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Testing Safer Gambling Video Advertising: A Randomised Controlled Trial

Technical Report

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1. Abstract

This project was a Randomised Controlled Trial (RCT) that tested the impact of different safer gambling advertising videos on gambling behaviours (as measured by choosing to click into a gambling app), attitudes, and intentions. The aim was to produce evidence to inform guidance on the design of effective safer gambling advertising videos and to establish which outcomes to use when measuring their impact. The experiment was conducted with 4,013 participants who were randomly allocated to one of six arms (exposed to one of five different 30-second safer gambling advertising videos or receiving no intervention). Behaviour was then measured within a video-sharing platform simulation and a betting app simulation. The primary measure was the number of people who clicked through to the gambling app. Two videos, 'Top Tips for Positive Play' (William Hill) and 'Made to Play Safely' (888), led to a significant increase in click-through rates (i.e. backfire effect) compared to the control. The 'Magnets' Stigma Campaign video resulted in a statistically significant decrease in click-through rates (i.e. protective effect).

2. Introduction

2.1. Background and objectives

Preventing gambling harm requires a range of effective, evidence-based interventions. Social marketing campaigns, including videos, can play a key role in these efforts, but their success depends on rigorous research to assess their impact. GambleAware aims to guide investment by producing evidence on how operator-led, safer gambling campaigns can influence key outcomes. With many gambling companies required to allocate 20% of digital and broadcast budgets to safer gambling messaging, the demand for strong evidence on what works is greater than ever[3].

Low-cost, high-reach interventions like videos are appealing because they often achieve small but meaningful effects across large audiences[4]. They also have the potential to shape societal perceptions towards gambling, raise awareness of gambling harms and signpost to further support. However, there is evidence that Operator-led safer gambling messaging

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[1] Thinks Insight & Strategy
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[4] Breza, E., Stanford, F. C., Alsan, M., et al. (2021). Effects of a large-scale social media advertising campaign on holiday travel and COVID-19 infections: A cluster randomized controlled trial. Nature Medicine, 27(9), 1622–1628.

lack effectiveness[5,6]. The evidence suggests that some messages may backfire, potentially encouraging gambling[7,8]. "Backfire" is a term used throughout this paper to describe how a safer gambling video could have the opposite effect to what is intended. Research shows that some messages can also stigmatise those experiencing gambling harms[9,10]. There is a need to move beyond messages like "gamble responsibly" that place all the responsibility on the individual, marking those who experience harm as "irresponsible"[11]. Research such as this experiment can help to guide the design of effective safer gambling advertising videos and establish standards for measuring their impact.

This report details the design and results of an online RCT to respond to this need for evidence of the effects of video-based safer gambling messages. In this RCT participants were randomly exposed to different video-based safer gambling ads, followed by a simulated online environment in which the effect of the video on their subsequent inclination to engage in gambling was captured.

The objective of this research was to produce rigorous evidence about what types of video-based safer gambling messages affect gambling behaviours and attitudes among audiences so we can assess the effectiveness of the methods used by operators in reducing harmful gambling. This is particularly timely given the cross-departmental group on safer gambling messaging, which was established following a raft of reforms within the 2024 Government White Paper[12].

This research also sought to build on the published literature including Newall et. al. 2022[13], 2023[14], 2024[15] and GambleAware's previous work on safer gambling messaging[16,17,18,19] and learnings from marketing strategies[20]

[5] van Schalkwyk, M. C., Maani, N., McKee, M., Thomas, S., Knai, C., & Petticrew, M. (2021). "When the fun stops, stop": an analysis of the provenance, framing and evidence of a 'responsible gambling' campaign. PLoS One, 16(8), e0255145.
[6] Newall, P. W., Hayes, T., Singmann, H., Weiss-Cohen, L., Ludvig, E. A., & Walasek, L. (2023). Evaluation of the 'take time to think' safer gambling message: a randomised, online experimental study. Behavioural Public Policy, 1-18.
[7] Newall, P. W., Weiss-Cohen, L., Singmann, H., Walasek, L., & Ludvig, E. A. (2022). Impact of the "when the fun stops, stop" gambling message on online gambling behaviour: A randomised, online experimental study. The lancet public health, 7(5), e437-e446.
[8] Newall, P., Weiss-Cohen, L., Torrance, J., & Bart, Y. (2024). Not always as advertised: Different effects from viewing safer gambling (harm prevention) adverts on gambling urges. Addictive Behaviors, 108161.
[9] Editorial: Gambling, stigma, suicidality, and the internalization of the 'responsible gambling' mantra
[10] Palmer, M., Weiss-Cohen, L., Torrance, J., & Newall, P. (2025). When 'help' might hurt: Do safer gambling advertisements reduce or contribute to gambling stigma?
[11] 'Odds Are: They Win': a disruptive messaging innovation for challenging harmful products and practices of the gambling industry
[12] Department for Culture, Media & Sport (2023) High stakes: gambling reform for the digital age
[13] Newall, P. W., Weiss-Cohen, L., Singmann, H., Walasek, L., & Ludvig, E. A. (2022). Impact of the "when the fun stops, stop" gambling message on online gambling behaviour: A randomised, online experimental study. The lancet public health, 7(5), e437-e446.
[14] Newall, P. W., Hayes, T., Singmann, H., Weiss-Cohen, L., Ludvig, E. A., & Walasek, L. (2023). Evaluation of the 'take time to think'safer gambling message: a randomised, online experimental study. Behavioural Public Policy, 1-18.
[15] Newall, P., Weiss-Cohen, L., Torrance, J., & Bart, Y. (2024). Not always as advertised: Different effects from viewing safer gambling (harm prevention) adverts on gambling urges. Addictive Behaviors, 108161.
[16] Executive summary: Improving safer gambling messaging on operator advertising
[17] GambleAware Safer Gambling Messaging and Signposting Guidelines
[18] Let's Open Up About Gambling campaign evaluation
[19] Applying public health learnings to safer gambling communications
[20] Bet Regret: Summary of key learnings & insights from a four-year marketing strategy

by working closely with Prof. Ludvig and GambleAware to develop a behavioural primary outcome measure and incorporate additional attitudinal survey questions inspired by previous published research.

3. Methods

3.1. Trial design

This was a six-armed online RCT where participants were randomly assigned to one of five intervention arms and a control (neutral).

Figure 1: Trial Design
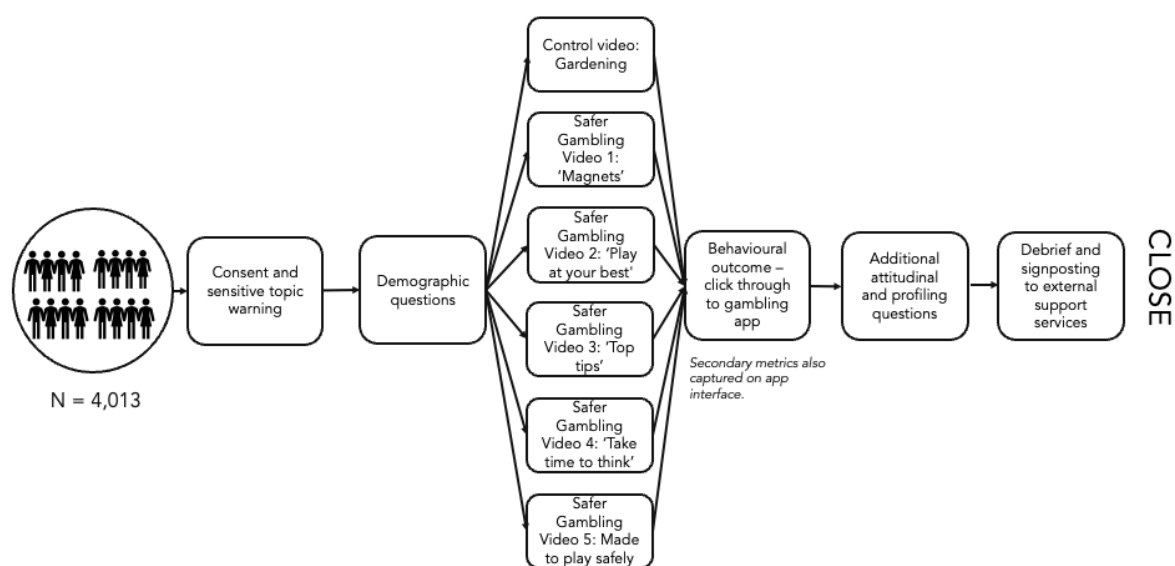
On entry to the experiment, all participants were shown an information screen providing information about the experiment and how the data that they provided will be managed and asked to opt-in if they wish to proceed. This was followed by a set of demographic screening questions (e.g., gender, age, region, ethnicity) and also a screener for attention (a question where a participant has to click 'slightly disagree' to proceed – see Appendix for details).

Participants who chose to proceed were then randomly allocated into one of six arms. Participants entered a video-sharing platform simulation where they watched a short series of 30-second clips. We included a series of clips (including neutral videos) instead of just one to make the experience of browsing a video platform more naturalistic and reflective of real-life behaviour, and to be able to provide multiple entry points into the gambling app. The video player was compatible with mobile, desktop and tablet and resized accordingly depending on how a participant completed the survey. There was also an option to play on full screen (landscape) by enlarging the video in mobile view. The second video clip they watched was one of 5 safer gambling advertising videos or in the case of the control group a video about an unrelated topic. Immediately after they watched this clip (safer gambling video or not) a pop-up appeared with an option to

click through to a betting app promoting a free bet. If participants chose this option, they were brought to a betting app simulation and asked to set an initial deposit. They were then free to choose whether to place a bet (a free spin) or use a safer gambling tool (e.g., set a limit on deposits for the future).

If participants closed the pop-up, they continued to watch another video on the video sharing platform simulation and then were re-exposed to the gambling app pop-up. The reason for this was an attempt to maximise the number of participants who eventually enter the gambling app simulation and therefore have more datapoints to analyse for our secondary measures (see section 3.4). See the Appendix for more details on the exact steps and actions within the video player simulation and gambling app interface simulation.

Following the video-sharing platform and gambling-app simulations, participants were then redirected to a post-trial survey containing a series of survey questions capturing attitudes and intentions, and Problem Gambling Severity Index (PGSI)[21] scores (see Appendix for more). Finally, all participants were debriefed with a screen thanking participants for their time and signposting information and contact details of external services that offer support if they had been affected by any of the elements of the experiment. Participants were then redirected back to the panel that recruited them and paid for their time.

3.2. Participants

3.2.1. Sample and data collection

A sample of 4,013 Great Britain (GB) adult (18+) participants were recruited with nationally representative quotas on age and gender interlocking, region, socioeconomic grade and ethnicity. These quotas allowed for the exploration of experiment results across specific groups within the population. This sample was recruited by our fieldwork partner, Strat7, from their online panel. Strat7 operate a multi-stage quality control process to detect and remove bots and incorrect responses. Both Thinks Insight and Strategy and Strat7 adhere to the Market Research Code of Conduct 2023 and relevant data protection legislation (GDPR).

3.2.2. Screening participants for attention

Participants were screened for attention and quality in the following ways:
- Participants were required to successfully complete an instructional manipulation check (IMC) asking them to click on a 'slightly disagree' button within a Likert scale. Participants who did not comply with this were screened out.
- Participants were required to complete the experiment in a maximum of 40 minutes or be screened out.

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[21] Problem gambling screens

- As standard, our partner, Strat7, conducted extensive quality checks on their panel participants, including digital fingerprinting questions such as reCAPTCHA. A software called Survalidate was also on in the background which runs 180 key data points on the individual (location, IP, time of device, device language etc) – this gave them a score to deem whether they are legitimate, a bot or even fraudulent (doing the survey in another country for example). This also flags duplicate respondents.
- We kept a record and tracked the proportion of participants screened out at each of the above stages outlined. Note: all exclusions were made data blind (i.e., without examining the primary outcome data first). The following exclusions and completions were recoded: Terminates = 1,020, Over quota = 2,261, Partials = 2,084, Completes = 4,013.

3.3. Interventions

We tested five safer gambling advertising videos selected from a longlist of 20 provided by GambleAware.

The initial longlist included videos with a variety of:
- messengers (e.g., charities, gambling operators, trade bodies)
- safer gambling messages
- call-to-actions (e.g., use different tools)
- gambling types (e.g., betting, casino, bingo)
- locations (e.g., betting shop, hotel, road trip)
- cultures (e.g., United Kingdom, Australia, USA)
- gender of people in video
- production and music style
- tone
- authority figures (e.g., celebrity ambassadors)
- signposting and logos (e.g., 18+, take time to think)
- mentions of certain terms (e.g., 'fun', 'risk/harm')

We conducted a review of each video, identifying any behavioural principles within the core message, likely backfire effects and proposed initial hypotheses on potential impact. Ten videos were then included in a pre-experiment triage test.

3.3.1. Triage test

The ten videos were subject to a small sample online triage test (n=100) with the target audience to explore their reactions 'in the moment' (participants were asked to record themselves watching and react out loud) and in response to certain prompts (e*.g., 'Suggests gambling is harmless fun'*). Participants in this test watched all the videos and scored them. The triage test gave us indicative insights into the potential for different videos to get noticed (e.g., *'Grabs my attention', 'Is from a trustworthy source'),* provide support *(e.g., 'Makes me feel confident I can*

stay safe whilst gambling', ' 'Helps people manage their gambling'), and to backfire *('I want to gamble right now', 'Suggests gambling is harmless fun').*

We then debated the results with subject matter experts Dan Riley[22], Carol McNaughton-Nicholls[23] and Matt Zarb-Cousin[24] as well as academic advisor Prof. Ludvig[25] and Thinks Behavioural and GambleAware colleagues. Online voting was then conducted to reach agreement where there is a case for inclusion of a video in the RCT. The voting procedure and ultimate inclusion of videos in the RCT took into account aiming for a spread of video performance from the triage test (in regards to getting noticed, providing support, and potential backfire) as well as capturing a range of factors mentioned in Section 3.3 (as it was important for the different messages to be distinct in our experiment). Further rationale for inclusion is provided in the section below (3.3.2).

3.3.2. Chosen safer gambling advertising videos for the RCT

Table 1: Videos and hypotheses

Video	Hypothesis	Rationale for inclusion
'Magnets' Stigma Campaign, (GambleAware)	Hypothesis: Exposure to this video will decrease the rate of clicking through to the gambling app.	• A serious tone highlighting that anyone can experience gambling harms. • Personal stories from real people with lived experience of harms. • Emotionally-driven messaging. • Created independent of industry and highly trusted messenger.
Play at your best (Betfair)	Hypothesis: Exposure to this video will increase the rate of clicking through to the gambling app (increase may be driven by an attempt to use safer gambling tools on site).	• May over-simplify safer gambling and lead to overconfidence. • Shows key tools available within product app. • Direct call to action to safer gambling page.
Top tips for positive play (William Hill)	Hypothesis: Exposure to this video will increase the rate of clicking through to the gambling app.	• Indicative results (from a small sample n=100) show that this video has potential to backfire. • Video may suggest gambling is harmless fun. • Uses football culture to communicate messages. • Communicates a lot of messages (5).
Take time to think (BGC)	Hypothesis: Exposure to this video will have no impact on the rate of clicking through to the gambling app.	• Video taps into pause (pre-commitment) CTA. • Indicative results (from a small sample n=100) show viewers are sceptical toward its impact. • Current universal proposition (i.e., not from a specific gambling brand so more trustworthy).

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[22] GambleAware
[23] Thinks Insight & Stratgey
[24] Gamban
[25] University of Warwick

		• Message is vague and does not explain any specific safer behaviour • A previous incentivised study showed no effect[26]
Made to play safely (888)	Hypothesis: Exposure to this video will increase the rate of clicking through to the gambling app. (increase may be driven by video seen as a promotional ad).	• The video may be seen as a promotional ad for gambling due to its energetic production style. • Suggests gambling is harmless fun and more likely to increase gambling urges.

Note: See Open Science Framework (OSF) registration for full videos (in Files tab – Archive of OSF Storage). The trial protocol on OSF uses the terms gambling/betting app and website interchangeably. For simplicity and consistency in reporting we have used the term 'gambling app' here.

3.4. Outcomes

Table 2: Outcomes and classification

Outcome	Classification
Whether or not participants click-through to a gambling app after watching a series of videos on a video player website (binary).	Primary
Participant actions within the gambling app simulation • Setting a deposit amount (continuous) • Choosing to use a free bet, go to safer gambling tools or exit app (categorical) • Setting deposit limits (continuous) • Setting time limits (ordinal)	Secondary
Participant responses to survey questions exploring intention and attitudes (ordinal)	Secondary
Participant demographics and psychometrics such as cognitive reflection	Exploratory – covariates and/or subgroup analysis

Primary outcome: Participants received a short vignette explaining that they needed to enter a video player and watch a series of videos and then choose what to do next. There was a pop-up or call to action to enter the simulated gambling app. Our primary outcome examined click through on the first pop-up (see Figure 2).

Click-through behaviour is a meaningful and widely accepted proxy in digital behavioural research[27] because it reflects an intentional action. In online environments, especially those where exposure to gambling stimuli (e.g., ads, prompts, app icons) is prevalent, the decision to click represents an active expression of interest, curiosity, or intent to gamble.

While click-through does not confirm that a gambling transaction has occurred, it serves as an indicator of increased susceptibility to gambling influence, especially in experimental settings where we are isolating the

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[26] Newall, P. W., Hayes, T., Singmann, H., Weiss-Cohen, L., Ludvig, E. A., & Walasek, L. (2023). Evaluation of the 'take time to think' safer gambling message: a randomised, online experimental study. Behavioural Public Policy, 1-18.
[27] For example see this study on safer gambling for more details on click through rates for safer gambling infomation: Newall, P. W., Hayes, T., Singmann, H., Weiss-Cohen, L., Ludvig, E. A., & Walasek, L. (2023). Evaluation of the 'take time to think' safer gambling message: a randomised, online experimental study. Behavioural Public Policy, 1-18. and more generally in advertising research: Boerman, S. C., Kruikemeier, S., & Zuiderveen Borgesius, F. J. (2017). Online Behavioral Advertising: A Literature Review and Research Agenda. Journal of Advertising, 46(3), 363–376.

effects of specific interventions (e.g., message framing, interface design). Indeed, in our data, the majority of participants who clicked through to the app went on to click on the free spin within the app interface (see Section 4.3. for breakdown).

It was also critical to conduct this research in an ethical manner (especially as we were estimating the increased risk of harm from videos). For this reason, click-through was seen as a less harmful interaction compared to getting a participant (who may have been experiencing gambling harms) to place bets or actually interact with a roulette wheel tool.

Using clicks through we were able to measure both "backfire" effects and "protective" effects. "Backfire" is a term used throughout to describe how a safer gambling video could have the opposite effect– increased intention to gamble. "Protective" is a term used throughout to describe how a safer gambling video could have the intended effect – decreased chances of gambling.

Secondary outcomes – gambling app interactions: These interactions were included to make the gambling app simulation feel naturalistic and represent typical actions one could take on an app like this. The specific safer gambling interactions (deposit limit, time limits) were included as operators often suggest such tools in their communications. The inclusion of safer gambling options in the app also enables us to check the why a participant may have clicked through (i.e. with the intention to gamble or use one of the safer gambling tools).

For the participant actions within the gambling app simulation there was a risk that data counts would be low (and statistical analysis underpowered) given that closing pop-ups is a common online behaviour. This is partly why we included a second opportunity to enter the app (see Figure 2 and Appendix for more details) as well as post-trial survey questions for supplementary analysis.

Secondary outcomes – attitudinal questions: Following exposure to the experimental video and completion of the gambling app simulation, participants were asked a series of attitudinal questions. These questions served as supplementary data points to help contextualise any results observed in the primary behavioural analysis. Participants rated their agreement with statements related to the perceived impact of the video using 7-point Likert scales (see Appendix for details). These measures were not primary outcomes but were included to provide additional insight into participants' subjective experiences of the interventions.

Figure 2: Screenshots for the video player simulation. Note the primary outcome looked at click through rates on the first pop-up.
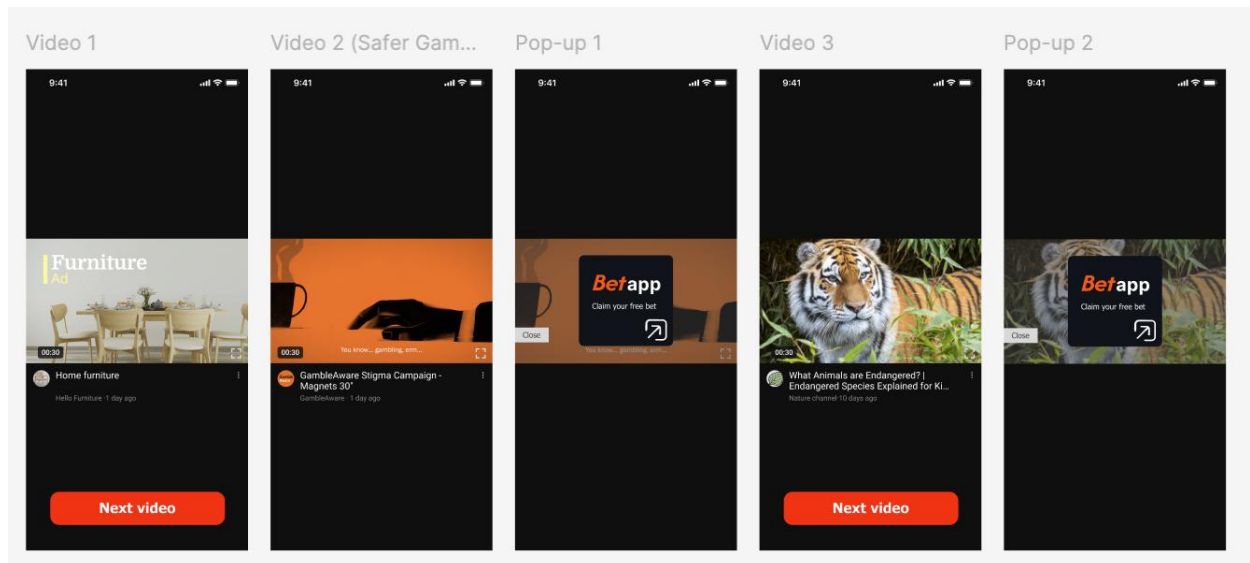

Figure 3: Screenshots from the betting app simulation (deposit and free spin)
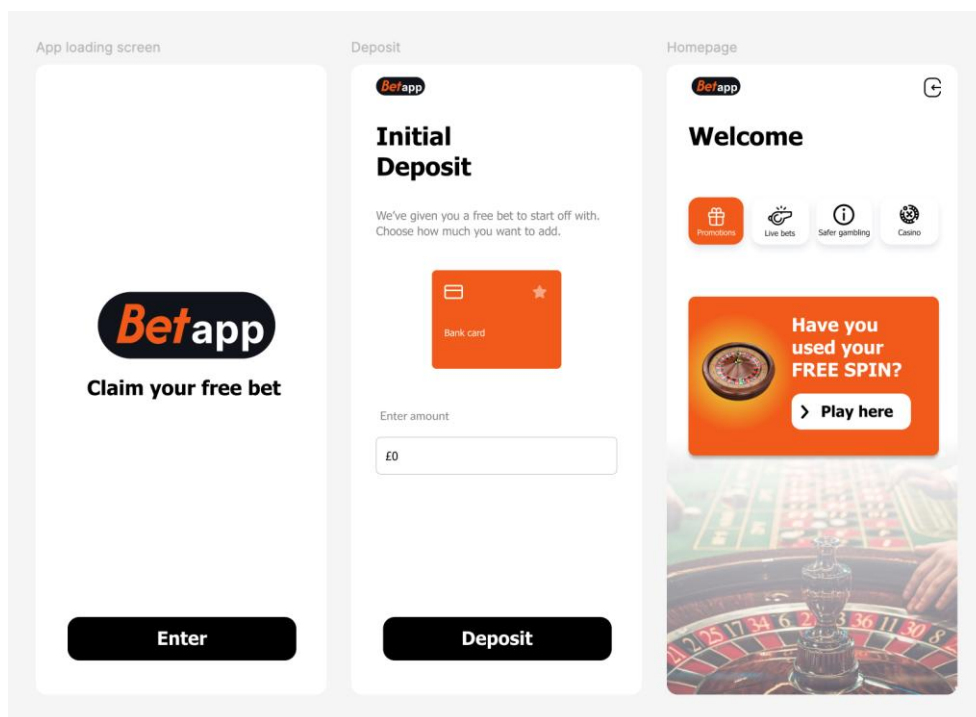
Figure 4: Screenshots from the betting app simulation (safer gambling tools)
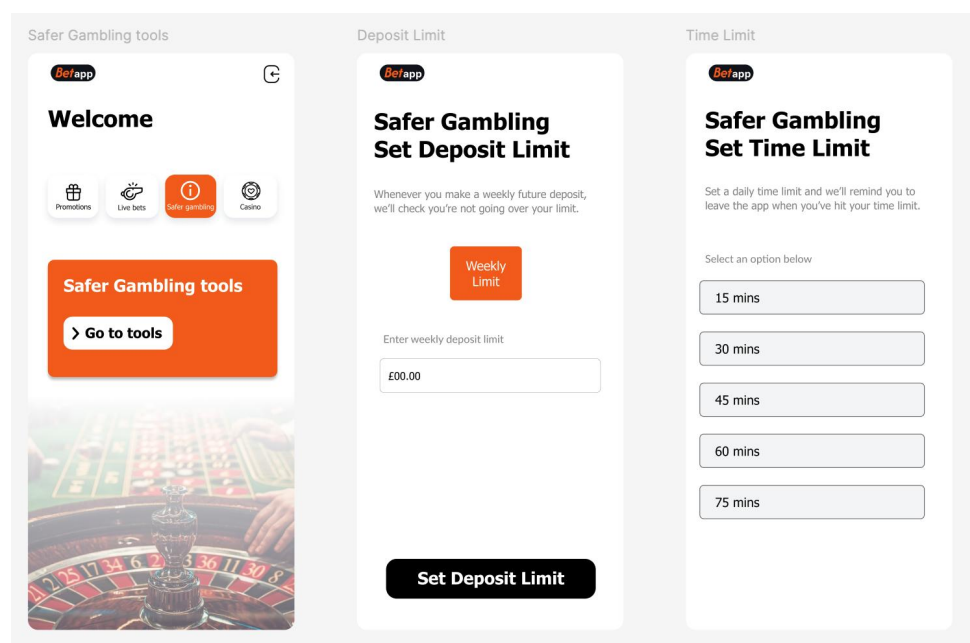
3.5. Sample size

A power calculation was run in G*Power 3.1 for a logistic regression with alpha of 0.05, assuming the rate of clicking into the gambling app will be 50% in the control group, and the intervention(s) changes this rate by 10% (in relative terms) or 5% points (in absolute terms)[28].

The calculation indicated at least 95% power for the primary comparisons laid out in the hypotheses. 95% power means that if we repeated the experiment 100 times, we would expect to find a statistically significant effect in 95 of those experiments. This is a highly powered experiment for behavioural outcomes.

Table 3: Power calculation details

Total N	# of Arms	N per Arm	Key Outcomes	Outcome Baseline assumption	Minimum Detectable Effects (MDEs)
4,000	6	~666	Whether or not participants click through to a gambling app after watching a series of videos on a video player website.	50%[29]	5 percentage points (relative 10% reduction)

3.6. Randomisation

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[28] This is considered the minimum meaningful difference.
[29] This is a neutral baseline measure. A 50% click rate represents a neutral baseline, where there is no prior expectation based on previous experiments (as we were unaware of similar outcomes measures like this) tendency for participants to click on the gambling app. Choosing a 50% baseline is often a conservative approach in power calculations because it provides the largest required sample size to detect an effect.

Participants were randomly assigned to one of six arms of the experiment. We used least-fill randomisation. Least-fill randomisation involves assigning participants to one of six arms based on which arm currently contains the fewest number of participants. The form of randomisation helps to ensure the most equal distribution of participants across each experiment arm and helps balance quotas. The sample size by arm was as follows, *Control: 669. 'Magnets' Stigma Campaign: 670. Play at your best: 666. Top tips for positive play: 671. Take time to think: 668. Made to play safely: 669.*

3.7. Dummy data checks and soft launch

In advance of soft launch, a dummy data export was run to check the data export was working as desired. Then, an initial soft launch of up to 10% of participants was run to evaluate the experiment and ensure that there were no issues with the flow or questions. 18 participants were terminated and recorded (in line with Section 3.2.2.) due to a minor fault in recording their actions on the video player simulation and missing subsequent data. This fault was addressed, and we then proceeded with full launch.

3.8. Statistical analysis

For the primary outcome, 'whether or not participants click through to a gambling app', logistic regression is the most appropriate model. Logistic regression is suited for binary outcomes (click vs. no click) and allows for testing the effect of the intervention while controlling for covariates if needed.

4. Statistical methods and results

4.1. Sample characteristics

The demographics for our final sample (n = 4,013) are reported in the Appendix. We used a chi-squared test to check for randomisation failure. Randomisation between each experiment arm was tested using a series of Chi-squared tests on the distribution of each demographic variable (i.e. age, gender, Socioeconomic Grade (SEG), Region, Ethnicity) across each arm, as well as composite Cognitive Reflection Test (CRT) scores. No tested variable showed any significant difference across arms. The sample was balanced across treatment arms for all variables (all $p > 0.05$).

We also observed a high proportion of those who gamble, and people who experience gambling harm in the sample (see Appendix for PGSI breakdown). This was higher than average for the GB adult population[30]. This could be for the following reasons:

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[30] Annual GB treatment and support survey

- The PGSI questions were placed at the end of the survey (with the intention of preventing bias in the experiment – so as to not prime participants with mention of the topic of gambling) which could have meant that some participants became fatigued by the time they reached this section, leading to lower-quality data and potentially inflated PGSI scores.
- Participants took part in a simulation / watched adverts / were exposed to numerous other mentions of gambling throughout the experiment meaning they may have been thinking about their gambling in greater detail compared to at the start of the survey, again potentially leading to inflated scores.
- The nature of collecting the sample online: previous research[31] has shown that online data collection may substantially overestimate gambling activity and gambling harm. This research suggests that this may be because online surveys skew toward people who are more online and 'tech savvy' and these sorts of people are more likely to be online and frequent gamblers. Moreover, other research has also found high rates of PGSI 8+ in online samples[32].

Although it was not an intention to collect such a high proportion of those who experience gambling harms, it did mean that there was a higher degree of relevance to the sample. It's also worth noting we conducted additional analysis to control for other factors in our model including PGSI (See Appendix C).

4.2.   Primary analysis results

The primary outcome was 'whether or not participants click through to a gambling app'. Descriptively, the click through rate in the control group with 6%. 'Top tips for positive play' (William Hill) (15%) and 'Made to play safely' (888) (18%) had higher click through rates. The 'Magnets' Stigma Campaign (GambleAware) (3%) had a lower click through rate.

We detected statistically significant backfire effects (increases in click-through) from two safer gambling advertising videos; 'Top tips for positive play' (William Hill) and 'Made to play safely' (888). There was a statistically significant increase in click-through (18% click-through rate) to the gambling app when participants were exposed to the 'Top Tips for Positive Play' (odds ratio [OR]=3.52, 95%CI=2.43-5.20; p<0.0001) compared to the control (6% click-through rate). This equates to 3.5x higher odds. There was also a statistically significant increase in click-through (15% click-through rate) to the gambling app when participants were exposed to the 'Made to play safely' video (odds ratio [OR]=2.77, 95%CI=1.90-4.13; p<0.0001) compared to the control (6% click-through rate). This equates to 2.8x higher odds.

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[31] GambleAware, Methodological factors affecting estimates of the prevalence of gambling harm in the United Kingdom: A multi-survey study
[32] Pickering, D., & Blaszczynski, A. (2021). Paid online convenience samples in gambling studies: Questionable data quality. International Gambling Studies, 21(3), 516-536.

Two videos did not result in any statistically significant change in click-through rate; 'Play at your best' (Betfair) and 'Take time to think' (BGC). There was a small decrease in click-through (4% click-through rate) to the gambling app when participants were exposed to the 'Play at your best' video (odds ratio [OR]=0.68, 95%CI=0.41- 1.12; p=0.14) compared to the control (6% click-through rate). There was the same rate of click-through (6% click-through rate) to the gambling app when participants were exposed to the 'Take time to think' video (odds ratio [OR]=0.97, 95%CI=0.61-1.55; p=0.91) compared to the control (6% click-through rate). Neither of these results was statistically significant, which means we cannot be confident any difference versus the control was detected.

We detected a statistically significant decrease in click-through to the gambling app in the 'Magnets' Stigma Campaign arm (only 3%) compared to the control (6%) (odds ratio [OR]=0.52, 95%CI=0.30-0.89; p=0.02). In other words, the 'Magnets' Stigma campaign video had a protective effect (see Appendix C for further detail on odds ratios and post-hoc correction for multiple comparisons).

Figure 5: Chart showing percentage of participants who clicked through to gambling app by arm
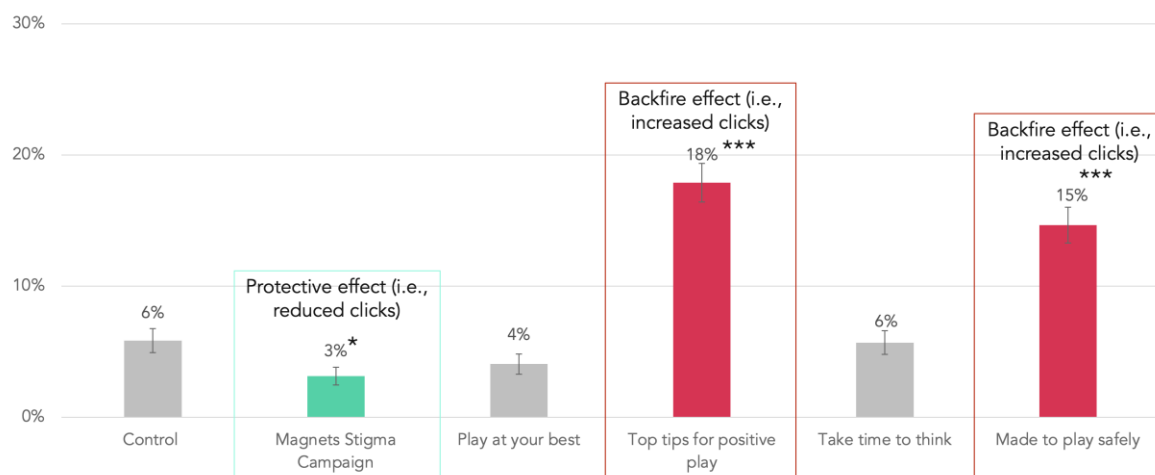
Note: *Statistical analysis conducted using a logistic regression.*
* Statistically significant decrease, p<0.05, in click through for the 'Magnets' Stigma Campaign video.
*** Statistically significant increase, p<0.001, in click through for both the William Hill Top Tips for Positive Play and 888 Made to Play Safely videos.
Base sizes: Control: 669. 'Magnets' Stigma Campaign: 670. Play at your best: 666. Top tips for positive play: 671. Take time to think: 668. Made to play safely: 669.

When factoring in other variables (as covariates) into our model (e.g. demographic variables, PGSI scores), our main results still hold. In other words, we still observed the protective effect and backfire effects (see Appendix C for model output).

4.3. Secondary analysis

4.3.1. Interactions within the app interface

For secondary outcomes, we only analysed a subset of participants who clicked through to the gambling app. There was a risk of underpowered analysis for many of these measures. In an attempt to mitigate this in advance, we exposed participants to two pop-ups or entry points into the gambling app with the intention of getting more datapoints to analyse as part of secondary analysis. Even with this mitigation strategy, a small proportion of participants entered the gambling app. The total number of participants who entered the gambling app was 443 out of a possible 4,013. This may reflect online behaviour – that most people close pop-ups[33]. We have therefore reported the descriptive results (in terms of counts of participants interacting with the app interface) and a warning on any interpretation given the small sub-sample size.

Descriptively, the rate of participants who choose a free bet is higher when exposed to safer gambling videos (with the exception of the magnets stigma campaign) compared to the control. This indicates that most participants who click through to the app could be doing so with the intention of gambling. Furthermore, the percentage of people who click on safer gambling tools is very small.

Table 4: Interactions with the video player and gambling app. Shown as percentages and average amounts.

		Control	Magnets stigma campaign	Play at your best	Top tips for positive play	Take time to think	Made to play safely	Total
Interactions in the video player simulation		*n = 669*	*n = 670*	*n = 666*	*n = 671*	*n = 668*	*n = 669*	*n = 4,013*
Click through	**After first pop-up**	6%	3%	4%	18%	6%	15%	9%
	After second pop-up	4%	3%	2%	1%	3%	1%	2%
	Total (both pop-ups)	10%	6%	6%	19%	9%	16%	11%

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[33] Pop-up conversion rates vary considerably based on. One source, https://www.optimonk.com/popup-statistics/, suggests that the average conversion rate for website pop-ups is around 11.09%, but top-performing pop-ups can reach rates of 20-40% or even higher, depending on optimisation and the type of pop-up. There is a lack of data available on gambling pop-up conversion rates.

Interactions in the gambling app interface		_n = 67_	_n = 41_	_n = 41_	_n = 130_	_n = 57_	_n = 107_	_n = 443_
Deposit Amount	Amount	£15.70	£12.75	£25.90	£110.86	£10.63	£22.05	£32.98
Choice on homepage	Choose free bet	82%	76%	93%	89%	91%	94%	89%
	Safer gambling tools	1%	0%	0%	2%	4%	1%	1%
	Exit app	16%	24%	7%	9%	5%	5%	10%

Note: caution should be taken when interpreting interactions with the gambling app interface as base sizes are small. Counts and interactions with the safer gambling tools (deposit limit and time limit) are reported in the appendix. For deposit amount/limit outliers were removed in data cleaning (+3 standard deviations from the mean). Statistical analysis shows there were no significant differences in interactions with the gambling app interface across arms, all p>0.05.

4.3.2. Attitudinal questions

For other secondary outcomes related to the attitudinal questions in the post-trial survey (see appendix), we have reported descriptive findings in detail in the table below to give a sense of what could be driving our primary outcome. We have not run statistical analysis using an ordinal logistic regression (proportion odds model) as the number of outcomes here increases the risk of spurious relationships and inflated type 1 error (the likelihood of finding at least one significant result due to chance increases). See the limitations in Section 6.1. for more.

Nevertheless, these findings may help explain the results from our primary outcome:

Table 5: Attitudinal statements % NET Agree, Green: indicates most positive in relation to promoting safer gambling, Red: indicated least positive in relation to promoting safer gambling. Control group not colour-coded.

	Control (video not related to gambling)	Magnets Stigma Campaign	Play at your best	Top tips for positive play	Take time to think	Made to play safely
Positively framed statements						
Makes me think that everyone who gambles should use safer gambling tools	44%	73%	74%	69%	77%	73%
Makes me think that anyone can experience problems with gambling	44%	82%	76%	76%	76%	72%
Grabbed my attention	41%	67%	50%	57%	56%	49%

Is from a trustworthy source	30%	73%	64%	63%	65%	53%
Is relevant to me	26%	22%	30%	31%	31%	31%
Confident in staying safe whilst gambling	24%	49%	58%	55%	59%	52%
Helps people manage their gambling	20%	72%	68%	60%	72%	58%
Makes me think I should cut down on my gambling	19%	33%	25%	24%	29%	25%
Negatively framed statements						
Suggests gambling is harmless fun	25%	15%	39%	38%	32%	45%
Makes me want to gamble	13%	11%	23%	21%	19%	25%

5. Ethics

The experiment was designed to maintain a high standard of participant well-being by requiring layered consent from participants, ensuring that their consent to take part was informed and unambiguous.

5.1. First layer of consent

In the first layer of consent, participants were provided with a description of the content of the main task within the experiment (i.e. watching a series of video clips and answer a survey capturing demographics and attitudes toward various topics) and asked if they would like to opt in.

5.2. Second layer of consent

In the second layer, participants were informed that the content shared with them in the experiment had the potential to be upsetting to anyone who has had distressing experiences related to gambling behaviour in the past, as well as information about how their data will be stored, used and deleted, and were again asked if they would like to opt into the research. Participants will also be reminded that they are under no obligation to take part in the research and are free to opt out at any point during the experiment. The full text of this consent interface can be found in the Appendix.

5.3. Debrief

Following completion of the post-trial survey, all participants were debriefed on the purpose of the experiment and signposted to external support services should they require support or want to find out more information on the topic of gambling. The full text of this debrief can be found in the Appendix.

6. Discussion

This section contextualises the findings of the experiment, outlining a potential interpretation of findings, key implications, limitations, and potential applications. It also considers the generalisability of results and provides an interpretation of the interventions' effectiveness.

6.1. Interpretation

The sample for this study was drawn from a nationally representative panel in GB, ensuring a diverse participant pool in terms of age, gender, region, socioeconomic grade, and ethnicity. The findings showed that different videos had backfire, protective and neutral effects:

Backfire Effects: Two videos, 'Top Tips for Positive Play' (William Hill) and 'Made to Play Safely' (888), led to a significant increase in click-through rates compared to the control. This suggests that rather than discouraging gambling, these videos may have inadvertently reinforced gambling engagement, potentially due to their framing or the promotional nature of their messaging.

Attitudinal survey results suggest the videos may reinforce the idea that gambling is safe, create a false sense of security, increase gambling intent, and, despite being perceived as trustworthy, subtly downplay gambling risks.

- They suggest gambling is harmless fun (NET 'Agree', 'Top Tips for Positive Play': 38% and 'Made to Play Safely': 45%) – These campaigns score much higher than the Magnets Stigma Campaign, which could unintentionally reassure users that gambling is safe.
- Makes me want to gamble (21% and 25%) – These campaigns have the highest scores for this metric, indicating they may inadvertently encourage gambling behaviour.
- Trustworthiness (63% and 53%) – While they are seen as relatively credible, their messaging might be subtly reinforcing the idea that gambling can be done without risk rather than emphasising its risks.

Protective Effects: The 'Magnets' Stigma Campaign video resulted in a statistically significant decrease in click-through rates, indicating that its content was effective in discouraging immediate gambling behaviours. The serious tone and personal narratives may have contributed to this impact by fostering greater awareness of gambling harms.

Attitudinal survey results suggest that the video effectively normalises gambling problems as widespread, encourages self-reflection, counters the idea of gambling as harmless fun, and is perceived as trustworthy, potentially enhancing its protective impact on behaviour.

- Makes me think that anyone can experience problems with gambling (NET 'Agree': 82%) – The highest agreement of all conditions suggests this campaign effectively normalises the idea that gambling problems can affect anyone, possibly leading to more caution and a reduction in stigma.
- Makes me think I should cut down on my gambling (33%) – This is higher than other conditions, reinforcing that it may prompt self-reflection.
- Helps people manage their gambling (72%) – Second highest after "Take Time to Think," reinforcing a focus on harm reduction.
- Suggests gambling is harmless fun (15%) – The lowest score suggests it actively counters any messaging that trivialises gambling.
- Trustworthiness (73%) – High trust in the messenger may increase its effectiveness in changing behaviour. This may come from the independence of the source or distance from gambling operators.

Neutral Effects: The 'Play at Your Best' (Betfair) and 'Take Time to Think' (BGC) videos did not produce significant changes in behaviour. This is consistent with previous research the video using the 'Take Time To Think' messaging had no effect. The 'play at your best' had a straightforward, clear communication style and did not backfire.

Attitudinal survey results suggest these videos could provide useful strategies for managing gambling but do not strongly encourage self-regulation or behaviour change, slightly increase gambling intent, and foster a sense of control without clearly influencing gambling decisions.

- Makes me think I should cut down on my gambling (Net 'Agree', 'Play at Your Best': 25% and 'Take Time to Think': 29%) – Lower than the Magnets Stigma Campaign, meaning they don't trigger self-regulation as strongly.
- Helps people manage their gambling (68% and 72%) – High scores suggest they may provide useful strategies, but these do not necessarily translate into behaviour change.
- Makes me want to gamble (23% and 19%) – Slightly higher than the Magnets Stigma Campaign, but not as strong as the backfiring campaigns.
- Confidence in staying safe (58% and 59%) – These scores are relatively high, which could mean that while they help people feel in control, they do not necessarily push them towards or away from gambling.

6.2. What this adds to the research

The results of this experiment provide valuable insights into the effectiveness of safer gambling advertising videos in influencing gambling-related behaviours and attitudes. The primary outcome, whether participants clicked through to the gambling app, demonstrated that some videos had a statistically significant impact, while others did not.

This study builds on previous findings[34] that some safer gambling campaigns can backfire or have null effects, while adding new evidence of a positive effect on stigma reduction, building on earlier isolated findings in this area. This experiment also used behavioural measures in simulated environments giving additional insight into how people act as well as just self-reported measures.

These findings also provide a foundation for refining safer gambling interventions, ensuring they are based on rigorous evidence and effectively reduce gambling-related harm.

6.3. Suggestions for future research

Building on the findings of this study, future research could explore several important areas:

- Message Framing: Investigate alternative safer gambling message framings that effectively discourage risky gambling while avoiding the stigmatisation of individuals experiencing gambling harm.
- Longitudinal Effects: Conduct follow-up studies to assess the long-term behavioural impacts of safer gambling interventions beyond immediate responses.
- Real-World Implementation: Test safer gambling messaging within actual gambling platforms to evaluate effectiveness under real-world conditions and enhance ecological validity.
- Component Analysis: Use more tightly controlled experimental designs to isolate and test the effects of individual video components — such as operator branding, tone, music, and other elements — that varied across stimuli in this study.
- Explore behavioural measures and self reported measure: Use and compare other self-reported measures (e.g., Gambling Urge Scale[35]) to triangulate with behaviour.

Advancing research in these areas will support the development of safer gambling interventions that are both more effective and more aligned with real-world gambling environments.

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[34] Newall, P., Weiss-Cohen, L., Torrance, J., & Bart, Y. (2024). Not always as advertised: Different effects from viewing safer gambling (harm prevention) adverts on gambling urges. Addictive Behaviors, 108161.
[35] Newall, P., Weiss-Cohen, L., Torrance, J., & Bart, Y. (2024). Not always as advertised: Different effects from viewing safer gambling (harm prevention) adverts on gambling urges. Addictive Behaviors, 108161.

The sample for this study was drawn from a nationally representative panel in GB, ensuring a diverse participant pool in terms of age, gender, region, socioeconomic grade, and ethnicity. However, several factors may limit the broader applicability of these findings - 1) the online environment chosen: the experiment was conducted in a simulated digital setting, which may not fully replicate real-world gambling behaviours and may not translate into offline forms of gambling, 2) short-term effects: the study measured immediate responses to safer gambling advertising videos rather than long-term behavioural changes. Further research is needed to assess sustained impacts.

6.4. Implications for policy

These findings underscore the need for:

- More rigorous **pre-testing of safer gambling messages before widespread implementation**. The results suggest that certain types of messaging, particularly those that frame safer gambling messages in a similar way to a gambling ad or those that portray a message of harmless fun, may have the unintended consequence of encouraging gambling behaviour (especially among those experiencing a high level of harm already).

- A consistent **evaluation framework** for those who are making safer gambling videos so they can report on key outcomes, e.g., experimental evidence from pre-testing (see above), data from online ad engagement, interactions with safer gambling tools and relevant attitudinal data (e.g., extent to which adverts are seen as harmless fun).

- More **accountability for the 20% of marketing spend by operators that is spent on safer gambling advertising.** Without it, there's a risk that ineffective or harmful campaigns continue to receive investment, promotional material is misclassified as harm-reduction (as seen in backfiring campaigns in this study), resources are wasted and opportunities to reduce harm are missed. Recommendations for greater accountability include:
    - Independent audits of operator spending on marketing to ensure 20% is being spent on safer gambling campaigns.
    - An openly accessible library of operator safer gambling campaign materials for academic research purposes.
    - Publication requirements - operators publish details of their campaigns, budgets, and effectiveness measures to improve transparency and sector learning.
    - Greater transparency via collaborative research that allows third-sector and academic partners to test and improve messages alongside sharing in-play behavioural data (including use of tools).

- **Guidelines and/or minimum standards for safer gambling campaigns created independently of industry:** This research has shown that messages that normalise gambling or present it as a fun, manageable activity may increase gambling engagement rather than reduce harm. The effect of the 'Magnets' Stigma Campaign indicates that messages emphasising personal stories and the risks of gambling can be more effective. These learnings could be triangulated with other research findings to create do's and don'ts for those creating such campaigns.

- **Make/test making safer gambling tools easily accessible:** Beyond messaging it is important for operators to prominently display safer gambling tools — such as deposit limits, time-outs, and self-exclusion — on their homepage and main navigation across platforms (apps, websites, desktop and mobile). If a campaign encourages users to use deposit limits, but the tools are hard to find, it creates friction and undermines the message. Making tools easy to access removes this friction and turns intent into action.

6.5. Limitations

We have flagged several limitations or caveats to our approach below:

- There may have been potential priming of participants with the sensitive content warning around gambling harms. During trial design, a step was taken to mitigate this by introducing a second 'sensitive topic' (i.e. endangered animals) in an effort to reduce experimental demand effects.
- The experiment measured click-through rates to a gambling app and click through to potentially get a free spin on the app, but did not measure an actual wager placed. While the measures serve as an engagement proxy, they does not provide direct evidence of financial expenditure or actual gambling harm. Although gambling with real money within the experiment was discussed, this option was decided against due to ethical concerns of exposing potentially vulnerable participants to such situations.
- The small number of participants who entered the gambling app (443 participants across all experimental arms) limited the power of secondary analyses, making it difficult to draw strong conclusions about behavioural patterns within the app.
- The positioning of the post-trial survey questions at the very end of the experiment could have meant that participants were cognitively fatigued when they reached this moment in the survey which may have affected data quality and inflated PGSI scores. Moreover, exposure to the pop-up, videos, gambling app interface and other mentions of gambling throughout may have led participants to think more deeply about their previous gambling behaviour and answer the PGSI questions differently from how they might have

otherwise (without any previous prompts regarding gambling). It's worth noting that PGSI questions were placed at the end of the experiment so as to not bias responses to any earlier tasks or questions.

- The large number of arms within the experiment increased the risk of a Type 1 error. In general, more experimental arms increase the number of comparisons being made, raising the risk of false positives due to multiple testing (this is why we ran additional robustness checks – see post hoc Bonferroni corrections in Appendix C). We considered the trade-offs of including more videos yielding more insights and including less videos for increased robustness in our research design. Future research should also consider these trade-offs. This is also true of the large number of survey questions asked in the post-trial survey – we have therefore chosen to report the findings from the survey in a descriptive way.

Appendix A: Survey

The text below will be provided to all participants when they are on the panel platform about to enter the experiment. Mention of other 'sensitive topics' e.g. endangered animals have been introduced to mitigate the potential effects of the gambling topic influencing behaviour (disproportionally in the control group):

Please only click into this survey if you can complete it with your sound on.

Please ensure you are in a place where you are able to do this or have headphones.

In this study, you will be asked to complete a series of tasks, including watching videos, and then follow up with questions about your attitudes and intentions.
The videos have the potential to be upsetting as they may cover the topics of gambling and endangered animals. If anyone has previously had a distressing experience related to these topics – please consider this before entering the survey. By clicking into the study, you acknowledge that you have read and understood this.

Q1: Introduction and opt-in
Base: Ask all
Single code, fixed options

Important Information Before Proceeding
By clicking into this study, you confirm that you have read, understood, and agree to the following:

- *This research may involve watching videos and entering simulations related to the topics of gambling and endangered animals. The videos you will encounter may include content related to gambling behaviour which could be sensitive or upsetting, particularly for individuals who have experienced distress related to gambling or gambling-related harm in the past.*
- *If you feel this content may impact you, please consider whether participation in this study is appropriate for you at this time.*
- *I understand that I am not required or obliged to take part in this research.*
- *I understand that I am free to opt out of this research at any time, though I may forfeit my right to any incentive or benefit being offered.*
- *I understand that this data will be stored by Thinks Insight and Strategy for a period of up to 12 months for their internal quality monitoring purposes only, and will be processed in line with Data Protection Act 2018 and Thinks Insight and Strategy's own* Privacy Notice*.*

1	I agree	Include
2	I do not agree	Thank & Close

Q2: Screen out sound off

Base: Ask all
Single code, fixed options
You can only complete this survey with your sound on so please ensure you are in a place where you are able to do this or have headphones.   **[Participant asked to play a sound clip]**   **Please select the sound you have just heard:**

1	Car engine	Screen out
2	Bells	Include
3	Cows	Screen out
4	Birds	Screen out
5	City noises	Screen out

Q3: Screen out attention

Base: Ask all
Single code, fixed options
As a test, please select 'slightly disagree' from the options below:

1	Strongly agree	Screen out
2	Slightly agree	Screen out
3	Not sure	Screen out
4	Slightly disagree	Include
5	Strongly disagree	Screen out

Cognitive Reflection Test

Q4: Cognitive Reflection Test 1

Base: Ask all
Single code, fix options.
A farmer had 15 sheep and all but 8 died. How many are left?

1	15	
2	7	
3	6	
4	8	Correct

Q5: Cognitive Reflection Test 2

Base: Ask all		
Single code, fix options.		
If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?		
1	100	
2	15	
3	25	
4	5	Correct

Q6: Cognitive Reflection Test 3

Base: Ask all		
Single code, fix options.		
In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? _____ days		
1	47	Correct
2	24	
3	23	
4	48	

Demographic questions

Q7: Age	
Base: Ask all	
Single code, fix options.	
Nat Rep Quotas – age x gender interlocking	
What is your age?	
1	18-24 years	
2	25-34 years	
3	35-44 years	
4	45-54 years	
5	55-64 years	
6	65 or more years	
7	Prefer not to say	

Q8: Gender	
Base: Ask all	

Single code, fix options.

Nat Rep Quotas – age x gender interlocking

Which of the following best describes your gender?

1	Male	
2	Female	
3	Other	
4	Prefer not to say	

Q9: SEG

Base: Ask all

Single code, fix options.

Nat Rep Quotas

What is the occupation of the person in your household who earns the highest salary? (If retired and earning a workplace pension, please provide the occupation prior to retirement).

1	High-level professional e.g. leadership, board director or owner of a large company (200+ employees)	
2	Intermediate-level professional e.g. senior management or owner of a small organisation (less than 200 employees)	
3	Mid or junior managerial professional e.g. office worker, salesperson or student	
4	Skilled or qualified manual worker e.g. bricklayer, plumber, HGV driver or hospitability worker	
5	Semi-skilled manual worker e.g. hospitality assistants, apprentices or non-HGV driver	
6	Casual worker e.g. not in permanent employment	
7	Not in work e.g. state pension, long-term unemployment, full-time carer or long-term sickness	
8	Prefer not to say	
	Recode into SEG (S8_1 = A, S8_2 = B, S8_3 = C1, S8_4 = C2, S8_5 = D, S8_6 OR S8_7 = E)	

Q10: Region

Base: Ask all

Single code, fix options.

Nat Rep Quotas

What region or nation do you currently live in?

1	South East	
2	London	
3	North West	
4	East of England	
5	West Midlands	
6	South West	
7	Yorkshire and the Humber	
8	East Midlands	

9	North East	
10	Wales	
11	Scotland	
12	Prefer not to say	
13	Outside of these regions	
	Note – Northern Ireland excluded	

Q11: Ethnicity		
Base: Ask all		
Single code, fix options.		
Which of the following best describes your ethnicity?		
White		
1	White (English/Welsh/Scottish/Northern Irish/British)	
2	White (Irish)	
3	White (Gypsy or Irish Traveller)	
4	Any other White background	
Mixed/Multiple ethnic groups		
5	White and Black Caribbean	
6	White and Black African	
7	White and Asian	
8	Any other Mixed/Multiple ethnic background	
Asian/Asian British		
9	Indian	
10	Pakistani	
11	Bangladeshi	
12	Chinese	
13	Any other Asian background	
Black/ African/Caribbean/Black British		
14	African	
15	Any other Black/African/Caribbean background	
Other		
16	Any other ethnic group	
17	Prefer not to say	
18	Arab	

Before entering video player simulation – vignette shown on survey platform screen:
For this task, please imagine it's a Saturday morning and you have just sat down in your home with a warm drink (e.g. tea, coffee, hot chocolate). To pass the time you decide to go into the video player app you have on your device and see what new videos are on there.
You will now go to the video player and decide what action to take.

Post-trial questions:

Q12: Main message

Base: Ask all	
Open ended.	

[re-exposure to the video before the post-trial questions] What do you think is the main message this advert is trying to get across?

1	*[Open ended]*	

Q13 A-G:

Base: Ask only to treatment groups
Single code, fixed options, randomise order of prompts – lettering for coding purposes only and will not be presented to participants

To what extent do you agree or disagree with the following statements: 'The gambling-related video I just watched…

- [A - Attention] grabbed my attention

- [B - Harmless fun (backfire)] suggests gambling is harmless fun.

- [C -Trustworthy source] is from a trustworthy source.

- [D - Helps manage gambling] helps people manage their gambling

- [E - Confident in staying safe] makes me feel confident I can stay safe whilst gambling.

- [F - Urge to gamble (backfire)] makes made me want to gamble.

- [G - Relevance] is relevant to me

1	Strongly disagree	
2	Disagree	
3	Somewhat disagree	
4	Neither agree nor disagree	
5	Somewhat agree	
6	Agree	
7	Strongly agree	

Q14 A-C:

Base: Ask only to treatment groups
Single code, fixed options, randomise order of prompts – lettering for coding purposes only and will not be presented to participants
To what extent do you agree or disagree with the following statements: 'The gambling-related video I just watched…

- [A - Normalisation] **makes me think that everyone who gambles should use safer gambling tools.**

- [B - Normalisation] **makes me think that anyone can experience problems with gambling.**

- [C - Self-reflection] **makes me think like I should cut down on my gambling** [to be coded with PGSI to remove non-gamblers].

1	Strongly disagree	
2	Disagree	
3	Somewhat disagree	
4	Neither agree nor disagree	
5	Somewhat agree	
6	Agree	
7	Strongly agree	

Q15 A-C: Responsible

Base: Ask only to treatment groups

Single code, fixed options, randomise order of prompts – lettering for coding purposes only and will not be presented to participants

After seeing the video, to what extent do you feel each of the following are responsible for keeping individuals safe from gambling harms?

- [A] **The government**
- [B] **Gambling companies**
- [C] **Everyone that gambles**
- [D] **People who gamble and experience harms**

1	Not at all	
2	Not very much	
3	A little	
4	A lot	

Q16: Gambled in last 12 months

Base: Ask all

Multi code, fixed options

Which of these have you spent any money on in the past 12 months? Please note, this could be either online (e.g. on a website or app) or in-person (e.g. a shop, bookmakers, casino, bingo hall). Please select all that apply.

1	Lottery tickets (e.g. National lottery, Thunderball, EuroMillions charity lottery)	
2	Scratch cards	
3	Bingo	
4	Instant win games (e.g. fruit machines, slot machines, online games)	
5	Casino card games (e.g. poker, blackjack)	
6	Other casino card games (e.g. craps roulette)	
7	Betting on sports (e.g. football, cricket, rugby, tennis)	
8	Betting on e-sports/competitive video gaming (e.g. Fortnite, FIFA, Dota, Counter Strike)	
9	Betting on horse or dog racing	
10	Any other type of gambling/betting activity (please specify)	

11	None of the above	
12	Don't know	
13	Prefer not to say	

Q17 A-I: PGSI

Base: Ask all

Single code, fixed options
Each item is scored on a 4-point Likert scale:
0 = Never
1 = Sometimes
2 = Most of the time
3 = Almost always
Scoring details can be found [here](#).

In the last 12 months...

A. **Have you bet more than you could really afford to lose?**
B. **Have you needed to gamble with larger amounts of money to get the same feeling of excitement?**
C. **When you gambled, did you go back another day to try to win back the money you lost?**
D. **Have you borrowed money or sold anything to get money to gamble?**
E. **Have you felt that you might have a problem with gambling?**
F. **Has gambling caused you any health problems, including stress or anxiety?**
G. **Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?**
H. **Has your gambling caused any financial problems for you or your household?**
I. **Have you felt guilty about the way you gamble or what happens when you gamble?**

0	Never	
1	Sometimes	
2	Most of the time	
3	Almost always	

Debrief

Base: Ask all

Single code, fixed options

Thank you for taking part in this study. Your participation is greatly valued and contributes to important research on understanding decision-making in gambling-related contexts. This test was a simulation designed to assess the impact of 'safer gambling advertising videos' on attitudes and behaviours.

It is important to note that gambling-related harm can extend beyond financial loss. It may include emotional distress, strained relationships, or behaviours similar to coercive control, where individuals feel pressured or manipulated into making financial decisions.

If you have found the content of this study distressing, or if it has raised any concerns for you, or if you would like to learn more about gambling-related harm and ways to seek help or support others we encourage you to seek support from one of the following UK-based organisations.

If you're worried about how gambling makes you feel, GambleAware can help. For free and confidential advice, tools and support, search GambleAware or contact the National Gambling Helpline, available 24/7, on 0808 8020 133. You can also find local support from the National Gambling Support Network through the GambleAware service finder.

If you're having trouble paying your essential expenses, or if you have debts you cannot repay because of your own, or someone else's gambling, you can:

- *Get financial advice from Citizens Advice*
- *Get gambling debt advice from MoneyHelper*
- *Speak to a debt advisor at the charity StepChange*

Thank you once again for your participation. If you have any questions about this study or require further information, please feel free to contact us at https://www.thinksinsight.com/contact.

| 1	Finish	Close & return to panel

Appendix B: Details of video player simulation and gambling app interface

Video player simulation

The steps and actions a participant could take on the video player simulation were as follows:

- Participant enters video player simulation.
- Participant watches first video (on furniture – unrelated to the topic of gambling) and then clicks to watch the second video.
- Participant watches the second video (this is either one of the safer gambling advertising videos.
- Participant sees the pop-up with option to click into gambling app or click close.
- If the participant clicked close on the pop-up they then see another video (video 3) unrelated to gambling (wildlife).
- After watching this video they are exposed to the pop-up again (same design) with the same options to click through to the app or click close.

Figure 6: Concepts for the video player simulation
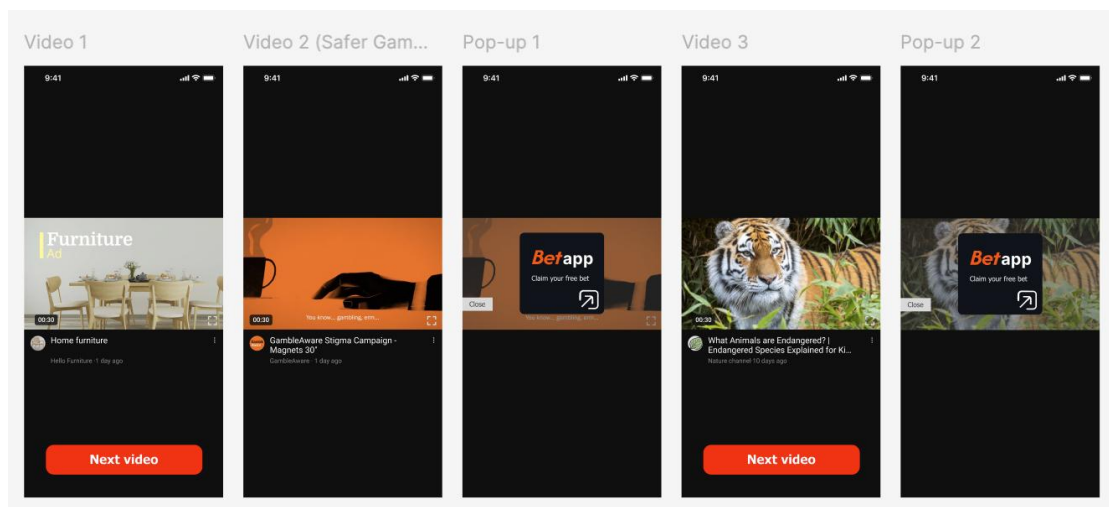
Gambling app interface simulation

The steps and actions a participant could take on the gambling app simulation were as follows:

- Only participants who have clicked on the pop-up will be able to interact with this interface.
- Participants are shown a page with the app logo and the message 'Claim your free bet' then click on the button to enter the rest of the app.
- Participants are given the choice to enter deposit amount (by entering a number into the box) then click on the button to confirm the deposit.

- Participants then go on to the homepage of the app. Here they can toggle back and forth to view 'promotions', 'live bets', 'safer gambling' and 'casino'. In terms of action options, they can either 1) click on the button to use their free spin 'Play here', 2) go to the safer gambling tools 'Go to tools' button, or 3) Exit the app altogether via the icon in the top right-hand corner of the homepage.
- For the participants who have chosen to go to the safer gambling tools, they first have the option of setting a deposit limit (by entering a number into the box) then click on the button to confirm the deposit limit.
- Finally, participants who have chosen to go to the safer gambling tools have an option to select a gambling time limit. There are five options to choose from. Once an option is chosen the participant is automatically brought out of the gambling app and on to the remainder of the survey.

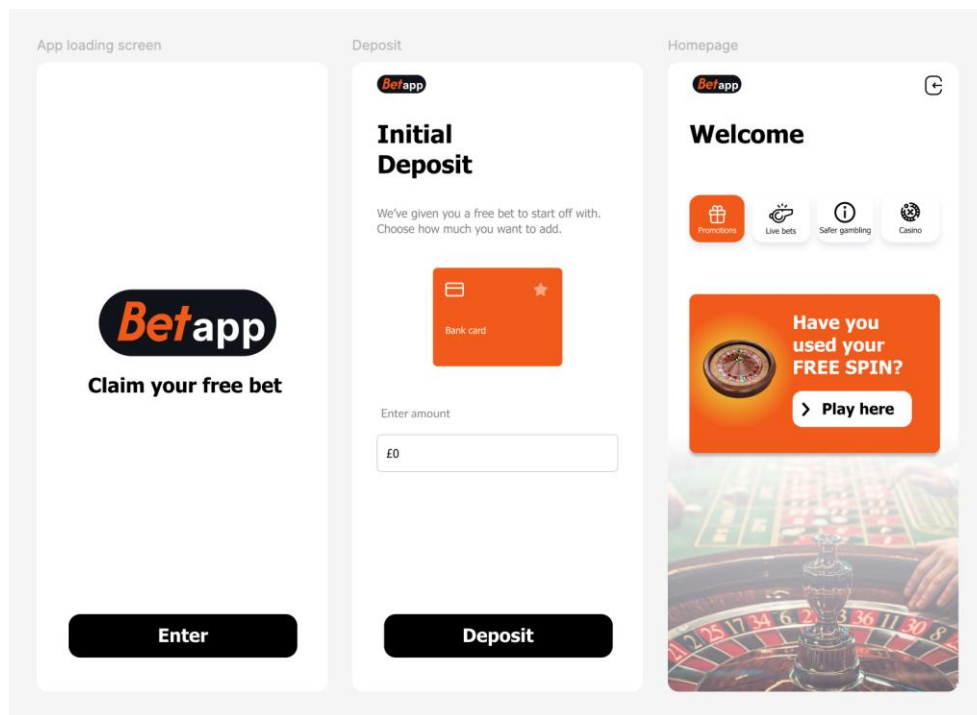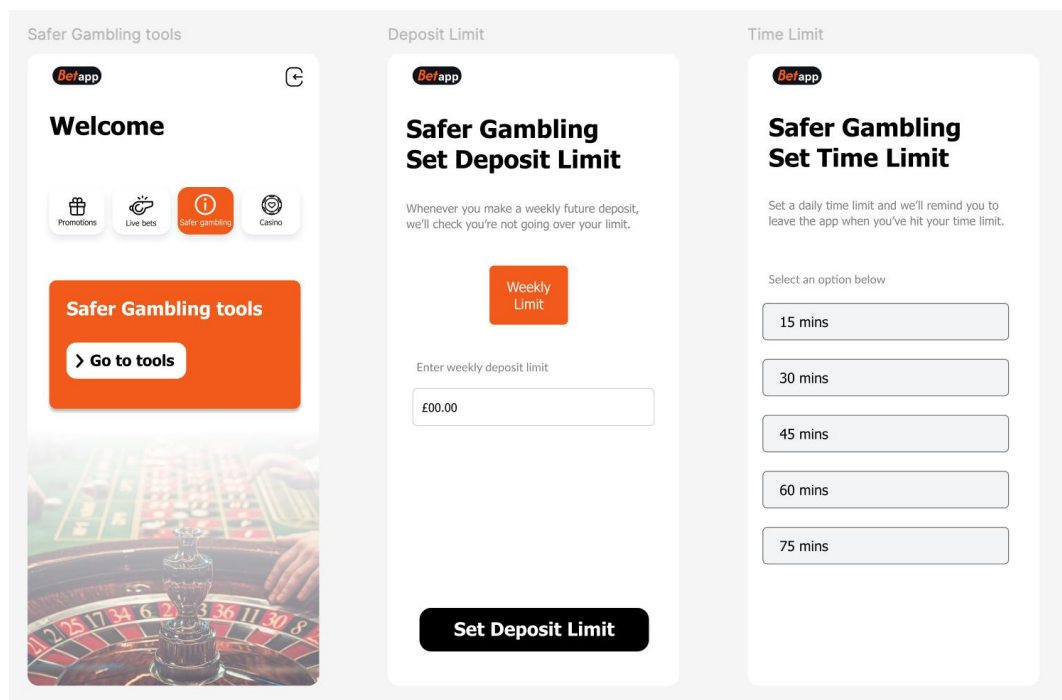*Figure 7: Concepts from the betting app simulation (deposit and free spin)*

Figure 8: Concepts from the betting all simulation (safer gambling tools)

Appendix C: Analysis output

Note on data cleaning

The integrity of the data and the quality of participant engagement are central to the success of this experiment. To ensure the validity and reliability of results, the following data cleaning and attention check protocols were implemented:

- The fieldwork partner performed checks to identify and exclude duplicate or bot-generated responses.
- Responses with missing data for critical variables, such as the primary outcome or demographic details, were excluded.
- Completion times were reviewed to identify responses exceeding the maximum allowed time (40 minutes). Responses failing this criterion were excluded.
- Participants were required to correctly respond to an instructional manipulation check (IMC) embedded in the survey, asking them to select "slightly disagree" from a Likert scale (a second attention screener will be included in the Wave 2 survey to confirm ongoing participant engagement). Those who failed this check were excluded from the trial and replacement participants were recruited.

Sample characteristics

Table 6: Sample characteristics as percentage of sample

	Category	% of sample
Gender	Male	48%
	Female	52%
Age	18-24	11%
	25-34	19%
	35-44	18%
	45-54	18%
	55-64	17%
	65+	13%
SEG	A	6%
	B	25%
	C1	26%
	C2	20%

	D	13%
	E	11%
Region	England	87%
	Wales	5%
	Scotland	8%
Ethnicity	White	84%
	Black	5%
	Asian	7%
	Mixed Race	4%
PGSI	Non-gambler	21%
	0	42%
	1 to 2	11%
	3-7	10%
	8+	16%

Note: 'Prefer not to say' / 'Other' included in analysis but removed from table above. Figures may not sum up to 100% due to this removal from table and rounding to the nearest percentage.

Primary analysis

Table 7: Odds ratio table with 95% Confidence Intervals for each arm vs the control

Group Comparison	Odds Ratio (OR)	95% CI Lower	95% CI Upper	Std. Error	Z- Value	P-Value	Bonferroni corrected P-Value
'Magnets' Stigma Campaign vs Control	0.52	0.30	0.89	0.28	-2.35	p=0.02	p=0.11
Play at your best vs Control	0.68	0.41	1.12	0.26	-1.49	P=0.14	P=0.82
Top tips for positive play vs Control	3.52	2.43	5.20	0.19	6.51	P<0.001	P<0.001

Take time to think vs Control	0.97	0.61	1.55	0.23	-0.11	P=0.91	P=1.00
Made to play safely vs Control	2.77	1.90	4.13	0.20	5.15	P<0.001	P<0.001

Figure 9: Chart showing odds ratios, confidence intervals and relative difference compared to the control

Odds Ratios with 95% Confidence Intervals represented by horizontal lines
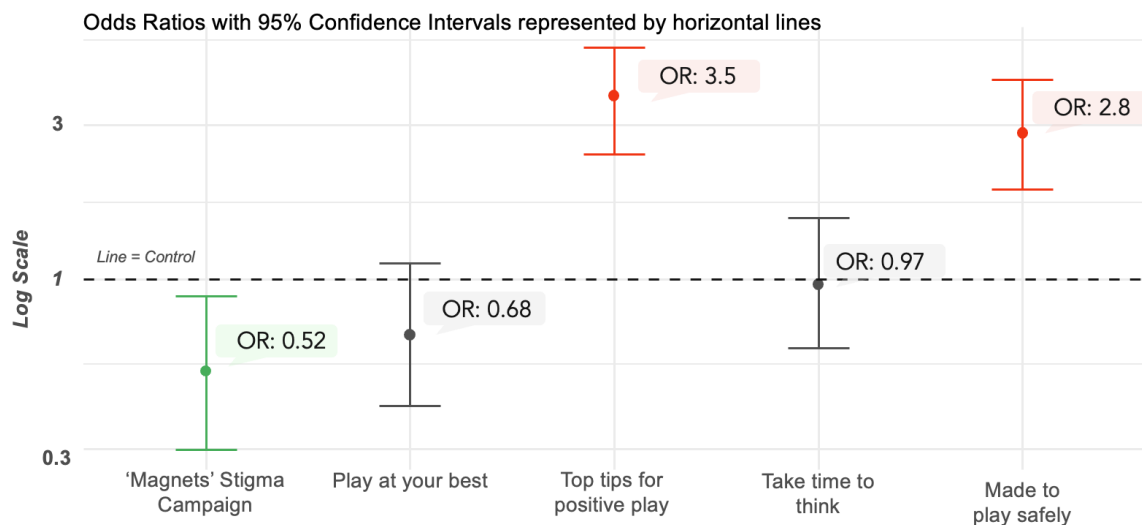
The primary outcome is clicking (vs. not) through to the gambling app. Analysis conducted using a logistic regression.

- Statistically significant decrease (odds ratio [OR]=0.52, 95%CI=0.30-0.89; p=0.02).
- Statistically significant increase for William Hill Top Tips for Positive Play (odds ratio [OR]=3.52, 95%CI=2.43-5.20; p<0.0001).
- Statistically significant increase for 888 Made to Play Safely (odds ratio [OR]=2.77, 95%CI=1.90-4.13; p<0.0001).

Base sizes. Control: 669. 'Magnets' Stigma Campaign: 670. Play at your best: 666. Top tips for positive play: 671. Take time to think: 668. Made to play safely: 669

Post-hoc correction: Table 7 above references a Bonferroni correction. This was conducted as additional analysis given the number of comparisons in our study (also see note in section 6.1.). After correcting for the 5 primary comparisons (video vs control), the backfire effects of Top Tips for Positive Play and Made to Play Safely are still significant. The 'Magnets' Stigma campaign is marginally not significant with the adjusted threshold. Note that this is a conservative correction method. Future research could

consider exploring protective effects of this campaign and others with a smaller number of experimental groups.

We also conducted additional analysis with covariates in our model. The main results for the primary analysis still hold, accounting for demographics, PGSI and other factors. In other words, the impact of exposure to 'Top tips for positive play' (William Hill) (Arm4), 'Made to play safely' (888) (Arm6) and the 'Magnets Stigma Campaign' (GambleAware) (Arm2) are still significant.

Figure 10: Results for primary analysis with additional controls for demographic factors, PGSI scores and CRT

```
Coefficients:
                                     Estimate Std. Error z value Pr(>|z|)
(Intercept)                          -2.12696    0.32282  -6.589 4.44e-11 ***
Armr1Arm 2                           -0.63663    0.28092  -2.266  0.02344 *
Armr1Arm 3                           -0.40024    0.26409  -1.516  0.12963
Armr1Arm 4                            1.34607    0.19887   6.769 1.30e-11 ***
Armr1Arm 5                            0.01877    0.23954   0.078  0.93755
Armr1Arm 6                            1.04515    0.20344   5.137 2.79e-07 ***
PGSI_categoryNon-problem gambler     -0.01509    0.18566  -0.081  0.93524
PGSI_categoryLow-risk gambler         0.58366    0.21995   2.654  0.00796 **
PGSI_categoryModerate-risk gambler    0.27803    0.23951   1.161  0.24570
PGSI_categoryProblem gambler          0.84592    0.19846   4.262 2.02e-05 ***
CRT_Combined                          0.20262    0.06295   3.219  0.00129 **
Q7_Age35-54 years                    -0.43578    0.14008  -3.111  0.00187 **
Q7_Age55+                            -1.00962    0.18926  -5.335 9.58e-08 ***
Q7_AgePrefer not to say              -1.04063    0.38942  -2.672  0.00753 **
Q8_GenderFemale                      -0.13149    0.12261  -1.072  0.28353
Q8_GenderOther/Prefer not to say      0.55211    0.83065   0.665  0.50626
S9_SEG_recodeB                       -0.67624    0.22346  -3.026  0.00248 **
S9_SEG_recodeC1                      -0.59272    0.22388  -2.647  0.00811 **
S9_SEG_recodeC2                      -0.82457    0.23418  -3.521  0.00043 ***
S9_SEG_recodeD                       -1.11265    0.27170  -4.095 4.22e-05 ***
S9_SEG_recodeE                       -0.82801    0.29514  -2.805  0.00502 **
Q10_RegionWales                      -0.21339    0.29708  -0.718  0.47257
Q10_RegionScotland                    0.03719    0.22483   0.165  0.86862
Q10_RegionPrefer not to say           1.23476    1.36087   0.907  0.36423
Q11_EthnicityMixed                    0.30371    0.26346   1.153  0.24901
Q11_EthnicityAsian                    0.14105    0.22073   0.639  0.52281
Q11_EthnicityBlack                   -0.29386    0.26895  -1.093  0.27456
Q11_EthnicityOther/Prefer not to say  0.03497    0.57127   0.061  0.95119
---
```

Note: *Statistical analysis conducted using a logistic regression.*
* Statistically significant p<0.05.
*** Statistically significant p<0.01.
*** Statistically significant increase, p<0.001.
Reference categories used in model: Arm1 - Control, PGSI 0 No risk, Age 18-34, Gender Male, SEG A, Region England, Ethnicity White.
Base size for arms: Arm 1 - Control: 669. Arm 2 - 'Magnets' Stigma Campaign: 670. Arm 3 - Play at your best: 666. Arm 4 - Top tips for positive play: 671. Arm 5 - Take time to think: 668. Arm 6 - Made to play safely: 669.

Secondary analysis

Table 8: Counts and average amounts: click throughs, interactions with the video player and gambling app

Outcome	Control	Magnets Stigma Campaign	Play at your best	Top tips for positive play	Take time to think	Made to play safely	Total

		n = 669	n = 670	n = 666	n = 671	n = 668	n = 669	n = 4,013
Click throughs	After first pop-up	39	21	27	120	38	98	343
	After second pop-up	28	20	14	10	19	9	100
	Total (from both pop-ups)	67	41	41	130	57	107	443
Deposit Amount	Amount Average	£15.70	£12.75	£25.90	£110.86	£10.63	£22.05	£32.98
Choice on homepage	Choose free bet	55	31	38	116	52	101	393
	Safer gambling tools	1	0	0	2	2	1	6
	Exit app	11	10	3	12	3	5	44
Deposit limit	Amount Average	£0.00	-	-	£30.00	£1.00	£25.00	£14.50
Time limit	15 mins	1	0	0	1	1	0	3
	30 mins	0	0	0	0	1	1	2
	45 mins	0	0	0	1	0	0	1
	60 mins	0	0	0	0	0	0	0
	90 mins	0	0	0	0	0	0	0

For the secondary outcomes, 'setting a deposit amount' and 'setting a deposit limit', a mixed-effects linear regression (for deposit/deposit limit amount) were used. We looked at the effect of each safer gambling video at 'setting a deposit amount' compared to the control. For the analysis on deposit amounts, the nominal data was inspected for outliers, and those 3+ standard deviations from the mean were removed (altogether 6 outliers were removed). Results from a mixed-effects linear regression (with random effects for participant-level variability) suggest that there were no statistically significant results, F-statistic: 1.31 (p = 0.26), R-squared: 0.015. The model explained only explained 1.5% of the variance in betting amounts. This is unsurprising given the small sub-sample size. We did not run the analysis on 'setting a deposit limit' as there was only 6 datapoints.

These results should be treated as descriptive findings only and treated with caution. We would recommend further research on safer gambling advertising videos' effect on 'setting deposit amounts'. Similarly, we also received low counts of people interacting with 'setting a deposit limit' and

therefore add the same warning to treat this data as descriptive only and with caution.

For the secondary outcome, 'choosing to take up a free bet' vs 'choosing to view safer gambling tools' vs 'choosing to exit the app', a multinomial logistic regression was used. We had a very small sub-sample size here therefore the model failed to converge properly. Again, these results should be treated as descriptive findings only and treated with caution.