"In a world of temptation, messages to promote healthy norms around gambling must be loud and clear..."

REDUCING THE ODDS:
AN EDUCATION PILOT TO
PREVENT GAMBLING HARMS

Ian Wybron



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Ian Wybron December 2017

Executive summary

Gambling nowadays is woven into the fabric of British society. More than 6 in 10 adults have gambled in the past year. For the majority, this is enjoyable and problem free. But figures from the Gambling Commission suggest that as many as half a million people suffer from serious gambling problems, harming themselves, their families and friends, and the wider economy.

Problem gambling is not an issue confined to adulthood, and nor is it clear when its roots begin to take hold. The evidence shows that many school-age children are gambling – 1 in 6 young people aged 11–15 gambled in the last week – and a very small but worrying proportion of their number has already developed a diagnosable disorder. Despite this, gambling rarely appears as a topic in school curricula alongside other risky behaviours such as drinking alcohol, taking drugs and underage sex.

A gambling education pilot

This report marks the culmination of a two-year project to develop, pilot and refine educational resources for British secondary schools as part of wider efforts to prevent gambling-related harms. The project has been a partnership between Demos, the PSHE Association, Mentor UK, the National Problem Gambling Clinic, and a range of independent teachers and advisers.

Four lessons were designed between January and September 2016 to be delivered as part of a planned programme of personal, social, health and economic (PSHE) education provision for key stage 4 pupils (14-year-olds). The lessons encourage pupils to weigh risk, identify manipulative behaviour, manage impulses and help others – covering a range of 'risky behaviours', but with gambling

as a major case study. To inform these lessons, we drew on existing evidence for best practice in the field of prevention, and conducted primary research with pupils and teachers. An outline of lesson content and key exercises is provided in more detail in the main text.

The resources were piloted in four schools across the country during autumn term 2016, reaching approximately 650 pupils. More than 100 schools initially expressed an interest in taking part.

Evaluation methods

Demos put into place an evaluation framework to assess the outcomes of the intervention and gain feedback for further resource refinement prior to publication. The evaluation methods consisted of:

- pre- and post-surveys over a 12-month interval (including questions capturing gambling participation and perceptions; a problem gambling screen adapted for the audience – DSM-IV-MR-J; and other questions related to key skills, capabilities and learning objectives)
- · five lesson observations
- post-delivery focus groups with teachers and pupils at each of the four schools

For the evaluation, we took a 'quasi-experimental' approach. Four similar schools were recruited in the same locations as participating schools, and pupils in the same year group were surveyed over the same 12-month interval. While short of a randomised control, this approach helps to isolate outcomes that may be attributable to the intervention. As explained in the main text, however, we wish to avoid over-claiming in this regard, recognising the clear limits on what can be attributed to an intervention as short as ours (especially positioned within a larger PSHE curriculum), and the range of confounding variables in any educational setting.

Findings

While not comprehensive, lesson observation suggested that the lessons were implemented faithfully, with teachers covering each of the activities in the lesson plans. Nonetheless, observation also demonstrated some clear implementation challenges, including variability in pupil behaviour, timing and pace, and teacher confidence in the material.

Tracking individuals between pre- and post-surveys was not as straightforward as hoped. The achieved sample size when matching students' codes before and after was substantially smaller than the non-matched datasets. Therefore our primary approach has been to present 'cross-sectional' analysis of the larger datasets, with supplementary analysis of the smaller matched sample (see appendix D for a fuller explanation). The results of these two sets of analyses are in alignment, however, giving us confidence in the results.

Our cross-sectional analysis of pre- and post-survey results found that, relative to the comparison group, the following changes were observed in pupils in the participating schools over the 12 months after the intervention:

- There was a small statistically significant decline in the proportion of pupils playing cards for money in the past year with a net decline of 7 percentage points relative to the comparison group. There were no other statistically significant changes relative to the comparison group on individual gambling behaviours
- For 'at-risk' gambling behaviour, there was a small statistically significant decline in the proportion of pupils taking part in four or more types of gambling activity, relative to the comparison group a net decline of 3 percentage points. There was, however, no statistically significant change in the proportion of pupils classified as 'at-risk' or 'problem gamblers' on the DSM-MR-J screen (an extremely low proportion both pre- and post-survey)
- While pupils' perceptions of gambling appeared to change in a desirable direction, there were no statistically significant differences in the perceptions of pupils at participating and comparison schools

- The most substantial changes were seen on key learning objectives:
 - For being able to describe ways to help someone experiencing gambling problems, there was a net 20 percentage point increase in the proportion of pupils able to do so relative to pupils at the comparison schools
 - For knowing where to go to talk about gambling problems there was a net 18 percentage point increase in those able to do so relative to the comparison schools
 - For being able to describe what delayed gratification is, there was a net 11 percentage point increase relative to the comparison schools
 - For understanding techniques used by the gambling industry to persuade people to gamble there was a net 10 percentage point increase relative to the comparison schools
- While the remaining survey questions on learning objectives appeared to show small changes in a desirable direction, none were statistically significant relative to the comparison group

Feedback from focus groups showed mixed reactions from students but was in many cases positive. Several pupils said they felt more informed, and could recall key concepts after the lessons. In particular, the interactive aspects to the lessons, and the broad focus on risk-taking – rather than just gambling – were found to be engaging. In line with the survey findings, the biggest takeaway for many students was knowing how to help a friend or family member experiencing problems, and understanding how issues could escalate.

However, it was a key challenge to produce material that was relevant and relatable to the pupils. Many students felt that education about gambling was not relevant to them or less relevant than education on other risky behaviours (6 in 10 had not gambled when taught the material on gambling). Teachers obtained better results when they drew links between gambling and everyday experience, but several shared the pupils' views on this point. To some extent, this problem cuts to the core of a 'preventative' approach, though some pupils thought the lessons might become more relevant

as they got older and therefore had their place. Making the lessons more relatable for pupils was a central concern in further refining the resources after the pilot – for example, constructing scenarios likely to be familiar to students through the worlds of social media and online gaming, and reducing skews towards discussing more extreme problem behaviour.

Conclusion

As one of the teachers involved in the pilot suggested, the risks posed to young people with respect to gambling are not likely to diminish, but rather grow as opportunities to participate in traditional and novel forms of gambling open up. As there is currently little high quality gambling education provision in schools – which sits naturally alongside teaching around drugs, alcohol and other risky behaviours – students are not given the knowledge, skills and resilience to approach gambling and the risks it poses to wellbeing in a level-headed manner, both now and in the future.

Demos and partners' gambling education project appears to have had some success: pupils have come away with some key skills, feeling more confident in identifying and helping someone with a problem, and surveys suggest that there may have been some impact on at-risk behaviours. Positive lessons for others from our approach include understanding the importance of taking a skills-based approach, and positioning gambling education within a well-planned PSHE curriculum with well-trained teachers.

It has been more challenging to convince pupils of the point of learning about something many do not see as a relevant risk. It may be that more needs to be done to shine a light on aspects of pupils' everyday lives that are relevant, or to provide a better explanation of the nature and purpose of prevention (where impact may be more distant and less tangible). We seek to provide teachers with better tools to achieve this in our final refined resources, which are based on substantial pupil and teacher feedback, and reduced from four to three lessons. They are now available online.

Introduction

Gambling is all around young people today – from advertising during sports events and on social media, the behaviour and habits of reality TV stars, through to the betting shops on British high streets. It is a mainstream and popular pursuit among Britons; around two-thirds of the adult population spent money on a gambling activity in 2015.

While for many people gambling is a pleasurable activity done in moderation, for a minority it can lead to substantial problems – financially, psychologically and socially. Data show that more than 2 million people in Great Britain are likely to be at risk of harm through gambling, and an additional 400,000 have developed a serious gambling disorder. This has an enormous cost to those individuals, the families and networks around them, and the wider economy.

When in a person's life these problems take root varies a great deal. But it is not a risk confined to adulthood. Evidence shows that many school pupils are involved in some form of gambling-related activity – such as playing cards for money and betting with friends – long before they are legally old enough to place bets online or at a local betting shop, or enter a casino. A 2016 Ipsos MORI survey for the Gambling Commission found that 1 in 6 young people aged 11–15 (16 per cent) had spent their money in the last week on a gambling activity. A very small proportion – 0.4 per cent – has a diagnosable disorder by this age. With gambling advertising on the rise, and with the proliferation of social media and new platforms for gambling, young people's exposure to the gambling industry and related activities is only likely to increase.

Providing young people with the skills and strategies to think critically about gambling and the risks it poses is therefore crucial. Yet, unlike other risky behaviours such as alcohol and drugs, gambling is a topic rarely covered in schools, at least outside discussion of odds and probability in maths. Working with a range of expert partners, Demos has sought to fill that gap.

A gambling education pilot

This report marks the culmination of a two-year project to develop, pilot and refine educational resources for British secondary schools with the aim of preventing gambling-related harms. After substantial feedback from teachers and pupils, a refined package of resources is now freely available online. It is intended to be delivered through a planned programme of personal, social, health and economics (PSHE) education.

From the outset, the gambling education project has been a partnership between Demos and three expert organisations:

- the PSHE Association, a membership organisation, which aims to raise the status, quality and impact of PSHE and enable high quality PSHE education teaching and learning for all children and young people
- the National Problem Gambling Clinic, part of the Central and North West London NHS Foundation Trust, and the UK's only dedicated problem gambling clinic, led by Dr Henrietta Bowden-Jones
- Mentor UK, a national charity dedicated to protecting children and young people from alcohol and drug harms; Mentor identifies and implements life skills programmes for children and young people to prevent or reduce risks, helping to build the evidence base for what works

During the project, our partnerships extended well beyond these organisations. As noted in the acknowledgements, Jeremy Scott, a teacher from the John Warner School, Hertfordshire, was integral to the drafting of the resource; and we benefitted from the input of a variety of other experts and organisations.

Project partners designed four lessons and accompanying resources between January and September 2016. These lessons take a resilience and skills-based approach, encouraging pupils to weigh risk, identify manipulative behaviour, manage impulses and help others – covering a range of 'risky behaviours', but with gambling as a major case study. A detailed overview of their content is provided in chapter 2.

In autumn 2016 these lessons were delivered to a key stage 4 audience (14-year-olds) as part of planned PSHE education curricula. Resources were piloted in four secondary schools spread across England – in Cheshire, Gloucestershire, Hampshire and Wiltshire – reaching approximately 650 pupils. Initially, more than 100 schools expressed an interest in taking part. Selected schools were provided with teacher and pupil booklets, and an accompanying PowerPoint presentation. A further four schools in the same locations were recruited to act as comparisons for evaluation purposes (surveying similar pupils not receiving the intervention, to help isolate the outcomes of the pilot). Details on the schools, which have been anonymised for this report, are available in appendix A.

Research and evaluation

To support the gambling education intervention, Demos undertook a range of research which informs this report, undertaken before the intervention to help with lesson design, and after the intervention to help evaluate impact and inform the refinement of the resource. There has been concern from the project's inception that the evaluation is framed properly and is honest in its conclusions, given what is possible to achieve in such a short intervention (particularly with respect to behaviour change) and the number of confounding variables in any educational setting.

The following activities were undertaken before the intervention:

- Desk-based research: A review of academic and grey literature
 was undertaken to scope for existing resources and materials,
 gather evidence on 'what works' in teaching about risky
 behaviours and preventing harm, and inform the content
 of the lessons
- · Focus groups with pupils: Two focus groups were held in London and Cheshire (n=19), to help understand attitudes and behaviours with respect to gambling, and to pilot and gain feedback on our evaluation survey (see appendix B)
- Focus groups with teachers: Six secondary school teachers from different schools in London and Cheshire assessed a draft outline of the lessons and used collated feedback to re-draft the resource
- Consultation with additional expert organisations:
 Alongside the central team outlined above, Demos consulted other organisations working in schools including experts in resilience, for example, How to Thrive (www.howtothrive.org), and others working to tackle gambling harms such as Fast Forward (www.fastforward.org.uk)
- · *Informal lesson piloting:* As lessons were being designed, they were initially tested in John Warner School, with pupil feedback and teacher observation guiding further refinement

These methods were used to evaluate the intervention:

- Pre- and post-surveys of intervention groups and comparison groups:
 Questionnaires were designed to capture changes in attitudes and behaviours related to gambling, and included a typical screen used to measure the prevalence of problem gambling (DSM-IV-MR-J). Pupils from participating and comparison schools were surveyed at baseline autumn 2016 and again 12 months later in autumn 2017 to observe changes. A self-generating coding system was used to track respondents while keeping them anonymous. The tracking system and survey questions are available in appendix B
- Lesson observation: Demos researchers conducted five lesson observations, visiting each school participating in the pilot.
 There were independent assessments of the pupils' reactions

to the material, and the pace of and fidelity to the lesson plans, and short interviews with teachers to gain immediate post-delivery feedback

• Focus groups with teachers and pupils: After the lessons, each of the four schools participating in the pilot was involved in substantial feedback sessions to help us refine the resources for use by other schools

This report

The structure of this report is as follows:

- Chapter 1 summarises the background context informing the pilot, including what is known about gambling in Great Britain and the incidence of problem gambling
- · Chapter 2 explores what has been shown to work in an educational setting to prevent gambling-related harms
- Chapter 3 outlines the lessons in detail, and gives an overview of some of the key activities
- Chapter 4 provides some background on the pupils we worked with, and explores the survey results and focus group findings at baseline – including attitudes towards gambling, participation in these activities, and initial impressions of the pilot
- Chapter 5 summarises the key findings from our evaluation of the resources: the changes measured in the pre- and post-surveys, and their statistical significance, and feedback gathered through our qualitative methods
- · In the conclusion we draw out key lessons based on this pilot
- The appendices outline details of our research tools and survey findings

1 Gambling in Britain

This chapter outlines some of the background context informing the gambling education pilot. It covers the legal and cultural place of gambling in modern Britain, and what we know about young people gambling, and explores problem gambling: its definition, prevalence, risk factors, consequences and treatments.

Gambling in law

In law gambling is defined in the Gambling Act 2005 as betting, gaming or participating in a lottery. Each of these three activities requires a licence under the 2005 Act, which provides guidance on the definition of each. The specific meaning of gaming, for example, is playing a game of chance for a prize, where a prize is defined as money or 'money's worth'.⁴

The Gambling Commission, which has chief responsibility for regulating the gambling industry, categorises different gambling activities into the following sectors:

- · arcades (those for adults and those for families)
- · betting (online, at an event or in a high street bookmakers)
- · bingo (online or in a bingo hall)
- · casino (online or in a casino)
- · lotteries (raffles, tombolas, sweepstakes etc)
- gaming machines (fruit machines, fixed-odds betting terminals etc.)

Importantly for our education project, there are various behaviours and activities to consider which may fall outside traditional definitions of gambling for regulation purposes but have several features in common with gambling (eg wagering virtual currencies – see below).

One of the key objectives of the Gambling Act 2005 and subsequent legislation is to prevent harm to young people and vulnerable groups ('protecting children and other vulnerable persons from being harmed or exploited by gambling'). This objective, alongside others on crime and fairness, guides the regulation of industry undertaken by the Gambling Commission.

Generally speaking, the minimum age for gambling in the UK is 18 years – which applies to adult gaming centres, betting shops, bingo halls, casinos, racetracks and online gambling. However, young people are allowed to take part in a number of activities from the age of 16: the National Lottery, lotteries, football pools, some non-commercial gambling, and low stakes and prizes gambling. Furthermore, some gaming machines such as coin pushers, teddy grabbers and some lower stakes fruit machines do not have a minimum legal age and can be played by anyone.⁶

Gambling is never far from the headlines and heated political debate in the UK - most notably in recent years with respect to fixed-odds betting terminals. The story of gambling legislation up to the Gambling Act 2005 is one of increasing liberalisation and expansion, following generally prohibitionist government approaches before 1960.8 The 2005 Act is often taken as a watershed moment in gambling policy in the UK - introducing today's regulatory regime, and controversially lifting a ban on gambling TV and radio advertisements. Since 2005 legislation and regulation has focused on the challenges of a globalised industry - including the Gambling (Licensing and Advertising) Act 2014, which led to gambling operators being regulated at the point of consumption rather than the point of operation. New online gambling and 'quasi-' gambling activities are occupying increasing attention, as discussed below.

A gambling nation

Going with the grain of liberalisation, gambling has become a popular and mainstream activity in Britain. NatCen published figures in 2017 showing that around two-thirds of adults (63 per cent) across Great Britain gambled in the past year. Other figures published by the Gambling Commission on four-week participation show that just under half (48 per cent) of the population gambling in the previous month.

The gambling data available are not always very clear. For example, it is difficult to assess prevalence trends over time because of changes in survey methodology. It is also difficult to make international comparisons (though one such attempt suggests Britain may have a higher proportion of its population gambling than several European countries such as France and Germany, though lower than the US and Canada). Is

Nonetheless, it is clear that gambling is an extremely large, and growing, industry in Britain. Figures from the Gambling Commission from 2016 estimate the size of the industry at £13.8 billion – having enjoyed year on year growth in gross gambling yield. ¹⁴ The industry currently employs over 100,000 individuals, and includes nearly 10,000 betting shops, bingo premises and casinos. ¹⁵

Behind the headline participation figures, there are many differences in the gambling behaviour of individuals and population groups. These are some findings of NatCen:

- The National Lottery is the most prevalent type of gambling activity (46 per cent of the population in the past year), followed by scratch cards (23 per cent), and other lotteries (15 per cent)
- Men are more likely to have gambled than women (66 per cent vs 59 per cent)
- Ethnic minority groups are less likely to have gambled than white British people (65 per cent vs 40 per cent)
- Londoners are the least likely to have gambled of any region (52 per cent)
- Differences by socio-economic background are not clear-cut¹⁶

Gambling Commission data also show that a higher proportion of people gamble in person rather than online, though online gambling is by some way the fastest growing gambling sector.¹⁷ We return to some of these group differences in the problem gambling section below.

Despite the prevalence and seeming popularity of gambling, opinion polls suggest that Britons have an uneasy relationship with gambling. Gambling Commission data reveal the extent of negative perceptions towards gambling – and show that negative perceptions appear to have increased over time. The 2016 survey found that almost 8 in 10 British adults (78 per cent) think that there are currently too many opportunities to gamble; 7 in 10 (69 per cent) think it is 'dangerous for family life'; while just over half (55 per cent) think gambling should be discouraged. Counterbalancing this is a popular liberal sentiment (held by 67 per cent) that people should be able to gamble whenever they want. Having controls in place to safeguard children and young people was rated as the most important gambling policy issue. 19

Youth gambling

As highlighted in the introduction, surveys show that a substantial proportion of young people are gambling in Britain long before they are old enough to enter a casino or betting shop. An annual Ipsos MORI survey of 11–15-year-olds found that in 2016, 16 per cent had spent their own money on a gambling activity in the previous week. ²⁰ The authors report that this rate has remained stable for years, though has fallen since its peak of 23 per cent in 2011. Most common activities are playing fruit machines (5 per cent), placing a private bet for money with friends (5 per cent), and playing cards for money with friends (4 per cent). Just less than 1 in 10 (8 per cent) had participated in a gambling activity on a commercial premises, such as an arcade or betting shop.

Despite its relative inattention in school curricula, the prevalence of gambling among 11–15-year-olds appears to be higher than the prevalence of smoking, drinking alcohol and taking drugs over a seven-day survey period.²¹ Furthermore, the authors of the Ipsos study suggest British children of this age may be gambling more than their counterparts in

European surveys;²² other prevalence studies involving older children suggest the proportion of young people in Britain gambling is likely lower than the rates found in the US and Australia.²³

The evidence around why young people choose to gamble in Britain is developing. The majority of 11–15-year-olds in the Ipsos study see gambling as dangerous (58 per cent). However, entertainment, winning money, the sensation of winning and the thrill of the game, and escaping stress and problems are cited in the wider literature as reasons children and young people participate. A review of this literature by Professor Gill Valentine outlines extensive international evidence on the role of the home environment and parental attitudes and behaviour in shaping young people's gambling, which we return to in the section below on problem gambling. ²⁵

Often the subject of headlines, it is worth noting that the role and influence of advertising in encouraging children and young people to gamble is unclear – but extremely controversial. What is known is that young people's exposure to gambling advertising is likely to have increased in recent years. For example, a study by the media regulator Ofcom found that children's exposure to gambling advertising increased threefold between 2005 and 2012: from 0.5 billion instances to 1.8 billion instances (211 per child). ²⁶ Ipsos MORI's 2016 study found that three-quarters of 11–15-year-olds have seen gambling advertisements on the TV, while 63 per cent have seen them on social media. ²⁷

Generally, young people are at the forefront of concerns around new forms of gambling or 'quasi-gambling', including activities where gaming and gambling blur. Opportunity for young people to gamble with virtual currencies has increased, for example, with scares around 'skins gambling' (where cosmetic game items are wagered) indicating the direction of travel. The *Times* reported that British children may have wagered more than £12 million worth of skins on one e-sports website alone.²⁸ There has since been a regulatory response and crackdown on these websites, but it is fast-moving and unpredictable terrain.²⁹

Problem gambling

Definition

Problem gambling is generally defined as gambling that 'disrupts or damages personal, family or recreational pursuits'. Many other terms are used – often interchangeably – by different audiences to describe a set of negative outcomes, behaviours and psychology around gambling: 'compulsive', 'pathological', 'addictive', 'dependent', 'disordered'. In his brief review of problem gambling in Great Britain, Mark Griffiths explains that recent thinking conceptualises problem gambling behaviour as a continuum, with extreme pathological, or addictive, gambling at one end, very minor problems at the other, and a range of more and less disruptive behaviours between. Research suggests that people experiencing gambling difficulties can move back and forth along this spectrum.

From a clinical perspective, screens are used to help diagnose more extreme problem gambling behaviour. The fifth edition of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-V), published in 2013, defines a gambling disorder as meeting four or more of the criteria below within the last year:³²

- the need to gamble with an increasing amount of money to achieve the desired excitement
- being restless or irritable when trying to cut down or stop gambling
- repeated unsuccessful efforts to control, cut back on or stop gambling
- frequent thoughts about gambling (such as reliving past gambling experiences, planning the next gambling venture, thinking of ways to get money to gamble)
- · often gambling when feeling distressed
- after losing money gambling, often returning to get even (referred to as 'chasing one's losses')
- · lying to conceal gambling activity
- jeopardising or losing a significant relationship, or job, educational or career opportunity because of gambling

 relying on others to help with money problems caused by gambling

In previous iterations of the DSM, approximately the same collection of symptoms and behaviours was referred to as pathological gambling and classified as an impulse-control disorder. However, in DSM-V pathological gambling was renamed and reclassified as an addictive disorder, reflecting the growing body of evidence on the common ground between gambling problems and substance addiction.³³

Prevalence

Social researchers have used gambling screens to assess prevalence of problem and 'at-risk' gambling behaviours in the UK population – almost always using questions from DSM-IV, and/or the Problem Gambling Severity Index (PGSI).³⁴ An adapted version of the DSM-IV screen has been used for school-age pupils (DSM-IV-MR-J) – administered by Ipsos MORI in the study cited above, and which we used when evaluating our own education project.³⁵

Prevalence studies have over time consistently found a very small percentage (less than 1 per cent) of problem gamblers in the British population, with a slightly larger proportion displaying at-risk behaviours. In 2017, NatCen published data showing the percentage of people identified by either the DSM-IV or DSM-V screen was 0.8 per cent of the British population (0.7 per cent DSM-IV and 0.6 per cent PGSI). Overall, this gives an estimate of there being between 300,000 and 430,000 problem gamblers in Britain.³⁶ A further 3.9 per cent of adults were classified as at-risk gamblers. Ipsos MORI's 2016 study on young people for the Gambling Commission identified a problem gambling incidence of 0.4 per cent among 12–15-year-olds, with a further 1.6 per cent classified as at risk.³⁷

Given the discrepancy in survey methods, it is difficult to compare incidence of problem gambling across countries. Nonetheless, indications suggest the figure for adults in Great Britain is lower than in many other countries – notably Canada and the US, where some studies have suggested prevalence of 2 per cent and 5 per cent respectively.³⁸

Risk factors

Rates of problem gambling vary between different groups of people. Men have consistently been shown to have higher problem gambling prevalence than women. Younger adults are more likely to have problems than older adults. While at the borders of statistical significance, incidence appears to be higher in ethnic minority groups (an example of the 'harm paradox', whereby people with certain characteristics are generally less likely to gamble, but more likely to experience gambling problems). 39 Perhaps surprisingly, rates do not vary straightforwardly by socio-economic status or education level, but the highest rates of problem gambling in Britain are found among those who are economically inactive (due to long-term sickness, being a carer or looking after the home or family). The type of gambling activity is also instructive: the highest rates appear in those who have participated in spread betting and betting with a betting exchange; conversely the lowest rates are in those who just play the National Lottery.⁴⁰

Beneath headline differences between broad groups, there is a growing literature on potential causes and explanations for problem gambling behaviour – with a complex web of factors covering individual psychology, genetics, as well as social, cultural and environmental causes from early childhood through the life course.

On the individual level, studies observing pathological gamblers have identified differences in brain chemistry (even deficits in risky decision making, which share common features with patients suffering specific brain lesions affecting the ventromedial prefrontal cortex). Bowden-Jones suggests that pathological gamblers are less likely to choose delayed rewards over immediate gratification, and more disposed to poor risk evaluation and persistent play in the face of mounting debt. It is not necessarily clear when this begins. But research has shown that impulsivity in children is a strong predictor of problem gambling behaviour in later life; one study found that children who exhibit impulsivity are three times more likely to develop problematic gambling behaviours in adulthood than non-impulsive counterparts.

Other factors such as early exposure to gambling and early successes (such as a 'big win') are linked in the literature

to a higher risk of developing a problem with gambling.⁴⁴ While there is some inconsistency in the research on these points, in summarising the available evidence Keen et al.state in a 2017 paper: 'The available evidence indicates that exposure to multiple factors and experiences in the formative stages of adolescent development can shape subsequent attitudes, cognitions and behaviours in adulthood', which for the authors lays the basis for early intervention, preventative educational programmes in schools.⁴⁵

Strikingly, problem gambling can run in families. Pathological gambling appears to be 'passed down' in a number of cases, with one study suggesting heritability could be as high as between 50 and 60 per cent. 46 Furthermore, sometimes when patients seek help for problem gambling they trace the beginnings of unhealthy behaviours to their early experience of gambling with a parent. 47

Also important to note is the large body of evidence showing the comorbidity of gambling problems and other issues – including mental health problems such as mood disorders, loneliness and poor social capital, alcohol dependence and illicit substance use. 48 This has substantial implications for understanding the genesis and trajectory of problem gambling behaviour, and successfully managing it.

Consequences

Tackling problem gambling is taken as an imperative because of the severity of its consequences, accruing to individuals, their families and wider social networks, and costs to wider society. While the last of these is almost impossible to know or measure, snapshot attempts have suggested problem gambling could cost the British economy up to £1.2 billion per year. ⁴⁹

The literature available outlines a range of costs to individuals, including the obvious financial challenges many face. Unsurprisingly, research shows the severity of financial difficulties positively correlated with the severity of the gambling problem.⁵⁰ The extent of financial hardship is experienced differently, but debt is common: 1 in 10 of GamCare's clients in the last year had debt exceeding £10,000, for example.⁵¹

Problem gambling increases the risk of a range of health problems, often bound up in the comorbidities outlined above. These include stress-related conditions, sleep deprivation, cardiovascular disease, peptic ulcer disease, initiation of depressive episodes, anxiety disorders, intense levels of guilt and shame, and impaired decision making.⁵² Studies have linked gambling to experiences of homelessness, worklessness, engagement in criminal activity, and family and relationship breakdown.⁵³

Many of these costs have their analogue for young people, for example poor school performance, strained family relationships, engagement in other risky behaviours, and negative effects on physical and mental health. Some research has suggested that the younger the age at which problem gambling develops the greater will be the consequences and severity of gambling in later life.⁵⁴

Treatment

There are a number of different treatment routes available for people experiencing problems with gambling. One of our partners in this project, the Central and North West London NHS Foundation Trust, runs the National Problem Gambling Clinic - a specialist NHS treatment centre in the UK that provides cognitive-behavioural treatment as well as support with money management, family counselling and other services. Other sources of support for those experiencing problems with gambling are the charity GamCare and its partners around the country (GamCare run the National Gambling Helpline service and the text 'chat' service NetLine), the Gordon Moody Association and Gamblers Anonymous. The independent charity GambleAware, which has sponsored our work, funds education, prevention and treatment services, and research to broaden understanding of problem gambling. According to the Royal College of Physicians, without treatment, around a third of problem gamblers recover on their own, but two-thirds continue to have problems, which tend to get worse.55