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FULL-LENGTH REPORT

Gambling, cryptocurrency, and financial trading app marketing in English Premier League football: A frequency analysis of in-game logos

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ABSTRACT

Background & aims: The gamblification of UK football has resulted in a proliferation of in-game marketing associated with gambling and gambling-like products such as cryptocurrencies and financial trading apps. The English Premier League (EPL) has in response banned gambling logos on shirt-fronts from 2026 onward. This ban does not affect other types of marketing for gambling (e.g., sleeves and pitch-side hoardings), nor gambling-like products. This study therefore aimed to assess the ban's implied overall reduction of different types of marketing exposure. *Methods:* We performed a frequency analysis of logos associated with gambling, cryptocurrency, and financial trading across 10 broadcasts from the 2022/23 EPL season. For each relevant logo, we coded: the marketed product, associated brand, number of individual logos, logo location, logo duration, and whether harm-reduction content was present. *Results:* There were 20,941 relevant logos across the 10 broadcasts, of which 13,427 (64.1%) were for gambling only, 2,236 (10.7%) were for both gambling and cryptocurrency, 2,014 (9.6%) were for cryptocurrency only, 2,068 (9.9%) were for both cryptocurrency and financial trading, and 1,196 (5.7%) were for financial trading only. There were 1,075 shirt-front gambling-associated logos, representing 6.9% of all gambling-associated logos, and 5.1% of all logos combined. Pitch-side hoardings were the most frequent marketing location (52.3%), and 3.4% of logos contained harm-reduction content. *Discussion & Conclusions:* Brand logos associated with gambling, cryptocurrency, and financial trading are common within EPL broadcasts. Approximately 1 in 20 gambling and gambling-like logos are subject to the EPL's voluntary ban on shirt-front gambling sponsorship.

KEYWORDS

gambling, sports, marketing, cryptocurrency, trading, sponsorship

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INTRODUCTION

UK gambling marketing is particularly noticeable within the national sport of football (soccer) (Goulding, 2022; Roderique-Davies, Torrance, Bhairon, Cousins, & John, 2020; Sharman, 2022). There is a positive association between gambling marketing exposure,

intentions to gamble, and increased gambling participation (Binde & Romild, 2019; Bouguettaya et al., 2020; Syvertsen, Erevik, Hanss, Mentzoni, & Pallesen, 2022). Therefore, considerable attention has been paid to the role of marketing in the '*gamblification*' of football and its potential negative impacts upon public health (Lopez-Gonzalez & Griffiths, 2018; McGee, 2020; van Schalkwyk et al., 2021). Gambling marketing is often shown during commercial breaks in televised football games (Newall, Ferreira, Sharman, & Payne, 2022; Newall, Thobhani, Walasek, & Meyer, 2019) and via social media (Houghton, McNeil, Hogg, & Moss, 2019; Houghton & Moss, 2022). However, the top two men's professional leagues, the English Premier League (EPL) and Championship, also have gambling marketing embedded *within* the game via shirt sponsorship and pitch-side hoardings (Bunn et al., 2019; Cassidy & Ovenden, 2017; Djohari, Weston, Cassidy, & Kulas-Reid, 2021; Purves, Critchlow, Morgan, Stead, & Dobbie, 2020; Sharman, Ferreira, & Newall, 2023). During the 2022/23 season, 8 out of 20 EPL teams had a gambling shirt sponsor and all teams were affiliated with an official betting partner. The EPL recently volunteered to ban all shirt-front gambling sponsorship from 2026 onwards. However, the EPL's voluntary ban will not apply to shirt-sleeve sponsorship, pitch-side hoardings, or other gambling logos that are visible during matches. It is therefore important to assess the implied reduction in gambling marketing exposure that the ban would have if implemented today.

Several previous studies have examined the presence of gambling marketing within UK football. For example, Cassidy and Ovenden (2017) identified a total of 524 and 764 shots of gambling marketing across 3 EPL and 3 '*Match of the day*' broadcasts respectively. Shots were defined as any instance in which gambling marketing for a given brand was visible, irrespective of the number of individual logos. A similar study was conducted by Purves et al. (2020) utilising a sample that, amongst other sports, contained five UK football broadcasts. Across these five football broadcasts, 2,595 shots of gambling marketing were identified that occurred at an average of 2.8 times per broadcast minute. Lastly, Ireland (2021) utilised a comparable method to examine the frequency of gambling marketing within five EPL football broadcasts from the 2019/20 season. Overall, 921 shots of gambling marketing were observed across the five broadcasts including pre-game, half-time, post-game, and commercial-break programming. These previously conducted studies demonstrate the high prevalence of gambling marketing within UK football broadcasts. However, there is a need to replicate these findings across subsequent football seasons and also extend their methodology. Specifically, when multiple identical marketing references were visible in the same location, these aforementioned studies counted them as one overall 'shot' or 'instance' of marketing. But viewers are likely impacted not just by the number of times that gambling logos are shown on the screen, but also the number of individual gambling logos that can be seen in any one shot (Janiszewski & Meyvis, 2001). These studies also did not assess an emerging trend of marketing potentially gambling-like products in football (Newall & Xiao, 2021).

Cryptocurrencies, cryptocasinos, and financial trading apps are conceptually-similar and partially-overlapping with gambling (D'Urso, 2022). Cryptocurrencies are decentralized digital assets that utilise encryption and operate as mediums of exchange (Conrad, Custovic, & Ghysels, 2018). As such, cryptocurrencies can be bought, sold, traded, and used as digital currency for the payment of goods and services, while affording its users a high degree of anonymity (Andrade & Newall, 2023). Unlike 'fiat' currencies, such as the US dollar, cryptocurrencies are highly volatile and not subject to regulatory oversight (Șcheau et al., 2020; Shen, Urquhart, & Wang, 2020). Since the creation of the first cryptocurrency (Bitcoin) in 2009 (Nakamoto, 2008), price volatility and anonymity have been some of the most cited reasons for regulatory challenges in several countries, including the United Kingdom (Treasury Committee, 2018). Cryptocasinos and cryptocurrency trading are two uses of cryptocurrencies that are significant due to their conceptual and actual overlap with gambling.

Cryptocasinos are an emergent gambling product that allow consumers to wager on modern online gambling platforms using cryptocurrency (Andrade & Newall, 2023). Gambling online with fiat currencies has a strong association with harm (Allami et al., 2021), but cryptocasinos pose additional risks. A recent study showed that cryptocasinos offered safer gambling tools to consumers at significantly lower rates than online traditional operators in the UK and Ireland (Andrade, Sharman, Xiao, & Newall, 2023). None of the cryptocasinos required identity verification for registration, and 37 out of 40 also facilitated cryptocurrency deposits (Andrade et al., 2023), thereby effectively facilitating online gambling for underage and self-excluded gamblers. Importantly, since the underlying asset in cryptocasinos is itself volatile, cryptocasinos could fundamentally expose users to greater risks than traditional online gambling operators. Cryptocasino brands such as 'Stake' and 'Sportsbet.io' in the present study are therefore related both to gambling and cryptocurrencies.

Cryptocurrency trading has more in common with financial trading (Kim, Hong, Hwang, Kim, & Han, 2020), and involves attempting to profit from cryptocurrencies' price movements. There are several risks associated with cryptocurrency trading that are also observable among those who experience gambling-related harm. For example, poor mental health, illusions of control, fear of missing out, and preoccupation/excessive engagement have been identified as potential risk factors associated with cryptocurrency trading (Delfabbro, King, & Williams, 2021; Johnson, Stjepanović, Leung, Sun, & Chan, 2023). There is also a positive relationship between engagement with cryptocurrency trading frequency and higher self-reported problem gambling scores (Delfabbro, King, & Williams, & Georgiou, 2021; Johnson et al., 2022; Mills & Nower, 2019; Oksanen, Hagfors, Vuorinen, & Savolainen, 2022). Consequently, cryptocurrency trading is commonly referred to as a 'gambling-

like' activity within the emergent literature (Delfabbro & King, 2023; Newall & Xiao, 2021; Oksanen, Mantere, Vuorinen, & Savolainen, 2022).

Financial trading involves the buying and selling of financial assets such as stocks, bonds, or foreign currencies with the aim of making a profit. A new wave of mobile-based financial trading apps allow users to trade these conventional financial assets, and also often cryptocurrencies as well (therefore meaning that some financial trading apps are associated with cryptocurrencies as well). Frequent financial trading has also been positively correlated with problem gambling (Delfabbro, King, Williams et al., 2021; Grégoire et al., 2023; Mosenhauer, Newall, & Walasek, 2021; Oksanen, Hagfors, et al., 2022), and bears similarities with gambling in that the high transaction costs created by trading means that most high-frequency personal traders lose money over time, which is another core similarity with gambling (Newall & Weiss-Cohen, 2022). However, no empirical research has been conducted to examine the frequency of either cryptocurrency and financial trading app marketing exposure in UK football.

This study therefore examines:

1. The total number of visual logos associated with gambling, cryptocurrency, and financial trading in EPL football.
2. The proportion of these logos that are front-of-shirt gambling sponsors, to assess the implied impact of the EPL's voluntary ban.

METHODS

Study design

This study involved a frequency analysis of in-play brand logos associated with gambling, cryptocurrency, and financial trading within EPL football, and follows the design of similar previous studies in the UK (Graham & Adams, 2014; Purves et al., 2017, 2020) and Australia (Kelly, Ireland, Alpert, & Mangan, 2015; Lindsay et al., 2013).

Selection of broadcasts

A purposive sample of 10 EPL football matches across the 2022/23 season were recorded digitally (see Table 1). The EPL has the highest global viewership of any football league in the world (Premier League, 2022). The sample contained 10 matches in which every qualifying team participated once from 6th August 2022 – 2nd April 2023. Each recording included only the broadcasted football match from kick-off until the final whistle. EPL football matches are often simultaneously broadcasted across numerous television channels and streaming services with varying commercial-break advertisements. Therefore, commercial-break broadcasting was not included, nor was any pre-game, half-time, or post-game broadcasting content for the sake of uniformity.

Table 1. Sample of recorded English Premier League football matches

Fixture	Date/time of broadcast (GMT)	Duration of match[a]
Fulham vs Liverpool	6th August 2022 – 12:30pm	97 min
Tottenham vs Leicester City	17th September 2022 – 5:30pm	96 min
Crystal Palace vs Leeds United	9th October 2022 – 2:00pm	100 min
Arsenal vs Nottingham Forest	30th October 2022 – 2:00pm	95 min
Wolverhampton Wanderers vs Brighton	5th November 2022 – 3:00pm	96 min
Everton vs Southampton	14th January 2023 – 3:00pm	96 min
Brentford vs Bournemouth	14th January 2023 – 5:30pm	95 min
West Ham vs Chelsea	11th February 2023 – 12:30pm	96 min
Manchester City vs Aston Villa	12th February 2023 – 4:30pm	97 min
Newcastle vs Manchester United	2nd April 2023 – 4:30pm	96 min

[a] *Note*: excluding pre-game/half-time/post-game broadcasting and commercial breaks.

Procedure and codebook evaluation

Gambling, cryptocurrency, and financial trading logos were defined as any brand emblem that was visible via in-play marketing or sponsorship for more than one second. As was conducted by Purves et al. (2020) and Ireland (2021), when multiple identical logos were visible in the same location, this was counted as one 'shot' of visible marketing. However, to add further context, we also counted the total number of individual logos within each of these shots via a separate variable. For example, if fifteen 'Bet 365' pitch-side hoarding logos were visible at one given time, this was counted as one shot of visible marketing that included fifteen individual logos. If multiple different logos were visible on screen (e.g. 'FBS' shirt sponsor logos and Bet365 pitch-side hoarding marketing in the same scene), they were counted separately. Relevant logos were counted every time they appeared on screen. If the camera angle changed and returned to the same shot, logos were counted again. Logos for some brands were coded across multiple product categories. For example, logos for the cryptocasino 'Sportsbet.io' were coded as gambling and cryptocurrency simultaneously. Another example includes logos for 'Etoro' that were coded as both cryptocurrency and financial trading given that both of these products are offered by this brand. Verbal references (e.g. from commentators) were not included within the current study given that <1% of televised UK football broadcasts contain such references (Purves et al., 2020).

Shots of visible marketing were categorised using a codebook (Table 2) that was adapted from Purves et al. (2020).

Table 2. Codebook variables and their definitions

Variables	Definitions
Fixture	The match being observed e.g. West Ham vs Chelsea
Case/shot number	Used chronologically for each shot (or instance) of marketing in each match (irrespective of how many individual logos are visible)
Product referenced	Whether the logo relates to gambling, cryptocurrency, and/or financial trading. Logos can be coded across multiple labels e.g. 'Stake' (gambling and cryptocurrency) or 'Libertex' (financial trading and cryptocurrency).
Location	The location where the logo is displayed. Labels include: 1) shirt sponsor (front), 2) shirt sponsor (sleeve), 3) pitch-side hoardings, 4) stadium crowd, 5) stadium structure, 6) other
Format	The format in which the logo is displayed (*within* the location). Labels include: 1) branded merchandise (such as shirts/kit), 2) dynamic hoardings (full coverage), 3) dynamic hoardings (partial coverage), 4) static marketing, 5) fan/supporter, 6) other
Logos per shot	The total number of identical logos on display before the broadcast cuts to the next scene – e.g. if 7 players are depicted within one scene, all with 'Dafabet' (gambling brand) on their shirts, then this is categorised as 7 individual logos via this variable
Duration of reference	The total amount of time the logo(s) are visible in seconds
Brand referenced	The brand name of the marketing product – e.g. 'Bet365' (gambling), 'WhaleFin',(cryptocurrency) or 'Etoro' (financial trading/cryptocurrency)
Harm-reduction or age warning	Whether or not a harm-reduction message or age restriction warning accompanies the logo. Coded as yes/no

Before the codebook was implemented across all 10 matches, JT and CH established inter-rater reliability by each coding the same 30 min of Fulham versus Liverpool. The levels of agreement for nominal variables were computed using Krippendorff's alpha. Subsequently, there was a very high level of agreement with all variables far exceeding the acceptable agreement threshold of $\alpha = 0.66$ (Lombard, Snyder-Duch, & Bracken, 2002): '*Product referenced*' ($\alpha = 0.95$), '*Location*' ($\alpha = 0.98$), '*Format*' ($\alpha = 1.0$), '*Brand referenced*' ($\alpha = 0.97$), '*Logo/name referenced*' ($\alpha = 1.0$), and '*Harm-reduction/age warning*' ($\alpha = 1.0$). Using independent sample *t*-tests for the continuous variables, no significant coding differences were observed for '*logos per shot*' ($t\ (218) = -0.23$, $p = 0.819$) and '*Duration of shot*' ($t\ (218) = 0.01$, $p = 0.989$). In light of these results, JT and CH proceeded to independently code the rest of the sample (5 broadcasts each) with any uncertainties being regularly discussed. Data and the codebook are available from osf.io/3ts94/.

Data analysis

All of the data were analysed in SPSS version 28. For each broadcast, frequencies, percentages, and/or means were calculated for the variables outlined in Table 2. The average number of individual logos per broadcast minute was also calculated for each broadcast and across the 10 broadcasts combined. This was calculated by dividing the total number of individual logos divided by the length of the broadcast (in minutes).

Ethics

As this study does not involve human participants, ethical approval was not required. However, the study was authorised by the Universitty of Chester (University Centre Shrewsbury) ethics committee.

RESULTS

Across the 10 EPL football matches, 3,023 visible shots of gambling, cryptocurrency, and financial trading marketing were identified. Within these shots, there was a total of 20,941 individual logos. 13,427 (64.1%) logos were solely related to gambling, 2,236 (10.7%) were associated with both gambling and cryptocurrency, 2,014 (9.6%) were solely related to cryptocurrency, 2,068 (9.9%) were associated with both cryptocurrency and financial trading, and 1,196 (5.7%) were solely related to financial trading.

On average, gambling-associated logos ($n = 15{,}663$) appeared 16 times per broadcast minute (every 3.8 s), cryptocurrency-associated logos ($n = 6{,}318$) appeared 7 times per broadcast minute (every 8.6 s), and financial trading-associated logos ($n = 3{,}264$) appeared 3 times per broadcast minute (every 20 s). A total of 1,075 individual shirt-front gambling-associated logos were identified, representing 6.9% of all individual gambling-associated logos and 5.1% of all other relevant logos combined. The most popular location across all relevant logos was pitch-side hoardings (52.3%) via the format of full-coverage dynamic displays (48.5%). There were 30 relevant brands observed in total. The most featured brands were 'Betway' (31.2%) for gambling-associated logos, the cryptocasino 'Stake' (28%) for cryptocurrency-associated logos, and 'FBS' (29.4%) for financial trading-associated logos. Harm-reduction content accompanied 4.4% of gambling-associated logos and 3.4% of all relevant logos combined. Harm-reduction content was not present in conjunction with cryptocurrency or financial trading-associated logos. See Tables 3–5 for details regarding the observations for gambling, cryptocurrency, and financial trading-associated marketing across the individual broadcasts.

Table 3. Characteristics of gambling-associated marketing across individual broadcasts

Broadcast										
	Fulham vs Liverpool	Tottenham vs Leicester City	Crystal Palace vs Leeds United	Arsenal vs Nottingham Forest	Wolverhampton Wanderers vs Brighton	Everton vs Southampton	Brentford vs Bournemouth	West Ham vs Chelsea	Manchester City vs Aston Villa	Newcastle vs Manchester United
Gambling reference characteristic										
Total shots of visible marketing	274	182	275	56	247	308	271	542	23	161
Total number of individual logos	1,547	1,265	1,651	219	2,161	2,017	2,139	3,522	268	874
Average number of individual logos per broadcast minute	16	13	17	2	23	21	23	37	3	9
Most frequent location (%)	Pitch-side hoardings (57.3)	Pitch-side hoardings (100)	Pitch-side hoardings (68)	Pitch-side hoardings (98.2)	Pitch-side hoardings (57.5)	Stadium structure (42.5)	Pitch-side hoardings (58.7)	Stadium structure (39.1)	Pitch-side hoardings (95.7)	Pitch-side hoardings (41.6)
Most frequent format (%)	Dynamic pitch-side full (53.3)	Dynamic pitch-side full (100)	Dynamic pitch-side full (56.4)	Dynamic pitch-side full (78.6)	Dynamic pitch-side full (57.5)	Static or fixed (45.8)	Dynamic pitch-side full (57.5)	Static or fixed (39.1)	Dynamic pitch-side full (100)	Dynamic pitch-side full (39.1)
Most popular brand (%)	W88 (64.6)	FUN88 (61.5)	SBOTOP (32.4)	Sportsbetio (100)	12BET (36.8)	Stake (85.4)	Hollywood bets (35.8)	Betway (100)	LeoVegas (60.9)	FUN88 (97.5)
Harm-reduction or age restriction message (%)	8	0	6.2	0	11.7	0	12.5	0	0	0

Table 4. Characteristics of cryptocurrency-associated marketing across individual broadcasts

Broadcast										
	Fulham vs Liverpool	Tottenham vs Leicester City	Crystal Palace vs Leeds United	Arsenal vs Nottingham Forest	Wolverhampton Wanderers vs Brighton	Everton vs Southampton	Brentford vs Bournemouth	West Ham vs Chelsea	Manchester City vs Aston Villa	Newcastle vs Manchester United
Cryptocurrency reference characteristic										
Total shots of visible marketing	1	172	29	101	188	308	21	40	67	11
Total number of individual logos	1	546	255	582	1,682	2,017	256	76	680	223
Average number of individual logos per broadcast minute	<1	6	3	6	18	21	3	<1	7	2
Most frequent location (%)	Stadium crowd (100)	Shirt front (74.4)	Pitch-side hoardings (100)	Pitch-side hoardings (99)	Pitch-side hoardings (45.7)	Stadium structure (42.5)	Pitch-side hoardings (100)	Shirt sleeve (100)	Pitch-side hoardings (97)	Pitch-side hoardings (100)
Most frequent format (%)	Fan/ supporter (100)	Branded merchandise (74.4)	Dynamic pitch-side full (100)	Dynamic pitch-side full (76.2)	Dynamic pitch-side full (45.7)	Static or fixed (45.8)	Dynamic pitch-side full (100)	Branded merchandise (100)	Dynamic pitch-side full (97)	Dynamic pitch-side full (100)
Most popular brand (%)	FxPro (100)	FBS (74.4)	eToro (86.2)	Sportsbetio (55.4)	Astropay (100)	Stake (85.4)	Coinjar (100)	WhaleFin (100)	OKX (82.1)	eToro (100)
Harm-reduction or age restriction message (%)	0	0	0	0	0	0	0	0	0	0

Table 5. Characteristics of financial trading-associated marketing references across individual broadcasts

Broadcast										
	Fulham vs Liverpool	Tottenham vs Leicester City	Crystal Palace vs Leeds United	Arsenal vs Nottingham Forest	Wolverhampton Wanderers vs Brighton	Everton vs Southampton	Brentford vs Bournemouth	West Ham vs Chelsea	Manchester City vs Aston Villa	Newcastle vs Manchester United
Financial trading reference characteristic										
Total shots of visible marketing	17	172	29	45	44	0	0	36	81	11
Total number of individual logos	101	546	255	363	808	0	0	136	832	223
Average number of individual logos per broadcast minute	1	6	3	4	8	0	0	1	9	2
Most frequent location (%)	Pitch-side hoardings (94.1)	Shirt front (74.4)	Pitch-side hoardings (100)	Pitch-side hoardings (100)	Pitch-side (100)	N/A	N/A	Shirt sleeve (66.7)	Pitch-side hoardings (97.5)	Pitch-side hoardings (100)
Most frequent format (%)	Dynamic pitch-side full (94.1)	Branded merchandise (74.4)	Dynamic pitch-side full (100)	Dynamic pitch-side full (73.3)	Dynamic pitch-side full (100)	N/A	N/A	Branded merchandise (66.7)	Dynamic pitch-side full (97.5)	Dynamic pitch-side full (100)
Most popular brand (%)	Baraka (76.5)	FBS (74.4)	eToro (86.2)	eToro (100)	Trade Nation (100)	N/A	N/A	Scope Market (100)	OKX (67.9)	eToro (100)
Harm-reduction or age restriction message (%)	0	0	0	0	0	0	0	0	0	0

DISCUSSION

This is the first study to collectively examine the presence of gambling, cryptocurrency, and financial trading marketing in EPL football broadcasts. Gambling-associated logos appeared the most across the 10 matches observed, appearing 16 times per broadcast minute on average. Only a minority of gambling logos occurred via front of shirt sponsorship (n = 1,075), representing 6.9% of all individual gambling logos (n = 15,652) and 5.1% of all other relevant logos combined (n = 20,491). Compared to shirt fronts, we identified an array of alternative locations in which gambling-associated logos were visible such as shirt sleeves, the stadium structure, and dynamic pitch-side hoarding. Consequently, the EPL's voluntary ban on front of shirt gambling sponsorship (to be imposed by 2026), will apply to approximately 1 in 20 gambling and gambling-like logos. Similarly, cryptocurrency (that is not also gambling-related) and financial trading marketing will not be subject to this ban. Logos associated with these products occurred at a lesser degree but were still prevalent across the majority of matches observed (n = 7,514). Specifically, cryptocurrency and financial trading brand logos appeared at an average of 7 and 3 times per broadcast minute respectively, which is indicative of their emergent presence within the EPL (Reynolds, 2022).

The frequency of logos varied between matches and was largely influenced by team sponsorship. Consequently, a small number of additional future deals could radically change the frequency of in-play logos within EPL broadcasts. As of July 2023, only four clubs have officially released information on sponsorships for the 2023–24 season. Chelsea F.C have pulled out of talks over a sponsorship deal for the 2023/24 season with the cyptocasino 'Stake' following pressure from supporters (Kinsella, 2023). Conversely, Aston Villa F.C recently announced their new sponsorship deals for both front of shirt with '*BK8*' (online casino) and sleeves with '*Trade Nation*' (cryptocurrency/financial trading platform) respectively (Aston Villa Football Club, 2023; Reuters, 2023). Their previous shirt sponsors were not related to either gambling or financial trading apps (SportsPro, 2020). Furthermore, Newcastle United has ended its front of shirt deal with the online casino '*FUN88*' but kept the brand as an official betting partner (Newcastle United Football Club, 2023). For the 2023/24 season, Wolverhampton Wanderers have agreed to keep a gambling sponsorship deal for their shirt sleeves, but with a new gambling operator (SportBusiness, 2023). Cryptocurrency and financial trading platforms have been increasing their presence as EPL team sponsors over the last three years (SportsPro, 2020, 2022). During the 2020/21 EPL season, only West Ham United were sponsored by a brand associated with these gambling-like products ('Scope Markets'). However, this has increased to five teams within the 2022/23 EPL season (Buckingham, 2023). The gambling shirt ban may increase the number of teams available to partner with these products, or decrease the perceived riskiness of these products to viewers in comparison to gambling (Newall & Xiao, 2021).

Only 3.4% of all relevant brand logos featured harm-reduction or age-restrictive content. Such content was localised to one gambling brand ('*Unibet*') that included the tagline '*set your limits*'. Research has indicated that such messages are ineffective in reducing harmful gambling (Newall, Hayes, et al., 2023; Newall, Weiss-Cohen, Singmann, Walasek, & Ludvig, 2022). Despite subsequent calls for improvements in the quality, visibility, and frequency of harm-reductive messaging in gambling marketing (Newall, Rockloff, et al., 2023), there appears to have been no substantial increase or improvement in such messaging within English football since 2020 (Purves et al., 2020).

No harm-reduction messaging accompanied cryptocurrency and financial trading logos. The UK Financial Conduct Authority (FCA) has recently stated that cryptocurrency advertising will need to include 'risk warnings' from October 2023 (Milmo, 2023). All risk warnings will be required to follow a template developed by the FCA – *"Don't invest unless you're prepared to lose all the money you invest. This is a high-risk investment, and you should not expect to be protected if something goes wrong"* (Financial Conduct Authority, 2023a). However, the FCA has also clarified that these new rules will not apply to 'image advertisement', defined as ads that only include a company's logo, name, contact or activity (Financial Conduct Authority, 2023b). Considering that most, if not all, in-play marketing would fall under 'image advertisement', it seems unlikely that football clubs will be required to include any risk warnings for cryptocurrency-related marketing. There has been a significant growth in the number of UK adults who first hear about cryptocurrency trading through traditional media advertising (Aju & Burrell, 2023). Therefore, policymakers should consider if cryptocurrency-based companies should be allowed to reach global audiences and to legitimise itself through mainstream media such as televised sports broadcasts.

This study is subject to various limitations. First, we examined a purposive sample of 10 out of 380 potential matches from the 2022/23 EPL season which did not include commercial-break broadcasting. Although we ensured that the sample included each qualifying team for the sake of uniformity, the current study only provides a snapshot of in-play gambling, cryptocurrency, and financial trading logos across these 10 EPL matches. Therefore, including commercial-break broadcasting could have offered more insight (Rossi, Wheaton, Moxey, & Tozzi, 2023), and.the findings may not generalise to other EPL broadcasts, other football leagues (e.g. Scottish Premier League), or sports (e.g., Australian Football League). Second, the sociodemographic data relating to the viewership for each broadcast was not collected. As a result, we cannot provide insight regarding the number of young or vulnerable individuals who viewed or downloaded these broadcasts. Third, this study of logo prevalence cannot draw any conclusions regarding potential causal effects of logo exposure on behaviour.

CONCLUSIONS

Brand logos associated with gambling appear at an average of 16 times per minute within EPL football broadcasts. Approximately 1 in 20 gambling and gambling-like logos are subject to the EPL's voluntary ban on shirt-front gambling sponsorship. Brand logos associated with cryptocurrency and financial trading appeared less frequently compared to gambling logos. However, these gambling-like products have a noticeable presence within EPL football appearing at an average of 7 and 3 s per broadcast minute respectively, which could continue to increase in future. Further research is needed on logo prevalence going forward and research designs that can attempt to uncover any potential causal effects on behaviour.

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Authors' contribution: PN conceptualised the study and assisted in the design and methodology. PN also contributed to writing the manuscript (review and editing) whilst also supervising the project. JT carried out data collection, validation, data analysis, data curation, and writing the original manuscript. JT also provided project administration and acquired the funding for the project. CH carried out data collection, validation, data analysis, and data curation. CH also assisted with writing the manuscript (review and editing). MA also assisted with writing the manuscript (review and editing).

Conflict of interest: The authors have no conflicts of interest to declare. In the last three years, JT has received; 1) PhD funding from GambleAware, 2) Open access publication funding from GREO, 3) Paid consultancy fees from Channel 4, 4) Conference travel and accommodation funding from the Academic Forum for the Study of Gambling (AFSG), 5) A minor exploratory research grant from the ASFG and Gambling Research Exchange Ontario (GREO). PN is a member of the Advisory Board for Safer Gambling – an advisory group of the Gambling Commission in Great Britain, and in 2020 was a special advisor to the House of Lords Select Committee Enquiry on the Social and Economic Impact of the Gambling Industry. In the last three years, PN has contributed to research projects funded by the Academic Forum for the Study of Gambling (AFSG), Clean Up Gambling, Gambling Research Australia, NSW Responsible Gambling Fund, and the Victorian Responsible Gambling Foundation. PN has received travel and accommodation funding from Alberta Gambling Research Institute and received open access fee funding from Gambling Research Exchange Ontario (GREO).

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