

GAMBLING HARMS RESEARCH: SYNTHESIS OF THE INTERNATIONAL EVIDENCE ACROSS DISCIPLINES

May 2024



Bristol Hub for
**GAMBLING
HARMS
RESEARCH**

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ABOUT THIS REPORT

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ABOUT THE BRISTOL HUB FOR GAMBLING HARMS RESEARCH

Established in 2022, our purpose is to build interdisciplinary capacity in gambling harms research nationally and globally, in order to prevent and reduce harms at individual, community and society level.

For more information visit www.bristol.ac.uk/gambling-harms

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1 | EXECUTIVE SUMMARY

The Bristol Hub for Gambling Harms Research (the Hub) aims to build interdisciplinary capacity in gambling harms research, globally and nationally, to prevent and reduce harms at the level of the individual, the community, and society. To inform the Hub's work, we conducted four scoping reviews of current evidence around the four Challenges that frame our work: (1) what initiates harmful gambling? (2) what is the everyday practice and portrayal of gambling in social groups? (3) what social and spatial inequalities exacerbate gambling harms? and (4) what socio-technical innovations can help prevent or reduce gambling harms? These reviews included 450 papers and reports and aimed to capture the current state of knowledge in these areas.

This document is an evidence synthesis that presents the key findings from the four scoping reviews. We summarise these key findings below.

KEY FINDINGS FROM THE SCOPING REVIEWS

Challenge 1: What initiates harmful gambling?

There is a large body of evidence about the complex ways in which our individual biology, psychology, and cognition can be linked to harmful gambling. The evidence shows that while it is possible to change perceptions, motivations or decision-making processes to prevent or reduce harm from gambling at an individual level (for example through cognitive behavioural therapy), altering the environment could have a bigger impact on a larger number of people.

Challenge 2: What is the everyday practice and portrayal of gambling in social groups?

For social groups of all kinds and ages, gambling can be part-and-parcel of everyday social situations and interactions: going to the races with family; a rite of passage for 18-year-olds at a casino; or an intrinsic part of the enjoyment of watching football on TV with friends. Its pervasiveness is amplified by commercial factors such as gambling marketing and technology-enabled access to gambling products. The evidence also highlights that the impacts of harmful gambling can extend beyond the person who gambles to those around them. Social groups and interactions also form part of the treatment and support ecosystem.

Challenge 3: What social and spatial inequalities exacerbate gambling harms?

The evidence demonstrates the co-existence of social and spatial inequalities and gambling harms, including links between gambling harms and socio-economic disadvantage; the disproportionate impact of gambling harms within minority ethnic groups; and inequalities and harms associated with the geographical position and density of electronic gaming machines. A better understanding of how inequalities exacerbate gambling harms could inform targeted interventions that reduce harm among at-risk groups and communities.

Challenge 4: What socio-technical innovations can help prevent or reduce gambling harms?

There is some evidence that 'responsible gambling' messages in the form of personalised feedback can reduce the amount of money and time spent gambling, but the industry could do more to provide messaging tailored to individuals and based on their gambling behaviours. While there are a range of 'responsible gambling' tools such as time and deposit limits and self-exclusion schemes, there is limited evidence about their longer-term effectiveness, and they are easily circumvented. Altering the environment (including changing the design of gambling products) could have a bigger preventative impact on a larger number of people; as could getting more people into early effective treatment and support to reduce harm once it has occurred.

Future directions for gambling harms research

This report also outlines how the Hub aims to tackle both gaps in gambling harms research and the translation of research into policy and treatment. Through its Research Innovation Fund, the Hub is supporting research not only in the UK and Europe but in the Global South where gambling harms research is in its infancy.

Importantly, the studies we fund come from a wide range of disciplines. Some have produced considerable research into gambling harms such as psychology, geography and public health and others are newer to gambling harms research such as criminology, nursing, computer science, education, sports management, neuroscience, performing arts and engineering maths. This provides new perspectives on gambling harms and how to address them.

In producing this evidence synthesis, we identified three themes that cut across the four Challenges: data and methods; intersectionality; and gateways to gambling harm. We believe these are important issues for future gambling harms research.



2 | INTRODUCTION

The Bristol Hub for Gambling Harms Research (the Hub) aims to build interdisciplinary capacity in gambling harms research, nationally and globally, to prevent and reduce harms at the level of the individual, the community and society.

The Hub’s activities support one of the University of Bristol’s [strategic objectives](#) to build on its disciplinary and interdisciplinary excellence in tackling global challenges relating to equitable and sustainable health outcomes.

The work of the Hub is framed around four Challenges (Figure 1) that broadly represent a ‘gambling pathway’ and are designed to create space for interdisciplinary

approaches to the different dimensions of harmful gambling, namely: what initiates harmful gambling; what is the everyday practice and portrayal of gambling in social groups; what social and spatial inequalities exacerbate gambling harms; and what socio-technical innovations can help prevent or reduce gambling harms.

Figure 1: The four challenges that frame the Hub’s work



To inform the work of the Hub, we conducted four scoping reviews of current evidence, each of which addresses one of the Challenges set out above.

Scoping reviews aim to address wide-ranging topics where different study designs might be applicable (e.g. qualitative studies, quantitative surveys, laboratory experiments). As a result, they tend to be guided by broader research questions and do not assess the quality of included studies. The purpose of our four scoping reviews was, firstly, to examine the extent, range and nature of research activity on each Challenge; and secondly to describe the findings of the research we identified for dissemination to academic and non-academic audiences (Arksey and O’Malley, 2005).

We used key search terms based on the questions posed in the Challenges to identify relevant studies from multiple academic databases. The scoping reviews followed the process outlined by Arksey and O’Malley (2005). They were pre-registered on Open Science Framework and conducted according to PRISMA guidelines (Page et

al., 2021). The scoping review reports are available to [download from the Hub’s website](#).

This evidence synthesis report draws together the key findings from the scoping reviews to give an overview of the state of knowledge about the four Challenges. The evidence base for the four scoping reviews comprises 450 papers and reports. As the evidence base is continually expanding, the scoping reviews will not include research that has been published since the literature searches were conducted.

Based on the scoping reviews and the Hub’s ongoing stakeholder engagement, at the end of each chapter we also suggest some potential areas for further research, some of which are already being funded through the Hub’s [Research Innovation Fund](#) which is designed to support innovative and interdisciplinary research to understand and tackle gambling harms.

The Appendix provides a full list of the projects funded by the Research Innovation Fund to date.

¹ OSF pre-registration for [Challenge 1](#), [Challenge 2](#), [Challenge 3](#) and [Challenge 4](#).

WHO IS WATCHING ?

A note on terms used in this report

Gambling harms are the short and long-term adverse impacts from gambling on the health and wellbeing of individuals, families, communities, and society. These harms are diverse but three commonly referenced categories are resource harms, relationship harms, and health harms (Wardle et al, 2018).

However, much of the extant literature focuses on the narrower concepts of “problem gamblers/gambling” and “pathological gamblers/gambling” which are defined in Table 1. These terms refer only to the person who gambles and are measured using standard quantitative screening tools, for example to estimate prevalence rates or for analytical or descriptive purposes.

We use the terms “problem gamblers/gambling” and “pathological gamblers/gambling” in the same way as they are reported in the original studies, while acknowledging concerns that these terms are stigmatising, and that their use in measuring prevalence underestimates the harms caused by gambling. We use ‘harmful gambling’ as a default term to refer to gambling behaviours that may harm the individual and others, as this offers an alternative term that seeks to reduce stigma.

Table 1: Definitions of Pathological and Problem Gambling

Pathological Gambling	Persistent and maladaptive gambling behaviour that disrupts personal, family, or vocational pursuits (American Psychiatric Association, 2000, p. 671).
Problem Gambling	Gambling behaviour that creates negative consequences for the gambler, others in his or her social network, or for the community. The Problem Gambling Severity Index is a nine-item measure constructed specifically to measure problem gambling in the general population (Ferris and Wynne, 2001, p. 8).



1 | PERCEPTIONS, MOTIVATIONS, DECISIONS: What initiates harmful gambling?

The scoping review for Challenge 1 addressed the question: *“What initiates harmful gambling?”* As numerous studies have examined the inter-individual factors that may make some people more susceptible to gambling harms than others, we focused on papers that were reviews of multiple previous studies, including systematic reviews, meta-analyses of pre-existing data or selective reviews – of which we identified 87.

The evidence we identified in the scoping review covered three main topics:

- 1

The biological factors that can increase the risk of harmful gambling.
- 2

The psychological and cognitive factors that can increase the risk of harmful gambling.
- 3

How biological, psychological, and cognitive factors can interact with environmental factors to increase the risk of harmful gambling.

The key findings on these three topics are summarised in sections 1.1, 1.2 and 1.3 below. As most of the studies contained in the review papers have not tracked people over time, they can only show that there is some association between these factors and harmful gambling; they have not been able to establish cause-and-effect relationships.

This scoping review highlights the large body of evidence about the complex ways in which our individual biology, psychology, and cognition can be linked to harmful gambling. It concludes that while it is possible to change people’s perceptions, motivations or decision-making processes to prevent or reduce harm from gambling at an individual level, altering the environment could have

a bigger impact on a larger number of people (see key findings in Section 4 of this report).

Section 1.4 sets out ideas for further research on environmental factors. This could help us better understand the role of these somewhat overlooked factors in initiating harmful gambling. The Hub has already funded research to close this gap through its Research Innovation Fund. New research ideas include a better understanding of all formats of gambling advertising and its regulation; the effects of exposure to gambling via livestreaming platforms; a deeper understanding the effects of in-game gambling-like elements in digital games; and the design features of legal gambling products (discussed in more detail in Section 4).

1.1 Biological factors

The biological factors that may result in some individuals being at higher risk of gambling harms than others relate to their genes and their neurophysiology (i.e. how the brain and nervous system function).

Genetic factors – predominantly explored in studies of twins – play an important role in mediating the motivations or perceptions related to gambling. In particular, a range of studies highlight the influence of dopamine-related genes (which are linked to reward pathways in the brain) and serotonin-related genes (which are linked to behavioural inhibition) in shaping people’s gambling-related motivations and perceptions.

Neuroscientific studies (which focus on the brain and nervous system) have found that different areas of the brain work together in the case of harmful gambling, which in turn can be associated with increased reward-seeking, reduced cognitive control, and increased dopamine release.

Research has also explored the prevalence of harmful gambling alongside other conditions. Harmful gambling has been found to be associated with treatment for Parkinson’s disease, while studies have also shown an association between harmful gambling and attention deficit hyperactivity disorder (ADHD, a condition that affects people’s behaviour); obsessive compulsive disorder (OCD, a mental health condition where a person has obsessive thoughts and compulsive behaviours); and childhood maltreatment and later harmful gambling.

1.2 Psychological and cognitive factors

The onset of harmful gambling behaviours has also been associated with a wide range of psychological, cognitive, and other individual factors. All of these can play a role in people’s perceptions, motivations and decision-making around gambling.

Alexithymia (the inability to accurately describe, conceptualise, and feel emotions) has been shown to be associated with an increase in the risk of harmful gambling.

Separately, those who are experiencing harmful gambling are more likely to feel greater arousal from gambling-related stimuli, such as adverts for gambling products or gambling-related marketing. Harmful gambling has also been associated with specific personality traits, such as neuroticism (i.e. negative emotions).

Research has also shown that cognitive factors can affect the decision-making processes of people at risk of harmful gambling. For example, stress can contribute to – and be caused by – harmful gambling. In addition, studies show links between harmful gambling and high impulsivity, low inhibition, reduced perceptions of risk, and cognitive distortions (irrational thoughts that can influence our emotions).

Wider individual differences – notably age and financial motivations - can affect people’s perceptions, motivations or decision-making processes in relation to harmful gambling. Financial motives in themselves have also been found to be positively associated with both frequency and level of ‘problem gambling’. The evidence shows that young people perceive gambling as normal and increasingly accessible.

1.3 The interaction between individual-level factors and environmental cues

Whilst early research on gambling harms concentrated on the traits of individuals, our scoping review highlights a growing body of evidence on how individual-level factors interact with environmental cues (i.e. features or elements in someone’s environment that consciously or unconsciously provide information, feedback, guidance or motivation).

This evidence presents an important evolution from theoretical pathway models that subtype harmful gambling after individuals have already experienced harm. Instead it explores how individual-level factors interact with environmental cues to lead to the initiation of harmful gambling.

An important example of this interaction is the **availability** of gambling, which has been shown to heighten the risk of harmful gambling across a range of gambling products.

The availability of **simulated** gambling products has also been shown to interact with psychological and cognitive traits to heighten the risk of harmful gambling. These products are online gambling-like activities, such as social casino games and video games with gambling content, which do not involve the exchange of money (although some games allow players to purchase virtual credits). Simulated gambling can alter gambling-related cognitions in young people, while engagement with virtual communities can normalise gambling.

Particular attention was paid in the literature to Electronic Gaming Machine (EGM)-based products which are linked to dissociation (i.e. detachment from reality); and to increased exposure to gambling-related marketing that can result in higher recall and intent to gamble.

1.4 Areas for further research

As summarised above, there is a large body of evidence about the complex ways in which our individual biology, psychology, and cognition can be linked to harmful gambling. More work is needed in this area and [the Hub is funding a project](#) to measure dopamine signals in different parts of the brain during risky decisions. However, while it is possible to change people's perceptions, motivations or decision-making processes to prevent or reduce harm from gambling at an individual level, altering the environment could have a bigger impact on a larger number of people (see Section 4).

**GAMBLING
ADVERTISING
CONTINUES TO
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Potential areas of further research on environmental factors to better understand how they may initiate harmful gambling – and therefore how best to prevent harm - include:

- **Gambling advertising:** gambling advertising continues to evolve in ways with which researchers and regulators need to keep up if consumers – including children and young people – are to be protected from gambling harms. Beyond gambling adverts on television and radio, research at the University of Bristol has considered the effects of targeted and personalised online gambling adverts; gambling messages shown during [live TV and radio coverage of sports](#); and online content marketing i.e. funny stories, videos or images that do not explicitly promote a brand but aim to stimulate interest in its products or services. Funded by the Hub's Research Innovation Fund, the [University of Namibia](#) is examining the impact of a rapid increase in gambling marketing on consumer behaviour in Namibia.
- **Exposure to gambling via livestreaming platforms:** funded by the Hub's Research Innovation Fund, [Swansea University](#) is exploring the link between watching livestreams on platforms like Twitch (which offer access to diverse online content), exposure to gambling content such as live slots or poker which can be accessed by underage viewers, and actual gambling behaviour in young adults and adolescents.
- **Understanding the effects of in-game gambling-like elements:** also funded by the Hub's Research Innovation Fund, the [University of Hohenheim](#) is exploring young people's perceptions of in-game gambling-like elements (such as loot boxes) using AI and sentiment analysis, to understand how these elements influence their gaming experiences and their willingness to spend on them.
- **Design features of legal gambling products:** as we discuss in Section 4, the design of gambling products is another major environmental factor where interventions (such as slowing down speed of play and jackpot expiry) may reduce the risk of harm from gambling. Some legal products – such as charitable lotteries - are also comparatively under-researched in terms of people's perceptions, motivations and decision-making about them.



2 | NARRATIVES, PRACTICE, REPRESENTATION:

What is the everyday practice and portrayal of gambling in social groups?

The scoping review for Challenge 2 addressed the question *“What is the everyday practice and portrayal of gambling in social groups?”* In focusing on social groups, we aimed to look beyond the individual to understand the wider impacts of gambling and gambling harms. We were also interested in the practice of gambling and how it is enmeshed with everyday social activities.

We deliberately limited the scoping review for this Challenge to qualitative studies, because we wanted to gain a deeper understanding of how social groups experience gambling and gambling harms. Such rich insights are not available through quantitative studies that prioritise measurement (e.g. enumerating the number of people who are at risk of gambling harms and listing their characteristics) over depth of understanding.

The evidence base for this scoping review is drawn from 97 qualitative studies and covers three topics:

1

The role of social groups during first experiences of gambling.

2

The role of social groups during continued gambling behaviour.

3

The role of social groups during the experience of – and recovery from – gambling harms.

The evidence highlights that, for social groups of all kinds and ages, gambling is often part-and-parcel of everyday social situations and interactions. Its pervasiveness is amplified by commercial factors such as gambling marketing and technology-enabled access to gambling products. Studies also describe how the impacts of harmful gambling can extend beyond the person who gambles to those around them. Social groups and interactions also form part of the treatment and support ecosystem.

The final part of this section sets out ideas for further

research (some of which is already being funded through the Hub’s Research Innovation Fund) including sport and gambling harms; the ripple effects of harmful gambling on wider social groups such as family members; and the links between stigma and gambling harms.

The evidence on gambling harms among minority ethnic communities is discussed in Section 3 (*what social and spatial inequalities exacerbate gambling harms?*).

2.1 The role of social groups during first experiences of gambling

Most of the evidence on the role of social groups during first experiences of gambling comes from studies conducted in Australia. The evidence base includes research with children and young people, as well as adults.

The evidence shows that sport provides an opportunity for people to be introduced to gambling as a normal social activity, for example as spectators at live events or watching televised sports as a social occasion. Large sporting events – such as the Melbourne Cup (a major annual horse racing event in Australia) – introduce individuals to gambling within social, and particularly family, settings.

The initiation of gambling as a social activity is encouraged by the commercial actions of gambling operators including the marketing of gambling products and opportunities as well as easily accessible sports betting apps with enticing, immediate offers.

Childrens’ first experiences of gambling, and their perceptions of gambling can be shaped by the behaviours of adults within their family or social group, including in the context of sporting events, as described above.

There is some evidence that social casino games (free-to-play gambling-like games often found on social networking sites) influence online gambling behaviour for young people. While some young people did not see the link between social casinos and online gambling, others learned online gambling behaviours through playing on social casinos. Sites hosting social casino games were also reported as advertising real-money gambling products thus blurring the lines between social and “real” casinos.

2.2 The role of social groups in continued gambling behaviour

Qualitative studies demonstrate the ways in which gambling becomes part of an individual’s identity and social life, impacted and reinforced by commercial determinants such as the increased availability of technology-enabled gambling and marketing by gambling operators.

There is evidence that gambling becomes a normalised

aspect of social lives for some women, for example at sports events attended with friends and family, or meeting friends at commercial bingo halls. Studies show that, for men, gambling can be intertwined with masculine identity; and becomes a normalised part of the consumption of sport.

Gambling can also be a social activity for older adults when it is an integral part of other activities (such as playing slot machines when eating out with friends or going to a casino on holiday); as well as for adolescents who may gamble with their peers while playing sport or in school-based settings.

The body of evidence on poker players highlights how the distinction between skill and gambling is an important part of their social identity, which means they do not see poker as gambling.

2.3 Social groups during experiences of – and recovery from - gambling harms

The evidence shows the different ways in which gambling harms are experienced at the family or social group level, whether through the impact of gambling on relationships themselves, the role of social stigma, or indeed support groups aiding recovery for those experiencing harmful gambling behaviours.

There is a stigma associated with harmful gambling – or more specifically, the (perceived or real) inability to control harmful gambling behaviours – that can result in powerful psychological barriers to accessing support. The evidence shows that this stigma is also experienced by family members of the person who gambles; as well as by professional athletes, whose fears about the reaction of teammates and team management may prevent them from disclosing harmful gambling.

Gambling harms can impact the relationship between the individual and their partner, their children, and other relations and friends. These harms are wide-ranging, including the emotional and relationship harms experienced between family members and friends, or the financial harms experienced by households.

Social groups and support networks also have a role in supporting recovery from gambling harms. These networks can include support systems or strategies from relatives, professional help, Gamblers Anonymous groups, and other group-based approaches such as group therapy or self-help groups.

2.4 Areas for further research

As summarised above, there is compelling qualitative evidence about the role of social groups and social situations in the initiation and continuation of gambling that can become harmful. This can be amplified by commercial factors such as gambling marketing and technology-enabled access to gambling products. The scoping review also highlights the ripple effects of harmful gambling that extend beyond the person who gambles to those around

them; as well as the social groups and interactions that form part of the treatment and support ecosystem.

Potential areas of further research on the everyday practice and portrayal of gambling in social groups that could inform community- and society-level harm reduction interventions include:

- **Sport and gambling harms:** People of all ages participate in sport – as spectators and supporters; as amateur players; and as professional athletes. There have been high-profile cases of professional sportspeople (notably footballers) disclosing harmful gambling, but less is known about other sports and other participants. There are also concerns about sports players and teams marketing [high-risk cryptocurrency-based products](#) to fans. The Hub’s Research Innovation Fund is supporting exploratory work on gambling harms in professional cricket in England and Wales ([Loughborough University](#)); and among rugby players in Wales ([Swansea University](#)).
- **The ripple effects of harmful gambling:** the wider impacts of harmful gambling on family members (including children and young people), friends and others are only starting to be understood; and treatment and support services for these ‘affected others’ are in their infancy. There is significant scope, therefore, for new research, for example to develop conceptual harms frameworks, and the piloting and evaluation of dedicated services for ‘affected others’.
- **Stigma and gambling harms:** funded by the Hub’s Research Innovation Fund, the [University of Gibraltar](#) is leading an investigation into the cultural, societal, and psychological influences contributing to stigmatisation and the role of stigma in the development and maintenance of harmful gambling practices and treatment seeking.



3 | EXPERIENCE, RISK, HARM:

What social and spatial inequalities exacerbate gambling harms?

The scoping review for Challenge 3 addressed the question: *“What social and spatial inequalities exacerbate gambling harms?”* Broadly speaking, social inequality is the extent to which there are differences between groups in society that put some groups at a disadvantage relative to others. Much of the research focuses on income inequality and socio-economic disadvantage, but social inequality can also relate to where you live (known as spatial inequality), as well as gender, ethnicity, age and disability.

The evidence in this section is drawn from 98 academic papers and 11 pieces of non-academic ‘grey’ literature such as research reports. We identified three key themes from the literature:

1

The internationally established links between gambling harms and socio-economic disadvantage

2

The intersection between gambling harms and minority ethnic groups.

3

The association between spatial inequalities and gambling harms, also including a focus on the spatial positioning of electronic gaming machines (EGMs).

We summarise the findings for each of these themes below.

The evidence highlights the complex intersectional nature of gambling harms, whereby “multiple forms of inequality or disadvantage sometimes compound themselves and create obstacles that often are not understood among conventional ways of thinking” (Crenshaw, 1989, p.149). While the processes by which this happens are not clear-cut, the evidence nonetheless supports the idea of targeted and tailored interventions, including those related to the geographical position and density of gambling venues. It also points to the inclusion of geographical considerations in the regulation of gambling venues.

The final part of this section sets out ideas for further research (some of which is already being funded through the Hub’s Research Innovation Fund) including understanding how socio-economic disadvantage leads to gambling harms; understanding the intersection between ethnicity, socio-economic disadvantage and gambling harms; research with potentially at-risk communities, and exploring the spatial signatures of gambling harms.

3.1 The internationally established links between gambling harms and socio-economic disadvantage

The prevalence of harmful gambling amongst those experiencing socio-economic disadvantage is well established. However, the lack of a standard definition of socio-economic disadvantage and the different measures of gambling harms means that comparison between studies is difficult. These studies are also mostly cross-sectional rather than longitudinal, which means they do not shed any light on the direction of the chain of events between socio-economic disadvantage and harmful gambling.

The evidence base on how and why socio-economic disadvantage is linked to gambling harms is much smaller than that establishing the link. Qualitative methodologies can lend a deeper understanding on how this link occurs.

Individuals experiencing homelessness are also more likely to experience harmful gambling behaviours compared to the general population. Again, the chain of cause and effect has not been established.

3.2 The intersection between gambling harms and minority ethnic groups

The evidence indicates that harmful gambling disproportionately impacts many different minority ethnic groups across multiple jurisdictions, with above-average levels of harmful gambling in these communities compared to the general population.

There is also some evidence that higher rates of gambling harm among minority ethnic groups are linked to social inequality (access to services), socio-economic disadvantage (for example having lower household incomes or less wealth), or living in deprived neighbourhoods. The insights provided by those with lived experience in qualitative studies highlight how socio-economic disadvantages and social inequalities - which are experienced as a result of historical, economic structures or a lack of support - can exacerbate gambling harms.

Gambling harms experienced within minority ethnic groups can be wide-ranging, with evidence highlighting cultural, emotional, and financial harms. Qualitative studies illustrate how stigma is experienced as a

negative outcome of the intersection between minority ethnic status, social inequalities, and gambling harms. In turn, gambling harms can be exacerbated by stigma, because it creates barriers to support and treatment.

3.3 Spatial inequalities and gambling harms

There is a spatial dimension to the relationship between socio-economic disadvantage and gambling harms. In particular, the siting of gambling venues means that people living in areas of higher deprivation are at greater risk of experiencing gambling harms.

A great deal of research has explored the siting of EGMs. Studies that have explored the impact of EGMs at the individual level, venue level, and community level further highlight the intersection of spatial inequality and gambling harms.

The geographical positioning of EGMs may cause harm at an individual level, with the placement of EGMs within certain locations (e.g. close to supermarkets or pubs) and in specific environments (e.g. venues within easy reach of low-income neighbourhoods) increasing the risk of harms.

Harms have also been measured at venue level, with literature highlighting the ease-of-access to EGMs, and the association between venue-level expenditure and harms.

The geographical positioning of EGMs may also detrimentally impact the wider community, indicating a clear overlap between wider socio-economic disadvantage and gambling harms.

3.4 Areas for further research

While the evidence in our scoping review demonstrates the co-existence of socio-economic disadvantage, social and spatial inequalities, and gambling harms, a better understanding of the processes which link them could inform interventions that reduce harm among at-risk groups and communities.

Potential areas of further research include:

- **Understanding how socio-economic inequality leads to gambling harms:** While there is evidence that people who experience socio-economic disadvantages are more likely to experience gambling harms, further research could usefully explore *how* inequalities lead to gambling harms over time as well as how gambling harms can lead to socio-economic disadvantage.
- **Understanding the intersection between ethnicity, socio-economic disadvantage and gambling harms:** Similarly, the evidence shows that gambling harms disproportionately impact minority ethnic communities. Less clear is the intersection between ethnicity and socio-economic disadvantage and how this relates to gambling harms, including the differences within and between different ethnic communities.

- **Research with potentially at-risk communities:** the Hub's Research Innovation Fund is supporting studies to examine gambling harms within LGBTQ+ communities in the UK ([Bournemouth University](#)); those under probation supervision in England and Wales ([Brunel University](#)); betting shop employees in the UK ([University of Bristol](#)); women from minority ethnic groups in the UK ([Bournemouth University](#)); vulnerable groups in public universities in Kenya ([Jaramogi Oginga Odinga University of Science and Technology – JOOUST](#)); and young people in Uganda ([Makerere University](#)).
- **The spatial signatures of gambling harms:** the Hub's Research Innovation Fund is supporting two research projects on this topic. Firstly, the [University of Bristol](#) is investigating how the spatial pattern of the location of bricks-and-mortar gambling facilities has evolved over time in Britain and how this has been affected by increasing opportunities for online gambling. It will also explore the spatial signature of online gambling behaviour in Britain, and how access to physical gambling outlets affects online gambling behaviours. Secondly, [Nottingham Trent University](#) is investigating the relationship between betting shops and crime across different geographies in England.

THE EVIDENCE INDICATES THAT HARMFUL GAMBLING DISPROPORTIONATELY IMPACTS MANY DIFFERENT MINORITY ETHNIC GROUPS ACROSS MULTIPLE JURISDICTIONS.

4 | INNOVATION, TRANSITION, CHANGE:

What socio-technical innovations can help prevent or reduce gambling harms?

The scoping review for Challenge 4 addressed the question: *“What socio-technical innovations can help prevent or reduce gambling harms?”* Socio-technical innovations are new systems or tools that have emerged from the interaction between actors and technologies, and seek to encourage best practice or influence industry standards.

The evidence presented in this section is drawn from 142 academic papers and 15 pieces of grey literature. It focuses on four key areas of socio-technical innovation:

1 ‘Responsible gambling’ messaging

2 ‘Responsible gambling’ tools

3 Gambling product design

4 Treatment for gambling harms

We summarise the findings for each of these areas below. In presenting this evidence, it is important to highlight the industry-derived narratives around ‘responsible gambling’ and ‘safer gambling’ as a potential source of stigma for those experiencing harms. These narratives imply that people who experience harmful gambling have been gambling irresponsibly and should have been able to curtail their behaviour. This ignores the ways in which the design and advertising of gambling products may exacerbate the risk of harm; and the fact that someone who becomes addicted to gambling will find it very difficult to stop.

There is some evidence that ‘responsible gambling’ messages in the form of **personalised feedback** can reduce the amount of money and time spent gambling, but the industry could do more to provide messaging tailored to individuals and based on their gambling behaviours. **Reframing ‘return-to-player’ information** (e.g. “this game has an average percentage payout of 90%”) as **‘house-edge’** information (e.g. “this game keeps

10% of all money bet on average”) could also improve people’s understanding of the risks, and possible costs, of gambling. While there are a range of **‘responsible gambling’** tools such as time and deposit limits and self-exclusion schemes, there is limited evidence about their longer-term effectiveness, and they are easily circumvented. As noted in Section 1, altering the environment (including changing the design of gambling products) could have a bigger preventative impact on a larger number of people; as could getting more people into early effective treatment and support to reduce harm once it has occurred.

The final part of this section sets out ideas for further research (some of which is already being funded through the Hub’s Research Innovation Fund), including exploring ways to reduce gambling harms in global south contexts; global innovation in regulation; evaluating ‘what works’ in gambling treatment and support in the UK; and understanding online help-seeking search behaviour using Google Trends and other data.

4.1 ‘Responsible gambling’ messaging

Non-personalised ‘responsible gambling’ messaging can make a small impact on people’s beliefs about gambling outcomes. The findings are more mixed in terms of the impact of such messages on actual behaviours.

‘Responsible gambling’ messaging in the form of **personalised feedback** has been shown to reduce the amount of money and time spent gambling. Feedback received via telephone or e-mail appears to have the biggest impact, with evidence that the industry could do more to provide messaging tailored to individuals and based on their gambling behaviours.

However, it is still the case that personalised ‘responsible gambling’ messages emphasise **individual responsibility**, possibly increasing stigma and ‘othering’ those who experience harms. They may also serve to deflect attention away from changes to industry products and practices that could more effectively reduce harm from gambling.

There was evidence that **reframing ‘return-to-player’ information** (e.g. “this game has an average percentage payout of 90%”) as **‘house-edge’** information (e.g. “this game keeps 10% of all money bet on average”) could improve people’s understanding of the risks, and possible costs, of gambling.

4.2 ‘Responsible gambling’ tools

Time and deposit limits for gambling are prevalent across numerous jurisdictions and there is evidence they can lead to decreases in theoretical loss (i.e. the difference between the total amount bet and the total amount won). However, these limits are easily circumvented by those who wish to increase their gambling spend. Studies also show that play breaks set by operators are ineffective at promoting long-term behaviour change.

While studies have explored various aspects of **self-exclusion schemes** (including perception and uptake, predicting factors, and ways to improve awareness and uptake), there was limited evidence of their longer-term effectiveness. A small sample of literature explored the use of other ‘responsible gambling’ tools such as **self-assessments and financial statements**, where the main issue was low take-up.

4.3 Product design

The product design features most commonly discussed in our sample of literature were associated with online slots- and casino-based products and on electronic gaming machines (EGMs). The findings are largely based on laboratory-based experiments.

Multiline products – or slots games that allow people to place concurrent bets across multiple paylines on a single spin – are found to be particularly immersive and can also be linked to a feature known as **losses disguised as wins** (LDWs). LDWs are associated with arousal and the reinforcement of the desire to continue gambling, which could lead players to overestimate their winnings.

The desire to continue gambling can also be increased by the **near miss effect**, a feature that can lead an individual to believe that a return is due imminently.

Moderating the **speed-of-play** has been shown to impact gambling behaviours because faster speeds of gambling lead participants to make inaccurate estimations of the money they have gambled and won.

Jackpots were found to encourage faster gambling or gambling at higher stakes, particularly if people perceived them to be offering larger pay-outs. Jackpot expiry – whereby the availability of jackpots expires after a fixed period of play and players receive a message to that effect – has been shown to discourage continued gambling.

4.4 Socio-technical innovation in treatment for gambling harms

The evidence in our scoping review on treatment mostly comes from small trials with people undergoing treatment for gambling addiction, as measured using standard indicators such as the Problem Gambling Severity Index. Evidence exists on a range of treatments, but cognitive-behavioural therapy (CBT) is the most well-established.

Therapeutic treatments such as CBT have been widely adopted as ‘social innovations’ and the evidence suggests that these treatments are effective. However, breaking barriers to access is important, as is tailoring treatment to different gender and cultural needs.

Internet-based interventions have started to integrate social practices with evolving technologies, particularly with the use of **‘i-CBT’ programmes**.

Communication technologies – whether mail-, telephone- or email-based – can be used to encourage the take-up of treatment options or as interventions in their own right. The research highlights the importance of communicating with those receiving treatment; and that evolving technology makes it easier to reach those who may be experiencing harm.

The pool of literature which explores communications sent from gambling operators is extremely small, with scope for gambling operators (and their regulators) to further explore the use of technologies available to them to deliver communications to those who may be at risk of harm. of communicating with those receiving treatment; and that evolving technology makes it easier to reach those who may be experiencing harm.

THE DESIGN AND ADVERTISING OF GAMBLING PRODUCTS MAY EXACERBATE THE RISK OF HARM.

4.5 Areas for further research

Socio-technical innovations to prevent and reduce gambling harms are in their infancy, with opportunities to ‘test and learn’ from interventions targeted at individuals, communities and societies.

Potential areas of further research include:

- **Exploring ways to reduce gambling harms in global south contexts:** The Hub’s Research Innovation Fund is supporting [Jaramogi Oginga Odinga University of Science and Technology \(JOOUST\)](#) to explore gambling harms among vulnerable groups in public universities in Kenya and potential harm reduction interventions; and [Makerere University](#) in Uganda to examine the role of performing arts in educating young people against harmful gambling.
- **Global innovation in regulation:** gambling is a global industry, while regulation remains firmly territorial. There is scope for research to consider what jurisdictions can learn from one another about regulating to reduce and prevent gambling harms, in ways that can also help build regulatory capacity.
- **Evaluating ‘what works’ in gambling treatment and support:** [the different types of treatment and support](#) available for people who gamble harmfully could be evaluated to understand more about what works for who and when. As noted in Section 2, a similar focus is needed on services for people who are harmed by someone else’s gambling.

Drawing on other legal but potentially harmful sectors (alcohol, tobacco and unhealthy food), Hub academics have developed a conceptual framework for the prevention of gambling-related harms that could be deployed to help frame evaluations of this kind (Wheaton et al, 2024).

- **Understanding online search behaviour:** funded by the Hub’s Research Innovation Fund, [Swansea University](#) is using a rich and publicly accessible dataset for online searches (Google Trends) in conjunction with other data sources to investigate historical and emerging patterns in searches for help with gambling-related harms across time and geographical regions.



THINK

5 | NEW INSIGHTS: Three cross-cutting research themes

This evidence synthesis presents the key findings from the scoping reviews around the four Challenges that frame the Hub's work in building interdisciplinary capacity in gambling harms research, globally and nationally.

In producing this evidence synthesis, we further identified three themes that cut across the four Challenges, which we believe are important in terms of future directions in gambling harms research: data and methods; intersectionality; and gateways to gambling harm. These are described below.

5.1 Three cross-cutting themes

1

Data and methods

2

Intersectionality

3

Gateways to gambling harm

5.1.1 Data and methods

Most studies in our scoping reviews used cross-sectional data to provide a snapshot of what's happening at one point in time. More studies – both quantitative and qualitative – that track the same people (or phenomena) over time would enrich the evidence base, for example helping us understand cause-and-effect relationships and the long-term impact of gambling harms. That said, lack of causal evidence should not preclude regulatory or other action to protect consumers from gambling harm. For example, there is already precedent in Great Britain for a risk-based, precautionary approach [to protect children and young adults from gambling harms](#).

To date, the only UK longitudinal study to ask in any detail about gambling harms is the [Avon Longitudinal Study of Parents and Children \(ALSPAC\)](#), which is run by the University of Bristol. ALSPAC has asked participants questions about gambling at ages 17, 20, 24, 28 (during COVID) and 30, resulting in new understandings of the antecedents and consequences of harmful gambling in early adulthood (Emond et al, 2020; Hollen et al, 2020) and harmful gambling during the pandemic lockdown (Emond et al, 2021). With UCL, the University of Bristol also leads the new [Population Research UK \(PRUK\)](#) co-ordination hub. This aims to further harness the significant potential of the UK's longitudinal data resources and may offer opportunities for enhancing gambling harms research.

There are also data sources that have yet to be fully exploited, such as bank transaction data, online search and social media data, gambling operator data, treatment and support data, and [administrative data](#) generated and held by government. As noted earlier, the Hub's Research Innovation Fund is funding [Swansea University](#) to use Google Trends and other data to investigate historical and emerging patterns in searches for help with gambling-related harms. It is also supporting researchers at the [University of Bristol](#) to map the data landscape for gambling harms research in the UK.

In addition, the Hub supports the use of novel research methods in gambling harms research. Projects funded by our Research Innovation Fund include:

- Combining mathematical modelling and qualitative research to explore the time evolution of gambling-related practices on trading platforms ([University of Bristol](#)).
- Using performing arts to raise awareness of and provide information about harmful gambling to young people in Uganda ([Makerere University](#)).
- As mentioned in Section 1, using AI and sentiment analysis to explore young people's perceptions of in-game gambling-like elements like loot boxes ([University of Hohenheim](#)).

5.1.2 Intersectionality

The evidence from our scoping reviews highlights the intersectional nature of gambling harms, whereby multiple forms of inequality or disadvantage can compound themselves in complex ways that disproportionately affect particular social groups and at-risk communities.

Finding ways to understand and respond to this complexity – including working collaboratively with people who have lived experience – is an important part of preventing and reducing harm from gambling, for people who gamble harmfully and those around them who are affected by it. The Hub aims to do this in several ways, including:

- **Using the Research Innovation Fund to support lived experience collaboration and co-production.** For example, [Brunel University](#) is leading a project to examine gambling harms among people under probation supervision in England and Wales, which is guided by a Lived Experience Advisory Group comprising people who have experience of both gambling harms and the criminal justice system. [Coventry University](#) is looking at ways to engage community voices in Scotland



around the next steps needed to reduce gambling harms.

- **Integrating lived experience into the Hub's governance structures.** We have lived experience representatives on the Grants Committee that assesses applications to our Research Innovation Fund; and representatives of treatment and support providers and at-risk groups on our [External Advisory Board](#).
- **Giving a voice to lived experience at our events:** The Hub's [2023 International Interdisciplinary Colloquium](#) had keynote speakers and panel members with lived experience of gambling harms, including people harmed by someone else's gambling.

5.1.3 Gateways to gambling harm

The evidence shows that the interaction between the gambling environment and individual characteristics and traits is not well understood. In particular, the effects of “gateway” products and activities that can lead to gambling harms are under-researched. To understand gateways to gambling harm – and respond effectively to them – it is important to scrutinise all aspects of the

gambling industry: how it is regulated, its business models, and the design and marketing of gambling products, including marketing affiliates and influencers.

And the evidence also shows that we should pay close attention to the gateways to harm that exist in the wider ecosystem, such as gambling-like features and activities that sit outside the core gambling industry (e.g. social casino games, risky investing); exposure to gambling as a passive observer (e.g. via livestream platforms as being explored by Swansea University); ‘good cause’ gambling (e.g. charity lotteries); and illegal gambling and organised crime.

Having a comprehensive picture of gateways to harm would provide a strong basis for developing effective responses that could lead to earlier prevention of gambling harms.

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Full reference lists for the evidence summarised in this report are available in the four scoping review reports.

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APPENDIX

Studies funded by the Hub's Research Innovation Fund

Strategic Awards 2023 (up to £50,000)

Bournemouth University, [Examining gambling harms within LGBTQ+ communities in the UK](#). PI: Reece Bush-Evans.

Brunel University, [Gambling harms among those under probation supervision in England and Wales](#). PI: Julie Trebilcock.

Nottingham Trent University, [Gambling related harm: an urban perspective of betting shop and crime](#). PI: Oluwole Adeniyi.

Swansea University, [Online help-seeking searches and gambling harm](#). PI: Seb Whiteford.

Swansea University, [Live-Gam: Exploring the impact of viewing gambling on livestream platforms on the attitudes, behaviours, and engagement in young adults and adolescents towards gambling](#). PI: Glen Dighton.

University of Gibraltar, [Understanding the relationship between stigma and gambling-related harm](#). PI: Zsolt Demetrovics.

University of Namibia, [Exploring the diffusion of gambling information impact on consumer's behaviours, and to design a mitigating model to address harmful gambling in Namibia](#). PI: Selma Ilonga.

Seedcorn Awards 2023 (up to £10,000)

Bournemouth University, [Starting conversations about harmful gambling with ethnic minority women](#). PI: Emily Arden-Close.

Coventry University, [Engaging Scotland's community voice to understand the next steps needed around gambling related harm](#). PI: Tom Bason.

Hohenheim University, [Delving into youth perspectives on in-game gambling-like elements](#). PI: Thomas Krause.

Jaramogi Oginga Odinga University of Science and Technology (JOOUST), Kenya, [Identification of and intervention in gambling effects among vulnerable groups in public universities in Kenya](#). PI: Gregory Jumah Nyongesa.

Loughborough University, [Stump the odds: developing](#)

[an international network for collaborative research into gambling harms in professional cricket](#). PI: Carolyn Plateau.

Makerere University, [Uganda. The role of performing arts in educating the youth against harmful gambling in Uganda](#). PI: Branco Sekalegga.

Swansea University, [Scoping, consensus building and raising awareness of gambling-related harms among rugby players in Wales](#). PI: Cerys Head.

University of Bristol projects funded by the Research Innovation Fund in 2022

[A pilot study to assess the possibility of generating a quantitative analysis of the time evolution of gambling-related practices within cryptocurrency trading platforms](#). PIs: Sam Kirwan and Luca Giuggioli.

[Enforcing 'responsible gambling' regulations: the \(irresponsible?\) impact on employees of betting and gambling outlets](#). PIs: Jo Large and Sam Kirwan.

[Investigating neural signals during risky decision making](#). PI: Paul Dodson.

[Mapping the data landscape in gambling harms research](#). PIs: Sharon Collard, Jamie Evans, Emmanouil Tranos.

[The spatial signatures of gambling behaviours: access to online vs. brick-and-mortar facilities](#). PI: Emmanouil Tranos.



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