with a higher number of wagering accounts, resulting in vulnerable bettors being exposed to more gambling cues and inducements (Hing et al., 2018).

The present review found that in general, problem gamblers held more positive attitudes toward the advertising and promotion of sports betting than non-problem gamblers, and those most likely to be encouraged to gamble from viewing advertisements also appeared to be problem gamblers. Research into other risky products, such as alcohol, has indicated a greater behavioral response when attitudes to advertisements were positive (e.g. Dormal et al., 2018). Additionally, problem gamblers tended to report watching the highest number of sports-embedded gambling programs. Research into other gambling types has shown that problem gamblers are more aware of gambling advertisements than non-problem gamblers (Hanss et al., 2015), or recall having seen more gambling advertising than non-problem gamblers (e.g., Clemens et al., 2017; Fried et al., 2010). Gamblers may be attracted to gambling advertising because of the emotions, thoughts, and impulses that it produces among those who already have an active interest in gambling (Binde, 2007). Alternatively, more highly involved gamblers are more exposed to sports-embedded gambling promotions, which can result in them having more favorable attitudes toward sports betting (Hing et al., 2015a).

In some cases, problem gamblers perceived that sports betting promotions increased their gambling behavior, whereas low-risk,

moderate-risk, and non-problem gamblers did not. One explanation is that problem gamblers, and active sports bettors, watch televised sport more regularly and are therefore exposed to sports betting gambling more often (Hing et al., 2015b). However, one issue is that due to self-report measures, it may be the case that problem gamblers attempt to attribute their problems to external factors, rather than report the actual effect of these promotions on sports betting behavior (Hing et al., 2015).

Advertising exposure may result in impulses to gamble (Binde, 2007, 2009), and in the present review, problem gamblers considered contextual factors (e.g., the promotion of sports betting) that were more likely to lead to them making impulse bets, compared to non-problem gamblers (Hing et al., 2014c, 2015a, 2018). Sports betting marketing and inducements delivered via direct messages such as email and SMS were found to increase the likelihood of impulsive sports betting online (Hing et al., 2017b), and individuals who used wagering inducements more frequently had a greater tendency to place in-play bets, particularly problem gamblers and those who watched sports more frequently (Hing et al., 2018). Exposure to indirect marketing, such as live-odds being announced during live sports events, would make individuals more likely to place impulse bets in response, and this effect was greater for those scoring higher on problem gambling measures (Lamont et al., 2016). However again, due to the cross-sectional design, it is not possible to ascertain causal directions.

The UK Advertising Standards Authority (ASA, 2018), developed guidelines stating that betting companies in the UK should not pressure individuals to gamble, especially through the use of significant time-limited offers that create an unjustifiable sense of urgency, as this may pressure individuals to take part or place a bet when they otherwise would not have done so. Gambling operators have been previously found to promote wagering inducements in a way that may encourage impulsive betting. For example, Newall et al. (2019) found that gambling companies use tactics to make wagering promotions appear more “urgent” than necessary, for example using improved or “boosted” odds, which were restricted by a time frame in which they were offered.

Researchers suggest that the promotion of gambling has become embedded within specific sporting events, a process that been referred to as the “gambification” of sport (McMullan, 2011). One concern is that marketing is being carried out in such a way that it encourages consumers to think of gambling as a sport (Hing et al., 2014). It has been suggested that this can normalize and encourage gambling commencement from a young age (Monaghan et al., 2008). It is known that problem gambling can cause serious risks to an individual’s health, finances, and social situation, and that problem gambling can also impact the gambler’s families and local communities (Griffiths, 2004). Although there has been a proliferation of gambling research focusing on the individual factors that may be attributed to the acquisition and development (and minimization) of problem gambling, there is much less research concerning the external factors that may lead to problem gambling. In the UK, there are now newly introduced regulations for specific aspects of the marketing for gambling products. For example, advertised “money back” offers must now be paid in cash, rather than as free bets (Committee of Advertising Practice, 2018). However, this is not the case for more

novel forms of online gambling such as sports betting, and its associated in-play features such as “cash-out” products (allowing sports bettors the option to settle a bet before the event they are betting on is over) (Lopez-Gonzalez & Griffiths, 2017). However, adverts that encourage sports bettors to “bet now” during live sporting events are in the process of being restricted in the UK (CAP, 2017).

Despite an increase in research into the content and influence of sports betting marketing in recent years, there has been a lack of longitudinal and experimental research examining the relationship between sports betting advertising and sports betting-related attitudes, intentions, and behaviors. Many of the studies examined advertising during televised sport. However, only one study examining social media sports betting promotion met the criteria for the present review. This is an important area for future research, given that social media marketing spend is increasing, and figures have shown that in the UK, this form of marketing has emerged as one of the fastest growing in recent years (GambleAware, 2018). Additionally, one quarter of online gamblers follow a gambling company on social media (Gambling Commission, 2019).

Although there has been an increase in experimental research in the last few years, there is still a heavy reliance on self-reported data. Behavioral tracking data could be combined with self-report surveys to objectively monitor and examine individual gambling behaviors on websites, or using econometric estimates based on real-world events (such as the Italian gambling advertising ban). Further longitudinal research is required to examine the cause and effect relationship between the exposure to sports betting advertising and the sports betting behavior and gambling-related problems. Similarly, whereas differences have been noted in the effects of different wagering inducements on betting behavior, and theoretical reasons why wagering advertisements and inducements might affect betting behavior have been suggested, particularly for high-risk problem gamblers, as with sports betting advertising in general, empirical research has largely relied on self-reported cross-sectional data.

The present review identified that much of the research to date has been conducted using an Australian sample, and as a result, the findings should be viewed with some caution. There is a paucity in research conducted in countries where sports betting and associated advertising have recently been liberalized, such as the US and Canada. Therefore, it is important that there is an increase in such studies in line with the increasing global availability of sports betting and associated advertising. A further area of consideration for future research is the location that the gambling advertising is received in. For example, sports betting advertising viewed at a sporting event, a bar, or when at home watching a sporting event with friends, may be more likely to activate positive gambling-related cognitions and in turn stimulate gambling consumption that the same advertising viewed on the way to work.

An area of potential concern is the increase in e-sport betting, which due to the industry experiencing the suspending of nearly all sport worldwide, is growing in popularity. E-sports betting saw a growth of 40% between March 9 and April 19 2020, where two e-sports titles, *FIFA* and *NBA 2K*, accounted for 80% of the

total (EveryMatrix, 2020). The research report by EveryMatrix (2020) found that 10% of sports bettors who were no longer gambling due to the lockdown had now made the transition to e-sports betting, which offers similar markets to traditional sports betting. The UK Committees of Advertising Practice (CAP) have published advice in relation to adverts on social media for e-sports betting, including that e-sports-betting-related advertising must comply with the rules which apply to other forms of gambling advertising. Furthermore, on social media, it must be made clear from the context that it is an advertisement. This is therefore an area that may require research in the future.

Overall, the influence of sports betting marketing on the attitudes, intentions, and behaviors of sports bettors appears to be strongest among those who score higher on measures of problem gambling severity. Further research should be undertaken to understand the impact of gambling advertising on sports betting behavior among different groups and across different types of exposure, to enable informed policy and regulation of online sports betting advertising. With an increase in knowledge concerning different types of gambling, there will be a greater understanding of how marketing strategies play a role in changing sports betting attitudes and the subsequent behaviors. As a result, policy and regulatory requirements can be formulated to ensure that they are effective in preventing any harmful or potentially harmful consumption of these products.

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