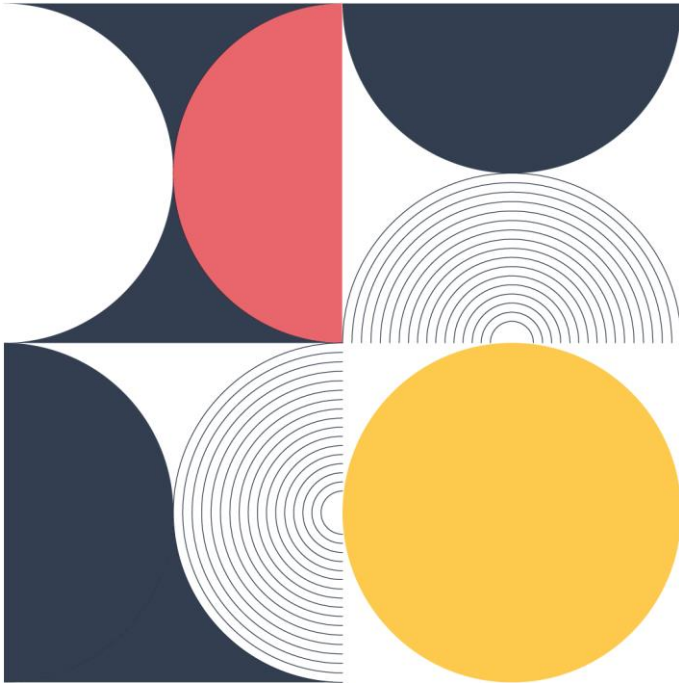


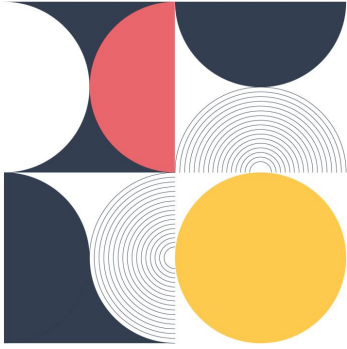
# Inequalities, vulnerabilities, and risk factors for gambling harms among children and young people

## Scoping study

Prepared for GambleAware

August 2023





### About the authors



Alma Economics combines unparalleled analytical expertise with the ability to communicate complex ideas clearly.

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### About the commissioning organisation

## GambleAware

GambleAware commissions research and evaluation to build knowledge of what works in prevention and reduction of gambling harms that is independent of industry, government, and the regulator. The authors alone are responsible for the views expressed in this article, which do not necessarily represent the views, decisions, or policies of the institutions with which they are affiliated.

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# Executive summary

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## Background and objectives

Alma Economics was commissioned by GambleAware to investigate the inequalities, vulnerabilities, and risk factors surrounding children and young people's experience of gambling related harms.

This research acts to deepen understanding of what is known about which groups of children and young people are most at risk of experiencing gambling related harms, and the underlying factors or determinants that drive these risks. To do so, this research utilised a Rapid Evidence Assessment approach to systematically search the academic and grey literature from the past 10 years within Great Britain and other comparable countries.

This scoping study identified that while research investigating risk factors for gambling harms among children and young people do exist, there is limited understanding of the underlying, structural drivers of these factors. Based on the findings from the evidence base, the report outlines recommendations for informing intervention strategies for children and young people experiencing gambling harms in order to target inequalities and communities who are disproportionately affected by gambling harm. In turn, this can help to improve the offer of interventions for young people affected by gambling or engaging with gambling themselves.

## Key findings

### The nature of gambling among children and young people

A striking statistic from a 2018 Gambling Commission report is that 55,000 11-16-year-olds (approximately 1.7%) can be classed as experiencing problems from gambling, with an additional 70,000 individuals in this age group being at risk of developing a "gambling problem"<sup>1</sup> (Ferrara et al. 2019).

Motivations for gambling were explored less frequently within the literature reviewed as part of the present study, with just one paper exploring the act of 'chasing' as a motivator for gambling within young people. This is defined as continuing to gamble to recoup previous losses.

Children and young people's attitudes towards, exposure to, and means of gambling were explored in more depth. Papers suggested that early exposure to gambling can shape gambling attitudes in later life, especially for those with a background of adverse childhood experiences<sup>2</sup>. Exposure to marketing for sports betting was also particularly prevalent. Finally, a lack of financial resources was not found to be a deterrent for gambling in children and young people who instead drew upon resources such as clothes, food, and cigarettes to engage in gambling activity.

The types of gambling engaged in by children and young people was also investigated. Several European studies found that among more traditional forms of gambling, the most common were lotteries, scratch cards, card games, and slot machines. Sports betting was also found to be prevalent within this cohort. More recently, online gambling and especially video game betting has become more popular with features such as 'loot boxes' (purchasable video game content with randomised rewards) bearing many similarities to more traditional forms of gambling.

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<sup>1</sup> A "gambling problem" is assessed in this report using the DSM-IV-MR-J, an established screening tool consisting of nine components that measure different feelings, actions, or behaviours that can be indicative of a "gambling problem".

<sup>2</sup> An 'adverse childhood experience' is an exposure to potentially traumatic events within childhood.

Gambling harms were explored less frequently within the literature. Some evidence suggested that gambling could be associated with substance use (such as more frequent alcohol, cigarette, or cannabis use) and anti-social behaviour.

## Factors affecting risk and their underlying, structural drivers

The evidence base around factors associated with higher risk of gambling among children and young people described correlational relationships in nearly all cases, and therefore do not imply causality and should be interpreted with caution. With that in mind, the most common risk factor identified within the literature was being male, with further insights into other factors affecting risk being outlined below.

**Family behaviours and attitudes** also played a role in potential exposure to gambling harms. This could occur in a negative way by creating an environment where gambling is socially acceptable or in a positive way by protecting against harms, for example where parents can offer emotional support to their children. Papers exploring **children's experiences as affected others** demonstrated the health, financial, emotional, and psychological harms that can be experienced. This included factors such as feeling neglected by parents in favour of gambling or gambling leading to a lack of money for basic essentials.

**School-related factors** such as low grades, low satisfaction with school, skipping classes, and unsatisfactory relationships with teachers were also shown to be associated with increased risk for gambling among children and young people.

Correlational relationships were also found between engagement with **anti-social peer groups** or activities and an individual's experience of increased gambling harms. On the other hand, papers also suggested that **social support** from peers can have the opposite effect of reducing risk of gambling harms.

The most prominent environmental factor associated with increased risk of gambling in the literature was exposure of children and young people to **gambling advertisements**.

Papers also explored **co-occurring disorders and mental health challenges** impacting children and young people's experience of gambling harms with Attention Deficit Hyperactivity Disorder (ADHD) appearing most regularly within the literature. There was also some discussion of the association between factors such as depression or use of medication to treat anxiety and increased likelihood of engaging in gambling.

**Behavioural characteristics and emotional vulnerability** were explored frequently within the reviewed literature with correlations found in the evidence between these characteristics and increased likelihood of gambling related harms for children and young people.

Another factor associated with increased risk of gambling harms for young people was **substance use** (e.g., alcohol use and smoking), although there is discussion of both substance use and gambling being used as coping mechanisms for trauma or adverse childhood experiences.

The papers reviewed also explored **ethnic minority and immigrant status** and the increased risk of gambling related harms experienced by young people within these groups. This increased risk can be explained by society-wide drivers of harm unrelated to any individual characteristic (referred to as 'structural drivers' throughout this report), such as, gambling operators targeting these groups or, gambling being used as a coping mechanism for social exclusion or perceived disenfranchisement.

**Trauma and adverse childhood experiences** were also demonstrated to be associated with gambling harms, particularly for young people experiencing intersecting and complex vulnerabilities which may have a bi-directional relationship with gambling behaviours, possibly serving to entrench gambling behaviours in adulthood.

Finally, **lower socioeconomic status**, as well as the perception of deprivation when compared to peer groups, was also found within the literature to be a structural driver of gambling harms for children and young people.

## Recommendations for informing intervention strategies

The literature suggests several approaches for informing intervention strategies to prevent or reduce gambling related harms experienced by children and young people. These are outlined below:

- **Targeting co-occurring mental health challenges and behaviours with potential for risk.** For example, internet use, gaming, and gambling are currently treated separately by support services, but instead future interventions should target a range of behaviours with the potential for risk. To do so, holistic and multi-disciplinary approaches should be adopted to support these complex needs.
- **Education and involvement of families and parents.** Papers called for education for families on the negative outcomes of gambling and how this can interact with other health and social challenges. The inclusion of families is important as they can act as immediate support networks to mitigate against negative consequences. Families and communities should also be empowered to use collective parenting resources (such as sharing the responsibility of monitoring children within families and communities). Where the involvement of families and parents is not possible (e.g., for young people experiencing homelessness or those living in foster care) other points of contact such as social workers and youth criminal justice workers should be educated to support this cohort.
- **Involving young people in discussions.** Children and young people should be engaged in collaborative co-production efforts such that interventions are best placed to meet the needs of this group, particularly as studies found that young people did not feel current strategies for reducing gambling harms were working for them. Young people called for more information to be available at schools and shared to parents, carers, and teachers. They also wanted gambling-like activities (such as loot boxes) to be recognised as gambling and for gaming platforms to raise awareness of the associated risks.
- **Other recommendations for informing interventions.** Other less common recommendations put forward by papers were firstly to consider gender when designing prevention strategies, secondly to target prevention to young people experiencing homelessness or housing instability, and finally to not support pharmacological methods of treatment.
- **Directions for future research.** This scoping review identified gaps in the evidence base regarding children and young people as affected others and barriers to treatment and support for this group. Therefore, future research should seek to add knowledge and deepen understanding in these two areas to better inform evidence-based support for children and young people experiencing gambling related harms.

## Strengths and limitations

Overall, the evidence base, particularly on factors affecting risk, was extensive and scored relatively well on our bespoke quality assessment framework (see Appendix). However, one main challenge was that papers used mostly cross-sectional research designs and presented correlations as primary analysis, meaning that cause-and-effect relationships cannot be determined.

Many quantitative studies also employed small sample sizes which lessened their statistical power. Self-reported measures were also common within the evidence base which can be subject to social desirability bias and ambiguity, meaning actual prevalence rates or effect sizes may be underreported. A large number of the surveys used within the literature also used a sample of students with data collection occurring within schools. One implication of this is that harder to reach groups of children and young people, such as home-schooled children, young people within Travelling communities, and other groups disengaged or excluded from school, are not represented. Clustering bias may also be an issue within studies conducted within a small number of schools.

Further, whilst some literature did touch on children and young people's experiences as affected others, this was identified as a gap within the academic and grey literature. Another significant gap is the barriers to treatment experienced by children and young people. Therefore, further research is needed to explore these two areas as well as generally more research carried out in Great Britain.

Beyond the considerations made about the evidence base, there are also strengths and limitations to the use of an REA methodology. As it was a rapid review, only a certain number of papers were reviewed in full, meaning that only those that met the set of inclusion criteria were included in the report. High quality studies from relevant geographic contexts were prioritised. Based on the limited number of papers, not all factors that affect children and young people's experiences of gambling harms could be captured by the search strategy and thus this report does not claim to provide a comprehensive review of every one of these factors or their underlying drivers. Finally, while attempts were made to use grey literature to fill gaps in the academic literature, some chapters are based on a lower number of studies, meaning conclusive findings cannot be drawn in all cases.

# Introduction

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## Rationale

According to evidence from the 2020 Gambling Commission survey (Motha and Pye, 2020), 9% of children aged 11-16 years had spent their own money on gambling in the week before the survey. Furthermore, a 2018 Gambling Commission report (Ferrara et al. 2019) estimates that 55,000 children of the same age surveyed were experiencing gambling harms, with a further 70,000 estimated to be at risk<sup>3</sup>. A review by Public Health England (2021) found that impulsivity, substance use, being male, and depression could be determinants of experiencing gambling harms among children and young people. However, little is known about the subgroups within this population that are most at risk and why they experience higher levels of risk.

In light of these findings, GambleAware sought to undertake a critical review of the evidence base to reveal which groups of children and young people are more at risk of experiencing gambling related harms, as well as the underlying determinants driving this risk, particularly in terms of structural or contextual factors, societal factors, or other determinants of health behaviours and outcomes. Identifying the root causes of this problem will help inform the design and commissioning of effective strategies that address the causes of inequalities in gambling related harm, as well as helping to avoid stigmatising or problematising particular groups in future research and practice.

## Objectives

The objective of this project was to establish what is known about which groups of children and young people are most at risk of experiencing gambling related harms and the underlying factors or determinants that drive these risks. It also aimed to identify gaps within the literature that further primary research should address.

To this end, our approach to the literature review was a flexible Rapid Evidence Assessment (REA), which was targeted to maximise the relevance of the findings. The search was systematic and allowed us to prioritise research from a variety of sources across the literature, using a transparent and well-defined protocol and search strategy (see Appendix).

## Methodology

For the REA, the research team developed a protocol that set out the research questions, a search strategy for academic and grey literature, and a list of inclusion criteria (see Appendix). The research team compiled a long list of research papers based on a systematic search in academic search engines (JSTOR, PubMed, APA PsycNet, ScienceDirect, SpringerLink, Sage), and two members of the team screened titles and abstracts based on the list of inclusion criteria to obtain a final list of relevant evidence. Databases of grey literature were then searched specifically to fill gaps in the academic literature which were identified during the search.

The pool of evidence was narrowed down from an initial long list of 196 research papers to a final list of 63 studies. All reviewed papers were scored following a bespoke quality assessment framework

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<sup>3</sup> The survey asks respondents if they have experienced various negative consequences from gambling (e.g., health or financial consequences, consequences to their personal relationships). Individuals experiencing a high number of consequences are classed as having problems with their gambling, leading to the estimates cited here.



considering the credibility, methodology, and relevance of the evidence. We used a bespoke framework rather than an existing quality assessment scale to ensure that we can comparably evaluate studies with different methodologies, and different research focuses. Where appropriate, we utilised established assessment methodologies including NICE qualitative and quantitative guidance for health studies, and the Maryland Scientific Methods scale. The full quality assessment framework is available in the Appendix.

## Structure of the report

The remainder of the report comprises the findings of the REA and is organised into the following chapters:

- **The nature of gambling among children and young people.** The chapter synthesises existing empirical evidence by outlining prevalence rates, motivations, attitudes and exposure, types of gambling, and harms associated with children and young people's experiences of gambling.
- **Factors affecting risk and their underlying, structural drivers.** This chapter outlines the factors that can influence a young person's risk of experiencing gambling related harms, including as affected others. The possible underlying, structural drivers of this harm are then explored as well as how multiple risk factors can interact as 'complex vulnerabilities' to further exacerbate this harm.
- **Informing intervention strategies.** The final chapter pulls together recommendations from within the literature regarding how prevention and intervention efforts should be informed to best support children and young people affected by gambling harms.

# The nature of gambling among children and young people

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The literature on the nature of gambling among children and young people scored highly based on our quality assessment framework. However, there were some significant gaps around specific research questions, and a strong reliance on studies using cross-sectional data. Our search identified 10 academic papers on prevalence rates of harmful gambling among young people, 1 paper on motivations for gambling, 4 papers on attitudes and exposure to gambling, 8 papers on types of gambling activities, and 4 papers on children and young people's experiences of gambling harms. Key gaps in the literature identified in this chapter were around young people's motivations to gamble, and gambling harms experienced by children and young people.

## Gambling prevalence rates

Data from 2018 reported by the Gambling Commission found that 55,000 11–16-year-olds can be classed as having problems with their gambling, with an additional 70,000 11–16-year-olds at risk of developing a “gambling problem”<sup>4</sup> (Ferrara et al. 2019). In a meta-analysis of studies from Great Britain, Wardle (2019) found that 12% of 11-15-year-olds had gambled in the week before participating in the study, while 31,000 are estimated to be experiencing problems with their gambling. Across the literature, prevalence rates could be calculated based on varying definitions of harmful gambling or using different screening tools, leading to variance in rates. Despite high prevalence rates, there is less data available on children and young people's experiences of gambling harms, specifically in terms of which subgroups of children are more at risk, and what harms they experience. Additionally, there is a reliance on self-reported survey data which is subject to desirability bias, ambiguity, and other biases. Wardle (2019) found high levels of ambiguity around how young people define gambling, with some young people conceptualised gambling as being synonymous to dares and others believing that money had to be involved. Many of the papers the author reviewed did not engage with young people's definitions of gambling, instead assuming they thought of it in the same way as the researchers, and so young people could have misinterpreted what gambling refers to in self-reported surveys. Further features of commonly used surveys include that they use pen and paper forms, and have been directly adapted from adult screening tools (Ferrara et al., 2019).

Outside the UK, prevalence rates also vary by country. Using the Problem Gambling Severity Index (PGSI)<sup>5</sup> as their measure, Hanss et al. (2015) found in Norway that only 0.2% of their sample of 17-year-olds had experienced gambling harms, and 1.5% were gambling at moderate risk. However, in a study of Croatian high school students, Ricijas, Dodig Hundric, and Huic (2016) found using the Canadian Adolescent Gambling Inventory<sup>6</sup> that 49.2% of boys aged 13-17 years in the sample were occasionally gambling with low to moderate consequences, while 23.7% were engaging in gambling with more severe consequences. Prevalence rates were also quite variable in Finland, with Ferland and Blanchette-Martin (2013) having found that anywhere between 1.7% and 8% of young people met the

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<sup>4</sup> A “gambling problem” is assessed in this report using the DSM-IV-MR-J, an established screening tool consisting of nine components that measure different feelings, actions, or behaviours that can be indicative of a “gambling problem”.

<sup>5</sup> The PGSI is a measure of gambling used within the Health Survey for England, Scottish Health Survey, and the Welsh Problem Gambling Survey. It consists of nine items and each item is assessed on a four-point scale with scores of 8 or above indicating a gambling problem.

<sup>6</sup> A survey assessing “risky” and “problematic” gambling behaviours in 13-17-year-olds.

criteria for probable<sup>7</sup> “pathological gambling”, defined by the authors as “people who suffer severe negative consequences because of their participation in gambling activities”. Additionally, between 4% and 14% were at risk of developing harmful gambling behaviours.

It is important to note that while some differences in cross-country prevalence rates are based on differences in actual rates of gambling, they are also likely influenced by variation in measures used, data collection, and measurement (especially in terms of how different scales define “problem gambling”). Therefore, these rates should not be directly compared and instead used to give an indication of general variation only.

The prevalence of harmful gambling may also be higher among university students than the general population. Nowak (2018) synthesised research studies from multiple countries on gambling prevalence among university students from 1987 to 2016. The author analysed 65 studies that measure the prevalence of “problem gambling”, as measured by a score of 3 or 4 or higher on the South Oaks Gambling Screen (SOGS)<sup>8</sup>, and “pathological gambling”, as measured by a score of 5 or higher on the SOGS. Overall, the author found a variance in estimates across the 65 studies. Estimates of prevalence of “pathological gambling” ranged from 1% to 25%, with a weighted average of 6.13%. The estimates of “problem gambling” ranged from 2.65% to 48.5%, with an overall weighted average estimate of 10.23%. While factors such as school type (i.e., public or private), the country in which the study took place, and age had no significant effect on gambling prevalence, there was a significant effect associated with increases in the number of non-White or male students in the population of the college or university. When investigating the quality of the literature more generally, Nowak (2018) found that many papers suffered from an inconsistent definition of “problem gambling” and “pathological problem gambling”. Additionally, there were changes in the Fifth Edition of the Diagnostic Manual of Mental Disorders (DSM-V) definition of “pathological gambling, making it difficult to compare estimates over time. While it is promising that the author is considering discrepancies in measures and definitions of harmful gambling, they still rely on stigmatising and potentially harmful language to describe gambling harms.

Weidberg et al. (2018) also found evidence of significant differences in the prevalence rates of harmful gambling between young men and young women. Using survey data from secondary schools in the North of Spain, they found that the percentage of males with “at risk/problem gambling” was more than three times higher in men than women, with males showing a more severe gambling pattern profile, on average taking part in a higher number of gambling activities and spending more time gambling per occasion.

Gambling behaviours and severity may also change with age and over time. Pisarska and Ostaszewski (2020) measured the prevalence of gambling among 800 Polish high school students in a longitudinal study over two years using a combination of the South Oaks Gambling Screen Revised for Adolescents (SOGS-RA) and an index score of gambling behaviour from 0 (no participation in any type of gambling behaviour) to 6 (participation in all measured types of gambling behaviour). They found that while across both waves, 11-12% of students had gambling involvement consistent with measures of “problem gambling”, 14% of students who had gambled in wave 1 stopped gambling in wave 2, and 1% who had not gambled in wave 1 began gambling at wave 2. However, Emond, Griffiths, and Hollén (2022) found that those who had developed a problem with gambling at age 20 were likely to continue to have a gambling problem at age 24, which may suggest that gambling behaviours develop in late adolescence and solidify by young adulthood.

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<sup>7</sup> The authors use “probable” to denote that the assessment was completed via a questionnaire and is thus an estimate rather than a formal diagnosis.

<sup>8</sup> A 20-item screening tool used to identify pathological gambling.

## Motivations for gambling

Only one paper explicitly discussed children and young people's motivations for gambling, indicating a gap in the literature. Cosenza et al. (2020) explored 'chasing', described as continuing to gamble to recoup previous losses, and its role in young people's motivation to gamble. The authors surveyed approximately 400 boys aged 13-17 years in Southern Italy on gambling severity (using the SOGS-RA) and alcohol use disorder. The results suggested that the choice to continue playing depended on a strong and urgent desire to gamble and the anticipation of immediate positive subjective experiences from gambling. Also, frequency of 'chasing', or continuing to gamble to recoup previous losses, was not significantly associated with gambling severity, suggesting that it was not a strong motivation to gamble within this sample.

## Attitudes towards and exposure to gambling

Despite it being illegal in many countries, young people often participate in and are exposed to gambling from an early age. Ferland and Blanchette-Martin (2013) stated that while young people may have fewer financial resources than their adult counterparts, this does not necessarily act as a barrier to gambling as they can bet their own personal items, clothing, food, or cigarettes if they do not have money. Despite not being financially harmful, the authors note that this could lead young people to develop harmful practices and attitudes towards gambling.

Hamilton-Wright et al. (2016) explored how both early exposure to gambling and traumatic life events can potentially shape gambling behaviours later in life. The authors conducted semi-structured interviews with 30 men with histories of experiencing gambling harms alongside homelessness or housing instability. Participants attested that they began gambling when they were children and were primarily introduced through family and peers. Many men found that gambling provided enjoyment and helped them cope with trauma, poverty, or homelessness. More specifically, in the absence of protective factors, the paper posits that gambling became a means to cope, to help young people financially support themselves, enhance their self-esteem, and fit in with peer networks of young people connected through an experience of housing instability. This entrenchment of gambling behaviour in youth could put them at risk for developing gambling problems as adults and continuing to gamble as a coping mechanism. One limitation of this study is that because it is qualitative and uses a small sample size, findings likely cannot be generalised beyond the specific sub-population within the study of individuals who have experienced both homelessness and gambling harms.

Pitt et al. (2016) examined the attitudes of young people who play or regularly watch sports in Australia towards marketing for sports betting. The sample of children and parents was recruited from community websites for the Australian Football League (AFL) and the National Rugby League (NRL), as well as a children's soccer league. Participants were surveyed on their sports viewership and their recollection of sports betting marketing. It was found that 91% of children and 98% of adults recalled seeing advertisements for sports betting. Children who regularly watched AFL or NRL were more likely than children recruited from the soccer league to have remembered seeing sports betting advertisements. Children most frequently recalled seeing adverts on television, in stadiums, on the radio, and on websites. Perception and understanding of gambling harms from sports betting advertisements differed significantly between children and adults. Children specifically recalled promotions focusing on "cashing out" and many believed that if you lost a bet, you would still get your money back. When asked about their feelings about advertising, many children expressed that adverts had made them want to start betting or made them feel as if one needed to bet to enjoy sport.

In an international literature review of qualitative studies of youth gambling, Cosenza et al. (2020) found further support for some of Pitt et al.'s (2016) findings regarding young people's perceptions of gambling. Key themes the authors uncovered from their review included that gambling was embedded in many relationships and activities in young people's lives, and especially in sports viewership. There was lots of ambiguity around what young people considered a gambling activity, and whether it always had to involve money. Finally, they found that key factors influencing young people's attitudes and behaviours around gambling were their families, their peers, access to technology, and their exposure to advertising and marketing.

## Types of gambling activities

### Engagement in traditional gambling activities

Research suggests children and young people may engage in different types of gambling activities compared to adults. Among traditional modes of gambling (as opposed to online gambling); scratch cards, lotteries, cards, and sports betting were shown to be the most common. Cosenza et al. (2020), Pisarska and Ostaszewski (2020), and Oksanen et al. (2019) all found that lotteries, card games, scratch cards, and slot machines were the most common gambling activities among samples of young people in Italy, Poland, and Finland respectively. Pisarska and Ostaszewski (2020) also found that there was an increase in the proportion of students participating in sports betting from the first survey wave to the second, indicating that older students may have a greater preference for sports betting. Ricijas, Dodig Hundric, and Huic (2016) found in a sample of Croatian youth that sports betting was the most prevalent gambling activity, with 65.5% having participated, while scratch cards, the lottery, and electronic roulette were the least common. This evidence indicates that across country contexts, young people's preferences for different gambling activities may differ.

Young men and women may also have differing gambling preferences. Using survey data from Spanish high school students, Weidberg et al. (2018) found evidence that men had a stronger preference than women for land-based and mixed mode venues as well as preferring bingo, poker, sports-betting and scratch cards, though the paper did not go on to state which types of gambling women preferred. "Land-based" gambling is gambling which occurs in physical places such as casinos or in betting shops (as opposed to online), while "mixed mode" gambling is gambling activity that occurs online and in physical spaces.

Some of the most common traditional gambling forms young people are exposed to are scratch cards and lottery games. Kundu et al. (2013) surveyed USA high school students on gambling severity and receiving lottery tickets as gifts. Of the sample, 52.5% had received lottery scratch cards as gifts, with 14.5% receiving them on a monthly basis, and 3.1% receiving them on a weekly basis. Those young people that received lottery tickets as gifts were more likely to have PGSI scores in line with "at risk or problem gambling". Thus, this research highlighted that while young people receiving scratch cards as gifts may seem like a harmless gesture, it can lead to a greater risk of experiencing gambling harms. However, in a sample of Norwegian high school students, Hanss et al. (2015) found that while scratch cards were the most preferred option in both people gambling at moderate risk and people gambling at low-risk, the share of those who played scratch cards was lower in the non-risk group. Yet, the preferences of people engaging in 'risky' gambling were more diverse and included gambling types such as odds games (makes bets based on differing odds) and sports betting.

## Engagement in online gambling or video game betting

Beyond more traditional modes of gambling, a high percentage of young people are engaging in video-gaming behaviours that strongly resemble gambling. GamCare (2021) found through workshops with young people and representatives from a variety of sectors that these more modern forms of gambling can come with substantial financial costs, with adults often unaware of these forms of gambling and are therefore ill-equipped to spot warning signs.

For example, loot boxes are purchasable video game content with randomised rewards, which the player does not know the specifics or value of until after payment. Close and Lloyd (2020) analysed past literature on loot boxes from the UK to understand the psychological motivations of young people who purchase loot boxes, their purchase motivations, and what links loot boxes have to potential harms. Loot boxes are a growing industry, with EA (a large video game manufacturer) generating one third of their revenue in 2015 from loot boxes. Despite being very similar to gambling activities, loot boxes avoid being legally classed as gambling, making them highly accessible to young people. Additionally, Close and Lloyd (2020) found that only 5% of individuals who purchase loot boxes generate more than half of all loot box revenue, with approximately one third of this cohort falling into the category of “problem gambling”. The associations between at risk gambling and loot box purchases were weakest with “free” boxes (those that you do not have to pay money to open), supporting the notion that staking money is fundamental to the relationship.

González-Cabrera et al. (2023) also aimed to understand how many young people were purchasing loot boxes, and the association between loot box purchases and “online gambling disorder”<sup>9</sup>. Through surveying approximately 2,000 high school students in Spain in December 2020 and 2021, they determined 32.8% of the sample purchased loot boxes at either period. Of that sample, 17.9% only purchased at the first wave, 25.9% only purchased at the second wave, and 56.2% had bought loot boxes in both periods. Additionally, online gambling was 2.67 times more prevalent among boys who bought loot boxes compared to boys who did not buy loot boxes. The effect was even stronger among girls, with those who bought loot boxes exhibiting 10 times more risk of presenting clinical problems from online gambling six months later. The authors suggest two potential reasons for why the relationship between gambling harms and loot box purchases is stronger among girls. First, literature on other disordered behaviours has observed an “acceleration phenomena” where girls have a later age of initiation, but a shorter time before they experience more severe harms. Second, it may be the case that because girls are less engaged in video games, when they do play, they are more determined to succeed, and therefore may engage in harmful behaviours to do so. However, more research is needed to understand the specific driving factors.

## Gambling harms

The literature reviewed suggests that children and young people who engage in gambling (even activities that seem benign) are at greater risk for experiencing gambling harms as adults. Ferland and Blanchette-Martin (2013) found that youth who received lottery tickets as gifts had a higher prevalence of gambling as adults, compared to youth who did not receive lottery tickets as gifts. This may be especially pertinent among youth who have fewer protective influences and may use gambling as a coping mechanism (Hamilton-Wright et al., 2016).

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<sup>9</sup> Online Gambling Disorder (OGD) was evaluated using the Online Gambling Disorder Questionnaire, which consists of 11 items assessing OGD in adolescence, where scale responses range from 0 for never, and 4 for every day. If an individual responds “frequently”, “almost every day”, or “every day” on at least four of the items, they meet the clinical diagnosis for OGD.

Children who engage in gambling may be at risk of harm from other associated behaviours with the potential for risk. Räsänen et al. (2015) found that the risk of violent behaviour increases proportionally with increased gambling frequency. Additionally, an increase in gambling frequency was associated with an increased risk of fighting and carrying a weapon. While the paper does not explore the underlying drivers of this relationship, it is possible that these behaviours may influence one another, or that they are driven by a common antecedent or environmental factor. Scholes-Balog et al. (2016) used a sample of 2,884 high schoolers interviewed at two different time periods to understand factors associated with problem gambling persistence. They found that problem gambling persistence was significantly associated with more frequent cigarette, alcohol, and cannabis use, and anti-social behaviour at the second interview period.

# Factors affecting risk and their underlying, structural drivers

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Before discussion of factors that can influence a young person's risk of experiencing gambling harm, as well as their underlying determinants, it is important to note that none of the evidence provided in this section (and much of the report) is attempting to causally link any factors to gambling activities. While some of the quantitative studies cited use regression analysis (rather than claiming that one factor causes another) they are measuring the strength and statistical significance of the association between two factors. Thus, while the research can conclude that individuals from certain communities will be at higher probability of experiencing gambling harms (based on the characteristics of other individuals within a sample), the literature does not evidence that having a certain identity can cause gambling harms.

## Gender

The most commonly explored factor affecting gambling harms among children and young people identified within the literature was being male. Our search identified 15 papers that, primarily through statistical analysis of longitudinal or cross-sectional data, identified male gender as a factor strongly associated with risk of gambling harms. In a cross-sectional study of Spanish high school students, Weidberg et al. (2018) had three primary findings: (i) men engaged in a greater number of gambling activities than women and spent more time gambling per occasion, (ii) the prevalence of at risk or "problem gambling" was higher among men, and (iii) men showed a more severe gambling pattern profile<sup>10</sup>. Ricijas, Dodig Hundric, and Huic (2016) provided additional evidence of this, finding that one third of Croatian high school boys in their sample bet on sports at least once per week.

In a survey of Finnish young people, Edgren et al. (2016) found that 13.6% of males compared with 4.6% of females were defined as at risk or engaging in "problem gambling" in the past year. Additionally, both Anselmi et al. (2022) and Cosenza, Ciccarelli, and Nigro (2019) found that young men in Italy were more likely to score highly on the SOGS-RA. Other authors also found an association between male gender and risky gambling behaviour across a range of countries (Rossen et al., 2016; Scholes-Balog et al., 2016; Kaltenegger, Låftman, and Wennberg, 2019 ; Leeman et al., 2014; Hanss et al., 2015) indicating that the relationship between gender and gambling behaviour is not unique to one specific country context.

González-Cabrera et al. (2023) had similar findings around online gaming. They found that boys were more likely than girls to buy loot boxes. However, girls who bought loot boxes were at a 10 times greater risk of presenting clinical problems from online gambling than boys, while the risk of harm was 2.67 times greater among boys who bought loot boxes compared to those who did not. This indicates that the difference in risk of gambling harms between girls who bought loot boxes and those who did not is greater than the difference within the sample of boys.

There is no conclusive answer as to why young men seem to gamble more frequently than young women, and experience more severe gambling harms. Edgren et al. (2016) propose that girls and boys are influenced by their social environment. Boys are more likely to be socialised into gambling behaviours from a young age, and so they may experience more negative harms. Additionally, there is

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<sup>10</sup> A more severe gambling pattern profile was described as spending more time gambling per occasion, spending more money gambling, and using gambling as a coping mechanism, for enhancement, or social reasons.



limited evidence that girls view gambling more negatively than boys do, also as a result of their socialisation. However, Ricijas, Dodig Hundric, and Huic (2016) note that because so many fewer girls gamble than boys, it is difficult to develop a comparable sample.

## **Familial influences and children and young people as affected others**

Family behaviours and attitudes regarding gambling can also have a significant impact on children and young people's gambling behaviour or risk of experiencing harm.

Combining findings from an evidence review with face-to-face and telephone interviews with young people, parents, and other family members, Erskine et al. (2018) (on behalf of GambleAware) found broad types of familial gambling influence. Parents can act as socialisers, where the family context creates an environment where gambling is a socially acceptable activity. While gambling may be low stakes in this instance, it can inadvertently teach children harmful gambling behaviours. Parents can act as moderators, where they moderate their child's gambling behaviour by demonstrating how to "safely" gamble by self-limiting. Parents can also act as protectors. For young people who have developed a gambling disorder, parents can act as emotional support and a first response or offer financial support to minimise gambling harms. Parents can also encourage their children to seek professional help and can access services on behalf of their children.

While Erskine et al. (2018) found that parents can be a protective influence, parental gambling can also negatively harm children as affected others. This qualitative study found that some parents who were classified as engaging in "problem gambling" stated that they felt out of control, and often spent all the money available to them on gambling. Additionally, there was a higher frequency of gambling in families where the parent was classified as at risk or engaging in "problem gambling". Finally, young people with experience of gambling harms said they initially got into gambling as a shared interest between themselves and their parents (e.g., a father and son making bets together), which later developed into more harmful gambling activity.

Banks et al. (2018) also explored gambling harms felt by affected others through analysis of the Families Living with Problem Gambling Survey. They found that families commonly experience financial and health harms, and nearly all survey respondents said they had experienced emotional or psychological harms as a result of their loved ones' gambling. In particular, children of those experiencing gambling harms stated that they felt they had been neglected by their parents as a result of gambling. The most common financial harms included erosion of family savings and a loss of surplus income. One partner of someone partaking in "problem gambling" reported that her partner left her with very little money for food for her two young children and required her to take out significant loans to pay off debts he had accrued. The most common health harm cited was sleep deprivation, but respondents also reported elevated rates of tobacco and alcohol consumption. Some respondents said they began to neglect their own hygiene or self-care and were hesitant to spend money on prescriptions or essential items.

There were several parental protective factors identified in the literature. Scholes-Balog et al. (2014) found that pro-social family involvement was a statistically significant protective factor against gambling harms. Pro-social involvement was measured by survey questions such as if family members encourage children to do their best. Canale et al. (2017) found that students in Italy who had higher

perceived levels of family support<sup>11</sup> had lower likelihood of risky gambling behaviour, even after controlling for family affluence. Further, both Emond, Griffiths, and Hollén (2022) and Marinaci et al. (2021) determined that lower parental monitoring was associated with higher levels of risky gambling.

Erskine et al.'s (2018) findings are supported by quantitative studies in the literature, with several papers finding an association between parental gambling and a child's risky gambling behaviour. Bellringer, Pearson, and Lusitini (2022) and Emond, Griffiths, and Hollén (2022) both found evidence that having a mother who gambled increased the risk of a child engaging in harmful gambling behaviour. Buja et al. (2022) also found that having a mother who gambled was a risk factor for harmful gambling, but only for girls. Several papers also found that having any parent or family member who gambled (as opposed to specifically mothers) led to an increased risk of a child experiencing gambling harms. Gonzalez-Sicilia, Derevensky, and Pagani (2020) found using the Quebec Longitudinal Study of Child Development that for every unit increase in parental gambling, the probability of a child having participated in gambling by age 12 was 1.21 times higher. This finding was supported by Hanss et al. (2015) and Kundu et al. (2013).

Parents' behaviour more generally can also influence children's gambling activities. Scholes-Balog et al. (2016) found that family conflict and a history of family anti-social behaviour were statistically significant risk factors for children engaging in risky gambling behaviour. Further, Gonzalez-Sicilia, Derevensky, and Pagani (2020) found that a unit increase in childhood household smoke exposure from parental tobacco use corresponded to an 18% increase in the probability of a child's gambling. Other parental factors associated with an increased probability of gambling participation included financial difficulties (Emond, Griffiths, and Hollén., 2022) and lower parental education (Kaltenegger, Låftman, and Wennberg, 2019; Emond et al., 2022). These associations could point towards lower socioeconomic status as an underlying driver of harm, which will be explored further later in the chapter when discussing 'experience of lower socioeconomic status'.

Two papers also found evidence that the family or household structure that a young person grows up in can potentially impact their gambling behaviours. Canale et al. (2017) found that the risk of gambling harms is compounded when the young person does not live in a two-parent household or has lower family affluence. Additionally, Bellringer, Pearson, and Lusitini (2022) found that children whose mother did not have a partner were more likely to engage in gambling activities at age 14 years. However, as emphasised at the beginning of this chapter, these findings are correlational, so causality cannot be inferred.

## School influences

A young person's relationship with their school environment and how engaged they are with school could also be a factor influencing gambling behaviours. Fröberg et al. (2015) specifically examined whether low school grades are associated with an increase in risky gambling behaviour. Using data from 16-24-year-old respondents of the Swedish Longitudinal Gambling Study, they found that prevalence of "problem gambling" was eight times higher among female respondents with low grades and twice as high for male respondents with low grades. This finding is supported by Kundu et al. (2013), Latvala, Lintonen, and Raisamo (2023), and Dowling et al. (2017), who all found a significant association between low grades or poor academic performance and risky gambling behaviours. Buja et al. (2022) found that the relationship between harmful gambling and poor school marks was only significant among boys.

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<sup>11</sup> Perceived family support was assessed using the Multidimensional Scale of Social Support, which has four items including "I get the emotional help and support I need from my family".

Other school factors found to be significantly associated with harmful gambling were low school satisfaction and skipping classes (Svensson and Sundqvist, 2019), unsatisfactory relationships with teachers (Buja et al., 2022), and low school commitment (Scholes-Balog et al., 2014). An example of this measure of commitment being “How important do you think the things you are learning in school are going to be in your later life?”. Despite these relationships being evidenced within the literature, these papers did not go on to explore the possible underlying drivers behind why the above school factors may influence risk of gambling related harms.

## Peer influences

Peers can have a strong influence on gambling behaviours, especially for young people, and can act as both protective influences and influences that have the potential to cause risk. Several papers found a relationship between an individual’s harmful gambling behaviour and association with anti-social peers, or anti-social peer group activity (Scholes-Balog et al., 2014; Dowling et al., 2017; Scholes-Balog et al., 2016). Additionally, Rossen et al. (2016) found in New Zealand that having friends who gambled was a risk factor for a young person’s own risky gambling behaviour. Bellringer, Pearson, and Iusitini (2022) specifically studied the relationship between gang involvement and harmful gambling behaviour. They analysed two waves of data collected through the longitudinal Pacific Islands Family Study in New Zealand when children were aged 9 and 14-years-old. They found that gang involvement at age 9 was associated with gambling at age 14. This relationship remained significant after controlling for gender, gambling at 9-years-old, and mother’s gambling. Although the longitudinal research design was a strength of this study, it is important to note the fact that gang involvement could point towards there being underlying drivers of harm, which will be discussed in greater detail later within this chapter. Also, while the authors’ findings are interesting, they note there is a possibility that due to the children’s age at the first survey period, there could have been a misunderstanding or misinterpretation of some survey questions by the very young children.

While the relationship between anti-social behaviour and gambling in young people is relatively well-established within the present literature reviewed, some papers explored the role of other, less obvious peer group factors. Elgar et al. (2018) carried out a cross-sectional study on Italian adolescents using data on family material assets and self-reported gambling symptoms to explore socioeconomic differences in youth disordered gambling. They found that having relatively better off classmates predicted disordered gambling behaviour in youth. They hypothesised that larger socioeconomic differences and perceptions of being unfairly disadvantaged in relation to peers may increase motivations to gamble.

While Yau et al. (2014) found that there was an association between harmful internet usage and risky gambling behaviours, there is evidence that association with an online peer group (a group of friends who primarily engage and socialise online) is also a risk factor. In a cross-sectional study using a sample of young people from Finland and the USA, Savolainen et al. (2021) found that in the USA identification with a primary online peer group was associated with higher South Oaks Gambling Screen Revised for Adolescents (SOGS-RA) scores. However, the authors’ findings around the negative influence of online peer groups were coupled with evidence that identification with a primary offline peer group had a significant association with lower SOGS-RA scores.

Additionally, they found that social support<sup>12</sup> moderates the relationship between online social identification and risky gambling behaviour. The evidence that social support for young people acts as a protective factor against risky gambling is supported by findings from Elgar et al. (2018) and Rossen et

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<sup>12</sup> In this study, social support is measured by the Multidimensional Scale of Perceived Social Support, and the Teacher and Classmate Support Scale.

al. (2016). However, Räsänen et al. (2016) found in a cross-sectional study of Finnish young people that social support from families, peers, teachers, and classmates among boys was associated with increased gambling frequency. This indicates that while social support can act as a protective factor in some cases, gambling is also a social activity for many young people in which input from friends plays a large role.

## Environmental factors

The environmental risk factor most frequently identified in the literature reviewed was exposure to gambling and betting advertisements. King et al. (2017) used a longitudinal twin study to attempt to separate the effect of environmental factors and genetic factors that were significant in determining gambling behaviours at age 18. They found that while shared environmental factors are influential at age 18, their effect decreases in significance by age 25. In a qualitative study of young people in Australia who are fans of a major sports team, or participate in sporting activities, Pitt et al. (2016) found that young people are frequently exposed to advertising and have a strong recall of specific promotions and strong brand recognition. Noble et al. (2022) also found evidence of the potential risk of gambling advertising for young people. Using the Australian Secondary Students Alcohol and Drug Survey, the authors found that 85% of respondents had seen gambling advertisements on TV, 46% had seen them on social media, and 40% had seen them in sports. Respondents who reported being aware of gambling advertisements were also 84% more likely to be classified as experiencing gambling harms.

Advertising as a risk factor is also relevant in the context of Great Britain. An Ipsos MORI (2020) report drew on 9 strands of research<sup>13</sup> to examine the tone and content of gambling marketing across several types of media and identify which themes of advertising children, young people and vulnerable adults are most susceptible to. The authors found that while there was no advertising during children's television programmes, there was evidence of content appealing directly to children through the use of child friendly images or the representation of people under 25. Children and young people had high levels of exposure to gambling advertising through TV, social media, and high street shops. As was found in Noble et al. (2022) and Pitt et al. (2016), children and young people also had high brand awareness and recognition. They found that gambling advertisements promoted behaviour that otherwise would not occur, such as signing up for an online betting account to take advantage of a special or time-limited offer. For example, even where advertising did not translate directly into action (e.g., resulting in young people participating in gambling behaviours), it did translate into increased awareness and normalisation of gambling.

## Co-occurring disorders and mental health challenges

Across several papers in the literature, an association between Attention Deficit Hyperactivity Disorder (ADHD) symptoms and gambling was established. Using longitudinal data from the Avon Longitudinal Study of Parents and Children, Emond, Griffiths, and Hollén (2022) found that individuals who exhibited risky gambling behaviours at age 20 had previously higher hyperactivity and conduct problem scores (measured by the Strengths and Difficulties Questionnaire<sup>14</sup>) than those who were gambling at lower risk.

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<sup>13</sup> This included a literature review, media monitoring, creation of online avatars to explore exposure, social media analysis, content analysis, review of sport sponsorship, quantitative survey of young people and vulnerable adults, and qualitative research with the same cohort.

<sup>14</sup> The Strengths and Difficulties Questionnaire is a short behavioural questionnaire used for children and young people that includes questions on emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviour.

André et al. (2022) supported this finding in a clinical subsample, having found in a sample of patients aged 8 to 18 years in a Child and Adolescent Psychiatric Unit that there was a positive association between ADHD diagnosis and severe gambling. Using a multi-level discordant twin design, Slutske et al. (2014) identified causal and non-causal pathways through the age at which an individual first starts to gamble, their later in life gambling frequency, and disordered gambling behaviour. They found that when twins differed in the presentation of ADHD symptoms, the twin who presented more symptoms was found to gamble more frequently. However, they also found that oppositional defiant disorder (ODD) was a better predictor of gambling disorder than ADHD symptoms and age of gambling initiation. A one-point increase in a measure of individual ODD symptoms corresponded to a 0.23-point increase in gambling frequency, and on average, gambling initiation a year earlier corresponded to a 2 days per year increase of past year gambling.

In a meta-analysis of longitudinal studies by Dowling et al. (2017) and a cross-sectional study by Hanss et al. (2015), a positive association between risky gambling behaviour and depression was revealed. Canale, Vieno, Billieux, et al. (2017) also found a positive association between medicine use for nervousness in young people and experience of gambling harms.

## Behavioural characteristics and emotional vulnerability

Specific behavioural characteristics may also be associated with risky gambling behaviour in children and young people, and it may be that underlying emotional vulnerabilities lead to a higher susceptibility for gambling harms. Individuals described as “problem gamblers” by Parker et al. (2013) were found to be more likely to have higher stress levels, and struggle with anxiety and depression as compared to “non-problem gamblers”. While this section examines the role of behavioural characteristics and their interactions with gambling behaviour, it is important to note that the characteristics described below may be based on underlying emotional vulnerabilities which in turn may be based on other structural drivers of harm. Also, as aforementioned, studies exploring this theme were correlational in nature and findings should be scrutinised with this context in mind. In this light, nine studies in the academic literature identified associations between certain behavioural characteristics and gambling behaviours.

Several studies found an association between higher impulsivity levels and more risky gambling behaviours in young people across several country contexts (Hanss et al. 2015; Leeman et al. 2014; Kaltenecker, Låftman, and Wennberg 2019; Dowling et al. 2017). It is important to note that “impulsivity” is measured via a self-administered questionnaire<sup>15</sup>, primarily asking respondents about their levels of premeditation, and their own behaviours. As the surveys are self-administered, and quite short, they are (i) subject to potential misinterpretation by respondents and (ii) cannot capture all elements of an individual's personal and social environment, meaning they may miss important structural factors that affect presentation of “impulsivity”.

Cosenza, Ciccarelli, and Nigro (2019) determined that higher involvement in gambling was significantly associated with both higher dysfunctional impulsivity and shorter time horizons (whether an individual's preference for payoffs or rewards is shorter or longer-term), which were measured using the Functional and Dysfunctional Impulsivity Scale (FDIS) and the 14-item consideration of Future Consequences Scale respectively. The FDIS differentiates “functional” from “dysfunctional” impulsivity. “Functional” impulsivity is measured by an individual's tendency “to act quickly without planning when a situation demands it”, whereas “dysfunctional” impulsivity is a “tendency to engage in rapid, error-prone

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<sup>15</sup> Tools used to measure impulsivity include the 13 item Eysenck Impulsivity Scale, the Zuckerman-Kuhlman Personality Questionnaire, and a bespoke four item test designed mirroring the Youth Psychopathic Traits Inventory.

information processing in situations where slower methodological approaches are required”. Additionally, Weidberg et al. (2018) found that impulsivity (as measured by a Spanish language version of the Impulsive Sensation Seeking Scale, measuring a tendency to act without previous planning) was correlated with greater gambling severity in both men and women in Spain. Martins et al. (2014) also found in a sample of African American young people in Connecticut that there was a stronger association between participation in gambling activities among individuals with higher impulsivity levels. In Martins et al.’s study, impulsivity is measured via the Teacher-Observation of Classroom Adaption where teachers rated young people on characteristics such as interrupting others and waiting their turn. The authors acknowledge that this relatively short assessment is a limitation in their study. Additionally, it is possible teachers possess unconscious biases against students from certain backgrounds and may provide harsher assessments as a result. While the evidence indicates that young people with greater impulsivity may be at risk of engaging in gambling in conjunction with other risky behaviours, the findings should be interpreted with caution as they have significant limitations.

“Sensation seeking” was another characteristic that was associated with gambling behaviour across the literature. Hanss et al. (2015) and Dowling et al. (2017) both found that higher sensation seeking<sup>16</sup> scores were associated with risky gambling behaviours. However, while Leeman et al. (2014) found that impulsivity was significantly associated with more frequent gambling, sensation seeking was not significantly correlated with gambling frequency in their study. Moreover, Dowling et al. (2017) noted a high heterogeneity in effect sizes across studies reviewed. Thus, the evidence on the relationship between sensation seeking and gambling behaviours is mixed.

Another factor associated with being at risk for gambling harms included “emotional vulnerability”. Parker et al. (2013) posited that problematic levels of engagement in the cluster of gambling, gaming, and internet use can be explained by underlying emotional vulnerability that interacts with young people’s ability to regulate their emotions, producing a dependency on gambling and related behaviours. Emotional vulnerability was measured via the Emotional Quotient Inventory, a 60-item self-report of “emotional intelligence” specifically developed for children and adolescence. Specifically, they studied the relationship between emotional vulnerability and engagement in gambling, gaming, and the internet in a sub-sample of students with individualised education plans (IEPs), who may be more vulnerable than those in the wider population. Using latent variable path analysis, they found that emotional vulnerability was a robust predictor of unhealthy engagement with gaming, gambling, and the internet, accounting for 25% of variation in the cluster, in the sample of students with IEPs.

Additionally, papers suggested that “positive urgency” was associated with exhibiting risky gambling behaviours (Canale et al., 2015; Canale, Scacchi, and Griffiths, 2016). Positive urgency is defined as occurring when an individual exhibits urgency or rash behaviours during a positive emotional state (e.g., a series of wins in a gambling activity). Further, the differences in gambling behaviour among their sample of young people are largely consistent with differences in rash behaviours exhibited during positive emotional states. The authors’ findings indicate that individuals who are motivated by behaviours that provide stimulation and reward are more at risk of experiencing gambling harms.

Conduct problems in young children may also be a risk factor for engagement in risky gambling behaviour, and an earlier age of gambling initiation. Conduct problems, including conduct disorder and oppositional defiant disorder (or subclinical manifestations), are defined by Temcheff et al. (2016) as “manifested in behaviours that violate the rights of others or behaviours that bring a person into conflict with societal norms”. The authors carried out a longitudinal study of children aged 6 to 9 years from low socioeconomic status schools in different geographic regions of Quebec. They found that in children

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<sup>16</sup> In Hanss et al. (2015), sensation seeking is measured via the Arnett Inventory of Sensation Seeking, which includes 10 items measuring novelty and intensity, where individuals are asked how much they think items describe their behaviours.

younger than 10, children with conduct problems were twice as likely to be initiated into gambling than their peers without conduct problems. As the context of this study was a lower socioeconomic area it could be that underlying drivers of harm were playing a role in exacerbating the gambling harms for the children in this study, which is explored in greater detail below.

## Substance use

Several papers identified a positive association between alcohol consumption and risky gambling behaviours across several country contexts (Svensson and Sundqvist, 2019; Latvala, Lintonen, and Raisamo, 2023; Scholes-Balog et al., 2014, Rossen, Lucassen, et al., 2016; Buja et al., 2022). There is some evidence that boys may be more at risk of co-occurring alcohol use and gambling disorder, with Latvala, Lintonen, and Raisamo (2023) having found in Finland that co-occurrence of gambling and alcohol use was considerably more common among boys than girls. Additionally, Edgren et al. (2016) found that, in a cross-sectional study of young people in Finland aged 15 to 28 years, risky alcohol consumption was the only statistically significant predictor of having a PGSI score in line with “at risk problem gambling” among males, while tobacco use was a statistically significant predictor among females.

Along with alcohol consumption alone, using data from an Italian national study of young people to monitor risk behaviours, Vieno et al. (2018) found that the odds of “at risk problem gambling” was four times as high among adolescents who consumed alcohol mixed with energy drinks. This relationship remained statistically significant even after controlling for other factors. Alcohol consumption is also associated with other risky gambling behaviours, such as “chasing proneness”, which occurs when an individual continues to gamble after losses to make up for what has been lost (Cosenza et al. 2020), and the persistence of gambling disorders over time (Scholes-Balog et al. 2016).

There is also a commonly identified relationship in the literature between gambling and smoking in adolescents (Latvala et al., 2018; Kundu et al., 2013; Scholes-Balog et al., 2014; Dowling et al., 2017). In a cross-sectional study of young adults in the USA, Weinberger et al. (2015) found that those partaking in riskier gambling who also smoked were more likely than non-smokers to report gambling online, gambling in casinos, and gambling in school. This finding indicates that smoking may be associated with gambling behaviour, although the evidence is mixed on whether boys or girls are more at risk of a co-occurrence of tobacco use and gambling behaviours. Buja et al. (2022) found in a cross-sectional study of Italian youth that the association between smoking and gambling was only significant in boys. Conversely, Edgren et al. (2016) found in a study of Finnish young people, that smoking is associated with an increased risk of harmful gambling behaviour in girls only.

Dowling et al. (2017) provided several hypotheses as to what drives the relationship between substance use and experience of gambling harms. They posited that it could be based on (i) a “cross substance coping response”, whereby young people turn to substance use to alleviate their experience of gambling harms and vice versa, (ii) positive reinforcement principles, where the “positive” effects of gambling and substance use are enhanced when the two are experienced together, and (iii) the “attention allocation model”, where the use of substances impairs an individual’s ability to process information accurately, leading them to respond to the most salient environmental cues.

Finally, Hamilton-Wright et al. (2016) argued that for youth who have an experience of serious trauma, gambling may go hand in hand with substance use as both may be used as maladaptive coping strategies. The authors suggest that a reliance on gambling and substance use in order to cope with trauma, poverty, or low self-esteem can develop in a person’s youth and become entrenched into their adulthood. This underlying driver of harm is explored in more detail below.

## Experiences of young people from ethnic minority and immigrant communities

There is some evidence in the literature suggesting that children and young people from ethnic minority communities may be more at risk of experiencing gambling harms than young people from White communities. However, most evidence on the relationship between ethnic minority and immigrant status and gambling harms comes from outside Europe, meaning it may not be translatable to the context of Great Britain. Additionally, the correlational nature of these studies must be emphasised here and considered throughout.

Four studies identified in our search examining the relationship between ethnicity and gambling harms were set in the USA. Using cross-sectional survey data from Connecticut on how receiving lottery tickets as gifts can impact young people's future experience of gambling harms, Kundu et al. (2013) found that among lottery ticket receivers, those with symptoms of at risk or "problem gambling" were less likely to be Caucasian and more likely to be African American, Hispanic, or Asian. This finding is supported by Leeman et al. (2014), who found in a cross-sectional survey that Hispanic/Latinx ethnicity was significantly associated with gambling frequency. Two academic papers from New Zealand using the Youth07 and Youth12 national surveys also found that students from Pacific, Māori, and Asian communities were disproportionately at risk of experiencing gambling harms compared to other ethnic groups (Rossen et al. 2016a; Rossen, Lucassen, et al. 2016).

Additionally, Kong et al. (2013) conducted a cross-sectional study of high school students in the USA aiming to determine the difference in gambling behaviours and risks among Caucasian and Asian American students. A higher proportion of Asian American students acknowledged either no gambling activity whatsoever or engaging in at risk or "problem gambling". In short, Asian Americans were less likely to report moderate levels of gambling, instead reporting harmful gambling or no gambling at all. Additionally, Asian American students were more likely to report either strong parental disapproval or strong approval (as opposed to more neutral views), which could indicate that perceptions around gambling within Asian American households are more extreme. Asian American students were also more likely than Caucasian students to meet the criteria for "pathological gambling".

One paper from the grey literature explored the perspectives of young people from Black, Asian, and minority ethnic communities on gambling harms. Clearview (2018) reported that the odds of experiencing a gambling problem were 7.4 times higher among those from Black ethnic groups and 5 times higher among those from Asian ethnic groups. The authors also carried out a series of focus groups with children and young people aged 9 to 24 years self-identifying as ethnic minorities living in Great Britain. From the focus groups, many young people felt that gambling in ethnic minority communities was different to "White gambling" but could not always articulate why. Religion was viewed as a significant factor in focus groups with 75% of participating children feeling that gambling was immoral. Finally, participants felt that they are often discouraged from gambling because of the tight knit nature of their communities and that gambling is highly frowned upon. While the paper provided a good overview into the perspectives of young people within ethnic minority communities, more research into specific communities is necessary to effectively raise awareness about gambling harms as well as to understand how different cultural contexts can influence a young person's experience of gambling harms.

The above papers all point towards ethnic minority communities being at an increased risk for experiencing gambling related harms, though few go on to explore the possible structural factors driving this increased risk. Clearview (2018) found that young people participating in interviews testified that they believed that ethnic minority communities are specifically targeted by gambling operators, for example, the young people expressed that they have a greater number of betting shops in their local



areas, pointing towards structural drivers of harm (defined as ‘society-wide drivers of harm unrelated to any individual characteristic’). Additional statistical analysis found that 61% of shops owned by a leading bookmaker were located in areas with greater numbers of non-UK born citizens, confirming young people’s beliefs. The research from Clearview (2018) indicates that because ethnic minority communities are targeted by bookmakers and experience a higher rate of gambling harms there could be a greater experience of underlying structural harm felt by young people from ethnic minority communities.

This is supported by Bellringer, Pearson, and Lusitini (2022), who explored the association between gang membership at age 9 years, and gambling participation at age 14 years within Pacific ethnicity communities in New Zealand. The authors acknowledged that socioeconomic disadvantage within the Pacific ethnicity community is likely driving both experiences of gambling harms and gang participation. In a cross-sectional quantitative study from Italy, Canale et al. (2017) found that rates of adolescent risky gambling were twice as high among first generation immigrants as compared to non-immigrants or other immigrant generations. These findings of increased risk of harmful gambling among immigrant groups are supported by Donati et al.’s (2020) research in Italy. Canale et al.’s (2017) findings also support the notion that greater levels of socioeconomic disadvantage act as a structural driver of gambling harms for ethnic minority and immigrant youth. Individuals from immigrant communities can also experience social exclusion and a lack of integration into their new communities which can drive perceptions of status and lead to feeling of disenfranchisement, which in turn can drive gambling behaviours (Levy et al., 2020).

Levy et al. (2020) summarise all of these ideas in their scoping review of literature surrounding ethnic minorities and gambling harms. The authors state that structural racism, inequality, and discrimination can be seen to be at the heart of the disparities outlined above. The authors go on to argue that despite this there is little research into the societal drivers of vulnerabilities. Therefore, more research into this area is needed to fully comprehend the experiences of people from ethnic minority groups with regards to gambling related harms, and to inform effective support for these communities.

## **Experience of trauma and adverse childhood experiences**

Another underlying, structural driver of gambling related harms for children and young people introduced earlier in this chapter is the experience of trauma and adverse childhood experiences. Research by Hamilton-Wright et al. (2016) explored this topic in-depth. The authors studied the contextual experience of 30 men in Canada with lived experience of housing instability or homelessness who experienced gambling harms in their youth. They found that most of the men had experienced trauma, poverty, homelessness, family violence, and participation in substance use and criminality in their early lives, referring to these intersecting risk factors as ‘complex vulnerabilities’. Additionally, these men had been exposed to gambling through social influences such as their families and peers.

The authors found that sports betting emerged as an important pathway into gambling in early life and that youth was a critical time period in which the men began gambling. Once gambling had been learned and experienced within the setting of deprivation and trauma, it became a mechanism to cope with the difficulty of their circumstances, and was a meaningful part of their lives, allowing them to meet their basic needs, receive social reinforcement, or experience an adrenaline rush. In the absence of protective factors or stable social bonds, gambling can become a means for young people to cope when forced to leave home and fit in with their social networks. This relationship with gambling became entrenched for the men within the study and extended into their adult lives. Overall, this research

suggests that exposure to gambling in youth in the context of other risk factors such as childhood abuse, poverty, and exposure to housing instability in early life may lay the groundwork for greater gambling harms in adult life.

## Experience of lower socioeconomic status

As well as experience of trauma or adverse childhood experiences, young people with experience of lower socioeconomic status can be at an increased risk of experiencing gambling harms. Several studies in the literature found a significant correlation between socioeconomic disadvantage and experience of gambling harms. However, it is important to note that none of these studies are attempting to measure a causal relationship. An association between deprivation and gambling could indicate any of the following: deprivation could be contributing to an experience of gambling harms, an experience of gambling harms could be contributing to deprivation, or other factors (unobserved in the analysis) contribute to both deprivation and experience of gambling harms.

Using data from the Youth12 survey of high school students in New Zealand, Rossen et al. (2016) found that living in a highly socioeconomically deprived area was a risk factor for experiencing gambling harms. Specifically, young people from highly deprived neighbourhoods were more likely to experience “unhealthy” gambling than those in less deprived areas. Additionally, Emond, Griffiths, and Hollén, (2022) found in a study using the Avon Longitudinal Study of Parents and Children in the Southwest of England that parental financial difficulties were associated with an increased probability of gambling participation in young people.

While absolute socioeconomic deprivation is associated with experience of gambling harms, relative experience of poverty or the feeling of material deprivation as compared to one’s peers or social group could also contribute to gambling harms. Elgar et al. (2018) carried out a cross-sectional study on Italian adolescents using data on family material assets and self-reported gambling symptoms to explore socioeconomic differences in youth disordered gambling. They found that having relatively better off classmates predicted disordered gambling behaviour in youth. They hypothesised that larger socioeconomic differences and perceptions of being unfairly disadvantaged in relation to peers may increase motivations to gamble. While the paper does not explore what drives this relationship, the authors suggest that young people who feel like they are at a socioeconomic disadvantage to their peers have heightened concerns about economic and social hierarchies and may gamble to pursue economic resources that they feel could increase their peer status.

# Informing intervention strategies

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## Targeting co-occurring mental health challenges and behaviours with potential for risk

One recommendation for informing intervention strategies for reducing gambling harms includes targeting co-occurring mental health challenges and behaviours with the potential for risk. For example, Parker et al. (2013) found that typically harmful use of the Internet, gaming, and gambling are treated as separate mental health challenges. However, the authors argued that when working with children and young people, prevention and intervention strategies would have increased benefits and more positive impacts if they targeted a spectrum of addiction-related behaviours. In addition, Martins et al. (2014) found a high co-occurrence between gambling and initiating sexual activity by age 18 which could also be targeted by intervention efforts. Therefore, the authors suggested that early interventions should focus on helping young people improve their decision-making skills to help them negotiate safer sex attitudes (e.g., using condoms), as well as engagement in gambling.

Studies also explained that prevention and intervention measures should aim to address co-occurring mental health challenges. For example, Kaltenecker, Låftman, and Wennberg (2019) stated that prevention efforts should particularly address children and young people exhibiting risk factors and aim at reducing psychological problems. Similarly, Turner et al. (2020) investigated the effect of traumatic brain injury and subsequently found associations between adolescents' engaging in harmful gambling and increased suicidality, as well as harmful alcohol use. The authors stated that this highlights the clustering of gambling and other potentially harmful behaviours in children and young people, leading to the suggestion that prevention and intervention efforts for gambling harms should also seek to provide support for mental health challenges and substance use.

In order to best support children and young people with complex needs in reducing gambling related harms, several papers suggested that a holistic and multidisciplinary approach is needed (Hamilton-Wright et al. 2016; Ferrara et al. 2019). For example, Hamilton-Wright et al. (2016) found that young people's experiences with trauma, abuse, neglect, and poverty can contribute to participation in gambling, leading the authors to suggest a holistic, trauma-informed approach to support young people and families with complex needs. The authors specifically called for the engagement of social workers, youth justice workers, health care professionals, and school staff as key points for intervention, screening, and reducing the harms of gambling. Ferrara et al. (2019) corroborated this, stating that many social and economic factors can exacerbate incidences of gambling related harms in children and young people. These ideas were supported by other research reviewed in the present study. Specifically, this was drawn out by discussions around the structural drivers of gambling harms for this cohort, which included experiences of low socioeconomic status, trauma and adverse childhood experiences, and discrimination based on ethnicity or immigration status.

## Education and involvement of families and parents

Kundu et al. (2013) argued that it is of particular importance to design effective intervention strategies which involve both children and parents in the education about gambling harms. The authors go on to explain that this can help to alter parental gambling attitudes and behaviours, as well as young people's perceptions of parental approval of gambling. Similarly, Scholes-Balog et al. (2014) highlighted the importance of the family in mediating negative influences and behaviours. Once again, education of the

family was stated to be important, with the authors recommending that education on the impact of a positive and rewarding family environment can have positive effects on a variety of problem behaviours, not just gambling. A study by Hamilton-Wright et al. (2016) reveals educational gaps in helping families to understand how young people's gambling can interact with other complex social and health challenges, such as alcohol and drug use. Interventions should work to increase parental awareness of the risks of exposure to gambling in youth, as parents' gambling attitudes and behaviours can have an important influence on young people's behaviour.

Lastly, Ferrara et al. (2019) also stated that one of the primary targets for prevention and intervention efforts should be families more broadly. According to the authors, strategies for reducing gambling harms in children and young people should aim to identify those with positive attitudes towards gambling and sensitise families and communities to better use and control parenting resources (such as sharing the responsibility of monitoring children within families and communities). Ferrara et al. (2019) go on to argue that the focus of interventions should be on increasing the quality of relationships within families, and involving and stimulating parental attention in children's location, friend choices, and day-to-day activities.

Having said this, not all groups of children and young people that may be vulnerable to gambling related harms experience a typical parental or family structure (such as young people experiencing homelessness or those living in foster care), and so alternative education strategies are necessary. Therefore, the previous recommendation for promoting a multi-disciplinary and holistic approach is particularly relevant for this cohort, especially the engagement of professionals that young people may come into contact with outside of their families (e.g., social workers, youth justice workers etc.). Hamilton-Wright et al. (2016) stated that providing education for these professionals to recognise and provide support for gambling harms would be useful. This also demonstrates that interventions based on education should be used as a pre-cursor to further interventions and not used in isolation.

## Involving young people in discussions

Another approach to informing prevention and intervention strategies would be to involve children and young people themselves in the co-design of initiatives to reduce gambling harms for this cohort. This included Kundu et al. (2013) who found that young people participating within their study reported that many current strategies are "not important" to them, such as checking identification, advertisements showing the harms associated with gambling, and learning about the risks of gambling in school.

The Royal Society for Public Health (2019) conducted focus groups and surveys with young people in Great Britain to identify what ideas they had for informing interventions, primarily those to do with gambling within online games. They found that young people wanted (i) to be given more information at school on health risks associated with gambling, (ii) for teachers, parents, and carers to be given more information in order to support young people experiencing gambling harms, (iii) gambling-like activities, such as skin betting<sup>17</sup> and loot boxes, to be legally recognised as gambling, and (iv) for games developers, platforms, and sports to do more to make people aware of the risks associated with loot boxes and skin betting.

Close and Lloyd (2020) identified several instances where policy action on loot boxes has taken place. However, they found the legislation had mixed success based on industry manoeuvring to side-step legislation and inconsistent policy adoption, including only mitigating the risks associated with certain types of loot boxes (e.g. those with cash out features). This suggests that although policies are moving

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<sup>17</sup> "Skin betting" is the act of betting or trading "skins"(add-ons that modify the appearance of one's game character, but have no impact on performance) for other items or money within a video game.

towards being in line with the forms of support children and young people themselves are calling for, there is still some way to go before they are fully functional and integrated into the industry. In the meantime, involving children and young people in the co-design of these strategies can both make interventions more relevant to the group they aim to support, as well as increasing understanding of the types of gambling this cohort is exposed to. Young people's involvement is particularly important as access to gambling activities continues to evolve with new forms of technology. This involvement could also include the inclusion of children and young people in qualitative research, as the current evidence base is predominantly made up of cross-sectional, survey data which does not always provide the richness and detail of qualitative work.

## Other recommendations for informing interventions

One of the key risk factors of gambling in children and young people identified within this scoping review is being male. Therefore, Weidberg et al. (2018) highlighted that when designing and implementing prevention and intervention strategies it is important to consider factors that can affect risk of experiencing gambling harms through the lens of gender.

Additionally, development of prevention programmes targeted particularly to young people from minority backgrounds may be beneficial as they disproportionately experience gambling harms (and other adverse outcomes associated with gambling harms) as a result of the structural drivers discussed previously in the report.

Hamilton-Wright et al. (2016) found that children and young people experiencing homelessness often also adopt gambling as a means to cope with adverse life circumstances. The authors, therefore, recommend that gambling prevention and intervention efforts should emphasise effective coping strategies for youth who have faced adversity in their lives, specifically homelessness.

On the other hand, one form of intervention approach that did not receive support within the reviewed literature is the use of pharmacological methods. Ferrara et al. (2019) stated that these interventions should be discouraged due to a lack of data and evidence demonstrating the efficacy and safety of pharmacological treatments for reducing harmful gambling in children and young people.

## Directions for future research

As previously mentioned, a possible focus on in-depth and robust qualitative work in this area could serve to provide context to the statistics from cross-sectional, quantitative research as well as deepening understanding of children and young people's perspectives and structural drivers of harm.

There were also several gaps identified within the evidence base. This included a gap around children and young people as affected others, with very few papers across the academic and grey literature covering this. This gap is particularly salient as the gambling behaviour that children observe could influence their attitudes and participation in gambling into their adulthood. Future research should aim to add more knowledge and depth to the literature exploring children and young people's experiences of being affected others and how this might be associated with initiation into gambling themselves, developing this behaviour in adolescence, and then continuing this into adulthood.

Similarly, our review revealed a significant gap within academic and grey literature surrounding barriers to accessing treatment and support specific to children and young people, with no papers touching on this topic. Further research is, therefore, necessary to understand how children and young people reach out for support, and what barriers may be preventing them from accessing interventions to reduce gambling related harms.

# Strengths and limitations of the evidence base

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There is a relatively large evidence base on the risk factors associated with children and young people and harmful gambling prevalence rates across different countries and samples of young people which generally scored highly on our bespoke quality assessment framework (see Appendix). However, the literature suffers from several key gaps and limitations, described below.

Of the 55 academic papers reviewed in full, 30 were cross-sectional statistical studies, 12 were longitudinal studies, 6 were meta-analyses or literature reviews, 2 utilised qualitative research methods, and 1 was a quasi-experimental study. Due to the high number of cross-sectional studies that used correlations as their primary analysis, it is difficult in many cases to ascertain a cause-and-effect relationship between variables. For example, while papers found a strong association between gambling participation and alcohol consumption, because many of the studies are based on bivariate correlations any of the following could be happening: (i) gambling participation could lead to increased alcohol consumption, (ii) alcohol consumption could lead to increased gambling participation, or (iii) a third unobserved factor could be causing an influence on both alcohol consumption and gambling participation. Further, many of the quantitative studies had small sample sizes, which could be based on relatively low levels of experience of gambling harms within survey respondents. These sample sizes lessen the statistical power and limit the external validity of studies.

Additionally, most cross-sectional and longitudinal studies use self-reported measures of gambling participation and self-reporting of other behaviours. Self-reported measures can be subject to social desirability bias, meaning actual prevalence rates or effect sizes may be underreported. Finally, a large number of the surveys used in the literature use a sample of students, with data collection taking place in schools. This indicates that harder to reach groups, such as home-schooled children, young people within Travelling communities, or other children and young people that are disengaged or excluded from school, are not represented. This is particularly important as these groups may be at increased risk of experiencing gambling harms. Of the papers reviewed in the grey literature, 4 used qualitative research methods, 2 were meta-analyses or literature reviews, 1 was cross-sectional, and 1 drew upon multiple methodologies. While no additional causal studies were identified through the grey literature search, the addition of qualitative research and the perspectives of young people added further context to the largely statistical, academic evidence base.

As previously mentioned, there was a gap around children and young people as affected others, with very few papers across the academic and grey literature covering this. There was also a significant gap within academic and grey literature surrounding barriers to accessing treatment and support specific to children and young people, with no papers touching on this. Therefore, further research is necessary to understand the prevalence and experiences of this cohort as affected others as well as barriers to treatment and support specific to children and young people.

In terms of the geographical settings of the academic papers reviewed, 11 were from Italy, 9 were from the USA, 7 were from Finland, 5 were from Australia, 4 were from Canada, 4 were from Sweden, 3 were from New Zealand, 2 were from Spain, 2 were from the UK, and there was one study each from Croatia, Norway, and Poland. Five studies reviewed drew upon evidence from multiple country contexts. While there is a large geographic diversity in the literature, there were few papers based in the UK or Great Britain, meaning there may be a lack of generalisability to this context. This was partially remedied through the addition of grey literature, where all 8 studies reviewed were based in the UK or Great Britain.

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# Appendix

## Research protocol

### Research questions

To address the objectives discussed in the previous section, the REA sought to provide evidence on the following areas.

1. What does the current research tell us about the nature of gambling and gambling-related harms among at risk groups in children and young people (CYP), both as participants and affected others?
2. What are the disparities and inequalities in gambling harms amongst CYP in terms of which groups, identities, or communities are at elevated risk of harm, which risk factors are associated with increased harm, and in what ways might these at-risk groups experience additional harms?
3. What are the underlying structural drivers of harm, and how do they cause certain groups to be at higher risk and experience more barriers to treatment and support than other groups?
  - a) What role does intersectionality play in compounding harm or risk of harm for these groups?
4. Which set of priority vulnerable groups, communities, risk factors, or circumstances could inform targeted intervention strategies?

### Inclusion and exclusion criteria

We used inclusion and exclusion criteria to decide if the materials identified from our search were suitable for answering the core research questions of this project. The criteria that was used to move from a long list of materials towards a short list of studies that were included in our technical review are listed in the table below.

**Table 1. Inclusion and exclusion criteria**

Inclusion and Exclusion Criteria		
Theme	Inclusion Criteria	Exclusion Criteria
<b>Population characteristics or context</b>	Children and young adults (up to age 25).	Studies that do not focus on the population of interest.
<b>Country of the study</b>	Great Britain, comparable countries (Northern Ireland, Canada, Australia, New Zealand). USA and comparable EU and EEA countries will also be considered.	Non-comparable countries in Africa, Asia, and South America.
<b>Sector</b>	Gambling services, youth services, children’s social care, Child and Adolescent Mental Health Services.	Studies focusing on sectors not in scope.
<b>Methods</b>	All methods (experimental, quasi-experimental, qualitative, descriptive etc.).	

<b>Areas of impact/outcomes</b>	<p>Studies that focus on CYP’s risk of gambling-related harms, stemming both from gambling themselves or being affected others.</p> <p>Studies that investigate the underlying determinants of increased risk, including contextual drivers (e.g. exposure to gambling venues and advertising).</p>	Studies not focusing on these areas will be considered out of scope.
<b>Date of research</b>	Published between 2013-2023.	Published earlier than 2013.
<b>Language</b>	English	Any other language
<b>Type of studies</b>	Peer-reviewed journal articles, non-peer-reviewed academic outputs, government-commissioned research, publications by research organisations (e.g. NGOs), evidence by providers of interventions/support (e.g. charities), government publications, and book chapters.	<p>Newspaper articles and editorials/opinion pieces, magazine articles.</p> <p>Theses and dissertations.</p> <p>Books or other work of equivalent length.</p>

## Information sources

We mainly retrieved evidence from academic literature. For this purpose, we focused on databases of published and unpublished academic literature. This included (but was not limited to) PubMed, JSTOR, Science Direct, SpringerLink, SAGE, and SSNR.

## Search strategy

We designed the search strategy to ensure it was targeted at thoroughly answering the key research questions. Table 2 illustrates the keywords that were used to identify relevant sources of evidence.

This protocol was set to obtain the most relevant pieces of literature to address the primary research questions. Based on the time schedule and the scope of the review, we built the search strategy by mainly targeting keywords present in the title (main field) and the abstract (chapter and research question level).

During the scoping review, we tested different combinations of words to arrive at the following set of keywords. Search terms were combined into search strings using Boolean operators (AND/OR/NOT) and other database-specific search operators. Using these strings, we arrived at a long list of studies, which was then screened to see if they meet the inclusion criteria.

Different combinations of search terms and keyword fields were selected to identify relevant evidence. The search strings that were used were the ones that returned a substantial but manageable number of relevant results.

**Table 2. List of keywords**

<b>List of keywords for the search strategy</b>	
<b>Gambling and synonyms</b>	Gambling, gambler(s), gambling problem, gambling harm(s), scratch card(s), slot machine(s), esport(s), gambling addiction(s), gambling disorder(s), betting, loot boxes, skin betting/gambling
<b>Risk factors and synonyms</b>	Risk(s), risk(s) of harm, harm, risk factor(s), barrier(s), driver(s) parental risk, individual risk, psychosocial risk, area/local risk, comorbidities, abuse, neglect, trauma, adverse childhood experiences
<b>Target population</b>	Child/children, young people, adolescent(s), youth, teenager(s), parent(s)
<b>CYP group of interest</b>	Vulnerable, socioeconomic disadvantage, mental illness/health, complex needs, learning difficulties, substance misuse, drug/alcohol/tobacco use, ethnic minority

## Search strategy for grey literature

The aim of the grey literature search was to fill the gaps found in the academic literature. We targeted relevant policy documents, institutional reports, and programmes from different institutions, research centres, and organisations. This included:

- European Union
- OECD
- GambleAware
- Gambling Commission
- GamCare
- YGAM
- UK Health Security Agency & Office for Health Improvement and Disparities (formerly Public Health England)
- Public Health Wales/Scotland
- Children’s Commissioner
- Barnardo’s

We manually searched the websites of the organisations listed above to retrieve any relevant evidence from their databases.

## Study records

### Data management

To ensure the search process was comprehensive and transparent, we used a Research Activity Sheet (RAS) to record all searched terms, accessed sources, the date of the search and the number of search results.

We recorded and maintained a list of the retrieved references in a specialist software package called Zotero. Zotero is a free, open-source reference management tool that stores citation information (e.g. author, title, and publication fields) and has the ability to organise, tag, and perform advanced searches.

## Selection process and data collection

We began by screening the titles of initial search results and removing any duplicate studies to compile a long list of relevant research papers and reports. Our team then screened the abstracts to decide which studies to include in the short list. The screening process to select shortlisted papers was carried out according to the inclusion and exclusion criteria listed in Table 1.

The screening process resulted in a final short list (the reading list) of papers to include in the review, which was read in full.

## Data extraction

To capture the key findings of each study included in the short list we used a Research Extraction Sheet (RES) that included the following details for each study:

- Title
- Author(s)
- Type of publication
- Publication date
- Source
- Country/Region of focus
- Abstract/Executive summary
- Methodology (e.g. survey, interviews, observational data etc.)
- Population of interest (e.g. CYP group of interest)
- Research question(s) (e.g. risk-factors)
- Summary of findings
- Quality score

## Assessing the quality and relevance of studies

Finally, our team assessed the quality of the research. It is important that quality is implicitly considered for research forming an evidence base and putting forward recommendations. We recognised that the assessment framework would need to be flexible to accommodate a varied evidence base which may include observational studies, qualitative research, and empirical research.

We therefore developed a bespoke quality assessment framework that is fit-for-purpose and tailored to the specific characteristics of the literature. The quality assessment of the evidence is based on (i) credibility, (ii) methodology, and (iii) relevance of the study. For each category, we score 1-3 (where 1 is the lowest score and 3 is the highest). We therefore developed a bespoke quality assessment framework that is fit-for-purpose and tailored to the specific characteristics of the literature. The quality assessment of the evidence is based on (i) credibility, (ii) methodology, and (iii) relevance of the study. For each category, we assigned score 1-3 (where 1 is the lowest score and 3 is the highest).



**Table 3. Quality assessment**

Category	Description	Score
<b>Credibility</b>	<p>Is the study coherent? Can findings be trusted? Does the author consider study limitations or alternative interpretations of the analysis? Has the study been peer-reviewed?</p> <p>1 = Study has not been peer-reviewed, with conclusions drawn from limited data or theoretical discussion. Lack of transparency around data and no discussion of data quality. Study focuses on an ongoing intervention with no discussion around assumptions made.</p> <p>2 = Study is unpublished or study is informally published as a working paper/research report by a reliable source. Limited discussion around sources, information, and data quality, or alternative interpretations of research findings. Study focuses on an ongoing intervention with adequate discussion around assumptions made.</p> <p>3= Study is published in a peer-reviewed academic journal. Study discusses information quality, sampling decisions, and other aspects of the methodology. Study focuses on a completed initiative.</p>	1-3
<b>Methodology</b>	<p>How robust is the evidence to contribute to our review?</p> <p>1 = Methodology is weak and relies on uninformed opinions or unreliable data. In particular, the Methodology is not fit-for-purpose and relies on cross-sectional comparisons with no use of control variables. This also includes qualitative studies with unclear/inadequate sampling strategies. No discussion of why the chosen design and method are well-suited to answering the research question.</p> <p>2 = Methodology is fit-for-purpose and relies on adequate control variables, though important unobserved differences may be remaining. This also includes high-quality qualitative studies (surveys, focus groups, case studies) with robust sampling strategies. Some discussion of why the chosen design and method are well-suited to answering the research question.</p> <p>3 = The study is a literature review, meta-analysis, or discussion of more than one completed intervention.</p> <p>Methodology exploits quasi-experimental designs as well as explicit randomisation into treatment and control groups. The study provides clear evidence on the comparability of treatment and control groups. Extensive discussion of why the chosen design and method are well-suited to answering the research question.</p>	1 - 3

<b>Relevance</b>	<p>Does the study help to answer the research question?</p> <p>1 = The research question or hypothesis is not directly related to the proposed research questions. Alternatively, the external validity of the study is not guaranteed, albeit the country would be comparable.</p> <p>2 = Study addresses an intervention from a comparable territory, including Northern Ireland, USA, Australia and New Zealand, Canada, or a comparable EU or EEA country. The research question or hypothesis is only somewhat related to the proposed research questions.</p> <p>3 = Study addresses an intervention within Great Britain. The research question or hypothesis is directly related to the proposed research questions.</p>	1-3
<b>Overall judgment</b>	Considering the above categories, what is the overall judgment?	3-9



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