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Experience, risk, harm: What social and spatial inequalities exacerbate gambling-related harms?

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Experience, risk, harm: What social and spatial inequalities exacerbate gambling-related harms?

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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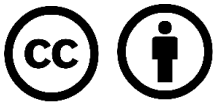

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Executive Summary

The work of the Bristol Hub for Gambling Harms Research is framed around four challenges:

These four Challenges 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.

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

This report sets out the evidence from the scoping review for Challenge 3: What social and spatial inequalities exacerbate gambling harms?

Broadly speaking, social inequality is the extent to which there are differences between groups in relation to access of services and resources in society. Spatial inequality relates to how resources or services are unevenly distributed across geographical areas. The review uncovered literature that referred to

social and spatial inequality in different ways. Much of the research focuses on income inequality or 'social-economic disadvantage' (associated with low income and low levels of wealth). However, social inequality can also relate to where you live (for example, spatial inequality) as well as gender, ethnicity, age and disability. The scoping review therefore explored in detail the literature on how socio-economic disadvantage, social inequality, and spatial inequality may exacerbate gambling harms.

The evidence presented in this scoping review report is drawn from 98 academic papers and 11 pieces of non-academic or 'grey' literature such as research reports. It focuses on three key areas:

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

- There is a very well-established evidence base stretching across many countries suggesting that those experiencing socio-economic disadvantage are more likely to experience gambling harms. However, the lack of a standard definition of socio-economic disadvantage and the different measurements of gambling harms across the sample of studies 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 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.

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 given by those with lived experience 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.

Spatial inequalities and gambling harms

- There is a spatial dimension to the relationship between socio-economic disadvantage and gambling harms. There is evidence that gambling harms may be exacerbated by living within areas of higher deprivation.
- 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 evidence shows that 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.

1 Introduction

1.1 Background

The work of the Bristol Hub for Gambling Harms Research is framed around four challenges:

These four Challenges 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.

To inform the work of the Hub, we conducted four scoping reviews, each of which addresses one of the Challenges set out above. This report sets out the evidence from the scoping review for Challenge 3: What social and spatial inequalities exacerbate gambling harms?

1.2 What are social and spatial inequalities?

This scoping review answers the guiding research question of Challenge 3: "What social and spatial inequalities exacerbate gambling-related harms?". Broadly speaking, social inequality is the extent to which there are differences between groups in their access to positions, services or resources in society (Kerbo, 2003). Spatial inequality relates to how resources are not evenly distributed across geographical areas thus causing further inequality (Han, 2022). However, our scoping review uncovered literature that referred to social and spatial inequality in different ways. Additionally, as gambling can be seen as a way of acquiring money and can also result in catastrophic financial losses, much of the research exploring the links between social inequality and

gambling naturally focuses on income inequality and what is widely referred to as ‘socio-economic disadvantage’. We have therefore chosen to use the Scottish Government’s (2018) definition of socio-economic disadvantage: “living on a low income compared to others, with little or no accumulated wealth, leading to greater material deprivation, restricting the ability to access basic goods and services. Socio-economic disadvantage can be experienced in both places and communities of interest, leading to further negative outcomes such as social exclusion” (Scottish Government, 2018).

In summary, just as socio-economic disadvantage encompasses not just the state of low income but also its effects beyond simply financial circumstances, social inequality can relate to where you live (known as spatial inequality) as well as intersecting with gender, ethnicity, age and disability. This scoping review therefore explored in detail the literature on how socio-economic disadvantage; other types of social inequality; as well as spatial inequality may exacerbate gambling harms. We also acknowledge that experiences of these terms, or the meaning of other terms such as ‘class’, will vary across cultures and political systems (see Kraus et al., 2012). There can also be measured in different ways. Table 1 introduces and defines a range of terms and measures that are used by the literature reviewed in this report to refer to socio-economic disadvantage or social and spatial inequality.

Table 1: Terms used to explore social and spatial inequalities

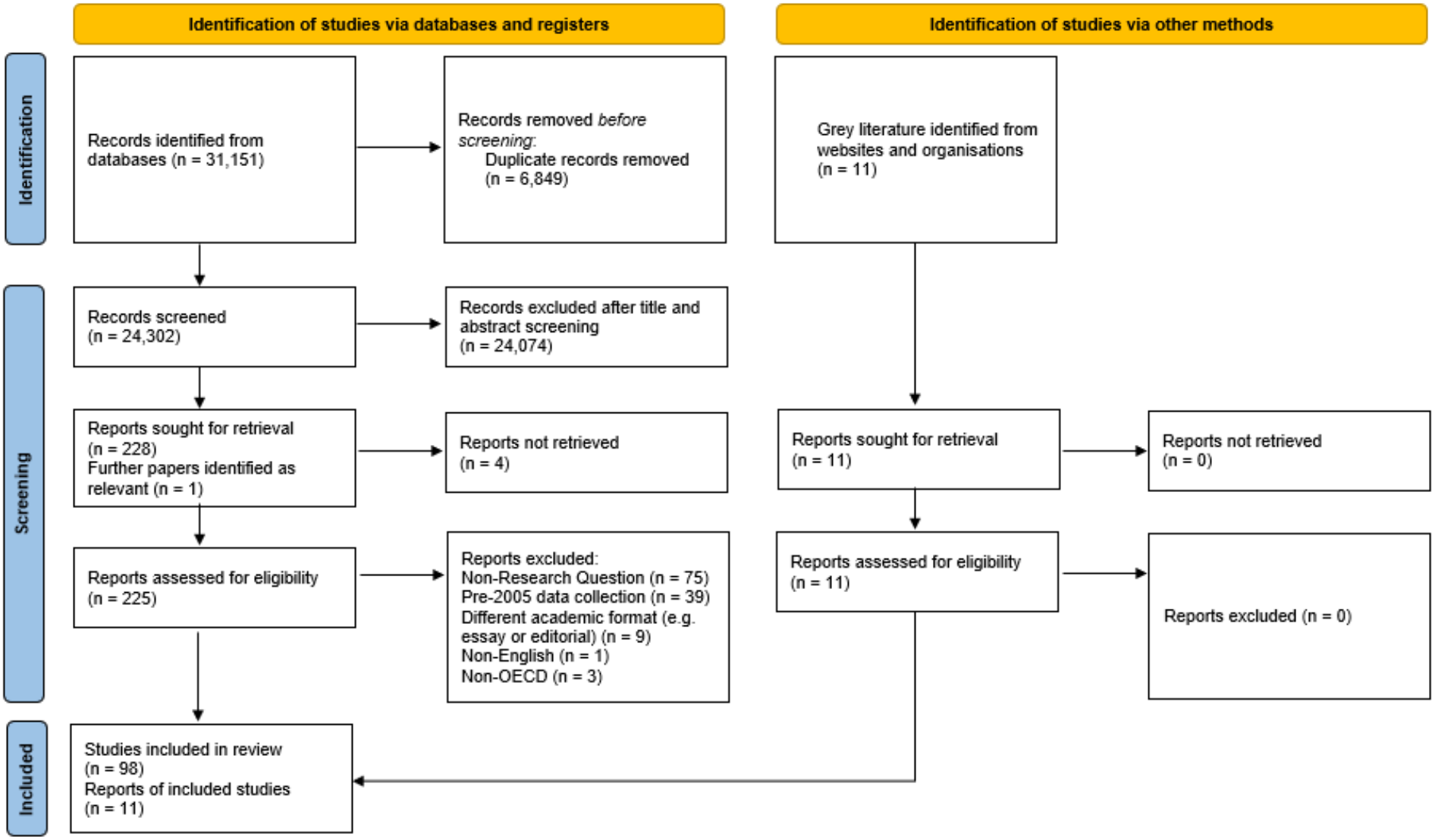
Term	Definition
Class	The social group "that an individual inhibits through indices of an individual's material resources (e.g., education and income) and perceived social class rank relative to others" (Kraus et al., 2012, p. 562).
Index of Multiple Deprivation (IMD)	A measure of relative deprivation within small areas, often measured across different regions of the United Kingdom (see Ministry of Housing, Communities & Local Government, 2019).
Intersectionality	An instance 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).
NRS Social Grade	A classification – developed by the National Readership Survey (NRS) - based on occupation. Grades move from "A" (higher managerial, administrative and professional) to "E" (State pensioners, casual and lowest grade workers, unemployed with state benefits only) (NRS, 2024).
Social inequality	A condition "where people have unequal access to valued resources, services, and positions in the society" (Kerbo, 2003, p. 11).
Socio-economic disadvantage	Living "on a low income compared to others, with little or no accumulated wealth, leading to greater material deprivation, restricting the ability to access basic goods and services. Socio-economic disadvantage can be experienced in both places and communities of interest, leading to further negative outcomes such as social exclusion" (Scottish Government, 2018).
Spatial inequality	A state "in which significant disparities are created because [resources] are not evenly distributed across different spaces, which means that social inequalities are manifested in spatial patterns" (Han, 2022, p. 2).

1.3 Research methods

Our scoping review followed the process outlined by Arksey and O'Malley (2005). It was pre-registered on https://doi.org/10.17605/OSF.IO/H2Q4R and conducted according to PRISMA guidelines (Page et al., 2021). Guided by the research question, 'what social and spatial inequalities exacerbate gambling harms?', we used key search terms to identify relevant studies from multiple academic databases: EBSCO, SCOPUS, H.W. Social Sciences Index, PubMed, ProQuest, PsycINFO, Sociological Abstracts, Applied Social Science Index and Abstracts, Social Sciences Citation Index, Social Services Abstracts, and Social Science Database. Full details of the search terms can be found in **Appendix One**.

To be included, papers had to be published in English, focused on the economies of OECD member countries, and published in or after 2005 (the year when the Gambling Act 2005 was passed). The process of the literature review is shown in Figure 1. The initial search – after de-duplication – returned 24,302 papers which were then sifted according to title. Titles had to demonstrate a clear focus on the relationship between gambling and social or spatial inequalities. The first sift, which saw titles compared to the inclusion criteria above, reduced the sample to 778 papers. The second sift by abstract then reduced the working sample to 228 papers. Abstracts had to indicate subject matter on the relationship between gambling and social or spatial inequalities. An additional relevant paper published subsequently to the initial literature brought the sample to 229 papers. The final sift, by full text, included papers with a focus on 'social' inequalities, 'geographical' inequalities, or both ('social/geographical'). The final sample was 98 papers, with 63 focusing on social inequalities, 21 on geographical inequalities, and 14 focused on both. More details on the number of included papers and the number of excluded papers at each stage of the scoping review can be found in **Appendix Two**.

Figure 1: PRISMA flow diagram for Challenge 3 Scoping Review



The scoping review also incorporated non-academic 'grey' literature, identified by using similar terms to search the websites of charities, organisations, and industry bodies. **Eleven** pieces of grey literature were used to supplement the sample of academic literature (*N* = 98), making 109 items in total. Details of grey literature can be found in **Appendix Three.** Data extracted from the sample of 98 academic papers and 11 grey literature papers included: the authors, year of publication, country of focus, the research question, the sample size, research design, interventions, outcome measures, and summary of findings. These terms are fully defined in **Appendix Two.** The summary of findings extracted from each paper were then analysed to develop the main themes which answer the guiding research question.

1.4 This report

This report highlights the key findings of the scoping review of published evidence about the social and spatial inequalities that exacerbate gambling harms. The findings are reported in three chapters related to socio-economic disadvantage and gambling harms, the intersectionality between ethnicity, socio-economic disadvantages and social inequality, and spatial inequalities including a focus on the geography of electronic gaming machines (EGMs). The concluding chapter summarises the key findings from the scoping review and describes the main research gaps.

1.4.1 A note on terms used in the 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 2. These terms refer only to the person who gambles and are measured using standard 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 this report 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 2: 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 (Ferris and Wynne, 2001, p. 8).

In addition, Table 3 sets out all the different measures that are mentioned in this report and the screening tools from which they derive, along with the original papers that first described them. The descriptions within each table also highlight how they are intended to be used in relation to their outcome measure. For example, some of the surveys intend to measure the prevalence of 'problem gambling' in the general population, whilst others may measure 'pathological gambling', or urges to gamble in an individual.

Table 3: Glossary of gambling screening tools

Screening tool	Description	Outcome Measure
Addiction Severity Index amended for Gambling (ASI-G) (Lesieur and Blume, 1982).	A screening tool derived from the Addiction Severity Index, normally deployed to measure drug and substance addiction, developed to measure pathological gambling.	Pathological Gambling
Canadian Adolescent Gambling Inventory (CAGI) (Wiebe et al., 2007).	A 26-item screening tool comprising measurements of types of gambling activities, frequency of participation, time spent gambling, total money spent gambling, and psychological, social, financial aspects related to gambling risk or harm.	Pathological Gambling
Canadian Problem Gambling Index (CPGI) (Ferris and Wynne, 2001).	A 31-item screening tool to determine whether a person in the general population is experiencing problem gambling.	Problem Gambling
Fourth edition of the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-IV) (American Psychiatric Association, 2000).	Ten criteria created by clinicians for diagnosis of pathological gambling.	Pathological Gambling
Gambling Abstinence Self-Efficacy Scale (GASS) (Hodgins et al., 2004)	A 21-item measure of gambling abstinence self-efficacy.	Gambling Abstinence
Gambling Symptom Assessment Scale (G-SAS) (Kim et al., 2009).	A 12-item self-rated scale designed to assess gambling symptom severity.	Gambling Symptom Severity
Gambling Related Cognition Scale (GRCS) (Raylu and Oei, 2004a).	A 23-item scale designed to assess gambling-related cognitions held by gambling. Aspects explored by the scale include interpretive control/bias, illusion of control, predictive control, gambling-related expectancies, perceived inability to stop gambling.	Gambling-related Cognitions.
Gambling Urge Scale (GUS) (Raylu and Oei, 2004b).	A six-item self-screening tool designed to measure gambling urges.	Gambling Urges

Table 3, cont.: Glossary of gambling screening tools

Screening tool	Description	Outcome Measure
Game Experience Questionnaire (GEQ) (IJsselsteijn et al., 2013).	A modular questionnaire that measures the multifaceted experience of gaming. The questionnaire has three modules: core, social presence, post-game	Flow, competence, positive and negative affect, tension, and challenge (core).
National Opinion Research Center DSM Screen for Gambling Problems (NODS) (Wickwire et al., 2008).	A 34-item telephone-screening tool that identifies gambling problems as defined by the DSM-IV.	Problem and Pathological Gambling
Problem Gambling Severity Index (PGSI) (Ferris and Wynne, 2001).	A nine-item measure constructed specifically to measure problem gambling in the general population.	Problem Gambling
Short Gambling Harm Screen (SGHS) (Browne et al., 2018).	A short, 10-item screening tool to measure gambling harms.	Gambling Harms
South Oaks Gambling Screen (SOGS). (Stinchfield, 2002).	A 20-item questionnaire based on DSM-III criteria.	Pathological Gambling
Victorian Gambling Screen Harm to Self-Scale (VGS-HS). (Ben-Tovim et al., 2001).	A 15-item screening tool designed to measure the harm occurring to self as a result of gambling	Harm as a result of Problem Gambling

2 Internationally established links between gambling harms and socio-economic disadvantage

Chapter Summary

- In our scoping review, the evidence base for the links between socio-economic disadvantage and gambling harms comprised 24 academic papers and one piece of grey literature.
- There is a very well-established evidence base stretching across many countries suggesting that those experiencing socio-economic disadvantage are more likely to experience gambling harms.
- The wide range of definitions of socio-economic disadvantage and an equally wide range of measures for gambling harms make it difficult to compare evidence across the literature, however.
- The evidence base on *how* and *why* socio-economic disadvantage is linked to gambling harms is much smaller than that establishing the link.
- Individuals experiencing homelessness are more likely to experience harmful gambling behaviours compared to the general population.

2.1 Introduction

This chapter reviews the evidence on how gambling harms are exacerbated by socio-economic disadvantage. As this chapter highlights, there is a consistent evidence base that highlights the correlation between socio-economic disadvantage and gambling harms. In a broad sense, this signifies an overlap between gambling harms and low incomes and low wealth. However, there is a lack of standard definition of socio-economic disadvantage across the sample of studies, in addition to different ways in which harmful gambling can be measured. This chapter begins by exploring the evidence base that informed this overall theme, before highlighting the variety of ways in which socio-economic disadvantages and gambling harms are linked. Third, the chapter highlights how qualitative evidence can provide a deeper explanation on how socio-economic disadvantages and gambling harms are related. Finally, the chapter also explores the international evidence base linking homelessness to gambling harms.

2.2 About the evidence base

Our evidence base for the links between socio-economic disadvantage and gambling harms comprised 24 academic papers and one piece of grey literature. These are introduced within the following sections. The academic papers and grey literature included large quantitative studies, spatial analyses, economic modelling, and qualitative fieldwork amongst smaller samples of participants. The evidence exploring relationships between gambling harms and socio-economic disadvantage emerged from studies in 11 countries:

- **Australia** (Breen et al., 2013a; Hing et al., 2017; Koomson et al., 2022; Tulloch et al., 2023);
- **Canada** (Callan et al., 2008; Matheson et al., 2014; Van der Maas, 2016a);

- **Denmark** (Lyk-Jensen, 2010);
- **Finland** (Castren et al., 2013);
- **Germany** (Beckert and Lutter, 2013);
- **Iceland** (Olasson et al., 2015);
- **Italy** (Canale et al., 2017; Andrà et al., 2022);
- **Japan** (Hwang et al., 2022);
- **New Zealand** (Abbot et al., 2005; Abbot and McKenna, 2005; Tu et al., 2014);
- **The UK** (Downs and Woolrych, 2010; Forrest and McHale, 2012; Barnard et al., 2014; Sharman et al., 2015; Gosschalk et al., 2023);
- and **the US** (Chhabra, 2007; Day et al., 2020; Volberg et al., 2018).

2.3 The international evidence on the link between socio-economic disadvantage and gambling harm is strong and well established

We found strong and consistent evidence from multiple studies across multiple countries that individuals experiencing socio-economic disadvantages (especially relatively low levels of income and assets) are more likely to experience gambling harms than better off groups in society. However, the wide range of measures and definitions of socio-economic disadvantage used across the sample resulted in difficulty in generalising across this body of literature.

Additionally, studies measuring gambling harms used a wide range of measures. Most studies were quantitative studies using screening tools – such as the Problem Gambling Severity Index (PGSI), the National Opinion Research Center DSM Screen for Gambling Problems (NODS), the South Oaks Gambling Screen (SOGS), and the SOGS amended for adolescents (SOGS-RA) – to compare the level of self-reported behaviours between individuals with different socio-economic backgrounds. There is also a lack of longitudinal data that shows how gambling harms evolve over time and the existence of causal links between socio-economic disadvantage and gambling harms. In summary, a lack of longitudinal data means that most of the factors here are again reported as jointly prevalent with harmful gambling through a range of gambling-related measures, but caution should be exercised in claiming causality.

Table 4 therefore demonstrates how socio-economic disadvantage was measured through variables such as education level attained, income, and occupation, in addition to socio-demographic factors such as ethnicity. The intersection between ethnicity, socio-economic disadvantage and gambling harms is explored further in Chapter Three. Additionally, while most studies in Table 4 deployed widely-used screens (such as PGSI or SOGS) as measurements of gambling behaviour across large sample sizes, a small number used alternative measures. This section therefore introduces all the

papers that explored the relationship between socio-economic disadvantage and gambling harms, before focusing in more detail on papers that used alternative methods to measure the co-existence of socio-economic disadvantage and gambling harms.

Table 4: Quantitative studies exploring prevalence of gambling harms or behaviours with socio-economic disadvantage

Authors	Country	Sample	Measure(s) of socio-economic disadvantage	Measure of gambling behaviour or harm	Gambling-specific outcome measured	Summary of findings in relation to socio-economic disadvantage
Abbott and McKenna (2005)	New Zealand	94 female prisoners in New Zealand's three women's prisons.	Socio-demographic questions (study of prison populations).	Revised SOGS	'Pathological gambling'	A third of the women, on the basis of their SOGS-R scores, were assessed as lifetime probable 'pathological gamblers' and just under a quarter were assessed as probable 'pathological gamblers' during the six months prior to imprisonment. Most participants had low household incomes, and the authors conclude that gambling would have led to further financial hardship
Abbott et al. (2005)	New Zealand	357 male prisoners in New Zealand's four male prisons.	Socio-demographic questions (study of prison populations).	Revised SOGS	'Pathological gambling'	Nineteen percent said they had been in prison for a gambling-related offence and most of this offending was property-related and non-violent. On the basis of their SOGS-R scores, 21% were lifetime 'probable pathological gamblers' and 16% were probable 'pathological gamblers' during the six months prior to imprisonment. Participants experiencing 'problem gambling' were linked with a high rate of serious offending, non-European ethnicity, younger age and lower educational/socioeconomic status.

Table 4, cont.: Quantitative studies exploring prevalence of gambling harms or behaviours with socio-economic disadvantage

Authors	Country	Sample	Measure(s) of socio-economic disadvantage	Measure of gambling behaviour or harm	Gambling-specific outcome measured	Summary of findings in relation to socio-economic disadvantage
Andrà et al. (2022)	Italy	704 participants.	Occupation, income, and education.	Gambling Perceived Stigma Scale (GPSS), Gambling Experienced Stigma Scale (GESS), 8-item Attitudes Towards Gambling Scale (ATGS-8), Consumption Screen for Problem Gambling (CSPG)	Gambling stigma (perceived and experienced), attitudes towards gambling, 'problematic gambling'.	Results found that social stigma did not depend on gender, living alone or with someone, being employed, income and education. Employment did not lead to statistically significant differences in gambling, its stigma and attitude towards it, but a lower income was associated with higher percentages of 'problematic gamblers'.
Beckert and Lutter (2013)	Germany	1,508 lottery players.	Education and work patterns.	Demand for lottery tickets (expenditure in Euros, expenditure as percentage of income, and days played per year).	Lottery play	The authors found that, while controlling for cognitive bias theory, peer play, level of education attained and self-perceived social deprivation impacted lottery play amongst participants.

Table 4, cont.: Quantitative studies exploring prevalence of gambling harms or behaviours with socio-economic disadvantage

Authors	Country	Sample	Measure(s) of socio-economic disadvantage	Measure of gambling behaviour or harm	Gambling-specific outcome measured	Summary of findings in relation to socio-economic disadvantage
Callan et al. (2008)	Canada	Two separate studies Study 1: 261 psychology students. Study 2: 101 psychology students.	Personal Relative Deprivation Scale.	PGSI	'Problem gambling'	Across two experiments in closed settings, the authors found that a greater percentage of participants who are 'relatively deprived' (compared to 'not relatively deprived') opted to gamble.
Canale et al. (2017)	Italy	20,791 students aged 15.	Immigrant status and the Family Affluence Scale.[1]	SOGS-RA	'Problem gambling'	The authors found that immigrant status and family characteristics may play a key role in contributing to adolescent 'problem gambling'. Rates of adolescent 'at-risk' or 'problem gambling' were twice as high among first generation immigrants than non-immigrant students. First-generation immigrants were more likely to be 'at-risk' or 'problem gamblers' compared to adolescents of other immigrant generations or non-immigrants. Not living with two biological or adoptive parents appeared to be a factor which increased the risk of 'problem gambling' in first-generation immigrants.

Table 4, cont.: Quantitative studies exploring prevalence of gambling harms or behaviours with socio-economic disadvantage

Authors	Country	Sample	Measure(s) of socio-economic disadvantage	Measure of gambling behaviour or harm	Gambling-specific outcome measured	Summary of findings in relation to socio-economic disadvantage
Castren et al (2013)	Finland	2,826 respondents to a health survey.	Age and gender, marital status, education and employment.	PGSI	'Problem gambling'	Those who were younger, had less than twelve years of education, consumed alcohol at risk level and smoked had higher odds of having low or moderate levels of gambling problems. On the other hand, unemployment and smoking predicted significantly for problem gambling.
Chhabra (2007)	USA	450 participants in Iowa.	Ethnicity, household income, education.	Gambling behaviours	Determinants of gambling behaviours	The results indicate combined influences of marginality and ethnicity on selected dimensions of gambling behaviour, such as travel and spending. Those with lower incomes were more likely to travel to get to the casino, gamble more frequently, and incur higher expenditure on gambling.
Day et al. (2020)	USA	1,346 participants of a prevention study.	Income level.	DSM-IV	'Pathological gambling'	The authors found that income was associated with increased odds of 'gambling disorder', but only for those with low income.

Table 4, cont.: Quantitative studies exploring prevalence of gambling harms or behaviours with socio-economic disadvantage

Authors	Country	Sample	Measure(s) of socio-economic disadvantage	Measure of gambling behaviour or harm	Gambling-specific outcome measured	Summary of findings in relation to socio-economic disadvantage
Forrest and McHale (2012)	Great Britain	8,958 children aged 11-15	Class measured by two proxies. Deprivation expected to be correlated with lack of household access to car, with working class cultural background correlated with household readership of 'tabloid' newspapers.	DSM-IV-MR-J (adaptation of DSM-IV for use with children).	'Problem gambling'	The authors found that class had a 'weak at best' relationship with adolescent gambling behaviour.
Gosschalk et al. (2023)*	Great Britain	18,305 adults	NRS Social Grade categorisation	PGSI	'Problem gambling'	The authors found that those within the C2DE group – with manual jobs - were marginally more likely to report some level of risk on the PGSI scale (i.e. showed some risk of gambling harm) compared to those in white collar jobs (ABC1 group). There was no significant change in reporting 'problem gambling' for either group.

Table 4, cont.: Quantitative studies exploring prevalence of gambling harms or behaviours with socio-economic disadvantage

Authors	Country	Sample	Measure(s) of socio-economic disadvantage	Measure of gambling behaviour or harm	Gambling-specific outcome measured	Summary of findings in relation to socio-economic disadvantage
Hing et al. (2017)	Australia	4,594 people who gambled.	Education, income, work status, country of birth, main language spoken at home.	PGSI	'Problem gambling'	The authors found risk factors for EGM gambling, online sports betting, and online race betting. Lower income was found as a specific risk factor for online sports betting.
Koomson et al. (2022)	Australia	46,564 participants from two waves of a panel survey.	Financial stress, financial resilience.	PGSI	'Problem gambling'	The authors found that 'problem gambling' severity was positively associated with self-reported financial stress, largely driven by gambling activities involving scratch cards and poker machines.
Lyk-Jensen (2010)	Denmark	4,932 people who currently gambled	Age, marital status, country of birth, children living at home, income, education level.	PGSI	'Problem gambling'	The author found that 'at-risk gambling' was more prevalent for men, young-to-middle-aged people, and immigrants. 'At-risk gamblers' were more likely to have low income, low education, and no children living at home.

Table 4, cont.: Quantitative studies exploring prevalence of gambling harms or behaviours with socio-economic disadvantage

Authors	Country	Sample	Measure(s) of socio-economic disadvantage	Measure of gambling behaviour or harm	Gambling-specific outcome measured	Summary of findings in relation to socio-economic disadvantage
Olasson et al. (2015)	Iceland	8,249 participants from three national prevalence surveys.	Financial difficulties and standard of living.	PGSI	'Problem gambling'	The authors studied the effects of economic recessions on gambling participation and 'problem gambling', through the results of three national prevalence studies conducted before and after the economic collapse in Iceland. There was an increase in past year gambling participation which extended across most gambling types. Past year prevalence of 'problematic gambling' increased although this was probably due to increases in online gambling among young men. Those who experienced financial difficulties due to the economic recession were 52% more likely to have bought a lottery ticket during the recession.
Tu et al. (2014)	New Zealand	6,020 respondents to three waves of a Health and Lifestyles Survey.	Neighbourhood deprivation, household income.	Questions related to harm	Gambling harms	The authors found that, although overall gambling participation had dropped, the experience of gambling harm at the household level was significantly higher in 2012 compared with 2008 and 2010. The increase in harm was experienced disproportionately by those in more deprived areas, who were 4.5 times as likely to experience gambling-related arguments or money problems.

Table 4, cont.: Quantitative studies exploring prevalence of gambling harms or behaviours with socio-economic disadvantage

Authors	Country	Sample	Measure(s) of socio-economic disadvantage	Measure of gambling behaviour or harm	Gambling-specific outcome measured	Summary of findings in relation to socio-economic disadvantage
Tulloch et al. (2023)	Australia	13,698 respondents to a panel survey.	Age, gender, marital status, education, employment, household income and debt	PGSI	'Problem gambling'	Through a secondary analysis of the nationally-representative Household Income and Labour Dynamics in Australia Survey (HILDA), the authors found that participants living in problem-gambling households reported less satisfaction with their financial situation.
Van der Maas (2016a)	Canada	28,271 respondents to a Community Health Survey.	Household income, highest educational attainment.	PGSI	'Problem gambling'	The author explores gambling-related problems among a representative sample of Canadian adults using the 2008 Canadian Community Health Survey. Analysis found that participants with greater socio-economic resources experience fewer problems as a result of their gambling participation.
Volberg et al. (2018)	California, USA	7,121 adults aged 18 and over.	Employment and finances, crime, physical and mental health, and demographics.	NODS	'Problem gambling'	The authors found that male gender and less formal education remained important risk factors for problem gambling. However, age, minority ethnic status and low income were not risk factors for problem gambling among participants.

[1]The Family Affluence Scale is a measure for assessing familial wealth with questions asking: number of family holidays over the past 12 months, number of household cars, number of home computers, and the number of bedrooms to family members..
*Studies uncovered as part of grey literature search.

Chhabra (2007) measured the impact of marginality and ethnicity on frequency of gambling participation, wagered amounts lost, distance travelled to participants' most frequented casino, expenditure incurred on the gambling sector, and total spending on the gambling trip. The author explored these in their study of different casino gambling behaviours of White and Black residents in the US state of Iowa. Additionally, marginality is defined in Chhabra's study as "limitations on participation due to income or limited access to transportation" (West, 1989, p. 16). The study operationalised this definition through variables related to income (more or less than US$30,000) and education. Gambling behaviour was measured by gambling frequency, money lost, distance travelled to the casino, and the total spent per trip. Analysis of data from 450 completed questionnaires by Iowan residents showed that participants who reported themselves in the marginal income group (i.e. income of US$30,000 or less, who made up 31% of the sample) were more likely to travel to get to the casino, gamble more frequently, and incur higher expenditure on gambling. Chhabra's (2007) study nonetheless represents an example of how alternative measures can be used to measure gambling harms and socio-economic disadvantage, with the latter represented through the lack of income associated with 'marginality'. The impact of ethnicity upon gambling behaviours within Chhabra's (2007) study is explored in Chapter Three.

One study conducted in Italy explored social (perceived) and self-perceived (experienced) stigma amongst 700 people aged 18 and over who were interviewed on the streets in a district of Turin which is characterised by a "high level of social hardship, cultural and economic poverty" (Andrà et al., 2022, p. 341). Participants were categorised as either 'problematic gamblers' or 'non-gamblers', with the study exploring the differences in stigma between the two groups. Stigma at a societal level was measured by the administration of the Gambling Perceived Stigma Scale (GPSS), while the stigma experienced by participants was measured by the Gambling Experienced Stigma Scale (GESS). Participants were also screened through an eight-item Attitudes Towards Gambling Scale (8-ATGS) to explore attitudes towards gambling, and the Consumption Screening for Problem Gambling (CSPG) to establish the prevalence of gambling behaviour. Three hundred and seventy-one participants (51.4% of the sample) had an annual income of up to €15,000, 7.8% of whom were 'problematic gamblers', compared to 4.56% of those with an income of above €15,000. There were, however, no significant differences between perceived stigma (GPSS) and gambling attitudes (8-ATGS scores). The study concluded that 'problematic gambling' behaviour was more frequent for individuals on a lower income, but stigma and attitude were not influenced by income. Notably, the study found a significant difference between the groups in relation to societal stigma (GPSS), with 'problematic gamblers' perceiving lower social stigma and more positive attitude towards gambling (8-ATGS) than 'non-problematic gamblers'. Among the group of respondents classified as 'problematic gamblers', the study found that the more social stigma individuals reported, the more the self-perceived stigma they felt. Tu et al. (2014) employed a different approach towards household experiences of gambling harms in New Zealand. They explored

harms through the comparison of nationally representative datasets derived from Health and Lifestyle Surveys (HLS) with New Zealanders aged 15 and older, carried out in 2008, 2010 and 2012. Surveys measured gambling participation, attitudes and knowledge about gambling harms, at individual and household levels. Harm was measured through two questions relating to relationship and financial harm respectively:

1. Whether there had been some argument about time or money spent on betting or gambling in their wider family or household, whether or not they were part of the argument.
2. Whether someone in their wider family or household had to go without something they needed, or bills weren't paid, because too much was spent on gambling by another person" (Tu et al., 2014, p. 334).

Data from the three surveys were used to correlate the prevalence of arguments or unpaid bills with socio-economic variables such as household income and neighbourhood deprivation level. Despite gambling participating dropping overall across all levels of socio-economic deprivation between 2008 and 2012, the authors note that this overall decrease was specifically in the proportion of people who participate in gambling in an occasional way. Additionally, households categorised as generating 'low' incomes experienced almost twice the level of harms between 2008 (7.8%) and 2012 (14.2%), which was the biggest increase compared to medium (6.4% to 10.2%) and high (4.4% to 7.4%) income households. Additionally, increases in gambling harm were disproportionately experienced by those in more deprived areas, who were 4.5 times as likely to experience gambling-related arguments or money problems. Among those living in the most deprived neighbourhoods, harms also doubled over that period (from 10.8% in 2008 to 19.6% in 2012), while they *decreased* amongst the least deprived neighbourhoods (from 3.4% to 2.4%). However, the authors acknowledged that the direction of causality for observed associations is uncertain in cross-sectional data such as the HLS, and so they could not say for sure whether this increase in harm related to higher levels of harmful gambling in those areas, more strain on household finances, or emotional resilience.

One UK-based study – while using PGSI or DSM-IV screens to measure for gambling behaviours - used the term "class" to explicate socio-economic differences. Whilst an arguably subjective term, class relates to socio-economic disadvantage through its classification on a person's wealth relative to others (Kraus et al., 2012). Forrest and McHale's (2012) study of 8,958 of British children aged between 11 and 15 found that there was no very strong class-based dimension to adolescent gambling, measured according to a version of the DSM-IV screen amended for use with children. However, the authors acknowledged that their definition of class was limited by dealing with the ethical implications of asking children for their parents' socio-economic background. They developed a class categorisation using assumptions such as that if "no one in the child's household had use of a car" (p. 611), then this would correlate with deprivation, or that "'tabloid' newspapers were read in the home" (p. 611) was expected to be correlated with a "working class cultural background" (p. 611). The link between a class-based analysis and the

prevalence of gambling harms was therefore constrained by a narrow definition of class.

Gosschalk et al.'s (2023) study included a quantitative survey of 18,305 adults in Great Britain which as part of its scope included the analysis of gambling behaviours by NRS social grade. This social grade relates to socio-economic disadvantage by broadly categorising participants through their employment, whether through "white collar" (ABC1) or broadly "manual" occupations (C2DE) (Gosschalk et al., 2023, p. 16). The authors found that those within the C2DE group (14.6%) were marginally more likely to report a score of 1+ on the PGSI scale (i.e. showed some risk of gambling harm) compared to those in the ABC1 group (12.3%). However, the authors also found there was no statistically significant change from previous years in the numbers from each group reporting themselves as a 'problem gambler', with 2.8% from the ABC1 group reporting a PGSI score of 8+ in 2022, compared to 2.9% from the C2DE group. Relatedly, Beckert and Lutter (2013) explored why those with the least resources play the lottery in Germany. Lottery play was measured through total expenditure (in euros), expenditure as a percentage of income, and days played per year. Analysis of data from 1,508 lottery players aged 18 and over showed that the biggest spenders on the lottery within the lowest quartile of incomes spent a larger proportion of their income compared to the heaviest spenders within other quartiles. Indeed, the heaviest spenders within the lowest quartile of income spent 6.73% of their monthly income on the lottery, compared to an average of 3.24% of the heaviest spenders across the entire sample. Regression analysis found that those with the lowest incomes and the lowest levels of education were all most likely to spend more on lotteries. Whilst the authors highlight the higher proportionality of spend among those on lower incomes, they do not consider whether this may lead to harms.

The authors also produced hypotheses which might explain correlations between education levels and monotony of life and work which are associated with social class, and lottery spending behaviours. Model-based analyses confirmed that lower levels of education, monotony of daily life, or belief in luck or fate could influence spending. Analyses also confirmed that the social networks of players (in the form of peer play or syndicate play) also strongly affected lottery expenditure, when combined with other variables reflecting socio-economic status. The authors therefore concluded that social class differences in gambling can be explained by the social networks of those who gamble, particularly where social networks mainly or wholly comprise individuals who are experiencing socio-economic disadvantage.

2.4 Qualitative research: seeking to understand why and how

Other studies which explored the intersection of gambling harms and socio-economic disadvantages found a deeper understanding through qualitative approaches. Downs and Woolrych's (2010) UK-based study conducted 18 semi-structured interviews with individuals with lived experience of gambling harms, in addition to two regional focus groups with counsellors, debt

advisors, industry representatives and healthcare professionals. Interviews revealed how gambling can occur cyclically, with debt experienced by families incurred through gambling initiated to clear debt. As one participant recalled, “Whilst you have still got debts it is easy to think that you can gamble to clear it off” (Downs and Woolrych, 2010, p. 320).

This accords with the conclusions of Barnard et al.’s (2014) study, which was conducted with 27 people who gambled - and were aged between 16 and 64 - in the UK to explore reasons for harmful gambling. Their study identified the credit environment as a factor that influenced people’s financial decisions related to gambling, where shortages of funds led to borrowing from high-cost lenders or family for further gambling. As one male aged 16-24 recalled, “I sort of think, ‘Oh, I fancy a bet on that… if I just borrow like some money off Wonga for a few days’, and then and then, like I say, it’s in my account within fifteen minutes” (Barnard et al., 2014, p. 91). These examples represented a clear relationship between socio-economic disadvantages and gambling harms, with participants experiencing deprivation and low or no wealth feeling compelled to gamble to improve their circumstances or else using costly payday loans to pay for gambling when they ran out of funds. The consequences, however, resulted in further debt.

A large qualitative study of 229 Indigenous Australians aged 18 and over, and 79 non-Indigenous gambling help counsellors and other stakeholders found that crime and financial hardship experienced by Indigenous Australians was exacerbated by gambling initiated in response to having low levels or no wealth; “if you have no money, if family has no money… desperation leads to some crime” (Breen et al., 2013a, p. 7).

Crime and economic harms experienced through gambling also intersected with negative outcomes related to violence which impacted friends and families. “Violence is huge because of gambling … if one person’s got a problem, then obviously that person’s trying to hide that problem from the other partner, then that leads from one thing to another ... verbal and physical abuse” (Breen et al., 2013a, p. 9). The authors, as a result of their findings, encourage the provision of services which can provide support for those seeking help in a “culturally sympathetic manner” (Breen et al., 2013a, p. 10).

In summary, the qualitative research explored here gives us greater insight into some of the complexities of the relationship between socio-economic disadvantage and gambling harms, with a deeper understanding of how the two are linked than is provided by cross-sectional studies.

2.5 There are links between homelessness and harmful gambling

While the above literature highlights the different ways in which socio-economic disadvantage can co-exist with gambling harms and the variety of methods through which both can be measured, an important area explored within our sample of literature was the prevalence of gambling behaviours

amongst those experiencing homelessness. Homelessness relates to socio-economic disadvantage due to the lack of wealth, resources, and accommodation. As Sharman et al. (2015) highlight, ascertaining levels of homelessness is difficult due to the "transient" (p. 525) nature of the homeless population, whilst those experiencing homelessness may also wish to remain anonymous. Crisis (2023) highlights four different types of homelessness: rough sleeping; statutory homelessness defined as a lack of a "secure place in which you are entitled to live or not reasonably be able to stay"; hidden homelessness defined as including people "who are not entitled to help with housing, or who don't even approach their councils for help"; and at risk of homelessness, defined as people at more risk of being pushed into homelessness through low paid jobs, living in poverty, or insecure housing.

The specific relationship between homelessness and gambling behaviour was explored by three studies within the sample, all of which found that the prevalence of 'problem gambling' behaviours was higher within homeless populations in comparison to wider society. All three studies explored prevalence within populations who were using homeless shelter services. One study of 264 clients (aged between 22 and 77) of a community homeless service agency in Canada found that 10% of participants experienced lifetime harmful gambling behaviours, whilst 25% reported as experiencing 'pathological gambling' according to the NORC Diagnostic Screen for Disorders (NODS) (Matheson et al., 2014). This high level of 'pathological gambling' was compared to a general population level of between 1.60% and 3.85% of lifetime 'pathological gambling' in the USA and Canada respectively. This discrepancy shows that population-level prevalence surveys may exclude those experiencing homelessness at the same time as 'problem gambling' behaviours. The significant difference in reported 'problem gambling' behaviours was also found in England by Sharman et al. (2015). Their study of 456 individuals attending homelessness services in London found that the rate of 'problem gambling' within the sample was 11.6%, substantially higher than the wider British population – reported by the authors as 0.7% when screened against the PGSI.

A separate study of 103 homeless men aged 26-83 in Japan also found that gambling disorder – when diagnosed according to South Oaks Gambling Screen (SOGS) - was more prevalent in the homeless population than in the general population, and that 43.7% reported having experienced a potential gambling disorder in their lifetime (Hwang et al., 2022). Additionally, 69.1% of participants who had gambled in their lifetime gambled the most *before* their first homelessness incident, while 15.5% gambled the most *after* their first homelessness incident. Whilst research into the links between homelessness and gambling behaviour may *imply* causality between homelessness as a socio-economic disadvantage and gambling harms, the above papers only explore the prevalence of 'problem' or 'pathological gambling' amongst people already experiencing homelessness. Causality between gambling and homelessness is therefore unclear due to the studies' cross-sectional designs.

2.6 Conclusion

The evidence base highlighting the joint prevalence of socio-economic disadvantage and gambling harms or harmful gambling behaviours is well established across the world. However, there is a lack of standardised measurement for socio-economic disadvantage, and this literature makes use of cross-sectional data therefore lacking any analysis on causation. Gambling harms can also be measured in different ways such as through screens (for example, the PGSI or SOGS), or through variables related to aspects such as gambling spend. Studies which have explored the chain of events between socio-economic disadvantages and gambling harms have consisted of model-based methodologies, highlighting how the risk of gambling harms or detrimental outcomes are linked to specific places and their particular characteristics, or through qualitative studies exploring how wider economic contexts can exacerbate harms. The sample of literature also highlights the heightened prevalence of 'problem gambling' behaviours amongst those experiencing homelessness, compared to the general population.

3 The intersection between gambling harms and minority ethnic groups

Chapter Summary

- Our scoping review contains 27 academic papers and three pieces of grey literature that consider the relationships between gambling harms and ethnicity.
- Most of these items are quantitative papers which measure the prevalence of harmful gambling behaviours. There were 14 academic papers that specifically explored the intersection between ethnicity, gambling harms, social inequalities, and socio-economic disadvantages.
- The evidence indicates that harmful gambling disproportionately impacts many different minority ethnic groups across jurisdictions. There is also some evidence that higher rates of harm among minority ethnic groups are linked to social inequality (access to services) and socio-economic disadvantage (low levels of wealth or resources).
- Studies which benefit from qualitative data collected from those with lived experience or other stakeholders demonstrate how minority ethnic groups may experience simultaneous socio-economic disadvantages and gambling harms.
- Gambling harms experienced within minority ethnic groups can be wide-ranging, with evidence highlighting cultural, emotional, and financial harms. These harms can be exacerbated by stigma, with barriers preventing access to support and treatment.

3.1 Introduction

The single most prevalent theme within our sample of academic literature (N = 97) was the disproportionate impact of harmful gambling within minority ethnic groups. We have thus devoted a chapter to consider this literature. Across a wide variety of minority ethnic groups in multiple jurisdictions, there was evidence of above-average levels of harmful gambling in comparison to the general population. Building on the previous chapter on socio-economic disadvantage and gambling harms, in this chapter we explore the links between ethnicity and gambling harms, including studies that have considered the intersection with social inequalities and socio-economic disadvantage.

The chapter therefore explores intersectionality, defined as when “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. 14). In this sense, social inequalities and socio-economic disadvantages may come together to exacerbate gambling harms within minority ethnic groups

The chapter begins by describing the evidence base, before secondly highlighting the different minority ethnic groups explored within our sample of literature. Thirdly, the chapter considers the qualitative evidence about why and how gambling harms are disproportionately experienced by minority ethnic groups. Finally, the chapter explores the different harms experienced by minority ethnic groups reported in our sample of literature.

3.2 About the evidence base

Our scoping review contains 27 academic papers and three pieces of grey literature that consider minority ethnic experiences of harmful gambling and gambling harms. These papers are introduced together in Table 5, given their shared focus on the impact of gambling on minority ethnic groups. Most of this literature comprised quantitative studies made up of cross-sectional surveys. Sample sizes ranged from several hundred participants within specific student populations, to several thousand respondents to healthcare or prevalence surveys, who were asked to self-report gambling behaviours according to standard screening tools. Whilst these studies make an important contribution to knowledge, cross-sectional data do not shed any light on causality. In-depth qualitative studies within our sample of literature – which by design have smaller sample sizes - allowed a deeper understanding of how gambling harms were exacerbated within minority ethnic communities and incorporated insights from a wide range of stakeholders such as those with lived experience and service providers.

Table 5: Framing of gambling harms within minority ethnic groups

Author (Year)	Country	Sample size and composition	Minority ethnicity and type of gambling harm	Framing of minority ethnicity in relation to socio-economic disadvantage or social inequality	Gambling screen or measure used
Beckert and Lutter (2013)	Germany	1,508 lottery players.	Lottery play by minority ethnic groups emerging from survey data on lottery play by lower socio-economic groups	None. Ethnicity identified as major predictor of lottery spending.	Demand for lottery tickets. (expenditure in Euros, expenditure as percentage of income, and days played per year).
Bramley et al. (2020)	UK	32 participants (mixture of migrants and support charities) from London and Leeds.	Accessibility of gambling support services by migrants. Themes highlighted stigma, accessibility of gambling, limited awareness of support, and calls for introduction of screening and awareness.	Migrants may face a range of disadvantages and/or inequalities, such as lack of "suitable accommodation and employment, lack of proficiency in English language, accessing services and experiencing social isolation" (p. 23).	Qualitative.
Breen et al. (2013a)	Australia	228 Indigenous Australians and 79 non-Indigenous gambling help counsellors.	Overlap between gambling, crime and Indigenous Australians in Queensland and New South Wales, with harms framed according to Australia's colonial history.	Indigenous participants highlighted "structural inequalities" (p. 11) within outcomes such as unemployment and income.	No screen, qualitative study.
Breen et al. (2013b)	Australia	13 Aboriginal community leaders.	Cultural impacts of gambling upon Aboriginal communities across New South Wales.	Aboriginal people are identified as "vulnerable in terms of disproportionate levels of community health, social, economic, and environmental disadvantage" (p. 2).	No screen, qualitative study.

Table 5, cont.: Framing of gambling harms within minority ethnic groups

Author (Year)	Country	Sample size and composition	Minority ethnicity and type of gambling harm	Framing of minority ethnicity in relation to socio-economic disadvantage or social inequality	Gambling screen or measure used
Canale et al. (2017)	Italy	20,791 students aged 15.	Link between immigration status and adolescent (including at-risk or 'problem') gambling.	According to the authors, migrants are characterised by "low socio-economic status" with access to "unskilled and semi-skilled manual jobs" (p. 126).	SOGS-RA.
Chan et al. (2015)	USA	813 college students.	Differences in prevalence of 'problem' gambling between White American and Asian-American college students.	Authors explore difference in gambling behaviours through the lens of "ethnic disparities" (p. 34).	Initiation in gambling. SOGS-RA. Personal gambling expectancies.
Chhabra (2007)	USA	450 participants in Iowa.	Ethnicity dynamics in gambling behaviour.	Ethnicity related to marginality through income level and education attained.	Survey on gambling behaviours.
Chui (2008)	Australia	Two Vietnamese women with gambling problems, and two case workers.	Harmful gambling and stigma experienced by Vietnamese women.	Participants experienced poorer social skills through isolation following arrival as migrants.	None. Case studies of two women experiencing harmful gambling.

Table 5, cont.: Framing of gambling harms within minority ethnic groups

Author (Year)	Country	Sample size and composition	Minority ethnicity and type of gambling harm	Framing of minority ethnicity in relation to socio-economic disadvantage or social inequality	Gambling screen or measure used
Cookman and Weatherly (2016)	USA	315 adults.	Differences in 'problem gambling' of Caucasian and non-Caucasian adults who gamble as an escape.	None.	SOGS. PGSI.
Day et al. (2020)	USA	1,346 participants of a prevention study.	Exploration of gambling disorder according to race or ethnicity, through data obtained within a gambling addiction study.	Ethnicity is cross-analysed with income levels as part of the study's analysis.	DSM-V.
Hing et al. (2014a)	Australia	1,259 Indigenous Australian adults.	Risk factors which may exacerbate 'problem gambling' amongst Indigenous Australians.	Authors highlight "historical controls" which restrict housing options for Indigenous populations to reserves and missions away from urban areas. They also highlight "Cyclical effects of high unemployment and poverty" which contribute to poor mental health and poverty (p. 388).	PGSI.
Hing et al. (2014b)	Australia	1,259 Indigenous Australian adults.	Exploration of gambling harms amongst Indigenous Australians. Most prevalent harms include betting more than can be afforded, feeling guilt and regret about losses, and chasing losses.	None.	PGSI.

Table 5, cont.: Framing of gambling harms within minority ethnic groups

Author (Year)	Country	Sample size and composition	Minority ethnicity and type of gambling harm	Framing of minority ethnicity in relation to socio-economic disadvantage or social inequality	Gambling screen or measure used
Hing et al. (2017)	Australia	4,594 people who gambled.	Immigrant status identified as a risk factor for EGM-based and online gambling.	None.	PGSI.
Hing et al. (2022a)	Australia	15,000 respondents to national telephone survey.	Aboriginal or Torres Strait Islander 'gamblers' identified as being more likely to be 'mixed-mode 'gamblers', which in turn reported higher prevalence of 'problem gambling' compared to 'land-based only' and 'online only gamblers', through quantitative survey	None.	PGSI. Short Gambling Harm Screen (SGHS).
Kolandai-Matchett et al. (2017)	New Zealand	34 health professionals	Gambling harms occurring amongst Pacific people within cultural contexts.	Intersectionality-based lens applied to Pacific people in New Zealand to explore the disproportionate impact of gambling harms and Pacific culture. Focus of the lens was based on *culture*, not on socio-economic disadvantages.	Qualitative.
Lyk-Jensen (2010)	Denmark	4,932 people who currently gambled	Prevalence of 'at-risk gamblers' established from nationwide survey. Men who were immigrants identified as at-risk of harms.	None.	PGSI.

Table 5, cont.: Framing of gambling harms within minority ethnic groups

Author (Year)	Country	Sample size and composition	Minority ethnicity and type of gambling harm	Framing of minority ethnicity in relation to socio-economic disadvantage or social inequality	Gambling screen or measure used
Moss et al. (2023)*	Great Britain	2,999 adults	Study aims to explore the role of structural racism and inequalities in ethnic differences in gambling harms, understand more about the impact of stigma on gambling behaviours amongst Minority groups, and investigate barriers to access for gambling support. Minority ethnicity defined as belonging to an ethnic or religious minority group and not having English as one's primary language.	Index of Multiple Deprivation	PGSI, gambling-related harms.
Oei et al (2008)	Australia	501 participants (306 Caucasian and 195 Chinese).	Differences between cognition and psychological states between White and Chinese citizens.	None.	SOGS. Gambling Related Cognitions Scale (GRCS).
Office for Health Improvement & Disparities (2023)*	England	Combined and weighted dataset from the previous four years of the Health Survey for England.	Comparison of participation in gambling in England, according to ethnicity.	None. Analysis of ethnicity and IMD conducted separately	PGSI, DSM-IV.

Table 5, cont.: Framing of gambling harms within minority ethnic groups

Author (Year)	Country	Sample size and composition	Minority ethnicity and type of gambling harm	Framing of minority ethnicity in relation to socio-economic disadvantage or social inequality	Gambling screen or measure used
Patterson et al. (2015)	USA	415 Native American adults aged 18 and over.	Exploration of 'problem' gambling and alcohol abuse among Native Americans. 'Problem' gambling more prevalent across Native Americans.	Ethnicity and income cross-analysed during study analyses.	Diagnostic Interview Schedule (DIS-IV). SOGS-R. CPGI.
Rinker et al. (2016)	USA	3,058 undergraduate students.	Examination of ethnic differences in 'problem' gambling amongst university students.	None.	SOGS.
Volberg et al. (2018)	USA	7,121 adults aged 18 and over.	Exploration of risk factors for 'problem' and 'pathological gambling' in California identifies participants from Asia as being more likely to report 'problem' or 'pathological gambling'.	None.	NODS.
Walker et al. (2012)	New Zealand	1,774 adults and 199 15-17 year olds.	Disparity of gambling harms felt by Maori and Pacific citizens, and low-income groups.	Analyses on ethnicity and gambling harms combined with analysis on deprivation index.	GBAS.

Table 5, cont.: Framing of gambling harms within minority ethnic groups

Author (Year)	Country	Sample size and composition	Minority ethnicity and type of gambling harm	Framing of minority ethnicity in relation to socio-economic disadvantage or social inequality	Gambling screen or measure used
Williams et al. (2021)	Canada	23,592 individuals aged 18 and older.	Indigenous people most identified as being more likely to be experiencing 'problem' gambling through data taken from community health survey	None.	PGSI.
Williams et al. (2022)	Canada	23,952 adult participants in a Community Health survey, and an online panel of 10,199 gamblers.	Exploration of Indigenous and non-Indigenous gambling. Indigenous participants were found more likely to be 'at-risk' or 'problem gamblers'.	Highlights the cultural aspect of Indigenous gambling which has become largely "westernized" through European colonialism (p. 68). Main focus is cultural.	PGSI.
Wong and Hu (2020)	USA	653 undergraduate students.	Exploration of gambling activity and risk for gambling problems amongst Chinese- and Vietnamese-American university students.	Authors "hypothesized that exposure of the Chinese and Vietnamese students to combined social stressors related to their immigrant background and racial-ethnic minority status put them at greater risk for risky gambling behavior or problems compared to white students in the same age group" (p. 14).	Canadian Adolescent Gambling Inventory (CAGI).

Table 5, cont.: Framing of gambling harms within minority ethnic groups

Author (Year)	Country	Sample size and composition	Minority ethnicity and type of gambling harm	Framing of minority ethnicity in relation to socio-economic disadvantage or social inequality	Gambling screen or measure used
Young et al. (2013)	Australia	36 individuals.	Impact of casino on marginalised Aboriginal community in Central Australia, highlighting the intersection between gambling, technological advances and racialised regulation.	Aboriginal people are highlighted by the authors as "little involved in economic activity in ways which are visible to the state" (p. 192).	Qualitative.
Zheng et al. (2010)	Australia	469 Chinese-Australians located in Sydney.	Prevalence of 'problem gambling' amongst Chinese Mahjong players, and associated cultural and psychological factors.	None.	CPGI.
*Studies found as part of grey literature search					

3.3 Gambling harms disproportionately impact many minority ethnic groups

This section introduces the literature on the lived experience of gambling harms for minority ethnic groups. Like the sample of papers which explored the relationship between gambling and broader socio-economic disadvantages, the majority of papers explored the prevalence of gambling behaviours within certain minority ethnic groups, with analysed data derived from nationally representative surveys.

Much of the research explored differences in PGSI score between the general population and minority ethnic groups in relation to socio-economic disadvantage. Within Great Britain, 21% of minority ethnic participants within Gunstone and Gosschalk's (2019) study reported some level of risky gambling behaviour (a score of 1+ on the PGSI), compared to White participants where only 12% reported any level of risk at all. Additionally, 7% of minority ethnic participants were classified as 'problem gamblers' (a score of 8+ on the PGSI), compared to only 2% of White participants. Interestingly, their study found that minority ethnic participants from C2DE social grades were not significantly more likely to be classified as experiencing some level of gambling harm (PGSI 1+) than those in ABC1 social grades (21% vs. 19%). On the other hand, there was a significant difference in white adults where 14% of C2DE compared with 11% of ABC1 demonstrated any level of risk. However, the authors acknowledge that the smaller sample size from ethnic minority groups affected the statistical significance.

More recently, Moss et al.'s (2023) study of 2,999 adults in Great Britain found that minority ethnic participants (15%) were more likely to be high risk (score of 8+) on the PGSI than White British majority participants (4%). Their study also found that the link between deprivation, socio-economic status and gambling harms may result in social inequality, specifically influencing engagement with support services. Although not statistically significant, the authors underline how participants from minority ethnic groups living in the most deprived areas (according to IMD) appear less likely (49%) than those in the least deprived areas (64%) to say they would feel comfortable seeking support for gambling. Additionally, participants who had moved to the UK in the previous five years were less likely (30%) to feel comfortable seeking support compared to those born in the UK (60%).

The links between ethnicity and 'problem gambling' (DSM-IV or PGSI) in England was also explored by the Office for Health Improvement and Disparities (2023). Data from previous iterations of the Health Survey for England found that 'problem gambling' was greater in the Asian and Asian British (1.1%) ethnic group compared to the White and White British group (0.5%). The report also highlighted how members of the Asian and Asian British group are less likely to participate in gambling than the White and White British group, but that those who do are more likely to experience harmful gambling.

The intersectionality between ethnicity, socio-economic disadvantage and gambling severity was explored within Canale et al.'s (2017) study of immigrant and non-immigrant adolescents in Italy. Their survey of 20,791 students aged 15 measured the prevalence of gambling behaviours according to SOGS revised for adolescents, immigrant status, perceived family support, and socio-economic status. Socio-economic status was measured using a family affluence scale consisting of the number of family holidays over the past 12 months, the number of household cars, the number of home computers in the house, and whether participants had a bedroom of their own. First generation immigrants (10.6%) and second-generation immigrants (6.5%) reported a higher level of 'problem gambling' than native Italians (5.5%). The prevalence of at risk and 'problem gambling' was higher amongst males than females in all groups: 16.3% compared to 5.2% in the first-generation immigrant group; 11.4% compared to 2% in the second-generation immigrant group and 9.3% compared to 1.6% in the native Italians group. First generation immigrants (27.9%) were also more likely to report low family affluence compared to second generation immigrants (22.8%) and native Italians (21.2%). Multilevel regressions revealed a positive association between being a first-generation immigrant and adolescent 'problem gambling' behaviours, whilst adolescents with lower family affluence – regardless of whether they were a migrant or native - were more likely than those with medium-high affluence to experience 'problem gambling'.

Wong and Hu (2020) meanwhile explored the gambling behaviour of Chinese and Vietnamese college students in the USA. The authors hypothesised that social stressors were related to their immigrant background and minority ethnic status. The gambling behaviour of 653 students aged 18 or older from a university in the northeastern US was measured through an online survey which contained the Canadian Adolescent Gambling Inventory (CAGI). In terms of socio-economic status, a higher proportion of Chinese (40.2%) and Vietnamese (48%) students self-reported a parental household income of less than US$25,000 compared to White students (12%). Regarding 'problem gambling', 14.9% of Chinese students and 8.2% of Vietnamese students reported a high severity of 'problem gambling' according to CAGI, compared to 2.7% of White students. It is also worth noting that Latino (18.2%), 'Other Asian' (4.6%), Black (15.7%), and 'All Others' (7.2%) (Wong and Hu, 2020, p. 23) all also reported a higher prevalence of 'problem gambling' compared to White Students. However, a bivariate analysis of the relationship between gambling, income and ethnicity found that only ethnicity remained statistically significant for Chinese students, whilst income became insignificant. The authors also acknowledge that larger studies with bigger subgroups of minority ethnic groups would enable a more detailed understanding of harmful gambling.

A study carried out in New Zealand (Walker et al. 2012) measured knowledge of gambling harms through three questions included in a Gaming and Betting Activities Survey. The authors highlighted the differences in the knowledge and experience of gambling harms by ethnicity and deprivation as measured on an index formed of variables taken from a previous census. A total of 1,744 adults and 199 young people were surveyed, with oversampling of Maori

participants. Pacific (10.4%) and Maori (8.4%) individuals were more likely to gamble frequently and continuously compared to Asian (1.6%) or 'Euro/other' (3.3%) individuals. These differences were statistically significant. Furthermore, although they were more likely to be able to describe the signs that an individual is gambling to a harmful level, Pacific (51.8%), Maori (54.5%) and Asian (53.4%) individuals were less likely to be able to think of consequences of gambling for the wider community compared to 'Euro/other' (63.8%) participants. There was no statistically significant difference recorded across deprivation index. The authors conclude that the greater gambling participation rates for Asian and Pacific individuals "reflect the different ways different cultural groups participate in gambling" (Walker et al., 2012, p. 158).

A study in the USA explored awareness, attitudes and perceived impact of gambling behaviours among Asian Pacific Islanders (APIs). They hypothesised that gambling may be attractive to APIs who suffered financial inequalities compared to US citizens (Fong et al., 2010). The study deployed questionnaires – completed in-person by 263 API and non-API individuals at a community event – with questions measuring knowledge of gambling and its impact. Analyses found no significant ethnic differences in the knowledge of harmful gambling behaviour or its impact on communities. However, the authors still argue that educational campaigns tailored towards APIs are important, not only to raise awareness regarding the signs of 'problem gambling' and the harms that can arise from 'problem gambling' behaviour, but also because the casino industry was highlighted by the authors as marketing heavily towards the API group.

Also in the USA, Patterson et al. (2015) explored the patterns of gambling behaviour and alcohol abuse amongst Native Americans using two different survey datasets. They found that past-year gambling prevalence rates for Native Americans and non-Native Americans were very similar. However, the prevalence of 'problem gambling' behaviours within the sample of 415 Native American adults was 18%, over double the prevalence in the US sample (8%), when screened by the Diagnostic Interview Schedule (DIS-IV), the revised SOGS, and the CPGI. Importantly, regression analysis found that the increased likelihood of 'problem gambling' behaviour was associated with lower socio-economic status, and identification as a Native American or participation within Native American activities. However, the sample of 415 Native American adults was significantly smaller than the US "not Native Americans" (Patterson et al., 2015, p. 1395) sample of 2,925 people. The authors acknowledged that the relatively small sample size of Native American participants renders their findings non-generalisable.

In Canada, Williams et al.'s (2022) study of 23,952 adults surveyed through the Canadian Community Health Survey (CCHS) found a higher prevalence of 'problem gambling' (according to the PGSI) amongst Indigenous participants (2%) compared to non-Indigenous participants (0.5%). However, Indigenous participants (15.1%) were more likely to gamble to socialise than non-Indigenous participants (8.3%). Multivariate analysis carried out by the authors found that gambling on EGMs was the most important predictor of 'problem gambling' for Indigenous participants, although this was shared with non-

Indigenous participants. On the other hand, past-year substance use disorder and non-medical use of drugs – themes covered in our scoping review for Challenge 1 (Ford et al., 2024a) - were unique predictors of 'problem gambling' for Indigenous participants.

Day et al. (2020) explored the intersectionality of gambling disorder (according to DSM-V), income, and ethnicity from a USA-based cohort study which tracked gambling behaviour (where individuals with 'problem' gambling behaviours were over-sampled). Analysis of 1,164 participants highlighted that those who reported as African American (39.8%) or Other (34.4%) ethnicities were more likely to report a low income of less than US$15,000 per year than White (20.9%) participants. Equally, a greater number of African American (55.6%) and Other (29.4%) participants reported 'gambling disorder' compared to White (21.2%) participants. Regression analyses showed that although having a low income was associated with increased odds of 'gambling disorder', there was no evidence that the effect of income on gambling disorder varied by ethnicity.

Chhabra's (2007) study of 450 participants in Iowa (described in the previous chapter) explored the difference in household income, money lost gambling, participation frequency, and total casino trip expenditure between White and Black participants. The results found that a greater proportion of White participants (64.5%) had an annual household income of above US$30,000 compared to Black participants (49.5%). Furthermore, more Black participants lost several thousand US dollars per month in casino gambling (8.1% compared to 0.0% of White participants), whilst Black participants also reported a higher frequency of participation. Furthermore, Black participants also reported a higher average casino trip expenditure (US$235.11) compared to White participants (US$176.69). These reports therefore suggested that Black participants were more likely to have a lower income coupled with higher gambling losses, although, as with Patterson's (2015) study, the findings are constrained by the relatively small sample size, and the fact that the study was conducted in one region of a US state.

Finally, in a qualitative study, Young et al. (2013) highlight the 'racialised' regulation which they argued allowed a casino in Alice Springs, Australia to exploit the Aboriginal community. They argue that the imposition of casinos on Aboriginal territory leads "Aboriginal people [into] reconfiguring the monad in gambling space in culturally specific ways" (Young et al., 2013, p. 200). Gambling harms may be experienced by the Aboriginal community because the casino produces a dialectical process of social inclusion – for example, acceptance and social interaction of the Aboriginal community – and the accumulation of capital by casino owners. Importantly, the authors contend that the casino has created "an inclusionary space for Aboriginal people within settler society" (Young et al., 2013, p. 202), a space which broader economic conditions in Australia have failed to allow. They argue that the creation of a fairer society would allow interaction of the Aboriginal community *outside* of the casino. These findings, while specific to a casino within a remote area of Australia, could be transferred to other settings where harms may arise from

members of minority ethnic communities strongly incentivised to use land-based gambling venues as a place to socialise.

The papers presented in this section make an important contribution through their various framings of the intersection between ethnicity, gambling harms, socio-economic disadvantages such as income, and social inequalities such as lack of access to support. They indicate that harmful gambling disproportionately impacts many different minority ethnic groups across jurisdictions. There is also some evidence that higher rates of harm among minority ethnic groups are linked to socio-economic disadvantage. However, cross-sectional data – informing most of the studies introduced here - can only provide a snapshot picture, meaning we lack deeper insight into these relationships.

3.4 The gambling harms experienced by people from minority ethnic groups are exacerbated by stigma

Qualitative studies which provide deeper insight into the intersection between ethnicity, gambling harms, socio-economic disadvantage and social inequalities highlight how stigma exacerbates gambling harms experienced within minority ethnic groups.

Breen et al. (2013b) explored the positive and negative effects of gambling on the Aboriginal community in Australia which they noted was disproportionately impacted by economic disadvantage. Informed by 13 Aboriginal community leaders, their study found that, whilst gambling provided an opportunity to socialise and win money, it also caused harms which were stigmatised within tight-knit communities (Breen et al., 2013b). As one participant noted:

> "I think we as an Aboriginal community need to get it out there in the community and say 'this is an issue within communities.' There are communities that are dealing with it but there are a lot of communities that aren't… I think it needs to be out there in people's faces… we need to encourage those people that have an issue with it to seek the appropriate support… It's not a taboo subject, it needs to be out there with the rest of them… spoken about freely… to take that stigma away from it" (Breen et al., 2013b, p. 8).

Participants recommended programmes specifically directed at the Aboriginal community to raise awareness of gambling harms.

> "Communities could have a program, activities ... for people to participate in so there'll be the social interaction. Not be down on someone. Treat them as though it's a condition, a health condition that it's hard for people to control and say no to. And be more supportive" (Breen et al., 2013b, p. 9).

These programmes would therefore help to address a social inequality experienced by the Aboriginal community, manifested as a lack of access to support. They would also help to address arguments made by Breen et al. (2013a) which highlight the nature of gambling harms as being linked to Australia's colonial history, exacerbated by "a lack of appropriate and cultural services for Indigenous people" (Breen et al., 2013a, p. 10).

The overlap between gambling and socialising also emerged from a qualitative study which explored the views of 32 participants (a mixture of migrants and employees of support charities) from the London and Leeds areas of the UK (Bramley et al., 2020). This study found that gambling harms were exacerbated by the easy accessibility of gambling to migrants – who may be lacking support and experiencing social isolation - despite it being less socially acceptable within their communities. Participants recalled how "gambling outlets would 'incentivise' gambling by offering 'free' bets and free sustenance", with participants also confronted with a "'plethora of gambling advertising'" (Bramley et al., 2020, p. 24). One participant from an advocacy charity supporting migrants also stated that "it's [a casino] a place where migrants can see familiar faces and where they visit because they do not know what else they can do" (Bramley et al., 2020, p. 25). Stigma was also exacerbated by a limited awareness of support, and the fear of experiencing shame if they were to be found to be seeking support. For example, "'in our religion you can't gamble, gambling is forbidden in Islam like alcohol and you don't want your family to be tarnished by gambling'" (Bramley et al., 2020, p. 25). Harms were exacerbated by stigma in addition to a lack of understanding of available support. The authors therefore highlighted how participants called for a "proactive and preventative approach" (Bramley et al., 2020, p. 26) to reduce the risk of gambling harms being experienced by migrants. Indeed, the intersection between ethnicity (or in this case, migrant status) and social inequality was perceived as being exploited by a gambling industry which had extended its reach towards migrants who were vulnerable.

The vulnerability of migrants was also explored in Australia. Chui (2008) described how two Vietnamese women experienced 'problem gambling' behaviours. The author described how the two women both felt isolated from society after arriving in Australia, a feeling which was exacerbated by a lack of English-speaking and social skills. The women therefore began gambling as a form of escape into an activity which did not require them "to speak good English" (Chui, 2008, p. 278). Gambling nonetheless progressed to impact all aspects of both women's lives, with financial harms exacerbated by social stigma attached to gambling. One case worker told Chui (2008), "Gambling problem is very shameful when you lose money, but most [Vietnamese people] see it as a social activity and a pastime" (p. 278). The author concludes by arguing that culture is a significant barrier to seeking help, and that service providers should tailor programmes to account for stigma and shame which may be experienced when seeking help for gambling. This highlighted the need – particularly within the context of Vietnamese individuals who may be experiencing harms – to include family members as part of treatment.

In summary, qualitative studies can help to demonstrate in more detail how stigma can be experienced as a negative outcome of the intersection between minority ethnic status, social inequalities, and gambling harms which, as the next section highlights, can be wide-ranging in nature.

3.5 Gambling harms experienced within minority ethnic groups are wide-ranging

Gambling harms can be multi-faceted and wide-ranging (Langham et al., 2015). Three gambling harms were commonly highlighted in studies on gambling harms, socio-economic disadvantage or social inequalities, and ethnicity. These were cultural, emotional, and financial harms. This section reviews the findings from our sample of literature on harm.

3.5.1 Cultural harms

The evidence shows that cultural harms are experienced by minority ethnic groups through the negative labels attached to gamblers (Chui, 2008) and through unfulfilled cultural obligations such as sharing resources with the community (Breen et al., 2013a), as well as being exacerbated by cultural activities which normalise gambling behaviours, such as fundraising (Kolandai-Matchett et al., 2017). Cultural harms within Australia-based studies were also framed as occurring structurally, with gambling harms emerging from a wider ecosystem which discriminates against the Aboriginal population. Breen et al. (2013b) and Young et al. (2013) both demonstrate through qualitative studies how legislation which openly commercialises gambling in Australia has detrimentally impacted Aboriginal groups, whether through the opening of venues on Aboriginal land or through subsequent gambling-related crime which could have been prevented if public health programmes had also been directed towards Aboriginal groups.

3.5.2 Emotional harms

Emotional harms (such as regret, distress or past traumas) are a second prevalent form of gambling harms experienced by minority ethnic groups. However, the nature of emotional harms is complex. The cross-sectional design of most quantitative studies that considered emotional harms meant that causation could not be drawn between gambling and emotional harms. Hing et al.'s (2014b) study of 1,259 Indigenous Australian adults found that 44% of those who gambled felt guilt or regret about their gambling, whilst 47.4% experienced 'problem gambling' alongside depression. As mentioned above, stigma, shame and concerns around damage to relationships because of gambling were found to prevent minority ethnic participants from seeking help in Bramley et al.'s (2020) UK-based study.

On the other hand, some studies found no relationship between gambling harms and emotional harms. Lyk-Jensen's (2010) study of 4,932 'at-risk gamblers' found that – while immigrants were more likely to be 'at-risk gamblers' – there was no relationship with emotional harms such as past traumas. Equally, Chan et al.'s (2015) study of American college students found that emotional harms were not functionally related to 'problem gambling' by either Asian American students or White American students. Chui's (2008) case study of two Vietnamese women in Australia found that emotional gambling harms were related to problems around acculturation and the experiences of social isolation, boredom, and loneliness. These experiences then manifested themselves in harmful gambling behaviour resulting in financial and relationship harms.

3.5.3 Financial harms

Gambling-related financial harms were the third harm to emerge from the scoping review. In terms of resource depletion, Chhabra's (2007) study of 450 participants in Iowa found that Black participants were more likely to spend "several hundred" (p. 230) US dollars on casino gambling despite having a lower annual income than White participants. Another study of 3,058 American undergraduates found that Asian students – despite gambling less frequently – staked and therefore lost more money gambling compared to students from other ethnicities (Rinker et al., 2016).

A study of around 2,000 adults and young people in New Zealand found that participants of Maori and Pacific ethnicity were most likely to experience financial harms, where the most significant indicators of financial harms were people going without other resources and facing unpaid bills as a result of gambling (Walker et al., 2012). Also highlighted is the financial harm likely to arise for minority ethnic groups as a result of pre-existing financial inequalities. Canale et al.'s (2017) study of 20,791 Italian students aged 15 found that 'at-risk' or 'problem gambling' was most prevalent amongst first generation immigrants, whilst the authors simultaneously concluded that harms were more likely to occur amongst those with the least socio-economic resources.

The relationship between financial harms, gambling harms, and minority ethnic groups may represent an extension of the structural nature of gambling-related harms and socio-economic inequalities. However, this overlap may be also true of cultural and emotional harms. As Bramley et al. (2020) highlight, stigma around gambling and gambling harms within minority ethnic groups in the UK are exacerbated by the accessibility of gambling within communities whose values may deem gambling as culturally inappropriate. Gambling-related harms may therefore also damage relationships within communities (Kolandai-Matchett et al., 2017).

In other words, the literature emphasises that it is important to understand how minority ethnic groups interact with the gambling ecosystems around them, the harms which emerge, and how interventions can be made accessible to prevent or mitigate harms from occurring. Accessibility can take the form of opening of new venues (Young et al., 2013), or the extensive marketing of

gambling by operators for easy to access products (Bramley et al., 2020). The need to tailor interventions to minority ethnic groups was emphasised across the papers we reviewed, including those that highlighted the vulnerabilities of these communities to harm (Chui, 2008; Bramley et al., 2020), and those that found no difference in the impact of harmful gambling compared to the general population (Fong et al., 2010).

3.6 Conclusion

This chapter summarises the findings from our scoping review about the impact of gambling and the experience of gambling harms within minority ethnic groups. There is strong quantitative evidence from cross-sectional surveys that many minority ethnic groups are disproportionately impacted by harmful gambling in multiple ways. Gambling harms experienced within ethnic minority groups are exacerbated by stigma, and can be cultural, emotional and financial in nature. However, a much deeper insight - which is most likely only possible from qualitative studies - is needed to understand *how* these harms occur, and how ethnicity can intersect with socio-economic disadvantage and social inequalities to exacerbate harms. A deeper insight could also help to inform a proactive, public health approach as called for by Bramley et al.'s (2020) study.

4 Spatial inequalities and gambling harms

Chapter Summary

- Our scoping review uncovered 13 academic papers and five pieces of grey literature that relate to the links between spatial inequalities and gambling harms.
- There is evidence that gambling harms may be exacerbated by living within certain areas, thus highlighting the intersection between spatial inequalities and gambling harms.
- The evidence shows that 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 with 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 detrimentally impact the wider community as well, with a clear overlap with themes identified between economic conditions and gambling harms highlighted in earlier chapters.
- The research methods used in these studies included the spatial analysis of the risk of gambling harms, spatial analysis of EGMs, market segmentation of EGM players, and modelling based on available data on EGM presence, usage, and gambling behaviours.

4.1 Introduction

This chapter focuses on the research exploring links between gambling harms and spatial inequalities, or the way "in which significant disparities are created because [resources] are not evenly distributed across different spaces, which means that social inequalities are manifested in spatial patterns" (Han, 2022, p. 2). In relation to spatial inequalities, the chapter also contains research that have explored the link between spatial inequality and the placement of EGMs. EGMs have attracted significant attention in Great Britain in recent years, specifically through the positioning of Fixed Odds Betting Terminals (FOBTs) within betting shops that offer the opportunity to gamble on digital roulette and slots-based games. FOBTs were subject to regulation in April 2019, when the maximum spend possible on FOBTs was reduced from £100 per spin to £2 per spin. Industry data show that 24,347 FOBTs were operating in Britain as of March 2022 (Gambling Commission, 2022). Whilst this is a sharp decline since 2019 when 32,776 were in operation, FOBTs still generated just over £1 billion for the industry in 2021/2022, amounting to 7.6% of the sector's total Gross Gambling Yield (Gambling Commission, 2022). Recent action in Palmers Green[2] demonstrates the desire of communities to prevent further

2 A petition was launched in July 2023 against plans to open an Adult Gaming Centre from opening in Palmers Green, an area in London. The petition was signed by 1,000 people and concerns were raised particularly given the deprivation experienced in Palmers Green. More information can be found here: https://enfielddispatch.co.uk/petition-against-new-palmers-green-gambling-venue-signed-by-more-than-1000-people/,

venues which house FOBTs, such as adult amusement centres, from entering the high street (Allin, 2023).

This chapter begins by highlighting the evidence base that informed this theme. Second, the chapter highlights the research that has explored how individuals living in some geographical areas may be at higher risk of gambling harms compared to others. The chapter then explores the literature exploring the harms caused by EGMs at individual, venue and community level, while also highlighting the venue types that may be more appealing to those at risk of gambling harms.

4.2 About the evidence base

Table 6 below introduces the academic studies and grey literature which explored the relationship between spatial inequalities and gambling harm, in addition to the harms caused by EGMs at either individual level, venue level, or at community level. Methodologies used in these studies included the spatial analysis of services, the spatial analysis of EGMs in addition to analysis of openly available revenue data, modelling informed by panel survey data, and surveys gauging the perceptions of EGM players. The academic literature we identified related to the impact of EGMs in the US, Canada, Australia, and Britain.

Table 6: Academic studies on the association between spatial inequalities and gambling harms

Author (year)	Jurisdiction	Impact Under Focus
Badji et al. (2020)	Australia	To explore whether changes in the number of EGM venues within a local area are associated with changes in the rates of serious financial problems.
Forrest and McHale (2022)*	Great Britain	Through the study of 140,000 accounts of individuals who had gambled between July 2018 and June 2019, the authors explore numerous variables according to IMD, including: gambling spend, number of betting days, heavy loss betting days, risk taking in betting (including betting mean and median spend), gaming mean and median spend, wins and losses from gaming, time spent on gaming.
GambleAware (2022)*	Great Britain	FOBT usage explored as part of an exploration of the clients of National Gambling Treatment Service agencies.
Gosschalk et al. (2023)*	Great Britain	Usage of gaming machines in bookmakers explored as part of the authors' study into the usage of and demand for advice, support and treatment for gambling.
Gunstone and Gosschalk (2019)*	Great Britain	Further analysis of Gambling Treatment and Support survey data to explore gambling behaviours of adults from Black, Asian and minority ethnic groups. Analysis also included different regions in which participants were more likely to experience gambling harms.
Ladouceur et al. (2005)	Canada	To evaluate the influence of the format, arrangement and availability of EGMs outside casinos on gambling behaviour and perceptions.
Markham et al. (2014)	Australia	To test the hypothesis that EGM expenditure predicts gambling harms at EGM venue-level.
Moellman and Mitra (2013)	USA	To explore the economic impact of Native American gaming institutions on local communities in Oklahoma (focus on gaming machines and casino tables).
Office for Health Improvement & Disparities (2023)*	England	Comparison of participation in gambling in England, according to ethnicity and Index of Multiple Deprivation.

Table 6, cont.: Academic studies on the association between spatial inequalities and gambling harms

Author (year)	Jurisdiction	Impact Under Focus
Pickernell et al. (2013)	Australia	The relationship between the access to EGMs (in terms of EGM numbers and venue size) and socio-economic environment, and the location as a tourist destination; the extent to which spending on gambling is related to this access to gambling environment in terms of government policy, EGM industry decisions, socio-economic variables, and the location as a tourist destination; the ways in which social capital may be affected by access to EGMs in combination with the socio-cultural-economic environment.
Rockloff et al. (2017)	Australia	To understand the desirable features of environments that surround EGM products, and to understand how different environments might be attractive to different types of players.
Wardle et al. (2014)	Great Britain	This study contained three key aims: to map the location and density of gambling machines; to explore if geographic areas with higher densities of machines exist; and to examine the socio-economic characteristics of these areas relative to others.
Wardle et al. (2017)	England	An exploration of the geographical risk of gambling harms through a spatial analysis of Manchester (in North West England) and Westminster (in London, England). A risk index was developed from indicators that reflected local populations, and services available to local populations.
Watanapongvanich et al. (2022)	USA	To examine whether financial literacy could be a means to reducing gambling frequency in the USA.
Young et al. (2011)	Australia	Spatial analysis of EGMs within three remote towns, with a focus on the redistribution of resources to the local community.
Young et al. (2012a)	Australia	To develop a typology of EGMs that is “sensitive to geographic context” (p. 427), to examine differences in markets between venue types, and to determine the riskiest venues defined by outcomes in relation to gambling behaviour.

Table 6, cont.: Academic studies on the association between spatial inequalities and gambling harms

Author (year)	Jurisdiction	Impact Under Focus
Young et al. (2012b)	Australia	To explore the association between gambling outcomes and the distance travelled from a person's home to their most-frequented EGM venue.
Young et al. (2013)	Australia	A study into the impact of casino on marginalised Aboriginal community in Central Australia, highlighting the intersection between gambling, technological advances and racialised regulation. Focus also highlighted the building of the casino on Aboriginal territory.
*Found as part of grey literature search		

4.3 The risk of gambling harms can be higher within certain geographical areas

Three papers and four pieces of grey literature uncovered in the scoping review found that living within areas characterised by high levels of unemployment and deprivation, low levels of income, or a lack of access to support services exacerbated the risk of gambling harms.

Wardle et al. (2017) explored the geographical risk of gambling harms through a spatial analysis of Manchester (in North-West England) and Westminster (in London, England). The study developed a risk index for gambling harms from indicators that reflected local populations, and services available to local populations, with variables such as ethnicity, employment, age, mental health, and homelessness status. Services under focus included those for substance abuse or misuse (treatment, recovery centres, and needle exchange), 'problem gambling' (Gamblers Anonymous meetings, and GamCare centres), unemployment (job centres), young people (education institutions with students of 13-24 years), and financial difficulties or debt (payday loan shops or foodbanks). Analyses indicated places in both study areas where there was a heightened risk of people experiencing gambling problems either because of the types of people who lived in said places, the types of services offered in those areas, or a combination of both factors. The authors argue that their risk index moves beyond the measurement of the risk of gambling harms through association with socio-economic deprivation by developing a risk model that explores how people use specific services away from their residential area. This provides further spatial analysis of how individuals who may be at risk of gambling harms can be targeted with support in areas away from their home.

Grey literature has also explored the likelihood of harmful gambling behaviours in specific areas of the country. Based on self-reported data on gambling behaviours (PGSI) from a nationally representative sample, Gunstone and Gosschalk (2019) have found that those experiencing 'problem gambling' who were Black, Asian, or from other minority ethnic groups were more likely to live in the West Midlands, while those experiencing 'problem gambling' who were White were more likely to live in London, or the North East. Meanwhile, secondary analysis of data from previous iterations of the Health Survey for England – a national survey collecting self-reported data on health-related issues – explored the extent of gambling involvement and harms among the general population in England (Office for Health Disparities and Improvement, 2023). The study found that respondents in the North East (4.9% of the region's population) and the North West (4.4%) of England reported the highest prevalence of 'at-risk gambling' (PGSI score 1 to 7). The highest number of 'problem gambling' was reported in London (0.8% of participants). However, data were not available for 'problem gambling' behaviours across all areas of England.

Forrest and McHale (2022) adopted an area-based approach towards deprivation within their Patterns of Play report. As part of their analysis of anonymised player data from 140,000 anonymised accounts, they explored gambling behaviours in relation to the Index of Multiple Deprivation (IMD). Their analysis considered online sports betting and gaming patterns. When considering customers' total account activity, they found that operator profit was drawn at a greater extent from the most deprived quintile of areas than the least quintile. Indeed, the 20% most deprived areas provided operators with 23.2% of their online gross gambling yield (GGY)[3], whilst the 20% least deprived areas provided 16.7%. However, the authors also conclude that the relationship between deprivation and GGY is not clear, and that the industry draws equal GGY from each individual area of deprivation as measured by IMD. The authors also found that gaming accounted for a greater share of gambling expenditure compared to betting in areas of greater deprivation. Gosschalk et al. (2023) similarly used the IMD metric to explore the relationship between deprivation and harmful gambling (PGSI). They found that a higher proportion of participants within the 30% most deprived areas according to IMD reported themselves as 'problem gamblers' - 4.0% of the bottom 30% - in 2022, compared to 2.1% of the 30% least deprived areas.

As Forrest and McHale (2022) highlight, outcomes for specific, geographical areas can vary in accordance with gambling products. Moellman and Mitra (2013) adopted a model-based approach to explore the impact of gaming facilities operated by Native American owners on local communities within the US state of Oklahoma based on local census, crime and employment and gaming data. These impacts were demonstrated through coefficients which compared the impact of gaming machines and gaming tables. It found that increases in gambling tables were associated with significantly increased household median income on a local level, in addition to slight decreases in unemployment, violent crime, and household crime. Conversely, machines were highlighted as having the opposite effect in all these areas, and were associated with higher levels of crime and unemployment. However, these findings were modelled from archived data, and cannot confirm causality between gaming tables and wider community impacts.

The relationship between spatial inequality and gambling harm can be complex insofar as it may also include inequalities from existing, colonial structures. Young et al. (2013) explored this relationship through a study of an Alice Springs-based casino in the Northern Territory of Australia and its impact upon the local Aboriginal community. Interviews were conducted with 36 stakeholders with knowledge of the usage of the casino by the local Aboriginal community. These interviews uncovered processes which – according to the authors - are indicative of the relationship between gambling harms and socio-economic disadvantages. These inequalities are proliferated amongst the local Aboriginal community who had taken to use the casino built on their territory, and to socialise through gambling. As one participant recalled "…bush people that never used to gamble, now gamble… They *need* [emphasis from original

[3] Gross Gambling Yield is defined as the total revenue retained by operators after deducting winnings owed to customers

quote] to go there to meet people" (Young et al., 2013, p. 199). The transformation of social practices was coupled with technological developments which made gambling more accessible to the Aboriginal community. These processes related to the technological advances of the sector and the more significant opportunities for consumption, and the commercial determinants which facilitate widespread gambling to the detriment of marginalised communities.

4.4 The geographical positioning of EGMs may cause harms at an individual level

The positioning of EGMs impacts individuals. Grey literature, in the form of data from the National Gambling Treatment Service (GambleAware, 2022), shows how those seeking treatment for gambling problems were more likely to have played gaming machines if gambling within a land-based setting where these machines are commonly found (17% of participants who had gambled), compared to those who gambled on sporting events (10%) or horse racing (7%). A separate YouGov study on behalf of GambleAware found that FOBTs in betting shops are used by 1.0% of adults aged 18 and over, and are most likely to be played by 18-24-year-olds (2.5% compared to the next highest age group, 2.0% of 25-34-year-olds) (Gosschalk et al., 2023).

Two academic papers explored the impact of EGMs on individuals, although they did not show strong links between socio-economic disadvantage and individual-level harms. In Canada, Ladouceur et al. (2005) explored the clustering and geographical location of EGMs outside casinos (EGMOCs) within two separate studies. The first study explored through focus groups if the format of EGMOCs (a standard versus a compact format) would promote control over gambling, as well as exploring if there was an optimal geographical availability of EGMOCs which would promote control over gambling behaviours. Ninety-nine adults who had gambled on EGMs within the past 12 months and were not seeking to stop gambling took part in the focus groups. The focus groups found that

> "the majority of probable pathological gamblers [measured according to NODS] would like to see EGMOC limited to restricted areas in order to decrease accessibility, minimise their attractiveness and promote gamblers' control… in cases where participants wanted to control their gambling habits, they preferred that EGMOC be placed in fewer locations" (Ladouceur et al., 2005, p. 144).

Therefore, the first study – whilst not making explicit reference to spatial inequalities – highlighted how placement of EGMOCs may detrimentally impact those seeking to control their gambling behaviours.

The second of Ladouceur et al.'s (2005) studies explored the arrangement of EGMOCs within closed, laboratory conditions. The authors hypothesised that participants would show greater impaired control on standard format machines than on compact machines, that participants would display greater loss of

control on standard machines compared to compact machines, and that participants would recommend concentrating machines within a limited number of sites. The closed laboratory settings required participants to gamble on EGMs within a simulated bar, and participants could not play more than CAN$25. The study measured gambling persistence, money inserted and lost, as well as asking participants for their perceptions on control, excessive gambling habits, preferences for EGM format, and availability of EGMs. The study of 180 participants and their reaction towards the situational placement of EGMs highlighted the need to position EGMs *away* from areas of socio-economic deprivation. Indeed, 77% of participants believed that concentrating EGMOCs within a small geographical area would allow individuals to control their gambling habits. The authors also highlighted the need to reduce EGM settings which encouraged their usage in isolation, highlighting how the opportunity to socialise may discourage harmful gambling.

4.5 Certain EGM venue environments are more appealing to those experiencing harmful gambling

Our review also found a study which explored the environments of EGM venues that would be most appealing to those at high risk of experiencing harmful gambling. Rockloff et al.'s (2017) study carried out a discrete choice experiment to reveal how people value the different features of EGMs. The discrete choice experiments explored the preferences of 7,761 participants – 7,516 from an online panel and 245 from EGM clubs in Australia – to devise a market segmentation of EGM players. The analysis of their experimentation uncovered four market segments: 'value', 'social', 'high roller', and 'Internet'. The authors also highlighted how market segmentations can be applied to participants depending on the risk of their behaviour according to PGSI. Those experiencing 'problem gambling' behaviours were more likely to be a 'high roller' (47%), as opposed to being located within the other market segments ('Internet': 22%, 'social': 18%, 'value': 14%). Those within the high roller segment were more likely to favour the importance of aspects such as air conditioning, large spaces, free or cheap refreshments, sound quality of games, small minimum bet sizes, and a safe and secure environment. These findings are important when considering the impact of geography of EGM venues on the individual, particularly if venues are orientated towards those who prefer 'high roller' and 'Internet' environments. Indeed, the authors' findings imply that the heightened availability of venues which provide free refreshments, air conditioning, as well as structural characteristics which encourage continuous gambling, would detrimentally impact individuals who are experiencing harmful gambling. While these features may be more appealing to certain types of gambling behaviour, EGM venues (and regulators) should be mindful that such features may be especially appealing to those at risk of harmful gambling.

4.6 Harms caused by EGMs can be measured at a venue level through expenditure and access

The impact of the geographical positioning of EGMs was also explored at a venue level by two separate papers. One paper explored the impact of EGMs in the Northern Territory of Australia through the lens of total consumption theory, which "implies that the number of people experiencing severe gambling-related harm is correlated with the mean population consumption of gambling" (Markham et al., 2014, p. 1510). The study investigated the relationship between gambling expenditure and the prevalence of gambling harms at the EGM venue level by analysing "estimates of the prevalence of gambling-related harm among patrons of individual venues, venue-specific EGM expenditure data and estimates of the number of adults in the service area of each venue" (Markham et al., 2014, p. 1511). Venue-level estimates of gambling harms were obtained through a postal survey of around 50,000 addresses in urban and peri-urban areas in the Northern Territory of Australia which asked residents to report EGM gambling and PGSI responses for the last twelve months. The study incorporated responses from 7,049 completed questionnaires that covered a total of 62 EGM venues[4]. Individuals who answered two of the nine questions within the PGSI as 'sometimes', 'most of the time', or 'almost always' were categorised as experiencing harms. A bivariate comparison of the data found that the prevalence of gambling harm and monthly EGM expenditure per capita were correlated significantly at the venue level. Indeed, "each $AU20 increase in monthly EGM expenditure per adult is associated with an estimated average 1.7% increase in the prevalence of gambling harm" (Markham et al., 2014, p. 1513). Whilst the authors acknowledged that the cross-sectional nature of their data means that conclusions on causality between expenditure and harm are difficult, they argue that excessive gambling expenditure is "inseparable" (Markham et al., 2014, p. 1513) from harm. The study therefore does not highlight the prevalence of EGM venues within areas of deprivation, but does show how harms occur as an outcome at a local level. Increased EGM spend at a venue level is likely to result in more individuals experiencing negative outcomes and socio-economic disadvantages which may be linked to factors measured within the PGSI.

In a separate study also conducted in the Northern Territory of Australia, Young et al. (2012a) developed a typology of EGM venues according to venue location and licensing variables; and carried out a mail survey of households within three urban centres (Darwin, Katherine, and Alice Springs) to explore the prevalence of 'problem gambling' (according to PGSI) within the proximity of EGM venues. The study found that 64 EGM venues were situated in the Northern Territory as part of the retail landscape within six different types of

[4] The 62 venues within Markham et al.'s (2014) study comprised 35 hotels, 25 clubs and two casinos.

venue[5]. Importantly, EGMs were easily accessible within other settings such as pubs, hotels and supermarkets. There was significant clustering of EGM clubs near supermarkets, named 'supermarket-attached' clubs. Seven supermarket-attached clubs each with between 13 and 45 EGMs per venue, located an average distance of 300 metres from supermarkets. Supermarket-attached pubs (pubs in close proximity to supermarkets) with EGMs were also more likely to be visited by individuals within the lowest income bracket (less than AUS$149 per month), with 10.8% of earners within this bracket visiting these venues, compared to 7.8% who visited casinos, 7.0% who visited supermarket-attached clubs, and 6.9% who visited 'peripheral clubs', or clubs found in locations away from urban centres and business districts. Additionally, 13.7% of supermarket-visiting EGM players reported 'moderate' or 'high risk' gambling behaviours. The authors conclude that EGM play is driven by two aspects: accessibility and venue size. They specifically highlight the accessibility of EGMs in venues close to supermarkets as linked to higher levels of 'problem gambling', while people who gamble may also travel to larger venues such as casinos to play EGMs with more features.

A separate study by Young et al. (2012b) explored the association between gambling outcomes and the distance travelled from a person's home in the Northern Territory of Australia to their most-frequented EGM venue. The authors highlight "the finding that neighbourhood-level disadvantage predicts gambling participation after adjusting for individual socio-economic status and distance travelled suggests that the nature of the social environment has an independent effect on gambling outcomes" (Young et al., 2012b, p. 269). In summary, the authors found that EGM venue type and neighbourhood disadvantage were positively associated with 'problem gambling'.

These papers therefore outline how venue-level harms can emerge from the geographical positioning of EGMs. They highlight how venue-level harms can be exacerbated by socio-economic disadvantages such as low income or area deprivation. However, area deprivation would also be more closely related to community-level harms which may arise from the placement of EGMs.

4.7 EGM-related harms can disproportionately impact local communities

Remaining papers which explored the impact of the geographical placement of EGMs focused on harms occurring at community level. We found a clear overlap of themes in relation to the positioning of EGMs and impacts at community level, and the structural nature of gambling harms as explored in

[5]These venues were casinos, supermarket-attached clubs, peripheral clubs (or EGM venues located away from commercial districts or shopping centres), agglomerated pubs and hotels within central business districts, supermarket-attached pubs, and peripheral pubs (or pubs located away from commercial districts or shopping centres). Peripheral clubs were the most prevalent clustering of EGM venues, with 19 clubs located within the sample.

Section 2.4. The papers which explored the community level of harms underlined the placement of EGMs within areas of deprivation as an example of how economic systems are directly linked to gambling harms.

Wardle et al. (2014) explored the density of machine placement in Britain, and the socio-demographic characteristics of areas with high machine density. The authors' analysis of 29,711 gambling premises that hosted machines found that a third of high-density machine zones (HDMZs) were located within one mile of the coastal boundary, reflecting the traditional concentration of amusement arcades in seaside towns. However, HDMZs were also present in urban locations and specifically in periphery and satellite towns to major urban centres. The authors' analysis found a strong correlation between machine density and socio-economic deprivation and highlighted a specific geographic patterning of distribution. HDMZs were generally characterised by higher income deprivation, more economically inactive residents and a younger population profile. However, this pattern was not universal and HDMZs were also evident in relatively affluent areas. Factors other than those related to income deprivation or the socio-demographic profile of residents may therefore be relevant when considering machine distribution. The authors however suggest that gambling opportunities display similar patterning to other health inequalities, and that gambling harms from machines may have a geographical aspect in association with lower socio-economic status, neighbourhood deprivation, and the concentration of alcohol, tobacco, and fast-food outlets. Additionally, Gosschalk et al. (2023) found that 1.7% of participants in the bottom 30% according to the Index of Multiple Deprivation played gaming machines in bookmakers, compared to 0.5% in the top 30%.

Young et al. (2011) deployed a geographical analysis of the clustering of EGMs within three towns (Katherine, Tennant Creek, and Nhulunbuy) in the Northern Territory of Australia to highlight the role EGMs play in the distribution of resources within the local community. The authors' primary focus was to explore EGM expenditure at venue level in each town, alongside patterns of socio-economic status within each town. Socio-economic status was closely related to "racial economy" (Young et al., 2011, p. 64), with the majority of EGM expenditure assumed as originating from Aboriginal patrons. The authors also highlighted how the expansion of EGMs within the Northern Territory should hypothetically result in the redistribution of revenues back into the local community. The authors' analysis found 241 EGMs across clubs, and pubs within the three towns, representing a net revenue of AUS$24,668,829 in 2006/2007. The analysis of openly available business data found that EGM clubs within the three remote towns contributed an average of only 9.6% of EGM revenue back to the local community, with larger clubs operating on a more commercial basis contributing even less. Any redistribution of wealth which occurs will disproportionately impact local Aboriginal groups, as it is their EGM spend which provided most of the revenue. EGMs within areas of low wealth can therefore result in worsened economic outlooks for local communities.

This relationship is explored further by Pickernell et al.'s (2013) study of the structural roles of EGMs within 79 Local Government Areas (LGAs) in the

Australian State of Victoria. They specifically explored how “access to EGMs… is significantly related to the local socio-cultural-economic environment (income, unemployment, average age) as well as the location as a tourist destination” (Pickernell et al., 2013, p. 281), using government data on EGM locations, EGM spend per person, breakdown of spend per EGM, and social-capital statistics. The authors found that the number of EGMs per 1,000 adults increased within areas of raised unemployment levels. They concluded that access to EGMs in Victoria was significantly related to factors such as income and unemployment. Furthermore, EGM spend per adult was strongly and positively linked with the number of EGMs per venue as well as unemployment rate, relationships which they conclude highlight the level of EGM activity within low socio-economic areas. The increase in EGM spend against the number of EGMs per capita within a LGA in Australia, as well as the likelihood of EGMs being positioned within socio-economically deprived areas, also highlights the relationship between EGMs and the risk of economic harms at a community level.

Similarly, Badji et al. (2020) developed a regression model to explore the prevalence of EGMs and financial problems within 225 local areas in Australia. Their model found that every additional local EGM venue was associated with an increase of insolvencies within a given area by 1.23 per year, whilst a reduction of one local EGM venue was associated with a reduction of insolvencies by 1.8 per year. The authors therefore argued that the placement of EGMs can be associated with worsened local socio-economic disadvantages, while reducing the number or accessibility of gaming venues could help to reduce gambling-related financial harm.

The harms to occur from the geography of EGMs were also explored in the USA. Moellman and Mitra’s (2013) study into Native American gaming facilities in Oklahoma found that a greater number of gaming machines resulted in community-level decreased income, increased unemployment, and increased property crime. Their findings are important, as they imply that forms of gambling which require interaction with an employee – such as table games played in casinos - *improve* the socio-economic outlook at local level, whilst EGMs that require no such interaction are associated with a detrimental impact on the local community. This link is further implied by Watanapongvanich et al. (2022), who examined if improved financial literacy could be a means to reduce gambling participation. They developed a regression-based approach from the data of 4,215 panel survey responses, with panel respondents answering questions on topics including gambling behaviour, demographics, education, income, and financial literacy. EGM density was measured by the number of EGMs per 100 people in the state. These variables were then incorporated within a model which sought to link financial literacy with gambling frequency. Findings from regression analysis suggested that financial literacy and gambling frequency were not related in the United States, although this changes within states where EGMs are more accessible. Their results also suggested that easy access to EGMs may lead people to be tempted by frequent gambling. However, the authors acknowledged that the measurement of gambling behaviour with a single question was a limitation of the study.

4.8 Conclusion

This chapter has reviewed the included research on the relationship between spatial inequalities and gambling harms. The evidence indicates that areas at risk of gambling harms can be associated with higher levels of deprivation, but also access to support for harmful gambling. However, the spatial clustering of EGMs by gambling operators was the main geographical inequality to emerge from the scoping review. This clustering can be experienced on three levels. Firstly, the geographical positioning of – and the environments which surround – EGMs may impact individuals due to their ease-of-access and the features which make them attractive to people who are at risk of gambling problems. Secondly, the geographical positioning of EGMs may incur harms which can be measured at a venue level whether through the aggregate expenditure per venue, or through the ease-of-access within wider retail as is the case in Australia. Finally, EGMs may cause harm at a community level, with the most socio-economically disadvantaged being targeted by a more harmful form of gambling.

These papers only demonstrate an association between the local presence of EGMs, and gambling harms which may be exacerbated by socio-economic disadvantage, rather than firm causal links. However, the evidence demonstrates why local communities may seek to prevent further growth in EGMs given the evidence of harms occurring at multiple levels. A societal-level approach to reducing gambling harms therefore may not only need to encompass the regulation of EGMs themselves, but also the devolution of more power to local authorities and communities about the positioning of EGMs within their communities.

5 Summary and conclusions

This report sets out the main themes from our scoping review on the social and spatial inequalities that may exacerbate gambling harms. The scoping review uncovered three key themes. Firstly, we found that the evidence base exploring the relationship between socio-economic disadvantage and gambling harms is well established, and that there is strong evidence that individuals with the least resources (and therefore the least economic power) are more likely to experience harmful gambling behaviours and gambling harms. However, the range of ways in which socio-economic disadvantages and gambling harms or gambling behaviour are measured means that generalisation is difficult. Our review shows that qualitative studies are better positioned to explore how the relationship between socio-economic disadvantages and gambling harms can evolve.

Secondly, the sample of literature highlighted how harms are more likely to be experienced within minority ethnic groups. However, not all papers linked the intersection of ethnicity and gambling harms with socio-economic disadvantages or social inequalities. Whilst quantitative studies can help to explore how ethnicity and socio-economic disadvantages or social inequalities intersect with gambling harms, again it is qualitative studies that can help us understand the structures or timelines within which gambling harms may occur. Wide-ranging harms experienced by minority ethnic groups can be exacerbated by stigma and a perceived lack of support. Additionally, this evidence was mostly formed of cross-sectional studies. More longitudinal studies are required to draw further, reliable conclusions around the causality between socio-economic disadvantage, ethnicity, and gambling harms.

Thirdly, the review shows there is a greater risk of gambling harms within certain geographical areas. The geographical clustering of EGMs can be associated with harms at an individual, venue, and community level. Studies have explored how harms from the positioning of EGMs can be exacerbated by socio-economic disadvantages such as low wealth or area deprivation.

The implications of these findings highlight how those with the least economic resources should be protected from an industry which may offer hope of further income. In the case of harms experienced within minority ethnic groups, gambling operators were highlighted as being responsible for making gambling easily accessible to communities who may not previously have gambled.

Furthermore, action is needed to address the stigma experienced by people who are affected by gambling harms. Stigma was raised as a particular issue in studies exploring gambling harms amongst minority ethnic groups, with those experiencing harms also not having easy access to support. Information, support or treatment that are targeted towards minority ethnic groups - including tailoring them with specific cultural differences in mind - would help to address harms, as well as raise awareness of gambling harms within those communities.

Finally, local communities could be given more power in relation to the placement of gambling venues, particularly those with EGMs. Whilst the provision of gambling may lead to some economic benefits depending on

gambling type (Moellman and Mitra, 2013), communities could be given more voice in relation to the placement of more harmful forms of gambling. This may allow greater protection for those experiencing spatial inequality or socio-economic disadvantage and would also help address any concerns over industry practice in reaching those with fewer resources.

The findings of this scoping review should be considered in light of its limitations. Firstly, although the search terms were derived in assistance with academics from the University of Bristol, the specific nature of the search terms means that literature potentially relevant to the main research question may not have emerged during the literature search. As mentioned earlier, the majority of studies we identified were cross-sectional and therefore cannot establish a cause-and-effect relationship between gambling harms and socio-economic disadvantage and social or spatial inequality. There is potential for this relationship to be explored further through qualitative studies (see also Ford et al., 2024b). While there is significant evidence highlighting the association between socio-economic disadvantage and gambling harms, it is often not possible to compare the findings from different studies (e.g. to look at differences by jurisdiction) due to the wide variety of ways in which socio-economic disadvantages and gambling harms are measured. Additionally, we found a lack of consistency in the way in which authors explored the intersection between socio-economic disadvantage or social inequality and different minority ethnic groups. While it is impossible to generalise how gambling harms are experienced by minority ethnic groups, the wide variety of experiences of gambling harms by different minority ethnic groups have to date been insufficiently explored.

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Appendix One: Search terms and databases

The initial search for literature within this scoping review was guided by the overarching research question: “what social inequalities exacerbate gambling harms?”. The search terms and databases were formulated with guidance from University of Bristol academics involved in the Bristol Hub for Gambling Harms Research with expertise in social inequalities research.

The search terms were: (gambl*) OR (bett*) AND (“social harm” OR “structural harm” OR “class analysis” OR “inequality” OR “spatial” OR “geograph*” OR “urban plan*” OR “spatial structure” OR “urban geography” OR “digital economy” OR “deprivation”).

These search terms were entered into the following databases:

- EBSCO
- SCOPUS
- H.W. Social Sciences Index
- PubMed
- ProQuest
- PsycINFO
- Sociological Abstracts
- Applied Social Science Index and Abstracts
- Social Sciences Citation Index
- Social Services Abstracts
- Social Science Database

Appendix Two: Paper inclusion and data abstraction

To be included, papers were required to be published after 2005, in English, focusing on economies with a similar economic outlook to the United Kingdom, and be specifically linked to the research question. Papers therefore needed to be specifically related to the social or spatial inequalities which exacerbated gambling harms. Table A1 below details the numbers of included and excluded papers, as well as the reasons for exclusion. Papers, after de-duplication, were sifted by title, abstract, and then by full text. The analysis of full texts also categorised full texts on whether they focused on social or geographical inequalities, or both.

Data were then abstracted from included texts, with specific criteria. These criteria are introduced in Table A2. Data abstracted under these criteria were subjected to narrative analysis, with the most prevalent themes within the data answering the guiding research question. Themes mainly emerged from data gathered under the ‘Summary of Findings’ criteria, but these data were developed in conjunction with other data highlighted within other fields.

Table A1: Details of included and excluded papers

Sift One: By Title	Sift Two: By Abstract	Full Text: Data Abstract
Titles Sifted: 24,302	Abstracts Sifted: 778	Texts Screened: 229 (*includes one text added subsequently after initial search*).
Titles Included: 778	Abstracts Included: 228	Texts Included: 98 Social: 63 Geographical: 21 Social and Geographical: 14
Titles Excluded: 23,524	Abstracts Excluded: 550 *Reasons for Exclusion:*	Texts Excluded: 131 *Reasons for Exclusion:*
Titles excluded due to not being clearly related to the research question.	Not related to research question: 448	Non related to research question: 75
	Published before 2005: 19	Data gathered before 2005: 39
	Focus on economy not similar to UK (OECD): 13	Focus on economy not similar to UK (OECD): 3
	Non-English: 1	Non-English: 1
	Non-journal article format (for example, review, book chapter, editorial or research protocol): 69	No Full Text: 4
		Non-journal article format (for example, review, book chapter, editorial or research protocol): 9

Table A2: Criteria of data abstraction

Authors	Names of the authors who produced each paper.
Year of publication	The year in which each paper was published.
Title	The title of each paper.
URL	The URL or online link through which the paper was found.
Country of focus	The jurisdiction, country or economy under focus in each paper.
Funder	The funder of each paper, if given.
Declaration of Interest	The declaration of any conflicts of interest, if given by the authors.
Research Question	The guiding research question or focus of each paper.
Sample Size	The number of participants within the sample size of each study, in addition to any sampling criteria deployed.
Research Design	The methodology deployed within each study. These data included whether the methodology was quantitative or qualitative in nature, as well as any specific research instruments deployed.
Interventions	The intervention deployed within each study, if applicable. Interventions may have sought to alter gambling-related behaviours or understandings.
Outcome Measures	Measures deployed to measure the impact of any interventions, if deployed. These may also have consisted of screens such as the PGSI or SOGS to measure the prevalence of gambling behaviours within a sample.
Summary of Findings	A summary of the findings produced within each study, in addition to conclusions reached by the authors as a result of the data they have collected. Summaries may also include implications highlighted by the authors for future studies or interventions.
Limitations	Limitations outlined by the authors of each study.

Appendix Three: Grey literature

The sample of literature was augmented by grey literature, which was searched for on the websites of relevant organisations using the same search terms introduced within Appendix One. These organisations included the following:

- Gambling Commission
- Public Health England
- Howard League
- GambleAware
- Social Market Foundation
- Shelter
- Crisis UK
- Big Issue
- Joseph Rowntree Foundation
- The Equality Trust
- YouGov
- NatCen Social Research

Some of the included grey literature are included within the main reference list, but full details are included below.

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