



AKADÉMIAI KIADÓ

Feature preferences of sports betting platforms: A discrete choice experiment shows why young bettors prefer smartphones








Journal of Behavioral
Addictions

13 (2024) 1, 134–145

DOI:

[10.1556/2006.2023.00073](https://doi.org/10.1556/2006.2023.00073)

© 2023 The Author(s)

NERILEE HING^{1*} , ALEX M. T. RUSSELL¹ ,
CATHERINE TULLOCH¹ , LISA LOLE¹ ,
MATTHEW ROCKLOFF¹ , MATTHEW BROWNE¹ ,
HANNAH THORNE¹  and PHILIP NEWALL^{1,2} 

¹ Experimental Gambling Research Laboratory, School of Health, Medical and Applied Sciences, CQUniversity, Australia

² School of Psychological Science, University of Bristol, United Kingdom

Received: September 7, 2022 • Revised manuscript received: November 26, 2023 • Accepted: November 27, 2023

Published online: January 9, 2024

FULL-LENGTH REPORT



ABSTRACT

Background and aims: Smartphone, computer and land-based betting platforms each have distinctive features. This study examined 1) preferred features of sports betting platforms amongst young adults and 2) whether feature preferences vary with gambling severity. *Methods:* The study surveyed 616 Australians aged 18–29 years who bet at-least monthly on sports, esports and/or daily fantasy sports. Participants provided a simple rating of the importance of 24 features of betting platforms and then completed a discrete choice experiment to indicate their preferences amongst different groups of features. *Results:* Smartphones were the only platform providing all preferred features. The most important feature was ability to bet instantly 24/7 from any location, followed by electronic financial transactions. Less important features were ability to access betting information online and to bet with multiple operators. Social and privacy features, and access to promotions, did not significantly predict platform choice. The experiment found no significant differences in preferred features by gambling severity group or by gender. The non-experimental descriptive data, however, indicated that participants in the moderate risk/problem gambling categories placed significantly more importance on privacy, ability to place in-play bets, bet with cash, bet with a credit card, see frequent promotions, and bet with multiple operators. *Discussion and conclusions:* Most features that bettors prefer can intensify betting. Curtailment of betting promotions, in-play betting, and credit card betting are measures that can assist higher-risk gamblers without unduly affecting other gamblers. Consumer protection tools, including mandatory pre-commitment, need strengthening to help counter the unique risks of smartphone betting.

KEYWORDS

smartphone, sports betting, problem gambling, gambling disorder, conjoint analysis, discrete choice experiment

INTRODUCTION

In many countries, smartphone betting apps are now the predominant platform used for sports betting (Hing, Russell, et al., 2021, 2022; Winters & Derevensky, 2019). Within the context of continued increases in sports betting participation and revenues, this growth in smartphone betting has been at the expense of betting using the main alternatives of computers and land-based venues (Hing, Russell, et al., 2021; Roy Morgan, 2018). However, little research has focused on the preferred features of smartphone betting that differ from those of computer and land-based betting options (James, O'Malley, & Tunney, 2017, 2019). Since online gambling was introduced over 20 years ago, numerous studies have compared the features of online gambling to land-based gambling (e.g., Hing et al., 2014;

*Corresponding author.

E-mail: n.hing@cqu.edu.au



McCormack & Griffiths, 2013). However, few studies have examined the more recent extension of online gambling to smartphones. While the increased uptake of smartphone betting indicates that consumers increasingly favour this betting platform, there has been no systematic examination of the particular features of smartphone betting that attract consumers. Different betting platforms have inherent variations in their features that affect the convenience and speed of betting, betting transactions, privacy, and access to betting information, opportunities and promotions (Drakeford & Hudson-Smith, 2015; Hing et al., 2022). These features are briefly reviewed below, first to compare online betting and land-based betting, and then to identify distinctive features of smartphone betting.

Online vs land-based betting

Betting online facilitates the ease and speed of betting, compared to travelling to and possibly queuing to bet in a land-based outlet (Hing et al., 2022; Parke & Parke, 2019). Electronic financial transactions used in online gambling allow for immediate deposits and bets (Drakeford & Hudson-Smith, 2015; Hing et al., 2015, 2022). Bettors can also more easily source betting information online, compare prices and offers, and place bets with multiple operators (Hing et al., 2014; Jenkinson, de Lacey-Vawdon, & Carroll, 2018). Online platforms enable customers to receive betting promotions and inducements directly to their betting device through push notifications that link to betting slips (Rawat, Hing, & Russell, 2020; Russell, Hing, Browne, & Rawat, 2018). Access to online betting is available 24/7, does not demand going to a betting outlet (Drakeford & Hudson-Smith, 2015; Lopez-Gonzalez, Estévez, & Griffiths, 2019), and affords greater privacy (McCormack & Griffiths, 2013).

Distinctive features of smartphone betting

Smartphone betting has novel features enabled by both smartphone technology and the functionality of betting apps (Hing et al., 2022). The most novel feature is portability, which allows betting from any location, increasing the overall ease and speed of betting since bettors do not need access to a computer or land-based venue (Deans, Thomas, Daube, & Derevensky, 2016; Drakeford & Hudson-Smith, 2015). By extension, betting can be done in any situation, social or private, and be incorporated into everyday activities at home, work or elsewhere (Brevers, Sescousse, Maurage, & Billieux, 2019; Hing, Russell, et al., 2021, 2022; James et al., 2017). This can profoundly change the practice of betting since it is no longer a separate activity from everyday life nor restricted to specific settings. Instead, betting can become embedded in lifestyles, consumption patterns and leisure activities (Gordon, Gurrieri, & Chapman, 2015; Lamont & Hing, 2019, 2020; Raymen & Smith, 2020; Waitt, Cahill, & Gordon, 2022). Smartphone betting also optimises privacy because onlookers cannot tell whether a person is using their smartphone for betting or for other activities (Drakeford & Hudson-Smith, 2015; Hing et al., 2022). James et al. (2017) provide a detailed consideration of the interaction between

smartphone use and the psychological aspects linked to gambling. Because smartphone use tends to be constant and intermittent, it results in frequent exposure to the intermittent schedules of reinforcement that characterise gambling. These researchers conclude that smartphone gambling may therefore be riskier than gambling on other platforms, and that gambling on this platform can accelerate the development of harmful gambling behaviours.

Aims

This study is the first systematic examination of the relative importance that bettors assign to the features of betting platforms across smartphones, computers, and land-based betting. It aims to examine 1) the preferred features of sports betting platforms amongst young adults and 2) whether feature preferences vary with gambling severity. In this study, sports betting refers to betting on sports, esports and daily fantasy sports (DFS).

METHODS

Sampling and recruitment

Given the popularity of sports betting amongst young adults (Rockloff, Browne, Hing, Thorne, et al., 2019) and because younger sports bettors have been found to have higher rates of gambling problems than older sports bettors (Hing, Russell, Vitartas, & Lamont, 2016, 2017; Russell, Hing, & Browne, 2019), inclusion criteria included being aged 18–29 years. International reviews (Etuk, Xu, Abarbanel, Potenza, & Kraus, 2022) and the most recent NSW gambling prevalence study (Browne et al., 2020) found that sports bettors tend to be younger adults and are at heightened risk for gambling problems. These trends remained consistent in Australia in 2022 (Australian Institute of Health and Welfare, 2023). Participants were also required to live in Australia, where the funding agency is based. The study used purposive sampling because obtaining a probability sample was infeasible due to the relatively low prevalence of sports, esports and DFS bettors in the population. To maximise the proportion of well-informed responses, the study required participants to have bet on sports, esports or DFS at-least monthly in the past year. Qualtrics, an online panel aggregator, recruited survey participants from several panels across Australia during the 15th to 29th of April 2021. Survey programming ensured that respondents could complete the survey only once. Table S1 in the supplementary materials shows the number of recruits, the screening, eligibility and quality exclusions, and the completion rate (72.8%) to attain the final sample of $N = 616$.

The survey was conducted approximately 11 months after the two-month national COVID-19 lockdown in Australia ended on 23 May 2020. During the lockdown, most sports betting was suspended until May-June 2020, but betting on esports and daily fantasy sports remained accessible. These restrictions may have affected recruitment since an inclusion criteria was betting at-least monthly during the



past 12 months. Further, even though retail betting venues re-opened in NSW immediately after the lockdown, COVID anxiety and social distancing requirements are likely to have deterred some bettors from land-based betting and instead encouraged their use of smartphone and computer betting platforms. Thus, betting platforms used are likely to have been atypical during the first year of COVID-19. However, the current study focused mainly on the preferred features of betting platforms rather than the use of different platforms, so the survey timing should have little impact on the feature preferences. Nonetheless, some bettors may have become more familiar with smartphone and computer betting platforms because of COVID-related restrictions.

Measures

The survey contained the following measures.

Screening questions: Age in years; residential postcode; and frequency of betting on sports, esports and DFS for money.

Demographics: Please see Table S2.

Betting platforms used: Sports bettors were asked what percentage of their sports betting expenditure in the past 12 months was done on each of a smartphone, computer/laptop/tablet, gaming console, land-based venues, and telephone calls. The same questions were asked about esports and DFS betting if respondents had bet on these forms.

Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001). The PGSI was administered in relation to the last 12 months. The analysis used the validated scoring of ‘never’ = 0, ‘sometimes’ = 1, ‘most of the time’ = 2, and ‘almost always’ = 3, and the validated cut-off scores of non-problem gambling = 0, low risk gambling = 1–2, moderate risk gambling = 3–7, and problem gambling = 8–27.

Features of betting platforms: Participants were asked how important each of 24 features were to them when betting on sports, esports or DFS (Fig. 1). These features were based on sub-themes derived from interviews with 33 Australians aged 18–29 years who bet frequently on sports, esports and DFS (Hing et al., 2022). The 24 features related to the broader themes of 1) Speed, portability and convenience (e.g., able to bet from any location); 2) Ease of researching betting information (e.g., able to easily research betting information); 3) Number of operators/betting opportunities (e.g., able to bet with more than one operator); 4) Financial accessibility (e.g., able to quickly access and transfer money for betting); 5) Access to betting promotions (e.g., able to access a wide range of betting promotions); 6) Social accessibility (e.g., able to bet in social settings); 7) Privacy and anonymity (e.g., able to keep their betting private); and 8) Responsible gambling features (e.g., able to access responsible gambling tools). Importance was measured from 0 = ‘not at all important’ to 3 = ‘extremely important’.

Discrete choice experiment: The survey included a discrete choice experiment (or conjoint study) where participants indicated their preferences amongst different groups of features that may vary when betting on different platforms. Instead of just a simple rating of individual

features, the discrete choice experiment is a more sophisticated method that requires respondents to make ‘trade-offs’ in their choice of important features, by presenting combinations of features to select from. This approach recognises that many decisions require individuals to make trade-offs by choosing an alternative of a product or a service that offers the greatest utility, or benefit. As such, it provides a more realistic assessment of consumer preferences when features are ‘bundled’ together in a product, such as in the different betting platforms. Conjoint uses an experimental design and statistical modelling to explain a respondent’s decisions in terms of the features of the options presented. Six groups of features were examined (Table 1), consistent with those used in the features of betting platforms questions, with two exceptions. To constrain the number of feature combinations in the discrete choice experiment, Privacy and Social features were combined and Responsible-gambling features were excluded because the formative interviews revealed the latter had little influence on choice of betting platform (Hing et al., 2022). The design included several features within group that reflect how they vary when using different betting platforms.

Respondents were asked to make trade-offs between several choices. The decision task was a response to the question: “Please review the 2 options below. If you had to choose just ONE of these options, which would you PREFER when you are betting on the type of betting you do most often? Try to visualise yourself in each of these situations when you’re betting on this activity.” The respondent was given the option to select from two different choice sets, each composed of six features. This task was repeated in iterative rounds that varied the choice sets. Table 1 presents the feature groups and feature levels assessed over multiple rounds.

Participant characteristics

Of the 616 respondents, 33.0% were men and 67.0% were women. Given the high proportion of women respondents, the analysis tested for significant differences in feature preferences by gender. Age ranged from 18 to 29 years with a mean age of 23.8 years ($SD = 3.4$, median = 24). Table S2 summarises the sample’s demographic characteristics.

Amongst the 616 respondents, 85.1% bet on sports, 50.5% on esports, and 49.0% on DFS at-least monthly. Substantial proportions of respondents bet at-least weekly: 31.1% for sports betting, 17.2% for esports betting, and 15.6% for DFS. Most respondents were at some risk of gambling problems: 15.1% were non-problem gamblers, 18.2% low risk gamblers, 23.7% moderate risk gamblers and 43.0% scored in the problem gambling category (mean = 7.3, $SD = 6.3$, median = 6).

Data analysis

For the descriptive results, ANOVA is used to compare differences by gender and PGSI group across each of the betting platform features. The latter comparisons are between the moderate risk/problem gambling (MR/PG) and non-problem/low risk gambling (NP/LR) groups to ensure



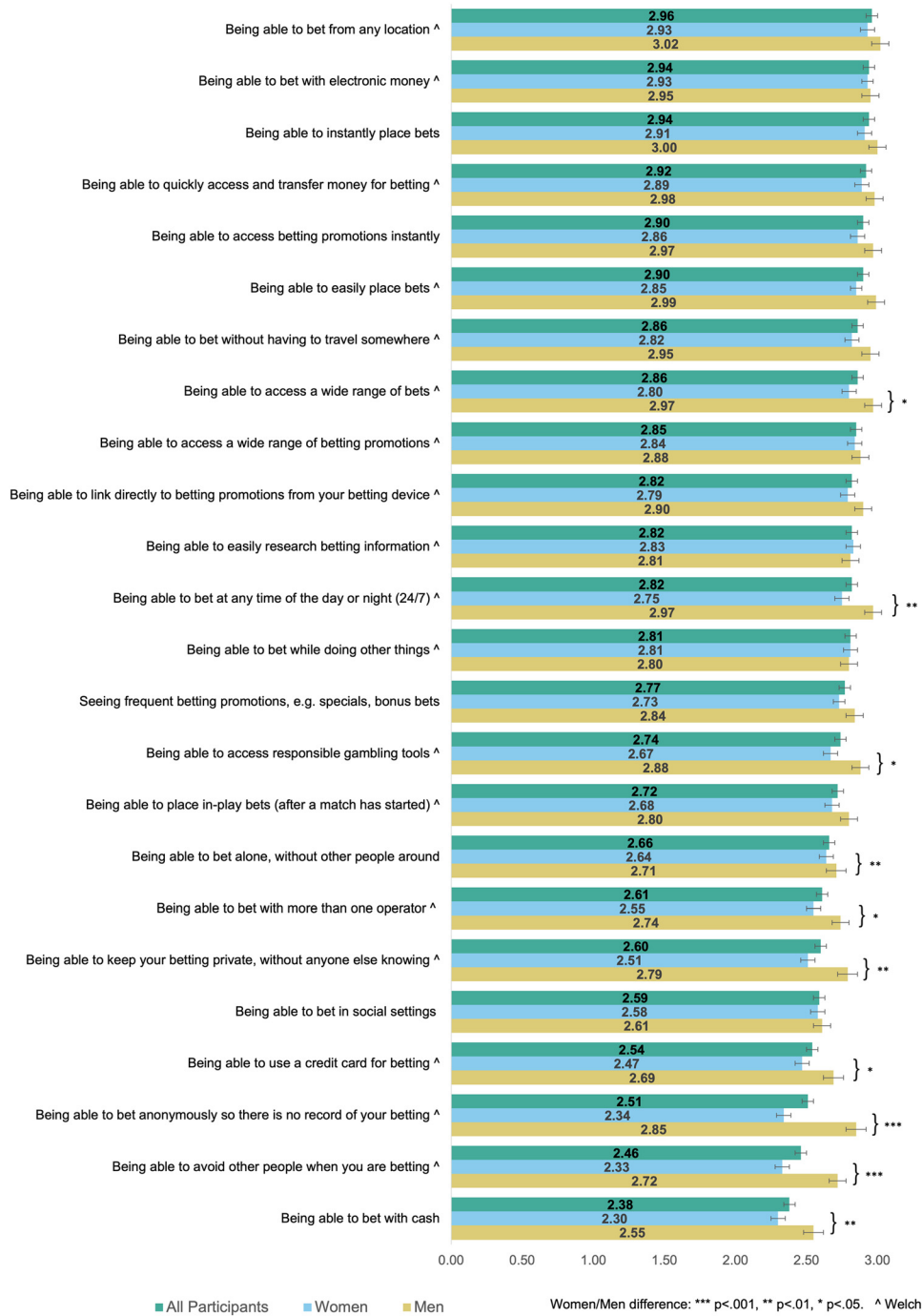


Fig. 1. Importance of features of betting platforms (N = 616)
 Note: higher scores reflect a higher rating of importance.

consistency throughout the results, as the discrete choice experiment analyses work best with groups rather than continuous independent variables. Welch was used where noted, where the assumption of variance was violated.

For the discrete choice experiment results, conjoint analysis treats each feature level as contributing to the overall utility of the package, which is a latent variable that determines the probability that one package will be chosen over another. Statistical modelling estimates the utilities from respondents' decisions using a hierarchical Bayesian multinomial logit model. Just as with effects for factors in

linear models, it is possible that only a subset of features within an option set has an influence on utility. Standard diagnostics determined that assumptions were met for all analyses. The lowest tolerance value was 0.35, indicating no issues with multicollinearity.

Ethics

The study procedures were carried out in accordance with the Declaration of Helsinki. The Institutional Review Board of Central Queensland University approved the study



Table 1. Feature groups and feature levels for the discrete choice experiment

Feature group	Feature level
Convenience	1.1 Can instantly place bets 24/7 from any location
	1.2 Can instantly place bets 24/7 from home or work only
	1.3 Can only place bets at a betting venue during opening hours
Betting Information	2.1 Moderately easy to research betting information online
	2.2 Very easy to research betting information online
	2.3 Can research betting information only from non-internet sources
Opportunities	3.1 Can access a wide variety of bets through multiple operators
	3.2 Can bet with only one operator
Transaction	4.1 Can bet with electronic money (e.g., debit card, credit card, EFTPOS, bank transfer, etc.)
	4.2 Can bet with cash
Promotions	5.1 See very frequent betting promotions
	5.2 See moderately frequent betting promotions
	5.3 See limited betting promotions
Privacy	6.1 Can bet alone and in social settings while keeping your betting private
	6.2 Can only bet alone which keeps your betting private
	6.3 Can only bet in social settings where others can see you bet

(22891). All subjects were informed about the study, and all provided informed consent.

DESCRIPTIVE SURVEY RESULTS

Betting platforms used

Smartphones were the most used platform for sports betting (72.9%), followed by a computer (12.5%) and land-based venues (7.3%). Similarly, smartphones were mostly used for esports betting (63.9%), followed by a computer (16.7%) and land-based venues (7.5%). DFS betting was also mainly done on a smartphone (63.1%), followed by a computer (17.3%) and gaming console (7.9%). The use of these different platforms may have been affected by the COVID-19 restrictions and should not be interpreted as prevalence figures.

Preferred features of betting platforms

On average, participants rated the most important features of betting platforms as being able to: bet from any location ($m = 2.96$), instantly place bets ($m = 2.94$), bet with electronic money ($m = 2.94$), and quickly access and transfer money for betting ($m = 2.92$). The least important features were being able to: bet with cash ($m = 2.38$), avoid other people while betting ($m = 2.46$), and bet anonymously

($m = 2.51$). However, respondents on average rated all features as at least moderately important (Fig. 1).

Importance of features by gender and PGSI group

Compared to women, men rated several features as significantly more important (Fig. 1). These included all features associated with privacy – being able to bet alone without other people around, keep your betting private, without anyone else knowing, bet anonymously – so there is no record of your betting, and avoid other people when betting. Men also assigned significantly more importance to being able to bet at any time of the day or night, bet with more than one operator, bet with cash, use a credit card for betting, and access responsible gambling tools.

MR/PGs rated several features as significantly more important than did NP/LRs (Fig. 2). These included being able to bet with more than one operator, bet with cash, bet with a credit card, see frequent promotions, place in-play bets, and all features associated with privacy. Features that MR/PGs rated significantly less important than NP/LRs were being able to easily place bets, bet while doing other things, and bet with electronic money. Tables S3 and S4 detail the statistics for Figs 1 and 2.

DISCRETE CHOICE EXPERIMENT RESULTS

Overall feature importance

Figure 3 shows the imputed importance of each of the six feature groups tested. Feature importance is a measure of how impactful the items in each group are in terms of influencing choices made by respondents. The Convenience feature group was the most impactful overall, closely followed by the Transaction group. Features of comparatively lesser impact were Betting Info and Opportunities, followed by Privacy and Promotions. Four features (Convenience, Transaction, Betting Info and Opportunities) were statistically significant predictors of choice (all $p < 0.001$), but not Promotions ($p = 0.510$ and $p = 0.563$) and Privacy ($p = 0.341$ and $p = 0.426$).

Optimal combination of feature levels based on their relative utility

Table 2 shows the optimal combination of feature levels that maximised utility for respondents based on the relative utility of each feature level (Figure S1). Being able to instantly place bets 24/7 from any location (Convenience) and using an electronic means of payment (Transaction) were the levels most likely to impact choice overall, accounting for 34.5% and 27.0% of the overall utility, respectively. Being able to find information online moderately easily (Betting info), and being able to bet with multiple operators (Opportunities), were optimal levels for the other features that significantly predicted choice, respectively accounting for 14.5% and 10.6% of overall utility. Although Privacy and Promotions did not show significant main



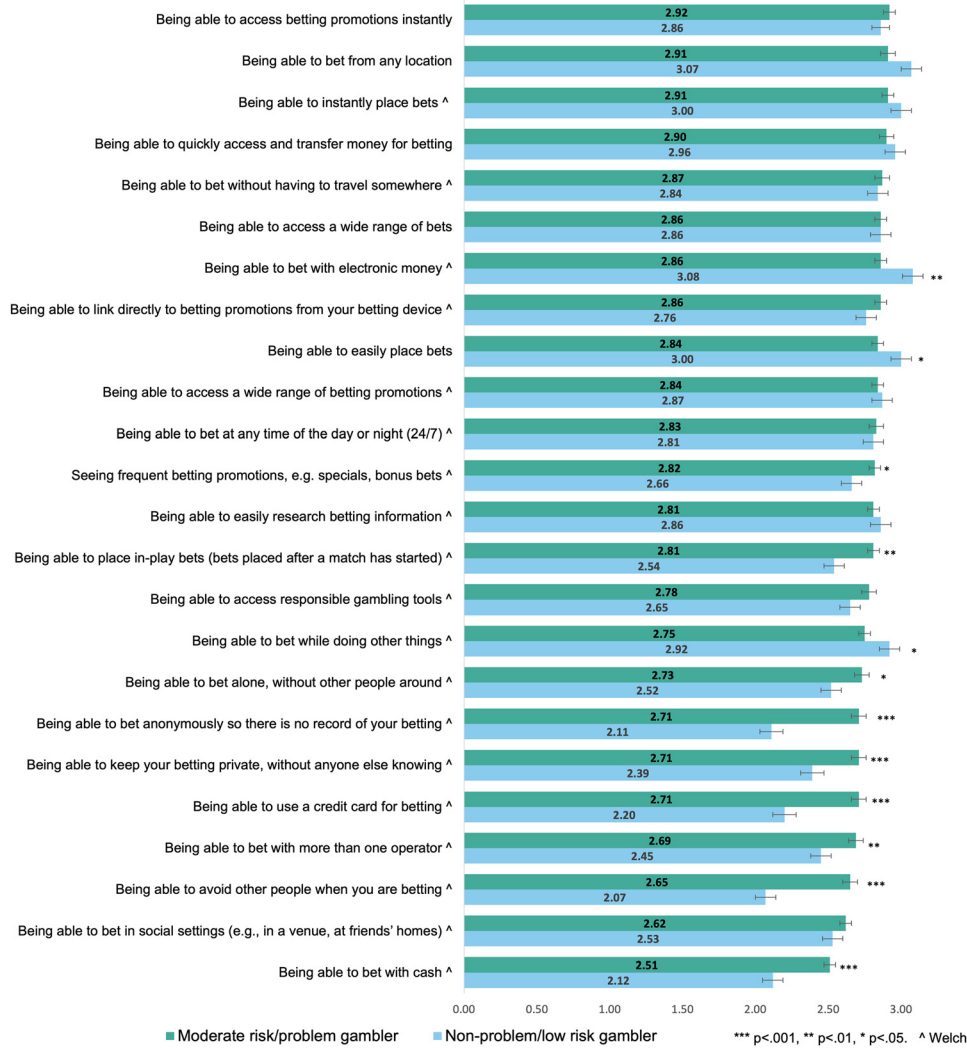


Fig. 2. Importance of features of betting platforms by PGSI group (N = 616)
 Note: higher scores reflect a higher rating of importance.

Feature Importance

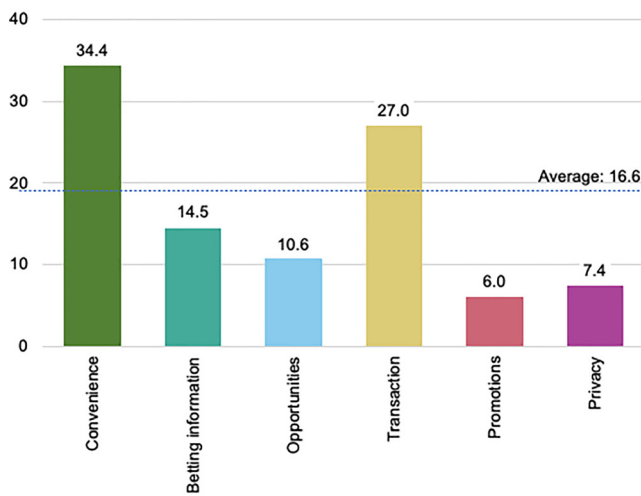
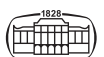


Fig. 3. Overall feature importance in the discrete choice experiment

Table 2. Optimal combination of feature levels from the discrete choice experiment

Feature	Optimal levels
Convenience	Can instantly place bets 24/7 from any location
Transactions	Can bet with electronic money (e.g., debit card, credit card, EFTPOS, bank transfer, etc.)
Betting Information	Moderately easy to research betting information online
Opportunities	Can access a wide variety of bets through multiple operators
Privacy	Can bet alone and in social settings while keeping your betting private
Promotions	See moderately frequent betting promotions



effects in predicting choice, the optimal levels for these factors were the ability to bet either alone or socially while keeping betting private (7.4%), rather than only betting in social situations where others can see you betting. Moderately frequent promotions (6.0%) were preferred over limited or very frequent promotions.

Preference share for each feature level

To illustrate the relative importance of the levels within each feature group, Fig. 4 shows the preference share of each feature level. These bars are created by calculating what proportion of people would, according to the model, choose that option if they were presented with a choice that is identical in every way but varied by the features within that group. Thus, the bars within each group sum to 100%. The numbers must therefore be considered in relation to how many levels are in the category. If two levels are presented 50% is the null value, and 33% for three levels.

For the Convenience group of features, Fig. 4 indicates the high relative importance given to being able to instantly place bets 24/7 from any location (42%), compared to the alternatives of being able to instantly place bets 24/7 from home or work only (32%), or place bets at a betting venue during opening hours (26%). For the Transaction group, electronic transactions (62%) were clearly preferred over having to bet with cash (38%). For Opportunities, more respondents preferred being able to access a wide variety of bets through multiple operators (55%) than being

constrained to betting with one operator (45%). However, there were relatively small differences in preference for some levels. For the Betting Info group, being “moderately easy” or “very easy” to research betting information online were almost identical in terms of preference; however, both levels were notably preferred to being able to research betting information only offline. There was little difference amongst the levels for Promotions and Privacy.

Comparisons between relative utility and feature importance, by gender and PGSI group

In the discrete choice experiment, overall feature importance and relative utility for feature levels were not significantly different by gender (men vs women) or PGSI group (NP/LR vs MR/PG), all $p > 0.01$.

DISCUSSION

Preferred features of betting platforms

The non-experimental descriptive results indicate that bettors rate the most important features of betting platforms as being able to bet from any location, instantly place bets, bet with electronic money, and quickly access and transfer money for betting. Consistently, the discrete choice experiment found that the most important feature is convenience (specifically being able to bet instantly 24/7 from any location), followed

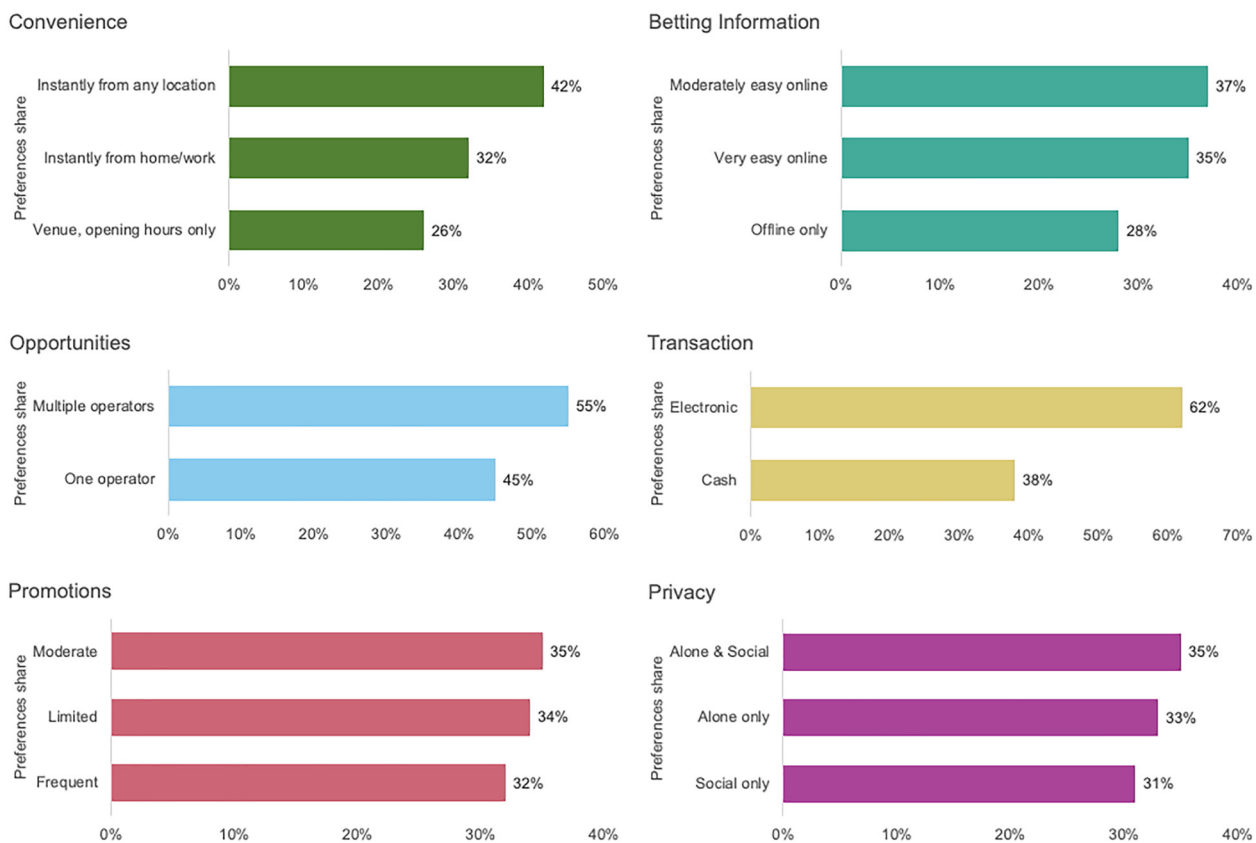


Fig. 4. Preference share for each level of each feature in the discrete choice experiment



by the ability to use electronic financial transactions. Somewhat less important but still significant features are being able to access betting information online rather than offline only, and being able to bet with more than one operator. Social and privacy features, and access to promotions, do not significantly predict choice. Within these feature groups, being able to bet either alone or in a social setting with privacy of betting, and receiving a moderate number of promotions, are nonetheless the preferred options.

A key finding is that smartphones are the only available platform that provides all the preferred features identified in the discrete choice experiment. What makes smartphones unique from computer and land-based betting is their portability and ready accessibility, which greatly enhance convenience by enabling instant 24/7 access to betting from any location. Previous studies have also identified instant access to betting, anywhere and at any time, as a distinctive feature of smartphone betting (Drakeford & Hudson-Smith, 2015; Hing et al., 2022; Parke & Parke, 2019). The current study found that it is also the most valued feature of betting platforms. Further, smartphone ownership is near-ubiquitous and people tend to carry their device almost everywhere, including to different rooms at home (Harkin & Kuss, 2020). People have already integrated smartphones into their daily activities, and use them frequently and in short bursts when doing other activities (Zhang & Rau, 2016), including betting (James et al., 2017). Smartphone betting can be another activity that is integrated into home, work, leisure and social environments (Gordon et al., 2015; Hing et al., 2022; McGee, 2020). The current study indicates that customers value having immediate access to betting, anywhere and at any time. However, this instant access is linked to more frequent and impulsive betting and chasing losses (Drakeford & Hudson-Smith, 2015; Hing et al., 2022; Parke & Parke, 2019), and may lead to more rapid acquisition of harmful betting behaviours from frequent exposure to the intermittent reinforcement schedules associated with gambling (James et al., 2017).

In the discrete choice experiment, being able to use electronic transactions was the second most prioritised feature. While computer betting also uses electronic transactions, smartphones have the added convenience of allowing betting transactions from anywhere. Further, smartphones elevate the speed of online betting transactions because computers have more time-consuming log-in processes (Hing et al., 2022). However, betting transactions on a smartphone can facilitate higher expenditure, impulsive bets and loss-chasing because people tend to keep their smartphone in close proximity, bets can be placed easily and rapidly with just one tap, and electronic money may have less perceived value than cash (Drakeford & Hudson-Smith, 2015; Hing et al., 2015, 2022).

In the discrete choice experiment, bettors also valued being able to access betting information online and bet with multiple operators, although they assigned these features far less importance than instant access and electronic transactions. Researching betting information on a smartphone is more difficult than on a computer, and bettors therefore tend to place less well-researched and more impulsive bets

(Hing et al., 2022). However, bettors appear to accept this as a worthwhile trade-off for the instant 24/7 access from any location that a smartphone provides. Smartphones and computers both enable easy access to multiple betting accounts, but access is slower on a computer (Hing et al., 2022). Having multiple betting apps on a smartphone can broaden the activities people bet on (Drakeford & Hudson-Smith, 2015), and provides access to a wider variety of bet types, including those with longer odds that operators often promote with inducements (Newall, Russell, & Hing, 2021; Rockloff, Browne, Hing, Russell, & Greer, 2019).

Lastly, bettors place the least relative importance on social and privacy features and on promotions. There was nonetheless a preference for being able to bet either alone or in a social setting. Smartphones provide this choice because of their portability. Further, even when betting in social situations, smartphone betting activity can remain private (Hing et al., 2022). Both social and privacy features can influence betting behaviour. Peer influences can intensify betting in social settings (Gordon et al., 2015; Lamont & Hing, 2019). Conversely, betting privately removes social influences that might otherwise moderate a person's gambling (Hing et al., 2022; Rockloff & Greer, 2011). Bettors in the discrete choice experiment placed the least importance on receiving wagering promotions and preferred to receive a moderate number of offers rather than either limited or frequent offers. Wagering inducements can lead to more frequent, risky and impulsive betting (Browne, Hing, Russell, Thomas, & Jenkinson, 2019; Hing, Russell, Li, & Vitartas, 2018; Rockloff, Browne, Hing, Russell, & Greer, 2019), but they may annoy some bettors, particularly if they are too frequent.

Whether feature preferences are associated with gambling severity

The discrete choice experiment found no significant differences between MR/PGs and NP/LRs in their preferred features of betting platforms. This finding reflects that bettors at all levels of gambling risk place most relative importance on instant access to betting, electronic transactions methods, sourcing betting information online, and betting with multiple operators. The non-experimental descriptive results provide more detailed insights since they assessed a higher number of individual features, but did so in isolation and not 'bundled' with other features of betting platforms. Compared to NP/LR gamblers, MR/PGs reported placing significantly more importance on being able to place in-play bets, bet with cash, bet with a credit card, see frequent promotions, and bet with more than one operator. These findings are consistent with research indicating that MR/PGs are more likely to place in-play bets, have betting accounts that extend to illegal offshore operators, and report greater exposure to and interest in wagering promotions (Hing et al., 2016, 2019, 2021; LaPlante, Nelson, & Gray, 2014; Russell, Hing, Li, & Vitartas, 2018; Russell, Hing, & Browne, 2019). These factors are interrelated. Bettors who place in-play bets tend to have more accounts, and can only place in-play bets online with illegal offshore operators as



these bets cannot be provided by Australian-licensed operators (Hing, Russell, et al., 2021; Russell, Hing, Browne, Li, & Vitartas, 2019). Having accounts with multiple operators increases exposure to wagering promotions, especially through direct messages that usually contain a wagering inducement (Rawat et al., 2020). This push marketing encourages a near-immediate betting response, which may increase impulsive and problematic betting behaviour (Hing, Russell, Li, & Vitartas, 2018). However, this heightened preference by MR/PGs for seeing frequent promotions was not apparent in the discrete choice experiment, since they prioritised other features instead, especially instant access to betting and the ability to use electronic financial transactions. Together, the experimental and non-experimental results suggest that, while seeing frequent promotions may be more important to MR/PGs than to NP/LRs, it is not as important as these other platform features.

The descriptive results also found that MR/PGs reported placing more importance than NP/LRs on the platform features associated with privacy. People with a gambling problem typically want to conceal the extent of their gambling (Fulton, 2019; Hing & Russell, 2017). Online betting already allows more privacy than land-based betting (McCormack & Griffiths, 2013), and this lack of scrutiny can increase gambling problems, problem denial and continued gambling (Hing et al., 2015, 2022). Smartphones afford even more privacy because observers cannot distinguish whether the person is betting or using their smartphone for other purposes (Ahn & Jung, 2016). Problematic gambling patterns can therefore develop without being noticed by significant others, who might otherwise try to limit the gambling or encourage help-seeking (Drakeford & Hudson-Smith, 2015). However, this heightened preference by MR/PGs for privacy while betting was not apparent in the discrete choice experiment, because they instead prioritised the features of instant access to betting and the use of electronic financial transactions. These results suggest that, while privacy is more important to MR/PG than to NP/LR gamblers, it is not as important as the other platform features. Similarly, men were more likely than women to report that certain individual features of betting platforms were important to them when betting (e.g., privacy, access to responsible gambling tools), but these preferences were overridden by the other features they prioritised in the discrete choice experiment.

Limitations and further research

The respondents comprised a non-probability sample. The sample's high PGSI scores reflect the inclusion criteria of betting at-least monthly, with substantial proportions betting at-least weekly. This profile indicates that the study recruited people who bet in excess of low-risk guidelines (Dowling et al., 2021). However, the study did not seek to establish the prevalence of betting or gambling problems, so representative samples were not essential (Russell et al., 2022). The inclusion criteria instead were designed to recruit sufficient respondents in NP/LR and MR/PG groups to

enable the planned analyses. The data were self-report and may be subject to social desirability and other biases, but the more sophisticated discrete choice experiment design helped to deter this bias. Gender quotas were not used in sampling due to the expectation that more men would be recruited because they are the main market for online wagering; however, the sample included more women. While women are more likely to self-select into online surveys (Becker, 2022), we expected that our recruitment criteria would offset this skew, but unfortunately this did not occur. Future studies should set quotas for a more balanced sample by gender to confirm the results. In the discrete choice experiment, convenience was the most important feature, but there were no gender differences. Given that the descriptive analysis indicated that men assigned significantly more importance than women to being able to bet at any time of the day or night, a more balanced sample by gender may have resulted in even more relative importance placed on convenience than already found in the discrete choice experiment. The descriptive analysis also found that men prioritise privacy when betting, so privacy features may have been accorded more importance in the discrete choice experiment with a higher sample proportion of men. Research is also needed to ascertain how specific individual features of smartphone betting impact on gambling problems and harm. The current study has identified salient features that can inform this research.

CONCLUSIONS

Smartphone betting combines smartphone technology, mobile apps and online gambling in a betting platform with features that consumers value, but which are likely to increase the risk of harmful betting behaviours (Hing et al., 2022). This paradox – that the features preferred by bettors are also those that can intensify betting – presents a challenge for harm reduction measures, especially since most feature preferences do not differ between MR/PG and NP/LR gamblers. Altering product features to reduce the risk of gambling harm, therefore, also means changing some features that NP/LR bettors value. Nonetheless, the current research can identify some product changes that are likely to benefit MR/PGs, but with little impact on NP/LRs. One is a curtailment of betting promotions, since receiving frequent promotions was prioritised only by MR/PGs. Promotions were not essential enough to affect overall bundled choices in our study, when cast in the context of other more important features. In addition, effective prevention of illegal offshore betting is needed to prevent in-play betting, which is valued significantly more and done almost exclusively by MR/PGs (Hing, Russell, et al., 2021; Russell, Hing, Browne, Li, & Vitartas, 2019). A further measure that can assist MR/PGs to better control their gambling, without unduly affecting NP/LR gamblers, is to ban credit card use for betting.

A pragmatic view is that smartphone betting is here to stay. Given that the features inherent to smartphone betting platforms also act to increase the risk of gambling harm,



consumer protection tools need strengthening to help counter this heightened risk. As numerous researchers have argued (Delfabbro & King, 2021; Hing, Browne, Russell, Rockloff, & Tulloch, 2021; Livingstone et al., 2019), mandatory pre-commitment that enables bettors to set affordable binding limits across all their betting accounts is likely the most effective measure.

Funding sources: Funding for this study was provided by the NSW Government's Responsible Gambling Fund, with support from the NSW Office of Responsible Gambling. The views expressed in this manuscript are those of the authors and not necessarily those of the funding agency. The funding agency did not have any impact on the study.

Authors' contribution: NH, AR, MR and MB designed the study and research materials. NH, AR, CT, MR and MB contributed to the analyses and interpretation. NH completed the first draft of the manuscript. All authors refined and approved the submitted version of the manuscript.

Conflicts of interest: The authors declare no conflicts of interest in relation to this manuscript.

SUPPLEMENTARY DATA

Supplementary data to this article can be found online at <https://doi.org/10.1556/2006.2023.00073>.

REFERENCES

- Ahn, J., & Jung, Y. (2016). The common sense of dependence on smartphone: A comparison between digital natives and digital immigrants. *New Media & Society*, 18(7), 1236–1256. <https://doi.org/10.1177/1461444814554902>.
- Australian Institute of Health and Welfare (2023). Gambling in Australia. Retrieved from <https://www.aihw.gov.au/reports/australias-welfare/gambling>.
- Becker, R. (2022). Gender and survey participation: An event history analysis of the gender effects of survey participation in a probability-based multi-wave panel study with a sequential mixed-mode design. *Methods, Data, Analyses*, 16(1), 30. <https://doi.org/10.12758/mda.2021.08>.
- Brevers, D., Sescousse, G., Maurage, P., & Billieux, J. (2019). Examining neural reactivity to gambling cues in the age of online betting. *Current Behavioral Neuroscience Reports*, 6, 59–71. <https://doi.org/10.1007/s40473-019-00177-2>.
- Browne, M., Hing, N., Russell, A. M., Thomas, A., & Jenkinson, R. (2019). The impact of exposure to wagering advertisements and inducements on intended and actual betting expenditure: An ecological momentary assessment study. *Journal of Behavioral Addictions*, 8(1), 146–156. <https://doi.org/10.1556/2006.8.2019.10>.
- Browne, M., Rockloff, M., Hing, N., Russell, A., Murray Boyle, C., Rawat, V., ... Sproston, K. (2020). *NSW gambling survey 2019*. Sydney: NSW Responsible Gambling Fund. <https://www.gambleaware.nsw.gov.au/resources-and-education/check-out-our-research/published-research/nsw-gambling-survey-2019>.
- Deans, E. G., Thomas, S. L., Daube, M., & Derevensky, J. (2016). 'I can sit on the beach and punt through my mobile phone': The influence of physical and online environments on the gambling risk behaviours of young men. *Social Science & Medicine*, 166, 110–119. <https://doi.org/10.1016/j.socscimed.2016.08.017>.
- Delfabbro, P. H., & King, D. L. (2021). The value of voluntary vs. mandatory responsible gambling limit-setting systems: A review of the evidence. *International Gambling Studies*, 21(2), 255–271. <https://doi.org/10.1080/14459795.2020.1853196>.
- Dowling, N. A., Youssef, G. J., Greenwood, C., Merkouris, S. S., Suomi, A., & Room, R. (2021). The development of empirically derived Australian low-risk gambling limits. *Journal of Clinical Medicine*, 10(2), 167. <https://doi.org/10.3390/jcm10020167>.
- Drakeford, B. P., & Hudson-Smith, M. (2015). Mobile gambling: Implications of accessibility. *Journal of Research Studies in Business & Management*, 1(1), 3–28. https://web.archive.org/web/20180421112646id_/http://www.jrsbm.com/wp-content/uploads/2015/07/JRSBM-Vol-1-Drakeford.pdf.
- Etuk, R., Xu, T., Abarbanel, B., Potenza, M. N., & Kraus, S. W. (2022). Sports betting around the world: A systematic review. *Journal of Behavioral Addictions*, 11(3), 689–715. <https://doi.org/10.1556/2006.2022.00064>.
- Ferris, J. A., & Wynne, H. J. (2001). *The Canadian problem gambling Index*. Ottawa, ON: Canadian Centre on Substance Abuse. [https://www.greo.ca/Modules/EvidenceCentre/files/Ferris%20et%20al\(2001\)The_Canadian_Problem_Gambling_Index.pdf](https://www.greo.ca/Modules/EvidenceCentre/files/Ferris%20et%20al(2001)The_Canadian_Problem_Gambling_Index.pdf).
- Fulton, C. (2019). Secrets and secretive behaviours: Exploring the hidden through harmful gambling. *Library & Information Science Research*, 41(2), 151–157. <https://doi.org/10.1016/j.lisr.2019.03.003>.
- Gordon, R., Gurrieri, L., & Chapman, M. (2015). Broadening an understanding of problem gambling: The lifestyle consumption community of sports betting. *Journal of Business Research*, 68(10), 2164–2172. <https://doi.org/10.1016/j.jbusres.2015.03.016>.
- Harkin, L., & Kuss, D. J. (2020). 'My smartphone is an extension of myself' – A holistic qualitative exploration of the impact of using a smartphone. *Psychology of Popular Media*, 10(1), 28–38. <https://doi.org/10.1037/ppm0000278>.
- Hing, N., Browne, M., Russell, A. M. T., Rockloff, M., & Tulloch, C. (2021). *A behavioural trial of voluntary opt-out pre-commitment for online wagering in Australia*. Sydney: Gambling Research Australia. <https://www.gamblingresearch.org.au/publications/behavioural-trial-voluntary-opt-out-pre-commitment-online-wagering-australia>.
- Hing, N., Cherney, L., Gainsbury, S., Lubman, D., Wood, R., & Blaszczynski, A. (2015). Maintaining and losing control during internet gambling: A qualitative study of gamblers' experiences. *New Media and Society*, 17(7), 1075–1095. <https://doi.org/10.1177/1461444814521140>.
- Hing, N., Gainsbury, S., Blaszczynski, A., Wood, R., Lubman, D., & Russell, A. (2014). *Interactive gambling*. Melbourne: Gambling Research Australia. <https://www.gamblingresearch.org.au/sites/default/files/2019-10/Interactive%20Gambling%202014.pdf>.
- Hing, N., & Russell, A. M. T. (2017). Psychological factors, sociodemographic characteristics, and coping mechanisms



- associated with the self-stigma of problem gambling. *Journal of Behavioral Addictions*, 6(3), 416–424. <https://doi.org/10.1556/2006.6.2017.056>.
- Hing, N., Russell, A. M., & Browne, M. (2017). Risk factors for gambling problems on online electronic gaming machines, race betting and sports betting. *Frontiers in Psychology*, 8, 779. <https://doi.org/10.3389/fpsyg.2017.00779>.
- Hing, N., Russell, A. M. T., Browne, M., Rockloff, M., Greer, N., Rawat, V., ... Woo, L. (2021). *The second national study of interactive gambling in Australia (2019–20)*. Sydney: Gambling Research Australia. <https://www.gamblingresearch.org.au/sites/default/files/2021-10/Interactive%20Gambling%20Study.pdf>.
- Hing, N., Russell, A. M. T., Li, E., & Vitartas, P. (2018). Does the uptake of wagering inducements predict impulse betting on sport? *Journal of Behavioural Addictions*, 7(1), 146–157. <https://doi.org/10.1556/2006.7.2018.17>.
- Hing, N., Russell, A. M. T., Thomas, A., & Jenkinson, R. (2019). Wagering advertisements and inducements: Exposure and perceived influence on betting behaviour. *Journal of Gambling Studies*, 35(3), 793–811. <https://doi.org/10.1007/s10899-018-09823-y>.
- Hing, N., Russell, A. M. T., Vitartas, P., & Lamont, M. (2016). Demographic, behavioural and normative risk factors for gambling problems amongst sports bettors. *Journal of Gambling Studies*, 32(2), 625–641. <https://doi.org/10.1007/s10899-015-9571-9>.
- Hing, N., Thorne, H., Russell, A. M., Newall, P. W., Lole, L., Rockloff, M., ... Tulloch, C. (2022). ‘Immediate access... everywhere you go’: A grounded theory study of how smartphone betting can facilitate harmful sports betting behaviours amongst young adults. *International Journal of Mental Health and Addiction*. <https://doi.org/10.1007/s11469-022-00933-8>.
- James, R. J., O’Malley, C., & Tunney, R. J. (2019). Gambling on smartphones: A study of a potentially addictive behaviour in a naturalistic setting. *European Addiction Research*, 25(1), 30–40. <https://doi.org/10.1159/000495663>.
- James, R. J. E., O’Malley, C., & Tunney, R. J. (2017). Understanding the psychology of mobile gambling: A behavioural synthesis. *British Journal of Psychology*, 108(3), 608–625. <https://doi.org/10.1111/bjop.12226>.
- Jenkinson, R., de Lacey-Vawdon, C., & Carroll, M. (2018). *Weighing up the odds: Young men, sports and betting*. Melbourne: Victorian Responsible Gambling Foundation. <https://responsiblegambling.vic.gov.au/resources/publications/weighing-up-the-odds-young-men-sports-and-betting-394/>.
- Lamont, M., & Hing, N. (2019). Intimations of masculinities among young male sports bettors. *Leisure Studies*, 38(2), 245–259. <https://doi.org/10.1080/02614367.2018.1555675>.
- Lamont, M., & Hing, N. (2020). Sports betting motivations among young men: An adaptive theory analysis. *Leisure Sciences*, 42(2), 185–204. <https://doi.org/10.1080/01490400.2018.1483852>.
- LaPlante, D. A., Nelson, S. E., & Gray, H. M. (2014). Breadth and depth involvement: Understanding Internet gambling involvement and its relationship to gambling problems. *Psychology of Addictive Behaviors*, 28(2), 396–403. <https://doi.org/10.1037/a0033810>.
- Livingstone, C., Rintoul, A., de Lacy-Vawdon, C., Borland, R., Dietze, P., Jenkinson, R., ... Hill, P. (2019). *Identifying effective policy interventions to prevent gambling-related harm*. Melbourne: Victorian Responsible Gambling Foundation. <https://responsiblegambling.vic.gov.au/resources/publications/identifying-effective-policy-interventions-to-prevent-gambling-related-harm-640/>
- Lopez-Gonzalez, H., Estévez, A., & Griffiths, M. D. (2019). Internet-based structural characteristics of sports betting and problem gambling severity: Is there a relationship? *International Journal of Mental Health and Addiction*, 17(6), 1360–1373. <https://doi.org/10.1007/s11469-018-9876-x>.
- McCormack, A., & Griffiths, M. D. (2013). A scoping study of the structural and situational characteristics of internet gambling. *International Journal of Cyber Behavior, Psychology and Learning (IJCBPL)*, 3(1), 29–49. <https://doi.org/10.4018/ijcbpl.2013010104>.
- McGee, D. (2020). On the normalisation of online sports gambling among young adult men in the UK: A public health perspective. *Public Health*, 184, 89–94. <https://doi.org/10.1016/j.puhe.2020.04.018>.
- Newall, P. W. S., Russell, A. M. T., & Hing, N. (2021). Structural characteristics of fixed-odds sports betting products. *Journal of Behavioral Addictions*, 10(3), 371–380. <https://doi.org/10.1556/2006.2021.00008>.
- Parke, A., & Parke, J. (2019). Transformation of sports betting into a rapid and continuous gambling activity: A grounded theoretical investigation of problem sports betting in online settings. *International Journal of Mental Health and Addiction*, 17(6), 1340–1359. <https://doi.org/10.1007/s11469-018-0049-8>.
- Rawat, V., Hing, N., & Russell, A. M. T. (2020). What’s the message? A content analysis of emails and texts received from wagering operators during sports and racing events. *Journal of Gambling Studies*, 36(4), 1107–1121. <https://doi.org/10.1007/s10899-019-09896-3>.
- Raymen, T., & Smith, O. (2020). Lifestyle gambling, indebtedness and anxiety: A deviant leisure perspective. *Journal of Consumer Culture*, 20(4), 381–399. <https://doi.org/10.1177/1469540517736559>.
- Rockloff, M., Browne, M., Hing, N., Russell, A. M. T., & Greer, N. (2019). Sports-betting incentives encourage gamblers to select the long odds: An experimental investigation using monetary rewards. *Journal of Behavioral Addictions*, 8(2), 268–276. <https://doi.org/10.1556/2006.8.2019.30>.
- Rockloff, M., Browne, M., Hing, N., Thorne, H., Russell, A., Greer, N., ... Sproston, K. (2019). *Victorian population gambling and health study (2018–19)*. Melbourne: Victorian Responsible Gambling Foundation. <https://responsiblegambling.vic.gov.au/resources/publications/victorian-population-gambling-and-health-study-20182019-759/>.
- Rockloff, M., & Greer, N. (2011). Audience influence on EGM gambling: The protective effects of having others watch you play. *Journal of Gambling Studies*, 27(3), 443–451. <https://doi.org/10.1007/s10899-010-9213-1>.
- Roy Morgan Research (2018). Mobile betting drives growth in online wagering. Retrieved from <http://www.roymorgan.com/findings/7624-mobile-betting-users-march-2018-201806172313>.
- Russell, A. M. T., Browne, M., Hing, N., Rockloff, M., & Newall, P. (2022). Are any samples representative or unbiased? Reply to pickering and Blaszczynski. *International Gambling Studies*,



- 22(1), 102–113. <https://doi.org/10.1080/14459795.2021.1973535>.
- Russell, A. M. T., Hing, N., & Browne, M. (2019). Risk factors for gambling problems specifically associated with sports betting. *Journal of Gambling Studies*, 35(4), 1211–1228. <https://doi.org/10.1007/s10899-019-09848-x>.
- Russell, A. M. T., Hing, N., Browne, M., Li, E., & Vitartas, P. (2019). Who bets on micro events (microbets) in sports? *Journal of Gambling Studies*, 35(1), 205–223. <https://doi.org/10.1007/s10899-018-9810-y>.
- Russell, A. M. T., Hing, N., Browne, M., & Rawat, V. (2018). Are direct messages (texts and emails) from wagering operators associated with betting intention and behavior? An ecological momentary assessment study. *Journal of Behavioral Addictions*, 7(4), 1079–1090. <https://doi.org/10.1556/2006.7.2018.99>.
- Russell, A. M. T., Hing, N., Li, E., & Vitartas, P. (2018). Gambling risk groups are not all the same: Risk factors amongst sports bettors. *Journal of Gambling Studies*, 35(1), 225–246. <https://doi.org/10.1007/s10899-018-9765-z>.
- Waitt, G., Cahill, H., & Gordon, R. (2022). Young men's sports betting assemblages: Masculinities, homosociality and risky places. *Social & Cultural Geography*, 23(3), 356–375. <https://doi.org/10.1080/14649365.2020.1757139>.
- Winters, K. C., & Derevensky, J. L. (2019). A review of sports wagering: Prevalence, characteristics of sports bettors, and association with problem gambling. *Journal of Gambling Issues*, 43. <https://doi.org/10.4309/jgi.2019.43.7>.
- Zhang, Y., & Rau, P. L. P. (2016). An exploratory study to measure excessive involvement in multitasking interaction with smart devices. *Cyberpsychology, Behavior, and Social Networking*, 19(6), 397e403. <https://doi.org/10.1089/cyber.2016.0079>.

Open Access statement. This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium for non-commercial purposes, provided the original author and source are credited, a link to the CC License is provided, and changes – if any – are indicated.

