



**INTERVENTIONS, PRACTICES  
AND SYSTEMS TO SUPPORT  
CHILDREN AND YOUNG PEOPLE  
(CYP) AT RISK OF GAMBLING-  
RELATED HARM**

Scoping Review

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# Executive Summary

## *Who is this aimed at?*

This report is aimed at researchers, practitioners and policymakers working across education, healthcare and youth work. We want to help them be better informed and improve their practices regarding the reduction of gambling-related harm for children and young people (CYP). We define CYP as individuals aged up to and including 25 years.

## *What did we do and why?*

In Great Britain (GB) gambling is legally restricted to adults over 18 years old. However, evidence from academic research and grey literature (non-academic studies and documentation) suggests that people below 18 years still engage in illegal gambling and legal gambling-like activities (i.e., loot-boxes, social casino games, skin betting). Innovations in mobile technology and online gaming or gambling have increased access to gambling-like experiences for CYP. However, there is limited understanding about the types of services available to support CYP affected by gambling harms, or what kinds of interventions work for this population. In order to better understand the existing practices or interventions that may help to reduce gambling-related harm in CYP, we systematically searched the existing literature and identified 39 academic, peer-reviewed and empirical studies, as well as 16 pieces of grey literature that discuss existing national (GB) and international (contexts similar to GB) services and interventions for CYP experiencing gambling-related harms.

## *What did we find?*

We found that there are currently some interventions designed to support CYP who are experiencing or at risk of gambling-related harm, and some practices, such as those involving engagement with digital technologies, are designed to minimise future harm amongst CYP. However, research assessing the range and effectiveness of such interventions and practices has so far been limited.

Regarding the grey literature about current interventions in GB, there is limited practice-based evidence about preventative interventions targeting CYP, which are offered by eight national and three regional organisations. Most of the GB organisations included in the review offered training to parents/carers and practitioners, as well as resources for CYP. The grey literature suggests that a 'whole systems' approach, which involves communities and local government services in decision-making, is not being used. The importance of this approach lies on the cross-disciplinary collaboration between children, families and various services and the creation of localised support pathways, which meet whole family needs. Further research is needed to assess the effectiveness of 'whole systems' approach.

We found that there are several elements of an intervention that can make it more or less effective for reducing gambling harms amongst CYP. The elements of an effective intervention include:

- Multiple delivery methods, such as quizzes, encouragement of critical thinking, and team learning tasks.

- Addressing multiple risk factors, such as co-occurring substance/other addictions, risky behaviour and low understanding of maths concepts related to gambling.
- The active engagement of participants at multiple points throughout the delivery of the intervention is essential.
- Repetition of course content is needed so that participants have an opportunity to consolidate learning.
- Theory-driven design and recognition of the social context of child and adolescent development.
- The acceptability of the intervention is crucial for the engagement of CYP. Where possible, interventions should therefore be age-appropriate, culturally and socially relevant and adapted for individual characteristics.
- Ongoing evaluation which involves continuous tailoring and improvement of the interventions.
- The use of standardised, validated and age-appropriate scales to ensure accurate measurement and conclusions.

### *Key recommendations for stakeholders and for future research*

- Carry out more research on innovative interventions with CYP as these have not been tested.
- Create relevant and engaging interventions by involving CYP in the design of interventions and focusing on young people's strengths. Actively harnessing these characteristics in interventions holds the potential to yield resilience.
- Explore further the scope of the interventions by consulting with cross-disciplinary teams of experts, and consider developing and implementing interventions that look at the wider social environment, social support, developmental and individual factors.
- Consider the use multiple delivery modes to address the multifaceted issues related to gambling.
- Make sure to consider family and the wider social environment in intervention design.
- Explore further the needs of CYP with special educational needs and disabilities (SEND) and those who may not part of the mainstream school system, such as Gypsy/Roma/Traveller (GRT) children and families, those with mental health difficulties, caring responsibilities, or those who are home-schooled.
- Develop further research to understand how to make gambling harms treatment for CYP accessible and user-friendly.
- Encourage cross-disciplinary partnerships with social media companies or mental health charities.

# Introduction

This scoping review, commissioned by GambleAware, aims to provide a comprehensive exploration of the national (GB-wide) and international landscape of existing services and interventions tailored for children and young people (CYP) experiencing gambling-related harms.

Although the legal age for gambling in GB is 18 years (Gambling Act, 2005), 31% of 11–16-year-olds report having gambled within the last 12 months (UK Gambling Commission, 2022). This is concerning, as early exposure to gambling is linked to susceptibility to gambling-related harm later in life (Kessler et al., 2008; von Meduna et al., 2020) and other adverse developmental outcomes including engaging in possibly harmful sexual behaviour like unprotected sexual intercourse (Blinn-Pike et al., 2010).

Recent technological advancements have led to the convergence of gaming and gambling, including the creation of new forms of digitally-enabled gambling like social casino games (i.e., Zynga, Poker, Slotomania), simulated internet gambling (i.e., DraftKings, FanDuel), and gambling mechanisms on streaming platforms (i.e., gambling content on Twitch and DLive) (Delfabbro et al., 2022; Kim & King, 2020; Zendle & Bowden-Jones, 2019). This is particularly relevant for CYP, as 82% of children aged 12–15 years in the UK play online video games (Clement, 2023). Gaming-related activities which are not legally classified as gambling and/or not regulated clearly simulate gambling. Examples include ‘loot boxes’ (defined as virtual items within the video games, often purchased with real-world money or in game currency (Delfabbro et al., 2022)); social casino games (defined as online casino games where participants can wager virtual credits (Macey & Kinnunen, 2020)); esports betting (Smith et al., 2019); and ‘skin betting’ (defined as the use of virtual goods like in-game cosmetic items – ‘skins’ – as the form of virtual currency to gamble on the outcome of professional matches or games of chance (Macey & Hamari, 2019)). Academics are concerned that these activities intertwine gambling, gaming and digital technology to normalise gambling among CYP (Wardle, 2020).

Recent research highlights that CYP recognise that features such as loot boxes are a type of gambling (Hodge et al., 2022; Rolando & Wardle, 2023; von Meduna et al., 2020). As well as having financial value, virtual products such as loot boxes carry social capital (Close et al., 2021). Loot boxes have greater appeal to young people than traditional forms of gambling: 23% of those aged between 11–16 have paid real-world money for loot boxes while only 7% have participated in traditional online gambling (UK Gambling Commission, 2019). However, there is evidence that although they are aware that loot boxes are akin to gambling, neither young people nor adults are aware of the strength of impact of monetisation techniques utilised in microtransactions, like loot boxes (Mik, 2021). Further, the age classification system for video games fails to warn about risks and consequences to CYP, contributing to many young people and adults remaining unaware of potential consequences (Derrington et al., 2021).

The increased exposure, availability and accessibility of gambling activities through digitally-enabled experiences have rendered CYP more vulnerable to engaging in gambling (Kristiansen & Severin-Nielsen, 2022). Thus, it is imperative that practitioners and

researchers design and test interventions which can protect CYP at risk of gambling-related harm, including harm from online gambling or gambling-like activities.

## The impact of gambling on CYP

Gambling-related harms for CYP may include a range of significant psychological, social and financial consequences (Livazović & Bojčić, 2019). Existing research on gambling-related harms in adults suggests that these include financial insecurity, relationship problems and reduced work or study performance (Langham et al., 2016) (see Figure 1).



Figure 1. Risk factors related to CYP and their involvement with gambling

Children, students and young adults are three groups identified as particularly susceptible to gambling-related harms (Nowak, 2018; UK Gambling Commission, 2021; Wardle, 2018). One reason for this is that their developmental stage may contribute to an elevated risk of gambling harms, as CYP may have a poorer understanding of probabilities, and less control over outcomes, than adults whose brains have reached cognitive maturity (Blakemore & Choudhury, 2006; Chambers & Potenza, 2003; Griffiths & Parke, 2010; Kräplin & Goudriaan 2019; Rogers et al., 2019). For example, adolescence and young adulthood are often a time when individuals seek new and diverse sensations and experiences without being fully aware of potential consequences, a behaviour commonly known as sensation-seeking (i.e., Arnett, 2000; Steinberg et al., 2018; Worthy et al., 2010). Young adults tend to perceive risky behaviours as less harmful than older adults do, potentially leading them to poor financial decisions (Todesco, 2004).

This tendency to engage in risk-taking behaviour could put CYP at a higher risk of gambling-related harms compared to the general population, as they may take up gambling to satisfy their pursuit for new experiences (Arnett, 2000). Collectively, these observations suggest that these tendencies in adolescence and young adulthood may lead to increased risks of gambling-related harms.

Another factor that may increase CYP's vulnerability to gambling-related harms is their elevated levels of interaction with digital technologies. This amplifies the likelihood of their exposure to gambling advertisements and services, particularly within the realm of social media platforms (Smith et al., 2019). Further, gambling marketing is more appealing to CYP than adults due to the use of advertising strategies such as music, colours, voiceovers,



humour and celebrities specifically targeted towards young people (Pitt et al., 2018; Rossi & Nairn, 2021; Smith et al., 2019). The incorporation of elements related to sports-specific abilities, masculinity, and fan loyalty render them very appealing to this age group (McGee, 2020). Moreover, research shows that financial incentives in sports betting are enticing to CYP (Rossi & Nairn, 2021) because of their accessibility and potential for quick monetary gains, the promotions and bonuses shown through advertising, the entertaining nature of adverts, and the peer pressure that can occur due to the glamorisation of gambling in the media (Deans et al., 2016; 2017). At the same time, CYP often struggle to understand the complexities of gambling and gambling marketing because, for instance in England the concept of probability is not typically taught before the ages of 11-14 (Department for Education, 2021), leading some CYP to perceive betting odds as a definite outcome. This may explain the finding that such advertising holds more appeal for young people than for adults (Pitt et al., 2016; Rossi & Nairn, 2021).

Wardle (2020) highlights that CYP currently aged 16–25 are the first cohort to fully experience the altered gambling landscape following the Gambling Act (2005), which reduced restrictions on advertising gambling products. Innovations in smartphone technology since 2007 mean it is now possible to gamble online anywhere, at any time. Despite the increased access and exposure to gambling products, very few young people experiencing gambling-related problems will access formal support for gambling-related harms until confronted with more acute issues such as mental health problems (Park et al., 2021). The UK Gambling Commission (2017) suggests that a separate approach to that of adults may be required to reach CYP, including preventative interventions such as educational programmes in schools, involving parents, and conducting research to understand the influence of gambling marketing on CYP's behaviour. In support of this proposal, evidence suggests that 28% of those responding to Esports tweets in the UK are children (Smith et al., 2019). Additionally, gambling marketing on social media frequently flouts regulations, while parents and teachers often remain unaware of these issues (Smith et al., 2019). Given CYP's particular and heightened vulnerability to gambling-related harms, preventative intervention initiatives are urgently needed.

## What we learned from systematic reviews of existing research

Various approaches have been proposed or implemented to address gambling-related harm for CYP. These include:

- Public education campaigns to combat misperceptions about the nature of probability and random games;
- Psychological treatment such as Cognitive Behavioural Therapy (CBT) for people at risk of gambling-related harm;
- Family-based support such as therapy focusing on enhancing personal and family functioning, improving coping skills or addressing parental concerns about the impacts of gambling on children;
- Introduction of features on gambling machines that restrict the time and money spent gambling; and
- Limitations on gambling advertising (Rogers et al., 2019).

McMahon et al. (2019) conducted an umbrella review of systematic reviews of interventions addressing gambling-related harm, noting that the current evidence predominantly focuses on evaluations of individual-level harm and demand-reduction interventions. This highlights a notable gap in research on supply-reduction and other interventions designed to reduce access to gambling ('context-based interventions'). Additionally, some reviews acknowledge the need for systems-level thinking in preventing gambling-related harms through public health approaches and cross-disciplinary programmes (Blank et al., 2021; Kourgiantakis et al., 2016). Figure 2 presents a range of interventions reported in the literature. However, most of these interventions have focused on adults.



Figure 2. Type of interventions used to address gambling-related harm

The lack of interventions specifically tailored to CYP is notable (McMahon et al., 2019). Existing preventative gambling programmes for CYP are discussed in several systematic reviews (Giménez Lozano & Morales Rodríguez, 2022; Grande-Gosende et al., 2020; Keen et al., 2019; Kourgiantakis et al., 2016; Ladouceur et al., 2013; Monreal-Bartolomé et al., 2023, Oh et al., 2017). These reviews recognise a number of factors, including:

- There is a lack of evidence regarding the long-term impact of school-based education programmes on gambling behaviour (Ladouceur et al., 2013);
- Family-focused prevention strategies that address groups who may be more susceptible to experiencing gambling-related harm, such as children who experience harms due to their parents gambling, are lacking (Kourgiantakis et al., 2016); and.
- More theoretical and evidence-based programmes that examine approaches, programme structure and delivery methods are needed (Oh et al., 2017).

The reviews recommend the development of comprehensive prevention programmes that use rigorous methodological and assessment procedures (Grande-Gosende et al., 2020; Monreal-Bartolomé et al., 2023), are developed and incorporated into school curricula (Giménez

Lozano & Morales Rodríguez, 2022). These could include multimedia programmes for children aged 10 years plus which focus on the teaching of mathematical principles behind gambling and evaluate harm reduction via follow-up sessions into adulthood (Keen et al., 2019).

Preventing gambling-related harms among CYP does not solely mean changing the behaviour of CYP but also addressing the broader systems, technologies and environments that inform CYP's experiences, attitudes, and choices. It could be proposed that to prevent gambling-related harms among CYP, intervention strategies should shift their focus from the child to the multiple systems within which the child interacts, both in the offline and virtual domains. Examples of potential strategies include public health communication campaigns aimed at students (Diehr et al., 2018), or the introduction of pop-up warning messages in virtual gambling environments (McGivern et al., 2019). Additionally, attention should be directed towards understanding the ways in which CYP interact with the constantly evolving environments in which they live; interventions should address all settings, not only education (Monreal-Bartolomé et al., 2023).

Given the above considerations, the current scoping review aims to comprehensively assess the broad range of interventions available to prevent gambling-related harm among CYP. Doing so will contribute to valuable insights to address the limitations and suggestions of previous systematic reviews, which have focused mainly on educational settings (Monreal-Bartolomé et al., 2023), and not considered 'grey literature' (non-academic studies and documentation), which can provide broader insights into available prevention programmes, leading to a more holistic understanding of current available interventions.

## Research questions considered in this report

In this report we focus on *exploring the nationally (GB-wide) and internationally available evidence related to existing services and interventions for CYP experiencing gambling-related harms*. This commissioned work focuses on locating, reviewing and presenting the networks of organisations that implement successful interventions (GambleAware refers to such systems as 'high-functioning'), and comment on how many such systems use cross-disciplinary programmes (programmes involving the collaboration or interaction between professional fields that bring together different knowledge and perspectives in order to address a complex issue) (see Figure 3 for the list of specific additional research questions).

### *Additional research questions*



What, if any, networks of organisations that implement successful interventions are involved in the context of CYP experiencing gambling-related harms: what types of interventions they provide and how they have evaluated their outcomes?



How have cross-disciplinary programmes been utilised and organised within high-functioning systems?

*Figure 3. List of secondary (additional) research questions*

To address the main and additional research questions we examined academic empirical studies and ‘grey literature’.

## **Methodology**

We conducted a scoping review of the existing peer-reviewed and grey literature evaluating interventions addressing the risks of gambling-related harm for CYP. We followed the PRISMA extension for scoping review guidelines (Appendix A1) and used the PAGER framework (Bradbury-Jones et al., 2021; Tricco et al., 2018) which is used to present findings in terms of Patterns, Advances, Gaps, Evidence for Practice and Research Recommendations (Appendix A2).

The review consisted of four phases:

- Phase 1.** We defined the research questions and the inclusion and exclusion criteria (as detailed in Table 1) to determine which pieces of literature should be included in the review. See Appendix A2 for a detailed overview of the dataset.
- Phase 2.** We identified search terms to build a dataset of academic research papers. (Appendix A3) based on the authors’ existing knowledge and in collaboration with a group of professionals who have experience working with children and/or in gambling. This included a young people’s service manager at GamCare, a drama therapist, a family coach with children’s social services, a head of personal, social, health and economic education and citizenship in a secondary school, and a mentor working with disadvantaged people from Black, Asian, Minority Ethnic and Refugee backgrounds.
- Phase 3.** We ran systematic searches in academic search engines (CINAHL, PsycINFO, The Cochrane Library, Web of Science, Medline, PubMed, SCOPUS, and Google Scholar) to identify academic studies. As we expected to find limited academic literature and aimed to gain a broad sense of the landscape of gambling research, we also searched for ‘grey literature’ (wider non-academic resources) from the UK,

Canada, and Australia (countries where gambling context and policy is comparable to the UK). We entered search terms into Google to identify the non-academic literature, and accessed relevant websites (e.g., UK Gambling Commission, GamCare). Two members of the team screened titles and abstracts based on the inclusion criteria to identify relevant studies and pieces of grey literature.

**Phase 4.** We reviewed the academic papers and grey literature. This enabled us to identify a list of key themes addressed in both and make recommendations about future areas of research and practice.

*Table 1. Scoping Review Inclusion and Exclusion Criteria*

Review Inclusion Criteria	Review Exclusion Criteria
<ul style="list-style-type: none"> <li>● Research involving participants aged 25 years or younger</li> <li>● The interventions were for children and young people experiencing gambling-related harm</li> <li>● The study design is peer-reviewed primary research (academic studies) or grey literature that is not peer-reviewed.</li> <li>● The study is written in the English</li> </ul>	<ul style="list-style-type: none"> <li>● Research involving participants over 25 years (including if both adults and children were involved in the research)</li> <li>● The study was conducted before 2008</li> <li>● The country where the intervention took place is not comparable to GB (e.g., countries where gambling is illegal for all ages, not just children aged under 18 years)</li> </ul>

We found that most of the available literature exploring efforts to address or prevent gambling issues focused on adult populations, possibly because the legal gambling age in many countries, including GB, is 18 years. We reviewed literature sources that included participants up to 25 years old to ensure we did not miss young adults. However, we excluded academic studies and grey literature that included adults over 25, since these were aimed at adult populations. We also excluded research and wider literature from countries where the legal position on gambling is not comparable to GB (e.g., where it is illegal for all ages). To account for technological transformations that have drastically impacted the gambling sector, we decided not to consider publications from before 2008, as the first smartphones were introduced in 2007.

Based on the excessive amount of academic studies specifically on gambling-related harms among CYP, we decided to review only interventions designed to address and prevent gambling-related harm for CYP, but not include interventions designed to address and prevent harm related to gaming or use of the internet, smartphones, or social media. We note that gaming can be distinguished from gambling as it often involves a mixture of skill and luck, does not always include a chance-based element, and can potentially be enjoyed without ongoing financial investment (Kim & King, 2020; Ružic-Baf et al., 2016).

While extracting literature, we identified important categories and characteristics of interventions so patterns within the data would be more easily observable. As part of this process, we agreed definitions for the terminology, because some studies used different terms for the same approaches. We grouped the interventions into categories based on type of prevention strategy, type of intervention strategy, type of gambling targeted and age of study participants. A summary of these categories and characteristics is presented in Table 2 below.

Table 2. Categories and Characteristics of Interventions

<b>CATEGORIES OF INTERVENTIONS FOUND IN ACADEMIC AND NON-ACADEMIC LITERATURE</b>	<b>TYPE OF INTERVENTION (IF APPLICABLE)</b>	<b>BRIEF EXPLANATION OF INTERVENTIONS</b>
<i>Prevention strategy</i>	<i>Universal</i>	<i>Aimed at all young people (Ladouceur et al., 2013)</i>
	<i>Indicated</i>	<i>Target CYP who display noticeable psychological or behavioural signs of problem gambling behaviour but do not meet the diagnostic criteria for gambling disorder, usually assessed via screening (Dixon et al., 2004)</i>
	<i>Selective</i>	<i>Target CYP who share a characteristic that is known to increase risk of gambling-related harm, such as coming from a single-parent household or living in an area of high crime rates or low socioeconomic status (Dixon et al., 2004)</i>
	<i>Treatment</i>	<i>Target CYP with a diagnosable gambling disorder, such as Disordered Gambling, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria (André et al., 2022)</i>
<i>Type of intervention</i>	<i>Psychological interventions</i>	<i>Encompass well-established forms of psychological therapy such as CBT or Acceptance and Commitment Therapy (ACT)</i>
	<i>Education-only interventions</i>	<i>Designed to increase knowledge about how gambling works, erroneous beliefs about the likelihood of winning when gambling and the potential risks of gambling.</i>
	<i>Psychoeducational interventions</i>	<i>Designed to increase awareness of psychological skills in relation to gambling, such as coping strategies and addictive behaviours (sometimes referred to as 'education + skills')</i>
	<i>Social norms approaches</i>	<i>Employ personalised normative feedback (feedback about how an individual's behaviour compares to others of a similar age and gender)</i>

<i>CATEGORIES OF INTERVENTIONS FOUND IN ACADEMIC AND NON-ACADEMIC LITERATURE</i>	<i>TYPE OF INTERVENTION (IF APPLICABLE)</i>	<i>BRIEF EXPLANATION OF INTERVENTIONS</i>
	<i>Public health initiatives</i>	<i>Focus on altering the environment in which risks of gambling harms emerge, such as changing the legal age for gambling or removing slot machines from specific environments</i>
	<i>Harm-minimisation strategies</i>	<i>Using techniques to increase awareness of behaviour, for example by employing pop-up messages to flag risks of gambling harm during a gambling experience</i>
	<i>Health communication strategies</i>	<i>Strategies that aim to change behaviour through awareness and educational campaigns to engage thinking and keep people informed about their lives. Example techniques use video messages, social media content or posters and adverts</i>
<i>Mode of delivery</i>	<i>In-person</i>	<i>Interventions delivered by a practitioner in the same physical space as an individual young person or group of young people</i>
	<i>Interactive screen-based</i>	<i>Interventions accessed through a device or screen, necessitating the young person's active engagement, including apps, web-based games and video games</i>
	<i>Didactic screen-based</i>	<i>Passive engagement through electronic devices, encompassing formats like PowerPoint presentation, video and docudrama</i>
<i>Age range of study participants</i>	<i>Young/emerging adults</i>	<i>18–25 years old</i>
	<i>Adolescents</i>	<i>13–18 years old</i>
	<i>Children</i>	<i>Up to 13 years old</i>

## Results

As the academic and non-academic evidence are quite distinct from each other, we present results of each type of literature separately.

## Overview of academic studies

A total of 96 academic studies were identified following the application of the search strategy (see Appendix A2). After removing duplicate studies and applying the inclusion and exclusion criteria, 39 academic studies remained (see Appendix A2).

All 39 studies employed quantitative methodology, which is commonly used for analysing interventions (specific methods are detailed in Table 3). 37 studies adopted purely quantitative methodology, while two studies (André et al., 2022; Diehr et al., 2018) used a mainly quantitative approach incorporating open-ended questions.

Table 3. Count of Empirical Studies based on the Methodological Approaches

TYPE OF METHODOLOGY	NUMBER OF STUDIES	DETAILED LIST OF ACADEMIC STUDIES
Randomised Controlled Trials	20	<i>Broussard &amp; Wulfert, 2017; Calado et al., 2020; Canale et al., 2016; Celio &amp; Lisman, 2014; Dixon et al., 2016; Donati et al., 2014; Donati et al., 2018; Larimer et al., 2012; Lupu &amp; Lupu, 2013; Martens et al., 2015; McAfee et al., 2020; Neighbors et al., 2015; Petry et al., 2009; Pietsch et al., 2023; Primi et al., 2022; St-Pierre et al., 2017; Todirita &amp; Lupu, 2013; Turner et al., 2008A; Walther et al., 2013; Zhou et al., 2019</i>
Repeated measures cross-sectional studies	5	<i>Hansen &amp; Rossow, 2010; Latvala et al., 2022; Nordmyr &amp; Österman, 2016; Raisamo et al., 2015; Rossow et al., 2013;</i>
Experimental pre- and post-designs with one group	5	<i>Choliz et al., 2022; Dodig Hundric et al., 2021; Donati et al., 2022; Parham et al., 2019; Taylor &amp; Hillyard, 2009</i>
Experimental pre- and post-test designs with two groups	4	<i>Huic et al., 2017; Turner et al., 2008B; Williams et al., 2010; Wohl et al., 2013</i>
Longitudinal studies	2	<i>Ren et al., 2019; Tani et al., 2021</i>
Pilot studies	2	<i>André et al., 2022; McGivern et al., 2019</i>
Exploratory studies	1	<i>Diehr et al., 2018</i>

Most academic studies we reviewed were published in North America (12 based in the USA and 6 in Canada). The remaining studies discussed the European context, with the majority of these looking into Italy (6), Finland (3), Germany (2), Croatia (2), Romania (2), Norway (2), Spain (1), Sweden (1) and Portugal (1). Perhaps surprisingly, only one study discussed the GB context.

Figure 4 shows the number of included studies using each category of intervention.



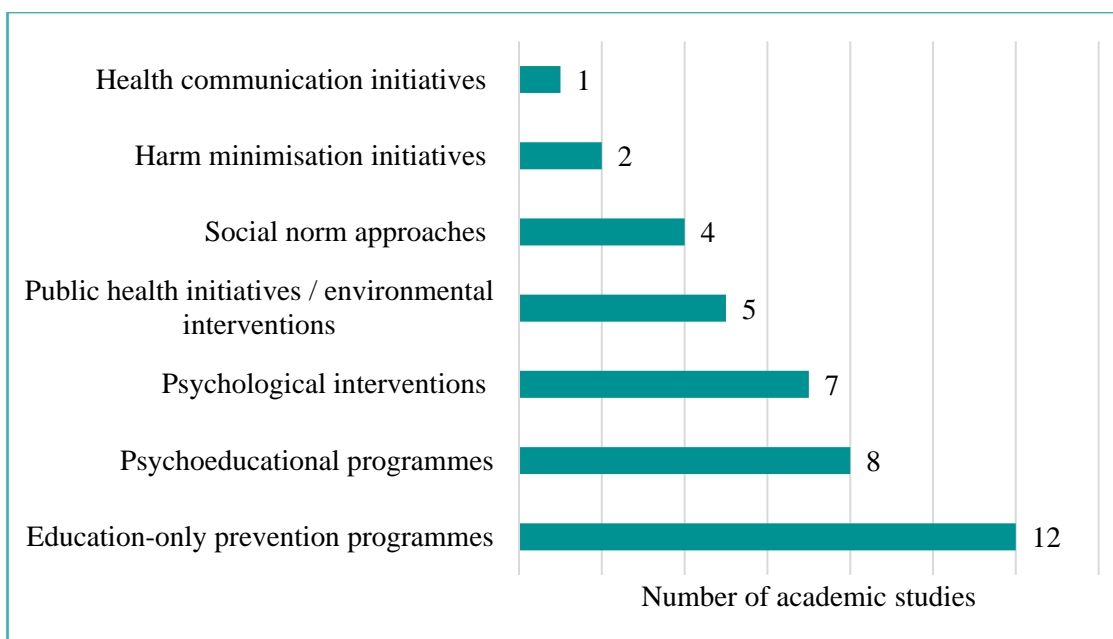


Figure 4. Volume (number) of academic studies based on the categories of interventions

### Quality analysis of academic studies

The quality of all the studies in the review were appraised using the Critical Appraisal Skills Programme checklist (Critical Appraisal Skills Programme (CASP) UK, n.d.). The CASP invites reviewers to rate studies using a ‘yes/no/can’t tell’ measure in relation to different aspects of validity, reporting of findings and clinical relevance. Quality ratings were individually assessed by two researchers. A comparison between the researchers based on ten studies revealed almost 100% agreement between the raters. Detailed CASP assessment for all academic studies can be found in Appendix A4.

All studies addressed a clearly focused issue and identified potential and actual confounding factors in the design and analysis. Most RCTs scored well on randomisation processes, blinding, and baseline similarity of the groups. Where studies were not randomised in design, the methodology was clearly reported. However, seven of the RCTs and six non-randomised studies did not report drop-out rates. No studies discussed integrity of the intervention in their results. School-based RCTs tended to cluster-randomise the groups by class or school. This was to reduce bias through intervention effects. However, it could be difficult to eliminate discussion of the intervention across classes with the control groups. This may reduce the integrity of the intervention or the results. Most studies comprehensively reported results accurately and clearly. Only three studies did not record power calculations (Diehr et al., 2018; Taylor & Hillyard, 2009; Turner et al., 2008a), thus reducing the quality of the reporting. Finally, it was difficult to assess the clinical relevance of the studies due to the heterogeneity of the populations studied. Furthermore, many studies were hindered by low numbers of self-reported gamblers within the participants. This may change the impact of the results across populations.

## Findings from academic studies

Analysis of the academic literature revealed several design and implementation features that led to interventions being more effective for reducing gambling-related harms. Design features refer to the way in which the intervention was designed (e.g., to include certain features or populations), and implementation features refer to the way it was carried out (who delivered it and how it was evaluated). These factors have been described below and categorised as either programme characteristics, population considerations, or implementation/evaluation characteristics.

### *Programme characteristics*

#### *Effective interventions include multiple methods*

Some interventions employed a combination of methods to address gambling harms. Interventions that combined activities that improved knowledge, promoted skill development, and examined associated risk factors were shown to be effective in raising awareness and addressing negative attitudes about gambling harms, perhaps more so than those that focused on one method or risk factor.

For example, a 5-week intervention conducted in Portugal (Calado et al., 2020) aimed to educate and reduce sensation-seeking behaviours in adolescents, with a focus on harm from gambling and gaming. The intervention consisted of 5 one-hour didactic sessions, delivered weekly during school hours, which involved a variety of delivery methods (e.g., quizzes, encouragement of critical thinking, team learning tasks). Their content focused on the concepts of gaming and gambling, erroneous beliefs/misconceptions about gambling attitudes towards gambling and money, sensation seeking and problem gambling. In every session, the researchers emphasised the establishment of a safe space to learn, which is recognised as an important aspect of effective learning with adolescents (Ayub et al., 2022). This study assessed gambling behaviour via questions relating to the amount of time spent gambling in the last week, and money gambled. Other outcomes included the Questionnaire of Misconceptions and Knowledge About Gambling (Ferland et al., 2002), DSM-IV-Multiple Response-Juvenile (DSM-IV-J-MR; Fisher, 2000), Attitudes Towards Gambling Scale (ATGS8; Wardle et al., 2011), and the Brief Sensation Seeking Scale (BSSS; Hoyle et al., 2002). Data about changes in thoughts, attitudes and behaviour was collected both immediately post-intervention and at 6 weeks. The results indicated that the programme was successful in increasing knowledge of gambling harms but did not identify specific factors contributing to efficacy. However, results relating to changes in gambling behaviour were unclear – although participants reported less time spent gambling post-intervention, there was no change in how much money they spent and no change in sensation-seeking behaviours.

Similarly, some interventions incorporated related skills training into the design of their programmes to improve gambling-related cognitions (thoughts and beliefs about gambling). For example, Turner et al. (2008a), in Canada, delivered a single, brief workshop with children aged 10–18 years to teach mathematical reasoning and problem-solving education to influence gambling behaviour and increase knowledge of different kinds of reasoning errors that occur when gambling. This study reported small but positive improvements in knowledge about randomness and random events. However, there were no significant impacts on gambling attitudes, gambling-related problems or coping strategies two months post-

intervention. Following feedback from this study, Turner et al. (2008b) extended the original programme from a single session to seven workshops covering coping skills, stress awareness and reduction skills, and training in self-monitoring, self-awareness, and self-efficacy. The revised intervention (implemented for adolescents aged 15-18) led to significant improvements in understanding of randomness, self-monitoring and coping skills, and 'problem gambling' awareness in the most at-risk students at 4 weeks post-intervention.

#### Effective interventions involve active and varied engagement of participants

Interventions that incorporated some form of an active, hands-on component appeared to be effective results perhaps more so than those that didn't. For example, Broussard & Wulfert (2017) designed a gambling simulation task for college students aged 18-21 years. The intervention consisted of a computerised programme that imitated a three-wheel slot machine that allowed the individual to experience thousands of trials in the ten minutes of play. This experience enabled the individual to understand that the slot machine play resulted in loss of a significant amount of money. This was tested against two control conditions: one where the participant received an educational handout; and the other a handout that contained information unrelated to gambling. To test whether this resulted in less time played on a slot machine, participants from all conditions interacted in a simulated casino environment where the participants were observed for time spent on the slot machines, and self-reported level of excitement on a visual analogue scale with responses ranging from "Not at all excited" to "Very strongly excited". Exposure to the simulated accelerator resulted in changes in judgments such that participants believed they were less likely to win and spent less time playing on the slot machine simulation.

Additionally, a study (Larimer et al., 2012) undertaken at a US college campus, sought to engage students through delivering two psychological therapies, Cognitive Behavioural Intervention (CBI) and Personalised Feedback Intervention (PFI). In the CBI, participants participated actively in the intervention through role-play and feedback via open-ended questioning. In the PFI, Motivational Interviewing promoted discussion of Individualised Feedback provided to participants. Both interventions led to increased awareness of the consequences of gambling. In addition, CBI led to reduced illusions of control, whereas PFI led to beliefs that people do not gamble as frequently as participants previously thought.

#### There is evidence that multiple exposure interventions are more effective than single exposure interventions.

Ren et al. (2019) evaluated the long-term effects of an educational gambling awareness intervention program *Don't Gamble Away for Future* through observing gambling knowledge over time in participants with multiple exposure to a single interactive PowerPoint presentation introducing in-depth material related to knowledge and awareness around gambling harms. Over 16,000 students across 90 schools completed the pre/post-tests for gambling knowledge over the 5 year-period. Sessions were adapted according to participant age and results indicated that students receiving multiple interventions had better gambling knowledge compared to those receiving a single intervention. Gambling knowledge (assessed through a test developed by the authors) increased over time with multiple interventions but not with a single intervention. Additionally, the prevalence of 'problem gambling' (as defined

by the authors using the Modified South Oaks Gambling Screen for Teens; Taylor, 2008) decreased among students receiving the intervention twice relative to once.

However, several interventions were effective after a single exposure - particularly those that employed personalised normative feedback. Personalised normative feedback encourages behaviour change by increasing awareness of 'injunctive' and 'descriptive' normative behaviour. Injunctive feedback relates to social judgements about the behaviour (e.g., gambling) from their peer group, and descriptive norms relates to information regarding prevalence of the behaviour among their peers (Miller et al., 2015).

For example, Martens et al. (2015) investigated the efficacy of a brief personalised feedback intervention with 333 college students. At the three-month follow-up, the participants who received the intervention reported fewer gambling related problems than those in the control group, as measured by the Problem Gambling subscale of the Canadian Problem Gambling Index (Ferris & Wynne, 2001). Whilst these studies suggest brief single-exposure personalised normative feedback interventions may be beneficial, this review calls for caution in interpretation of this, since most of these studies were conducted with young adults aged 18-25 years and therefore the findings may be limited to this specific age group. By accounting for participant age in this analysis, this review concluded that there was stronger evidence for multiple exposure to the intervention across all age groups examined.

#### Effective interventions are theory-driven

Most studies included some explicit theory behind the inception and design of their intervention model and these theoretical foundations were diverse. For example, theories associated with positive change in either knowledge or behaviour include; the Dual-Process Theory and Conceptual Change Model, biopsychosocial models of gambling that incorporate behaviour-analytic perspectives, the Extended Parallel-Process Model and the Action Research Model, harm-minimisation models, and cognitive behavioural theories of self-efficacy (Donati et al., 2022, 2018; Broussard & Wulfert, 2017; Parham et al., 2019; Tani et al., 2021; Celio & Lisman, 2014; Martens et al., 2015; Neighbors et al., 2015; Turner et al., 2008b). André et al. (2022) used a Relapse Prevention Intervention based around CBT theories, whereas Neighbors et al. (2015) built their intervention strategy around social identity theory. Both interventions saw changes in reported gambling behaviour (albeit small effects by André et al., 2022), when assessed via the NODS-CLiP and SOGS outcome measures at data collections points six-months post-intervention. Due to the wide range of theories and variety of studies, it is beyond the scope of this review to determine which theories were most effective.

Through using the Dual-Process theory of cognitive processing, which describes the interaction between intuitive and deliberate thought, some studies sought to redress mathematical concepts such as the 'mindware gap' (not understanding rationality, probability and logic) or the 'gambler's fallacy' (mistaken beliefs about randomness) associated with gambling harms (Frey & Neys, 2022; Goodie et al., 2019; Keen et al, 2019). In addressing these fallacies, the aim is to improve analytical thinking and reduce harmful gambling behaviour (Armstrong et al., 2020; Toplak et al., 2007). For example, studies incorporated the Dual-Process Theory through mathematical skills training that aimed to reduce

misconceptions and cognitive distortions about gambling and encourage correct probability skills and illusions of control. Several studies (Donati et al., 2014, 2018, 2022; Ren et al., 2019; Taylor & Hillyard, 2009; Turner et al., 2008a, 2008b) focused on improving mathematical skills training that was reported in past research (Petry et al., 2017) but was used now in relation to CYP populations. These studies reported effectiveness in improving mathematical cognitions. However, efficacy in reducing actual reported gambling behaviour was mixed, with some studies suggesting a reduction (Donati et al., 2022, 2018, 2014), some having no effect (Turner et al., 2008a), and others not assessing gambling behaviour at all (Turner et al., 2008b).

#### Family support and influence may be an important factor in interventions for CYP

Past research on what works in intervention programmes for CYP suggest that risk factors should be considered (Weissberg et al., 2003). In particular, family support and influence has been suggested to be either a risk or protective factor (Riley et al., 2021) when considering youth gambling harms, and family-focused therapies have been effective when considering other related behaviours such as harms from alcohol and drug use (Das, 2016; Kourgiantakis et al., 2021).

For example, in the USA, Taylor and Hillyard (2009) included social support as part of an interactive prevention programme designed to raise awareness of gambling and associated harms. Students took part in a variety of lectures, activities, and discussion; some lectures were open to parents who also received printed information to take away. The programme was reported to be successful in improving gambling knowledge, as measured using a pre-and-post-test designed by the Illinois Institute for Addiction Recovery. However, the inclusion of and impact on the parents was not evaluated.

Ren et al. (2019) then recreated and analysed the above-mentioned study on a larger scale in order to examine effects of peer-education, and additionally included a parent-pack with a gambling fact sheet and an interactive CD-ROM to take home. However, Ren et al. (2019) found no observable effects of peer-education in this study and again, effects of parental involvement were not measured.

Also, a study by Dodig Hundric et al. (2021) in Croatia, included a 2-hour interactive lecture for parents and school staff. Topics highlighted the individual and social risk factors for adolescent gambling early symptom recognition. However, the authors report that they did not include these in the evaluation so no comment on the effectiveness of this within the intervention can be made. Therefore, we recommend that based on possible positive outcomes for families involved, further exploration of family and parent involvement in gambling interventions needs to be carried out and evaluated.

#### *Population considerations*

##### Effective interventions are developmentally appropriate

For younger participants (8-11 years old), interventions which considered their developmental stage were often found to be effective. For example, the programme designed by Ren et al. (2019) incorporated specific changes in the PowerPoint presentation depending on whether the participants were in primary, middle or high school. For example, the material

for younger audiences did not include detail relating to mathematical probability, whilst the content for the oldest participants included more complex material.

Although this study did not assess results by age, a previous study, using the same intervention (Taylor & Hillyard, 2009) reported that the intervention was more effective in the primary school audience (ages 8-11 years old), who displayed the most improvement short-term in the pre-post-test scores. However, it is important to note that as few studies investigated the younger age groups, more research on the impact of developmentally informed adaptation is needed.

#### Effective interventions are adapted for individual characteristics

A study by Dixon et al. (2016), screened participants using the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987) before they participated in the study. All participants then experienced a brain scan that included static slot machine simulation images to provide baseline brain activation readings when partaking in gambling activity. Subsequently, participants in the treatment condition then received 8 one-to-one sessions of Acceptance and Commitment Therapy (ACT), delivered by a trained ACT therapist and based on their SOGS results. Results were measured through analysis of Magnetic Resonance Imaging (MRI) brain activation patterns, the Acceptance and Action Questionnaire II (Bond et al., 2011), the Valued Living Questionnaire (VLQ; Wilson et al., 2010); and the Mindful Awareness Attitude Scale (MAAS; Brown & Ryan, 2003). Post-treatment, intervention participants reported higher levels of psychological flexibility (active engagement with the present moment) and mindfulness than control participants (Dixon et al., 2016). Further, the MRI scans demonstrated greater brain activation patterns for winning spins when compared to the initial scanning session for intervention participants (like “non-pathological” gamblers (Habib & Dixon, 2010); while participants in the control group showed no differentiation in brain activity following winning spins (Dixon et al., 2016).

In a pilot feasibility study in Sweden looking at gambling and gaming difficulties among nine 13–17-year-olds, André et al. (2022) reported that individuals with Autistic Spectrum Disorder (ASD) or Attention-Deficit Hyperactivity Disorder (ADHD) do not respond in the same way to treatment as individuals with depression or anxiety, despite similarities in gambling behaviour. Their study used a manualised form of CBT intervention to assess changes in behaviour for three participants who were screened for ‘pathological gambling’ via the Control, Lying, and Preoccupation (NODS-CLiP; Volberg et al., 2011), a rapid screen for adult “pathological” and “problem gambling”. Although two participants who gambled before the treatment did not gamble at the six-month follow-up post-intervention, two participants who did not report problems with gambling before treatment subsequently sanctioned gambling after the treatment, and the treatment had no effect on one gambler. These differences in outcome were not attributed to diagnosis, but to the fact that treatment was adapted to the participant’s primary problem behaviour - gaming in six of the nine cases. Their results might suggest the benefit of providing personalised interventions that consider individual differences to address specific needs and thereby optimise treatment effectiveness. However, as this pilot study was conducted on very few participants, the results should be considered with caution.

### Effective interventions are relevant to the target population

A study in the USA conducted by Parham et al. (2019) considered the cultural relevance of their material to an urban, low socioeconomic status (SES), predominantly African American target population in Maryland. When designing and implementing the intervention, the authors considered the needs of the population by using feedback from previous implementations of the programme to address issues with terminology and simplifying the language to reduce barriers related to low reading/maths skills. Results of the study indicated significant increases in student awareness and knowledge following participation. Additionally, focus group data collected from programme facilitators suggested high student engagement and participation, programme feasibility, and ease of implementation. These results highlight the effectiveness of tailoring interventions to specific population needs and align with research emphasising the necessity for more inclusive interventions (Baillie et al., 2023; Castro et al., 2004), which advocates for the incorporation of populations often overlooked in research such as individuals with language, physical, social, or developmental differences.

Nevertheless, we found limited literature exploring effective interventions for CYP with additional needs or who experience compounding harm. For example, there were no studies that explicitly included children and adolescents with SEND. It is critical to carry out additional and targeted research aimed at CYP with SEND because research suggests individuals with learning difficulties, ADHD, autism, and other population groups such as those with hearing loss are more vulnerable to gambling-related harms than the general population (Breyer et al., 2009; Chamberlain, 2023; Faregh & Derevensky, 2011; Geidne et al., 2016; Taylor et al., 2015). However, none of the interventions included in this review mentioned these populations' needs or how the interventions were adapted to account for these needs.

A study conducted with 13–16-year-olds in Canada, reported an increase in participants' positive attitudes towards gambling an intervention, which included watching a 25-minute docudrama featuring a problem gambler's testimony followed by real-life scenarios that illustrated the impact of adolescent gambling on relationships and mental health (St-Pierre et al., 2017). The intervention aimed to highlight the consequences of harmful gambling behaviour for relationships, psychological health, and emotional health. This study may suggest that while exposure to individuals with lived experience may have utility in interventions for adults (e.g., Thomas et al., 2023), it may be counterproductive for young people (e.g., St-Pierre et al., 2017). The researchers (St-Pierre et al., 2017) suggest that this lack of success may be due to the intervention's brevity and lack of diverse teaching methods. Also, the video was initially designed for high-risk youth, focusing on only a few beliefs and may not be appropriate for adolescents with minimal gambling experience. Alternatively, the outcome measures used in this study may have been incongruent with the intervention aims.

### *Implementation characteristics*

#### Effective interventions may involve engagement with digital technologies

It is important to consider the changing nature of children and young people's engagement with digital technologies. We identified studies using various technologies to actively engage participants in interventions. Technologies used in interventions included smartphones, online

games, and a simulated gambling accelerator game (Broussard & Wulfert, 2017; Canale et al., 2016; Lupu & Lupu, 2013; McAfee, 2020; McGivern et al., 2019; Pietsch et al., 2023; Todirita & Lupu, 2013; Zhou et al., 2019). Such studies reported positive behaviour changes in the participants - whether higher awareness about gambling fallacies and knowledge, fewer intentions to gamble, increased knowledge, and significant improvement in ‘erroneous attitudes and cognitions’, illusions of control and misconceptions, or reduction in gambling activities (Canale et al, 2016; Lupu & Lupu, 2013; Pietsch et al, 2023; Todirita & Lupu, 2013; Zhou et al., 2019). However, the researchers of those studies did not speculate as to why incorporating digital technologies was seen to be effective, discussing suitability and benefits only in terms of factors such as engagement, brevity and convenience.

Effective prevention interventions may be delivered by professionals who have received training on gambling-related harms

Among the studies that examined school-based interventions, some looked at training the teachers who delivered the intervention (Walther et al., 2013) to boost the potential of the intervention to reach the students. Two Italian studies demonstrated that training teachers to deliver support reduced gambling behaviour and increased gambling knowledge in the children (Donati et al., 2022; Tani et al., 2021). These outcomes were assessed through the Gambling Related Knowledge Scale (GRKS-A; Donati et al., 2019) the Gambling Behaviour Scale for Adolescents; Primi et al., 2015), the Gambling Related Cognitions Scale in Italian (Iliceto et al., 2015) and the SOGS-RA (Winters et al., 1993). The authors suggest that the ongoing influence of the teacher training on future students will bring about additional benefits (Tani et al., 2021). However, at this stage, it is not possible to determine the long-term effects of any of the interventions described in these articles due to lack of long-term follow-up assessments.

Chóliz et al. (2022) reported on a two-session educational programme delivered by a trained psychologist with expert knowledge of gambling, which focused on teaching ethical aspects of gambling. This programme aimed to educate students aged 14–19 years on how the gambling industry operates, including how operators make money and how games are designed to make people lose over time. At one-month post-intervention, gambling significantly reduced among both land-based and online gamblers. Moreover, the intervention reduced gambling harms among both individuals at risk of gambling-related harm and those who scored high for possible gambling disorder, according to DSM-V criteria assessed through the NODS (Gerstein et al., 1999). However, among girls who were exposed to the intervention, gambling-related harms reduced only in those considered to be at risk. This may be because few females participated in the intervention, limiting the statistical power of the analysis to detect significant differences between groups. Also, the younger participants seemed to benefit across the entire group, while among the older youth group, only those who were at risk improved. These findings suggest some types of preventative education are most beneficial for younger age groups and different techniques may be needed for those already experiencing gambling-related harms. Further, the direct impact of provider training level on the effectiveness of prevention intervention necessitates further investigation.



## *Evaluation characteristics*

### Effective interventions use past evaluation to improve interventions

Some studies evaluated the acceptability of their intervention with relevant stakeholders. For example, Parham et al. (2019) conducted focus groups with facilitators of the programme to assess acceptability after the intervention delivery. André et al. (2022) incorporated qualitative acceptability questions in their study to examine how the participants felt about the intervention. Several studies used feedback from previous studies to adapt future interventions. Dodig Hundric et al. (2021) examined the “Who Really Wins” programme previously implemented by Huic et al. (2017). After the first implementation, they modified the length and intensity of intervention by changing six 90-minute sessions (seen in Huic et al., 2017), to nine 45-minute sessions. They reported significant positive changes to knowledge and thoughts regarding gambling post-intervention and at follow-up, assessed by the Gambling-Related Cognitive Beliefs Scale (Ricijaš et al., 2011). However, the authors state that although the theory behind changing cognitive distortions about gambling may transmit to behaviour change (Fortune & Goodie, 2012), there was no evidence of behaviour change in relation to gambling in this study.

Similarly, Parham et al. (2019) adapted a previous intervention based on feedback to make it more culturally acceptable for minority groups and Turner et al. (2008b) also adapted the structural presentation of their intervention by increasing exposure from a single session to multiple sessions, following evaluation from their previous study (Turner et al., 2008a). Their evaluation looked at the acceptability of the intervention by the students, as well as examining the intended results. This analysis enabled them to effectively adapt the intervention, leading to a significant improvement in understanding of randomness and effective coping skills (especially among high-risk students) compared to the previous study.

### It is essential to use standardised, validated and age-appropriate scales to ensure accurate measurement and conclusions

Only four studies evaluated the effectiveness of the intervention through objective measures of behaviour. Those that did measured outcomes such as actual time spent playing on a slot machine (Broussard & Wulfert, 2017), functional MRI (fMRI) results inferring change (Dixon et al., 2016), adherence to a pre-established betting limit (Wohl et al., 2013) or total wager amount (McGivern et al., 2019). However, most studies displayed a high reliance on self-reported psychometric measures in assessing outcomes which can be problematic for several reasons.

First, high variance in the choice of screening and outcome measurement tools limits comparisons of results between studies. A lack of culturally and developmentally appropriate assessment tools required authors of interventions to use adult scales, youth scales adapted from adult scales in the past, or to devise novel outcome measurement tools. However, adult scales may not be applicable or appropriate for child populations (Bell, 2007), and the validity of older scales may not be useful in the modern world with such significant changes in gambling practices. Secondly, although self-report measures represent an appropriate way to measure change in beliefs, it should be acknowledged that self-reported views do not necessarily represent actual change in beliefs, as participants in studies may wish to present socially desirable viewpoints (Schell et al., 2021) or may be subject to recall bias (Althubaiti,

2016). We recommend that future interventions are designed to include robust evaluation with objective behavioural measures as well as development of validated scales for CYP.

### Limitations of academic studies

This review was unable to definitively ascertain what aspects of the academic studies were conducive to behaviour change among children and young people. The heterogeneity of theoretical approach, method, design and focus of all the studies that contained some aspect of positive cognition or behaviour change means that it is not possible to conclusively say what aspects of those studies were important in the intervention.

Another important caveat to the results of this scoping review would be that the wide age range involved in the studies mean that these results may not be applicable to all age groups of CYP. Furthermore, behaviour change was not assessed in some interventions and not observed in the data of others. Also, many of the studies did not measure long-term behaviour change (apart from the public health led ‘access reduction’ methods in Finland and Norway), and so it is not possible to draw conclusions around this.

Additionally, it was difficult to make definitive recommendations when certain aspects of the interventions were not evaluated, or where limited studies investigated them. For example, smartphone/app-based interventions were used in only two intervention studies. Considering that over 70% of 15–24-year-olds worldwide are estimated to have access to the internet (UNICEF, 2017), and an estimated 98% of UK young people aged 16-24 own smartphones (Statistica, 2023), more research into the efficacy of digital interventions in supporting CYP with gambling related harms might be beneficial. Digital technology-based interventions could improve the accessibility of systems and treatments to benefit those CYP who do not attend school and deliver interventions that are tailored to the individual CYP’s needs (Liverpool et al., 2020). For instance, virtual reality and gaming designs could improve the experiences of intervention participants. A recent review (Halldorsson et al., 2021) reported some evidence for the use of such digital interventions with CYP in the context of addressing mental health problems. As such, more robust evidence is needed to understand the possible benefit of this intervention design.

### Overview of strengths and weaknesses of academic studies

#### Strengths

- Many studies were school-based interventions, which is an effective way of reaching large numbers of CYP.
- Many studies used different ways of engaging CYP, using multiple didactic media (lectures, discussions, role play, docudrama).
- Many studies looked at CYP interventions that improve other developmentally important skills, such as mathematical ability, reasoning and emotion regulation.

#### Limitations

- Only one study discussed the GB context.
- Very few studies included children aged under 11, and many interventions were not adapted based on the age or developmental stage of participants.
- The studies included a wide age range. This means the results may not be applicable to all age groups of CYP.
- No studies evaluated aspects of

- Many interventions had a basis of sound theory in their design.
  - Many studies attempted to create interventions that were acceptable to the children or young people.
- interventions that included family members of CYP, CYP with SEND, Gypsy/Roma/Traveller CYP, those with mental health difficulties, caring responsibilities or those who home-school.
- No studies considered motivations for gambling.
  - It is not possible to say what aspects of the academic studies brought about behaviour change.
  - Studies did not measure long-term behaviour change, and comments on this are therefore not possible.
  - Few studies used digital technologies, and of those that did, none focused on younger children or adolescents.
  - Most studies focused on the individual rather than socio-environmental factors.
  - Studies relied on self-reported outcomes without acknowledging the issues and limitations of such an approach.

## Overview of the grey literature

Our grey literature search identified a total of 16 organisations that offer interventions designed specifically for CYP. As we did with academic studies, in the grey literature we examined the country context of the interventions, audience (age of CYP participants), nature and type of interventions, and mode(s) of delivery.

Most of the organisations are national (GB-based) (11 in total): eight operate GB-wide in multiple locations, one operates in South-West England, one in North-West England, and one in Scotland. Five represent international systems: two in Canada and three in Australia.

In terms of prevention types: ten of these organisations offered universal prevention programmes targeting all children and young people; one offered treatment only; three a mixture of universal prevention and treatment; and two a mixture of universal prevention, selective prevention and treatment.

Six of these interventions were directed towards CYP, and ten towards practitioners working with CYP or parents. Interventions directed towards CYP were either educational in nature (providing online information about gambling-related harms) or provided treatment (in the form of helplines or, in one case, in-person talking therapy). Interventions directed towards practitioners and parents were designed and delivered as online courses, training programmes or in-person delivered workshops.

We found that most of the grey literature evidence (11 interventions) included a mixture of educational, psychoeducational and public health initiatives, so were truly cross-disciplinary in nature. The remaining five interventions focused on a specific approach: three were educational in nature and two were psychological only.

## What the grey literature told us

### *CYP treatment provisions*

Nationally (GB) the provision of treatment for CYP experiencing gambling related harm is contained within pre-existing institutional structures designed for treating adults and formed through collaboration between the National Health Service (NHS), local and national government, gambling treatment providers, and independent charities such as GambleAware, GamCare, and Big Deal. In GB, the National Gambling Support Network represents a network of GB-based organisations that provide free, confidential and personalised support. This includes the National Gambling Helpline and the Young People's Support Service (YPSS). The National Gambling Helpline is run by an independent national charity, GamCare, and is accessible via telephone, live web chat, WhatsApp, Facebook Messenger and face-to-face. YPSS is designed for anyone aged 18 and under and is available across the UK (including Northern Ireland). The National Gambling Helpline is open to all ages, and young people can access dedicated support via a special email address, a self-referral form, or through the Big Deal website which includes targeted resources.

Kings College London conducted an evaluation of the National Gambling Helpline, which analysed data from all clients who engaged with psychosocial treatment from GamCare between 1st April 2015 and 31st March 2020 (Hickman et al., 2021). The evaluation found that younger clients are more likely to not attend treatment following assessment, more likely to stop attending after only one session, and less likely to complete treatment. It also found that treatment was less effective in younger clients, based on change in score on the Problem Gambling Severity Index (PGSI) scale (Hickman et al., 2021). These observations suggest that something about the treatment may be less suitable for younger clients than older clients, or that the context of young people's lives may make it difficult for them to attend sessions regularly.

Despite a highly detailed report, the insights into how CYP used the National Gambling Helpline were limited. A recommendation for future academic studies is to build the evidence base through exploring why CYP are experiencing poorer outcomes in this service.

As well as these national treatment services, within GB there is regional provision for face-to-face counselling. In England, the NHS National Problem Gambling Clinic offers treatment for people aged 13 and over via seven regional clinics. In February 2022 it was announced that seven new clinics would be opening across England to meet the rising demand for these services (NHS, 2022), and there have been calls for a clinic in Wales (Dymond et al., 2020). Following a referral from a GP, psychological support is offered through CBT and psychodynamic psychotherapy, delivered by psychiatrists, clinical psychologists and counselling psychologists. Notably, while these clinics are open to people aged 13 years or over, they are adult services that are not specifically designed for CYP (NHS, 2022), which means it is not clear whether practitioners are trained in the unique ways in which CYP are vulnerable to gambling-related harms at different stages of development due to brain maturity

(Kräplin & Goudriaan, 2019; Rogers et al., 2019) and levels of impulsivity (Blakemore & Choudhury, 2006; Chambers & Potenza, 2003; Griffiths & Parke, 2010). An evaluation report by Central and North West London (CNWL) NHS Trust found that the 16-24-year-old age range were the second lowest to attend the service and were least likely to attend assessment following referral (CNWL NHS, 2014). It highlighted that the current strategy of assigning younger people to individual CBT treatment rather than group treatment resulted in difficulties such as longer wait times and poor outcomes, therefore recognising a need to consult with CYP around what would encourage greater engagement (CNWL NHS, 2014).

In other countries the provision of services for CYP is similar to that of the GB. For example, GambleAware New South Wales in Australia provides a free and confidential national helpline which is open to all ages and accessible through telephone, online chat, social media platforms (such as Facebook, Instagram and YouTube), and free face-to-face counselling at regional centres. There are also some additional services (which are not provided by the Australian National Gambling Support Network), including financial counselling, gambling-specific legal advice, and translation services. Similar to the UK, a specialised service for CYP is embedded within adult provision, in this case directed towards children's general mental health services. This service, 'Kidsline', is a 24/7 service which pairs children from five years of age with qualified counsellors via phone, web chat, or email. However, it is not clear whether the counsellors have specific training on gambling-related harm for CYP.

Our findings support previous research which suggests that there is no evidence of universal best practices for the treatment of CYP experiencing problems with gambling, and that most treatments are based on what has been proven effective for adults (St-Pierre & Derevensky, 2016). Perhaps in GB the treatment service which comes closest to providing treatment specifically for CYP is the National Centre for Gaming Disorders in London, which provides different treatment pathways for parents of gamers, gamers aged 16 and over, and those aged under 16, with individual treatment supported by parent workshops and family therapy. The mean age at referral for this service is 18.47; two-thirds of referrals are in the 13–18 age category (66.4%), and a further 21.1% in the 19–25 category (Sharman et al., 2022).

### *Prevention strategies for CYP*

Information about preventative interventions was obtained by accessing the websites of relevant gambling-related charities. Preventative interventions in the UK are offered by seven national organisations, all of which are independent charities (GamCare, Big Deal, YGAM, National Society for Public Health, Demos, Gambling Harm UK, Epic Risk Management), and three regional organisations, working in North West England (Beacon Counselling Trust), Scotland (Fast Forward), and Wales and South West England (ARA Recovery for All). All these interventions are 'universal' in the sense that they are targeted towards all CYP and are 'educational' – delivered through school workshops, online courses, online resources and training programmes. Alongside the educational content for CYP, most organisations offer resources specifically for parents, teachers, health practitioners, social care workers, and foster parents.

Organisations aiming to protect CYP from the risks of gambling-related harm recognised the role of supportive adults in creating safer environments (Marmot, 2017). Of the 16

organisations (units of data in the grey literature) identified in this scoping review (see Appendix A5), six were directing resources towards CYP, while 10 were directing resources towards practitioners working with CYP or parents. As noted above, the interventions directed towards CYP were either treatment in the form of talking therapy, or preventative measures in the form of educational information about the risks of gambling-related harms. The interventions directed towards practitioners and parents were presented in the form of online courses or training programmes for practitioners, some of which were self-facilitated and some of which were delivered as a workshop by the organisation.

Preventative interventions in other countries offer programmes that are more advanced in terms of mode of delivery and digital marketing of such interventions. For example, interventions from Responsible Gambling Canada have taken an ‘edutainment’ approach for high school students, through a live stage show delivered by media personalities (e.g., *Game Brain*) and web-based digital games (*House of Wisdoms*, *Check Your (Re)flex*). These modes of delivery saw high levels of engagement. For example, *House of Wisdoms* reached over 470,000 teenagers in Ontario through social media campaigns and *Check your (Re)flex* reached over 32,000 CYP and exceeded 5 million impressions on social media. These interventions may be more engaging for CYP due to their interactive content and digital engagement (RGC, 2023). However, their effectiveness in reducing gambling-related harms has not been assessed. To deliver high quality digital content that is accessible for schools, interventions may require cross-disciplinary partnerships – *Game Brain* received funding from the Ministry of Health, was free to schools, and has reached over 50,000 Ontario students since 2014 (RGC, 2023).

### *Evaluation of preventative programmes*

With regard to the effectiveness of the preventative programmes, all are described as ‘evidence-based’ or ‘research-based’. Three of the GB organisations (YGAM, Beacon Counselling Trust, Epic Risk Management) have commissioned independent evaluation reports by partners with expertise in gambling (e.g., GREO) or the voluntary sector (e.g., NCVO Charities Evaluation Services). For example, YGAM commissioned NCVO to evaluate their Education Programme through primary data collection, including surveys and interviews with practitioners, participatory workshops with young people, and interviews with YGAM staff. They found that practitioners had an increased level of confidence to discuss the subject matter with young people and a more sympathetic and understanding approach to the subject matter, alongside a need for a supportive school environment where gambling awareness is built into PSHE curriculum (Evanics & Latif, 2020).

Where independent evaluation reports were not available, measures of effectiveness could be found in annual reports, including impact data that had been collected internally. For example, Gamcare (2022) reported that 77% of service users completed their treatment and most of the service users completing treatment moved from ‘moderate’ to ‘healthy’ gambling behaviour, and from ‘problem gambling’ levels to ‘moderate’ levels (using CORE-10 and PGSI measurement scores). In relation to their Young People’s Gambling Harm Prevention programme, the Beacon Counselling Trust (BCT) report upon the partnerships built with key stakeholders such as Childline, Manchester Central Mosque and Healthwatch Liverpool, as well as the embedding of their services into organisations such as Princes Trust, Bolton

Safeguarding Children Partnership, and Bolton University Teacher Training Education (BCT, 2023). In partnership with Gamcare the BCT delivered 162 educational workshops in North West England in 2022/23, including 4516 young people, 1,818 professionals and 65 parents/carers. No data is available about the effectiveness of these programmes. Four organisations presented accredited training courses for professional practitioners, which may increase uptake by practitioners, by organisations such as the Institute of Leadership and Management (Epic Risk Management), The Royal Society of Public Health (RSPH) (Beacon Counselling Trust), City & Guilds Assured (YGAM). In some evaluation reports on interventions that were aimed more generally at gambling related harm experienced by all ages, it is regrettable that data is not captured specifically on CYP. For example, KPMG's evaluation of the blocking software element of the TalkBanStop campaign for GamCare does not mention how young people are engaging with the tool (KPMG, 2022).

There is also evidence in support of interventions that are selectively targeted towards specific groups of CYP who may be particularly vulnerable to gambling-related harms. For example, in Australia, youth gambling interventions have been built around pre-existing community groups with interest in sport or gaming (Victorian Responsible Gambling Foundation, 2022). In Canada, prevention programmes with dedicated websites have been developed for Chinese, South Asian and Indigenous youth and young adults. This builds on research which shows that these groups are particularly vulnerable to experiencing gambling problems (Moss et al., 2023) and respond well to websites with messages that are targeted specifically to each cultural group and use a neutral tone (RGC, 2023).

### *Localised versus 'whole systems' approach*

Gambling has been recognised as a complex public health issue (Goyder et al., 2021) which needs to be addressed through a 'whole systems' approach (Johnstone & Regan, 2020). This means involving communities in decision-making so that long-term strategic outcomes reflect the needs and concerns of local people (Stansfield et al., 2020). This localised approach was emphasised in GB with the rebranding of the National Gambling Treatment Service as the National Gambling Support Network, including a strong emphasis on early intervention, enhanced referral routes, and a 'regional-first' approach which involved developing connections with local government services (GambleAware, 2023). Likewise, the Primary Care Gambling Service (PCGS), opened in 2019 in South East London, provides integrated primary care and third sector support for adults aged 18 or over, and is delivered by a multidisciplinary team including two GPs, a mental health nurse and a peer support worker (IFF Research, 2022). The average age for service users for the PGCS is 34 (IFF Research, 2022). There is no such integrated service for those aged under 18 years in GB.

In GB, Public Health England and the Local Government Association have developed a 'whole council approach' to support local residents and families at risk of gambling-related harm. This approach uses cross-disciplinary collaboration between children's, family and adult services, treatment services, homelessness and housing services, and financial inclusion services (LGA, 2018). This approach highlights the importance of training frontline staff to recognise potential cases of harm and signposting towards local referral pathways and national treatment services; mapping out locally specific gambling risks; preparing local licensing policies that set out expectations of gambling businesses and undertaking compliance visits; and gathering and sharing data on harmful gambling at the local level to develop a coherent approach to preventative work (LGA, 2018). The 'whole council

approach’ has led to innovative practices such as the Cheshire Criminal Justice Pilot Scheme through which Cheshire police were trained to use a screening tool so they could screen people for gambling issues at the point of arrest, finding that 13 percent of those arrested had a gambling issue (thirteen times higher than the national average), some of whom chose to receive an intervention from problem gambling treatment services. However, other than case studies of the ‘whole council’ approach in London (London Councils, 2018), the extent to which this approach is used across the GB is unclear since an extensive search revealed no quantitative data on this. It is also noteworthy that this localised approach requires collaboration between government departments at the national level, which was also observed in other localised projects in Glasgow, Scotland (Voll et al., 2022); Ontario, Canada (RGC, 2023); and Victoria, Australia (Victorian Responsible Gambling Foundation, 2022).

The Glasgow project serves as a prime illustration of the ‘whole systems’ approach for mitigating gambling harms among adults. It strives to enhance access to support and treatment, raise awareness among front-line staff and create localised support pathways which meet whole family needs (Voll et al., 2022). This whole systems approach involves wide-ranging cross-disciplinary collaboration between the Scottish Public Health Network, Public Health Scotland, local NHS services, local licensing services, academics from the University of Glasgow, as well as other public health and social care organisations. The Glasgow project serves as a model of a comprehensive implementation of a whole systems approach to gambling-related harm, which could guide the strategic design of a whole systems approach towards addressing risks for CYP, rather than being bolted onto existing services for adults. Where CYP have been consulted on preventative strategies, they support multi-faceted public health approaches which encompass multiple areas of influence including tighter regulation of gambling and simulated gambling products, less advertising, age-related restrictions for simulated gambling features, and gambling education in schools (Thomas et al., 2023).

## Overview of strengths and limitations of the interventions described in the grey literature

### Strengths

- Collaborations between charitable organisations and national and local governments are leading to improving networks of support for CYP, including specialised preventative interventions.
- Educational programmes are raising awareness of the risks of gambling-related harms among parents/carers, teachers and practitioners, including novel risks of harm emerging from gambling-like experiences in games, such as loot boxes.
- Some programmes provide models of whole systems approaches to addressing gambling-related harms for adults which may act as guidance for effective approaches for CYP.
- Evaluation reports have been produced

### Limitations

- In GB, data has not been collected about how CYP use the treatment services available.
- In GB, data has not been collected around the different forms of services offered, such as live chat and social media platforms, which may be more appealing to CYP.
- In GB, treatment interventions are developed out of or bolted on to existing services for adults rather than strategically designed around CYP’s lives.
- In GB, prevention strategies are predominantly universal rather than being targeted towards specific groups of CYP, such as SEND, or children of people who gamble.



for many educational programmes demonstrating their reach and effectiveness in improving gambling knowledge.

- Prevention interventions are designed for CYP, however in many cases they do not critically evaluate how theories of behaviour change or modes of delivery may need to be adapted for CYP.
- Evaluation processes for services that are accessible to both CYP and adults often fail to separate the data relating to CYP, making it difficult to draw conclusions about how they use services.
- There is a lack of longitudinal evaluative data to demonstrate that educational programmes which improve gambling knowledge lead to improved outcomes in terms of gambling behaviour.

## Recommendations

**Academic and non-academic evidence we reviewed suggest that most interventions are delivered as traditional educational programmes. We recommend the use of:**

- **Relevant and engaging interventions.** Studies that looked at making their interventions relevant and appealing to CYP were more acceptable to CYP (Hawke et al., 2019). This may include the use of interactive digital modes of delivery (i.e., online games, stimulated gambling accelerated games), the use of media personalities, and cross-disciplinary partnerships to combine, for example, gambling expertise with social media expertise (RGC, 2023). In addition, attention to creating a safe and respectful environment is important to allow for increased and more meaningful engagement (Jode & Gorin, 2013).

**Existing interventions tend to focus more on specific, easily reachable groups of CYP, and are developed by adults without considering CYP' views. When designing interventions, we recommend:**

- **Involving CYP.** No interventions reported involvement of CYP in intervention development. Consider CYPs perceptions, experiences and methods of communication; pay attention to positive aspects of youth such as high levels of digital expertise and openness to new experiences; and design interventions around these. This may lead to the development of interventions that are more acceptable to young people which could potentially improve engagement and completion rates.
- **Considering the SEND population, inclusivity and non-mainstream populations such as Roma.** No interventions in this study involved and addressed these populations' needs in intervention content, design or mode of delivery.

- **Considering family and the wider social environment**, by including parents/carers in educational workshops and public health communications.
- **Involving those who are not part of mainstream school.**
- **Looking at overcoming barriers** related to language and content– make treatment accessible and user-friendly.

**Existing evidence suggests that different stakeholders often work in isolation or with their own independent focus, even if the programmes involve multiple and diverse teams of experts and facilitators. We recommend:**

- **Considering developing and implementing holistic interventions.** Interventions in this study focused on changing one particular behaviour or attitude. When looking at gambling risk/protective factors, interventions that look at the environment, social support, developmental and individual factors may be of benefit to address the multifaceted issues related to gambling..

## Conclusion

Services and interventions for CYP experiencing gambling-related harms aim to enhance their knowledge about gambling-related issues and potentially alter gambling behaviours. Various engagement strategies have been attempted, some focusing on general skills. However, no universal best practices for the treatment of CYP experiencing gambling-related harms are evidenced. Often these services and interventions are incorporated into existing structures primarily designed for adults, neglecting the critical developmental aspects, strengths and needs of CYP. Consequently, these services may not be as accessible or effective as they could be, resulting in low attendance rates. In addition, studies to date have overlooked specific populations like SEND CYP and important contributing factors to gambling-related harm such as motives and social environment.

Evaluations primarily rely on self-reporting, cross-sectional data, and findings that may have limited generalisability due to the nature of the research and sample sizes. The evaluation process is challenging due to the diversity among existing interventions. Well-developed public health approaches empower local communities through effective preventative practices targeted towards specific groups. They gather data to evaluate long-term strategic outcomes against which progress can be measured. They use national funding to provide resources to agents in the CYP support ecosystem, such as teachers, parents and community leaders.

Two broad approaches of interventions can be seen. The first involves signposting CYP towards existing general youth mental health services and training practitioners to understand the emerging risks of gambling-related harm. The advantage of this approach is that practitioners are likely to already have a strong understanding of developmentally appropriate interventions supported by theories of child development. The only disadvantage of this approach is long waiting lists.

The second involves taking existing adult gambling services and adapting them for children. The advantage of this approach is that practitioners are likely to have a comprehensive

understanding of addiction and gambling-related harms. On the other hand, practitioners might lack training regarding the specific ways in which CYP are susceptible to gambling-related harms at various developmental stages. It is however essential that data is gathered to understand how systems-thinking and cross-disciplinary approaches that entail collaboration or interaction among professional domains, integrating diverse knowledge and perspectives, to better comprehend and tackle a complex issue, can best support CYP.

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## Appendices

### Appendix A1: Screening, data charting and synthesis of results

Screening of abstracts and full texts was undertaken by two authors, KD and CD (see Study Team details at the end of the report), with any discrepancies being resolved by CP or EAC. Covidence was used to screen the studies. Data was extracted by two authors, KD and CD, and ratified by co-authors who reviewed 20% of the extracted papers at random.

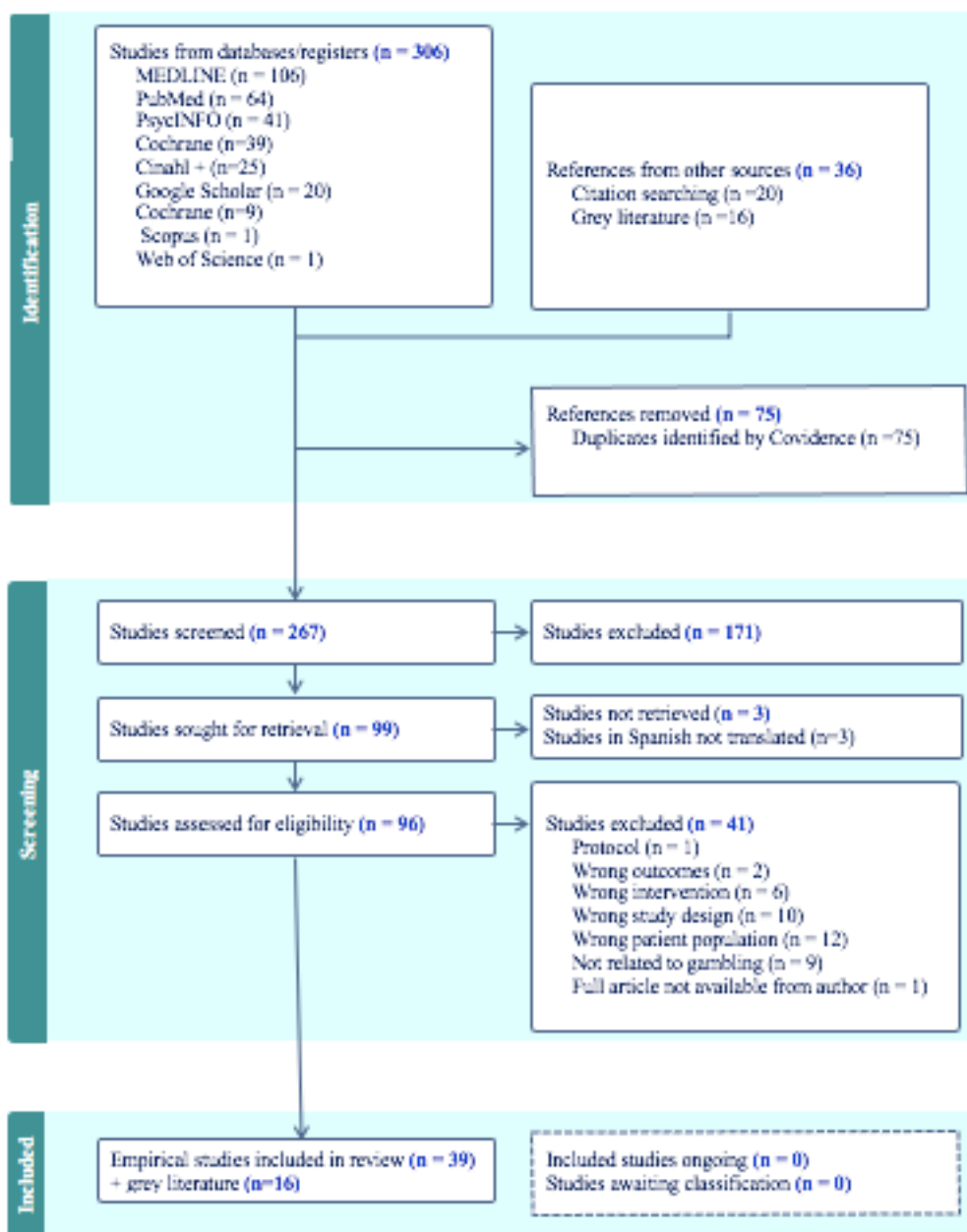
To identify key concepts, information from selected articles was charted in an Excel spreadsheet, with each article being counted as one unit of data. Data extracted from the selected articles included author, date, and title; study location, population, sample size and context; study design, duration and comparator (control group – only if applicable); intervention type, strategic approach and theoretical basis; and outcomes, conclusions and future recommendations.

At the first stage grey literature was handled differently, with organisations rather than articles being treated as the unit of data. This was necessary because organisations often presented a range of interventional approaches less discretely through websites, online courses, and multiple-format interfaces. Also, the data on these interventions was often dynamic and could be edited by the organisations, whereas the data from peer-reviewed papers was fixed. Nevertheless, to facilitate comparison with peer-viewed papers, data from grey literature was extracted using the same categories where possible and in consultation with the patient and public involvement representatives as required.

For the data analysis, the results from both peer-reviewed papers and grey literature were grouped and summarised according to the elements in the PAGER framework, including patterns, advances, gaps, evidence for practice and research recommendations (Bradbury-Jones et al., 2021). The data was presented in tabular form and then described narratively, synthesising information about approaches and findings across studies.



## Appendix A2: PRISMA<sup>1</sup> diagram for the Interventions, Practices and Systems to Support CYP at Risk of Gambling Harm Study



*Note this diagram contains both academic and non-academic sources of evidence.*

<sup>1</sup> PRISMA - Preferred Reporting Items for Systematic Reviews and Meta-Analyses

### Appendix A3: Scoping review search string (search terms)

(CHILD\* OR ADOLESCEN\* OR YOUTH\* OR "YOUNG PERSON" OR TEEN\* OR PAEDIATRIC\* OR PEDIATRIC\* OR "STUDENT" OR PUPIL OR "PRIMARY AGE\*" OR "HIGHSCHOOL AGE\*" OR "SECONDARY AGE\*" OR KIDS OR "EMERGING ADULT\*" OR "PRE PUBESCENT" OR PUBESCENT OR YOUTH OR "GROWING ADULTS")

**AND**

(GAMBL\* OR "GAMBLING ADDICTION" OR "GAMBLING-RELATED HARM" OR "DISORDERED GAMBLING" OR "SIMULATED GAMBLING" OR "GAMBLING-RELATED ACTIVITY" OR BETTING OR BETTOR\* OR "PROBLEMATIC GAMBLING" OR "HARMFUL GAMBLING" OR "COMPULSIVE GAMBLING" OR CARDS OR "LOOT BOX\*" OR LOTTERY OR "ONLINE CASINO" OR POKER OR "HORSE RACING" OR ROULETTE OR BINGO OR "CHANCE-BASED GAMES" OR "SKIN BETTING" OR "SOCIAL GAMING CASINO" OR "PATHOLOGICAL GAMBLING" OR "ESPORTS GAMBLING")

**AND**

(INTERVENTION OR RCT OR "RANDOMI\*ED CONTROLLED TRIAL" OR "PILOT STUDY" OR "FEASIBILITY STUDY" OR "QUASI-RANDOMI\*ED TRIAL" OR "SINGLE ARM STUDY" OR "QUALITATIVE" OR PROGRAMME OR STRATEGY OR RESEARCH OR EVALUATION)

## Appendix A4: CASP<sup>2</sup> Checklists for the Study

### A4.1: CASP Randomised Controlled Trial Checklist

		RANDOMISED CONTROLLED TRIALS																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>20 STUDIES IN TOTAL</b>		Pietsch et al (2023)	Primi et al (2022)	McAfee et al (2020)	Calado et al (2020)	Zhou et al (2019)	Donati et al (2018)	Broussard & Wulfer (2017)	St-Pierre et al (2017)	Canale et al (2016)	Dixon et al (2016)	Neighbors et al (2015)	Martens et al (2015)	Donati et al (2014)	Celio & Lismann (2014)	Walter et al (2013)	Larimer et al (2013)	Lupu & Lupu (2013)	Todirita & Lupu (2013)	Petry et al (2009)	Turner et al (2008a)
A	IS STUDY DESIGN VALID?																				
1	Did the study address a clearly focused research question?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

<sup>2</sup> CASP stands for Critical Appraisal Skills Programme. CASP offers critical appraisal skills checklist tools that are used to systematically assess the trustworthiness, relevance and results of published papers. CASP checklist tools are designed for use with Systematic Reviews, Randomised Controlled Trials, Cohort Studies, Case Control Studies, Economic Evaluations, Diagnostic Studies, Qualitative studies and Clinical Prediction Rule.

2	Was the assignment of participants to interventions randomized?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
3	Were all participants accounted for in it's inclusion?	yes	can't tell	yes	yes	can't tell	can't tell	yes	yes	can't tell	can't tell	yes	yes	yes	no	yes	yes	yes	yes	can't tell	yes	can't tell
B	<b>WAS THE STUDY METHODOLOGICALLY SOUND?</b>																					
4	Were participants blind to intervention?	yes	no	can't tell	no	yes	no	yes	no	no	yes	yes	yes	no	yes	no	yes	yes	can't tell	yes	no	
5	Were the study groups similar at the start	yes	yes	yes	yes	can't tell	yes	can't tell	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

	of the study?																					
6	Apart from intervention, did each study group receive the same level of care?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
C	WHAT ARE THE RESULTS?																					
7	Were the effects reported comprehensively?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
8	Was the precision of the estimate of the intervention or treatment reported?	yes	yes	yes	can't tell	can't tell	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

9	Do the benefits outweigh the harms?	yes	yes	no	no/can't tell	no/can't tell	yes	yes	no	no	yes	yes	yes	can't tell	yes	yes	yes	yes	yes	yes	yes
D	WILL THE RESULTS HELP LOCALLY?																				
10	Can the results be applied to your local population or context?	yes	yes	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	yes
11	Would the experimental intervention provide greater value to the people in your care than any of the existing interventions?	yes	yes	can't tell	can't tell	can't tell	can't tell	can't tell	no	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell	can't tell

#### A4.2: CASP Cohort Study Checklist

7 STUDIES IN TOTAL		CROSS-SECTIONAL STUDIES				LONGITUDINAL STUDIES		
		Hansen & Rossow (2010)	Latvala et al (2022)	Nordmyr & Österman (2016)	Raisamo et al (2015)	Rossow et al (2013)	Ren et al (2019)	Tani et al (2021)
A	ARE THE RESULTS OF THE STUDY VALID?							
	Did the study address a clearly focused issue?	yes	yes	yes	yes	yes	yes	yes
	Was the cohort recruited in an acceptable way?	yes	yes	yes	yes	yes	yes	yes
	Was the exposure accurately measured to minimise bias?	yes	yes	yes	yes	yes	yes	yes
	Was the outcome accurately measured to minimise bias?	yes	yes	yes	yes	yes	yes	yes

	Have the authors identified all important confounding factors?	can't tell	yes	yes	yes	yes	yes	yes
	Have they taken account of the confounding factors in the design and/or analysis?	yes	yes	yes	yes	yes	yes	yes
	Was the follow up of subjects complete enough?	yes	yes	yes	yes	yes	yes	yes
	Was the follow up of subjects long enough?	yes	yes	yes	yes	yes	yes	yes
<b>B</b>	<b>WHAT ARE THE RESULTS?</b>							
	What are the results of this study?	positive	positive	positive	positive	positive	positive	positive
	Do you believe the results?	yes	yes	yes	yes	yes	yes	yes
<b>C</b>	<b>WILL THE RESULTS HELP LOCALLY?</b>							



	Can the results be applied to the local population?	possibly	possibly	possibly	possibly	possibly	yes	yes
	Do the results of this study fit with other available evidence?	yes	yes	yes	yes	yes	yes	yes
	What are the implications of this study for practice?	restrictions can help as part of an overall ecological outlook	more research on changing nature of adolescent gambling needed	low prevalence of gamblers		authors state that youth may still use other forms of unregulated gambling		look into training teachers

### A4.3: CASP Checklist for Remaining Studies

12 STUDIES IN TOTAL	EXPERIMENTAL PRE-POST STUDIES WITH 1 GROUP					EXPERIMENTAL PRE-POST STUDIES WITH 2 GROUPS				PILOT STUDIES		EXPLORATORY STUDY	
	Chóliz et al (2022)	Dodig Hunic et al (2021)	Donati et al (2022)	Parham et al (2019)	Taylor & Hillyard (2009)	Huic et al (2017)	Turner et al (2008b)	Williams et al (2010)	Wohl et al (2013)	André et al (2022)	McGivern et al (2019)	Diehr et al (2018)	
A	IS THE STUDY DESIGN VALID?												
1	Did the study address a clearly focused research question?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
2	Was the assignment of participants to interventions randomised?							yes		yes	yes		

3	Were all participants accounted for in it's inclusion?	can't tell	no	yes	yes	can't tell	can't tell	yes	yes	yes	yes	yes	no	
B	WAS THE STUDY METHODOLOGICALLY SOUND?													
4	Were participants blind to intervention?						no	no	no	yes	no	can't tell		
5	Were the study groups similar at the start of the study?						yes	yes	yes	yes	can't tell	can't tell		
6	Apart from intervention, did each study group receive the same level of care?						yes	yes	yes	yes	yes	yes		
C	WHAT ARE THE RESULTS?													
7	Were the effects reported	yes	yes	yes	can't tell	yes	yes	yes	yes	yes	yes	yes	yes	yes

	<b>comprehensively?</b>												
8	<b>Was the precision of the estimate of the intervention or treatment reported?</b>	<b>can't tell</b>	<b>yes</b>	<b>yes</b>	<b>no</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>no</b>
9	<b>Do the benefits outweigh the harms?</b>	<b>yes</b>	<b>can't tell</b>	<b>yes</b>	<b>can't tell</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>can't tell</b>	<b>yes</b>	<b>can't tell</b>	<b>yes</b>
<b>D</b>	<b>WILL THE RESULTS HELP LOCALLY?</b>												
10	<b>Can the results be applied to your local population or context?</b>	<b>yes</b>	<b>can't tell</b>	<b>yes</b>	<b>can't tell</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>no</b>	<b>possibly</b>	<b>no</b>	<b>no</b>
11	<b>Would the experimental intervention provide greater value to the people in your care than any of</b>		<b>can't tell</b>	<b>yes</b>	<b>can't tell</b>	<b>can't tell</b>	<b>can't tell</b>	<b>can't tell</b>	<b>can't tell</b>	<b>no</b>	<b>yes</b>	<b>no</b>	<b>can't tell</b>

the existing interventions?

## Appendix A5: Units of Data in Grey Literature

1	Central and North London NHS Foundation Trust.
2	Addiction Recovery Agency (ARA) (+ GamCare)
3	Big Deal
4	Gamcare
5	Responsible Gambling
6	Beacon Counselling Trust (BCT)
7	The Young Gamers and Gamblers Education Trust (YGAM)
8	Royal Society for Public Health (+ GambleAware)
9	YMCA
10	Fast Forward (+ GambleAware)
11	Demos
12	Epic Risk Management
13	Gambling Harm UK
14	Victorian Responsible Gambling Foundation
15	The Bridge
16	Gambleaware New South Wales

## Study team

The study team is based at Bournemouth University and is made up of three researcher-academics with relevant experience in the field (EAC, CP and EB), alongside two research assistants (CD and KD). The study team met up periodically to clarify any research queries which had arisen through the review process. All authors read and approved the final version.



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This work is commissioned by GambleAware. The authors alone are responsible for the information expressed in this report, which do not necessarily represent the views, decisions or policies of the institutions with which they are affiliated. Any views expressed on "pathological gambling" or attitudes to gambling etc are from the literature and do not necessarily represent our views of the authors.

## About the commissioning organisation

# GambleAware

GambleAware is the strategic commissioner of the system of prevention, early intervention and treatment of gambling harms in Great Britain. 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. It is a grant-making charity using best practices in commissioning, including needs assessment, service planning, evaluation, and outcome reporting to support effective, evidence-informed, quality-assured prevention for gambling harms. Guided by a public health model, GambleAware commissions integrated prevention services on a national scale and in partnership with expert organisations and agencies, including the UK National Health Service, across three areas of activity universal promotion of a safer environment (primary); selective intervention for those who may be 'at risk' (secondary); and direct support for those directly affected by gambling disorder (tertiary).