

# CHILDREN AND YOUNG PEOPLE'S GAMBLING: RESEARCH REVIEW

**Report by Professor Gill Valentine  
for the Responsible Gambling Trust**

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## Executive Summary

### Research Findings

#### *Prevalence rates of young people's gambling and problem gambling*

- Over nearly 20 years prevalence studies of young people's gambling in North America, and Australia have consistently found that between 60 to 90 per cent of young people report having gambled in the past year. The figures for Great Britain and Germany are slightly lower with prevalence studies suggesting that the percentage of young people who have gambled in the past year ranges between 54 and 75 per cent.
- Between 2009 and 2014 the number of children (aged 11 to 15) who reported that they had gambled on the internet in the week prior to the survey had doubled.
- Based on findings from studies in North America, Australia, New Zealand and the Nordic countries it is estimated between approximately 3-5 per cent of young people are problem gamblers. Though recent studies in the UK put the figure for problem gambling lower at between 1 and 2 per cent.
- Research suggests that rates of problem gambling amongst young people may be higher among those who gamble on the internet compared with those who gamble offline. However, it is not clear whether this pattern is a product of problem gamblers' greater susceptible to gambling online because of the unique opportunities it affords to gamble anywhere; or whether teenage problem gamblers add the internet to their existing modes of gambling.
- Repeat studies show that since the early 1990s that adolescents' participation in gambling and rates of problem gambling have remained stable or declined in most of the jurisdictions considered by their study.
- A significant body of 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
- Recent longitudinal research suggests that young people may grow out of gambling problems as they get older. This counters the findings of an earlier body of non-longitudinal research which appeared to show that early exposure to gambling increases the risk of developing gambling problems later in life.

#### *Patterns of young people's gambling behaviours*

- Young people may have trouble differentiating between the concepts of: luck, fate, chance and probability. They often use these terms interchangeably, whereas adults are more aware of the differences between these terms.
- Young people are motivated to gamble for a number of different reasons including: for entertainment, to win money, the sensation of winning, the thrill of the game, or to escape stress/problems. Much less is known about why some individuals become problem gamblers while for others gambling remains a casual activity without harmful consequences.
- Studies have identified that products in the gaming and gambling industries are converging: gambling products are including gaming themes; gaming themes are being integrated into games; and operators are encouraging customers to engage in both types of activity.
- Pathological and problem gambling by young people has been associated with a higher incidence of psychological and psychosocial concerns including risk-taking and impulsivity leading to research to examine whether neurological deficits in particular areas of the brain may explain these patterns of behaviour.
- Key social risk factors which may increase the likelihood of a child or young person developing a gambling problem include: having parents who introduce them to gambling at an early age; having parents who are heavy gamblers themselves; having friends who are problem gamblers.
- Boys/young men start gambling earlier, gamble more often (offline and online), and are more at risk of becoming problem gamblers than girls/young women. Boys are also less likely to consider gambling frequently to be a risky activity and are more likely to have confidence in their own gambling skills than girls: a gendered pattern which is also evident in early adulthood.
- Preliminary evidence suggests that young people from minority ethnic groups are more likely to gamble and to become problem gamblers than those from majority groups
- Young people who have developed problem gambling also experience a range of mental health issues including depression and anxiety disorders, and suicidal thoughts/attempts. They are also more likely to: truant and perform poorly at school; engage in alcohol and drug abuse; exhibit anti-social behaviours (e.g. stealing); and experience disruption to family and peer relationships. However, the research evidence has not clearly established which of, and to what extent, these factors were present prior to problem

gambling; or whether problem gambling caused these outcomes. In other words, problem gambling is often one element in a general pattern of high risk or anti-social behaviour

- The impact of young people's problem gambling is commonly transferred onto other family members – particularly parents/carers, and siblings.

#### *Young people's access to gambling opportunities and associated prevention and regulation*

- Online gambling opportunities are now available through multiple platforms (e.g. desk top computers, laptops, tablets and smart phones): platforms which are readily accessible to most young people. Gambling applications have also emerged within other applications such as social networking sites and gaming sites.
- There is an ongoing debate in the UK as to whether social gaming (gambling-style games available through social network platforms and gaming websites) should be subject to legal regulation in the same way as gambling.
- There is little public awareness or concern about problem underage gambling. Children's gambling has been dubbed a hidden addiction. There is relatively little provision of information about problem gambling in educational contexts. School based prevention programmes are relatively rare although preliminary evaluations suggest that the results of such programmes are encouraging. Online peer groups might also offer a way of reaching and supporting young problem gamblers. Treatment programmes also need to include family-based therapy and to address family dynamics.
- Within the gambling studies literature specifically there is some evidence that the majority of young people are aware of the potential dangers gambling poses in terms of addiction and debt. However, the evidence from the wider social studies of childhood literature suggests that young people often ignore public health messages (e.g. about alcohol, obesity, sex etc.) despite being aware of the risks they run with their own behaviour
- Research suggests that the most effective educational messages to reach young people are simple, non-judgemental, and based on real-life stories which emotionally engage young audiences and demonstrate the negative consequences of gambling. Critical 'don't do it' style messages – which have often characterised public health campaigns aimed at young people (e.g. sex, drugs and alcohol) – are not likely to be successful in changing young people's attitudes towards or gambling behaviour.

#### *Transmission of patterns of gambling*

- There is an extensive body of international evidence which demonstrates the role of parents in introducing children to gambling and normalising this activity as part of banal family activities/histories.

- Some studies have found a link between adult problem gamblers and later problem gambling amongst their own children suggesting a pattern of intergenerational transmission.
- Fewer fathers than mothers considered underage gambling to be a serious issue; while mothers are the parent most likely to talk to a child about gambling.
- Young people are susceptible to internalizing the views and practices of other family members, besides parents with whom they are close (e.g. siblings and grandparents).
- Problematic or anti-social behaviour amongst young people is 'contagious' because 'influential friends' legitimise these activities and enrol others into them through processes including goading, coercion and competitiveness.
- Parents are less likely to talk to their children about gambling than about other 'risky' behaviours such as drinking, smoking and drugs.
- Young people's problem gambling is not necessarily visible because they often do not seek help from formal agencies for their problems because of shame, fear they will be denied help, or because their problem gambling can be hidden within, or by, the family.

## **Implications**

- There is relatively little public information about, or awareness of, the potential risks associated with underage gambling in relation to other risk taking behaviours such as alcohol and drugs. Greater emphasis needs to be put on raising teachers' awareness of gambling in teacher education training and in establishing prevention programmes to address gambling with young people similar to those used in relation to other 'risky' behaviours.
- Gambling prevention programmes for families need to take account of, and address, the gendered nature of parental attitudes and behaviours
- The consistent pattern of relatively high rates of problem gambling among young people across a range of national contexts with variable legislative frameworks cast doubts on the effectiveness of regulatory frameworks in influencing rates of problem gambling amongst young people. The evidence from countries where young people's access to gambling is more tightly regulated than in the UK is that these regulations are difficult to enforce and that young people subvert them and gamble regardless of the law.
- In the light of the prevalence rate for young people's problem gambling and the limited success of regulatory and enforcement regimes, problem gambling should be recognised as a potential public health issue – with young people the group at most risk.

- A public health model of gambling would involve (i) challenging the normalisation of gambling (ii) preventative policies (e.g. public education) which might better equip young people with the skills to understand the potential negative impacts of gambling; and (iii) a harm reduction strategy (including specific treatment programs aimed at young people).
- Modelling tools need to be developed to enable schools where there is likely to be a prevalence of problem gambling to be identified so that specialist public health resources can be effectively targeted.

## **Research Gaps**

In the light of the above evidence further research is needed to:

- continue to explore ongoing technological advances in gambling on the prevalence and patterns of young people's gambling.
- investigate further how children and young people understand and experience monetary and non-monetary gambling, and whether they are sufficiently aware of the differences and associated risks.
- understand the complexity of family relationships (including siblings and grandparents), parenting practices and socio-demographics which influence gambling behaviours.
- examine the impact of advertising on children and young people's attitudes to gambling and actual practices.
- further longitudinal research is needed to test the evidence of recent findings which show that young people may grow out of gambling problems as they get older.
- investigate in more detail patterns of problem gambling within minority ethnic communities, and cultural and religious differences in patterns of gambling and problem gambling.
- evaluate the effectiveness of preventative strategies (including a long term evaluation of school education programmes) aimed at young people's gambling behaviours; to develop more understanding of young problem gamblers help-seeking strategies (on-line and off-line); and the barriers which prevent some young people from seeking help in order to improve age-appropriate support for this 'vulnerable' group.

## **1. Introduction**

Over the past 20 years there has been a liberalisation of the operation and regulation of gambling activities internationally, with only a minority of jurisdictions continuing to strictly prohibit any form of gambling (Temcheff et al. 2011). At the same time, new and emerging technologies have led to the rapid proliferation of the opportunities and possibilities to gamble worldwide through multiple platforms (e.g. desk top computers, laptops, tablets and smart phones) and gambling applications have also appeared within other applications such as social networking sites and gaming sites. Gambling industries have expanded internationally and promoted their activities in the media, online via pop-up messages, at points of sale, and in public advertising spaces (notably at sporting events). As such, in the UK, and most other contemporary western societies (e.g. Australia, New Zealand, Nordic countries), gambling has become a widely accepted, socially desirable entertainment and leisure activity and a common feature of charity and fund raising events (Problem Gambling Foundation of New Zealand and Centre for Gambling Studies 2003, May-Chahal et al. 2004, Derevensky and Gillespie 2005, Volberg et al. 2010, Derevensky, Sklar et al. 2010). As a consequence contemporary children and young people have unprecedented exposure to a range of gambling opportunities. This has promoted concerns about children's ability to gamble underage even in regulated venues, particularly as gambling has become conceptualised as a public health issue in the last decade (Messerlian et al. 2005).

This review summarises international evidence about children and young people's participation in different types of gambling activities, their motivations to gamble, and the effects this gambling may have on them. In adopting an international perspective this review focuses on specific comparable international jurisdictions, namely: North America, Australia, New Zealand and the Nordic countries. This is because there is less available evidence about approaches to problem gambling from other cultural contexts, and because these identified international contexts are those most culturally similar to the UK (Abbot et al. 2004).

The Review is structured into the following sections:

Section 2 - Definitions. Section 3 – Patterns of Young People's Gambling Behaviours. Section 4 – the Prevalence of Children and Young People's Problem Gambling. Section 5 – Children and Young People's Motivations for Gambling. Section 6 - The Transmission of Patterns of Gambling: Intergenerational and Peer Group Factors. Section 7 – The Impact of Gambling on Young People and their Families. Section 8 - Regulatory Frameworks to Protect Young People.



Section 9 – The Prevention and Treatment of Problem Gambling. Section 10 – Recommendations for the Future.

In outlining the current evidence base the Review considers the prevalence of problem gambling among children and young people and the harms caused to them by gambling (including in later life). Here it recognises both social explanations for children and young people’s gambling, as well as neuroscientific research; and draws on findings from a growing number of longitudinal studies that have tracked young people’s gambling trajectories into adulthood. Given the rapid development of internet gambling and social gaming the review plays particular attention to the emerging evidence base about these forms of participation. It also identifies a growing recognition of how patterns of gambling vary not just by gender, but also by ethnicity and cultural differences. The review concludes by reflecting on strategies to prevent problem gambling (highlighting the underdeveloped potential role of teachers and schools), summarising the regulatory frameworks in place across a range of comparable international jurisdictions, and making recommendations for further research necessary to inform the development of UK policy in order to protect children.

## **2. Definitions**

‘Young people’ is used in this review as an umbrella term to embrace the full gamut of phrases, including: children, adolescents, teens, teenagers, juveniles, youth and young adults, which are variously, employed by different studies in the literature reviewed. There is no standard or accepted definition of where childhood ends and adulthood begins. Indeed, historians have observed that the concept childhood is a relatively modern phenomenon that was fostered through the development of the formal education system (Aries 1962). It was not until the late 19<sup>th</sup> and early 20<sup>th</sup> centuries that the concept of childhood as temporally set apart from the adult world and as a time of ‘innocence’ and freedom from the responsibilities of adulthood became widely accepted; and that social development (in terms of rationality, competence etc) came to be dovetailed with physical development (Prout and James 1990). Likewise, the notion of adolescence or the teenage years were only ‘invented’ in the 1950s to describe the transitional stage of dependence to independence (Hebdige 1988). The boundary between childhood and adulthood is liminal. James (1986) points to diverse legal classifications, for example the age at which young people can drink alcohol, earn money, join the armed forces or consent to sexual intercourse to demonstrate how variable, context specific and gendered are the definitions of childhood, youth and adulthood. This variability is particularly evident in relation to gambling

where there are significant differences in minimum age regulations both between different jurisdictions, and in relation to different types of gambling within given jurisdictions (these are outlined in Section 7 Regulatory Frameworks to Protect Young People).

Moreover, the social studies of childhood literature points out legal definitions of appropriate 'child' or 'adult' behaviours are further muddled by increasing recognition that social competence is not necessarily wedded to biological development (Valentine 1999). As such, some children are very competent at making sophisticated decisions about their own lives at a young age and can 'pass' as much older than they actually are both socially and physically; whereas some biological adults never achieve appropriate levels of social competence in managing their own lives. In the light of this conceptual complexity this review uses the terms children and young people to refer to all those aged under 18. However, because of the lack of agreed definition about the relationships between childhood and adulthood many of the studies reported in this review draw on very different age spans. Indeed, the terms youth or young people are commonly employed to refer to those up to the age of 24 (Valentine and Skelton 1998). As such, where the research cited in this review is based on empirical work with particular age groups the age parameters of the studies referred to are clearly highlighted.

Gambling can be broadly defined as betting money on games of chance (National Research Council 1999). The UK *Gambling Act* (2005) describes it more specifically in terms of gaming (i.e. playing a game of chance for a prize); betting and participating in a lottery. It usually involves risk taking and in some cases requires particular knowledge or skills. The majority of gambling is social or recreational, although some people do make a living as professional gamblers. A minority of people who gamble do so in ways which disrupts their personal or family lives. This '*problem gambling*' can include a complex range of behaviours of varying severity. '*Pathological gambling*' has been defined as gambling which is 'characterised by a continuous or periodic loss of control, over gambling, a pre-occupation with gambling and with obtaining money with which to gamble, irrational thinking and a continuation of behaviour despite adverse consequences' (Hardoon and Derevensky 2002: 264, see also Lesieur and Rosenthal 1991, Neal et al. 2005).

In order to identify people who might be defined as problem or pathological gamblers various indices of behaviours and psychological states known as 'screens' have been developed (Fisher 1998). The two most common screening instruments are the South Oaks Gambling

Screen (SOGS) (Lesieur & Blume 1987) and the American Psychological Association's Diagnostic Statistical Manual. In the case of SOGS an individual is defined as a problem gambler if they score five or above in relation to a list of defined questions. With the DSM screening instrument an individual is defined as a problem gambler if they score three or above in relation to its particular list of criteria. This classification and diagnostic tool is frequently updated. The studies cited in this literature review draw on the fourth edition (first published in 2000) of the manual: DSM-IV. It was superseded in May 2013 by the publication of DSM-V. Originally, developed for use with adults it is generally accepted that these screening tools are not necessarily appropriate to use with children and so they have been adapted for young people (Fisher 1992, 2000).

The South Oaks Gambling Screen – Revised for Adolescents (SOGS-RA) is widely used in North America (Winters et al 1993a). This measure has 16 criteria and places particular 'emphasis upon the frequency and behavioural indices of gambling behaviour' (Rossen 2001:4). The Diagnostic Statistical Manual IV- Adapted for Juveniles (DSM-IV-J) consists of a questionnaire with 12 criteria, designed to measure the gambling behaviour of 11-16 year olds over the past year (Fisher 1992). Fisher (1998, 2000) revised this screen further to create a form of scoring (DSM-IV-MR-J) based on nine criteria with four responses choices (never; once or twice; sometimes and often). These standardised measurements of problematic and pathological gambling behaviour are useful because they enable direct comparisons to be made between different social groups and international contexts (Orford et al 2003a/b). However, they must also be treated with a degree of caution because research suggests that these different measurement tools produce different prevalence rates. For example, it is argued that studies which use SOGS-RA tend to estimate the proportion of problem gamblers as higher than those studies employing DSM-IV-J (Derevensky and Gupta 2000, Fröberg 2006) and the significance of gender differences in gambling behaviour also appears to vary depending on which screen is used (Derevensky and Gupta 2000). There are also limitations to using such screening instruments to compare patterns of adult and child gambling because it is hard to assess the extent to which different outcomes may be a product of the differences in the screening instruments used or contexts in which the tests were undertaken (e.g. adolescents commonly complete the survey tools in class or group situations, whereas adults are usually surveyed in individual contexts) rather than actual gambling behaviours (National Research Council 1999). As such, it is widely recognised by leading scholars in the field of gambling studies that there is a need to further develop and refine current screening instruments for adolescents to establish

an agreed 'gold standard' criteria to define children's problem gambling (e.g. Derevensky, Gupta and Winters 2003, Derevensky and Gupta 2006, Volberg 2010).

Indeed, work within the field of the social studies of childhood suggests that there are broader limitations to using any survey tools with children given that these are often 'adultist' in their design and are considered 'boring' by young people who may be reluctant to fill them in properly or reliably (Valentine 1999). In particular, survey tools are not very sensitive to capturing the complexities of peer group relations which play such a powerful role in young people's everyday lives, nor are they very reliable at capturing behaviours which young people know to be illegal and may be reluctant to commit to paper. Children with low levels of educational attainment, or whose first language is not English, may also self-exclude themselves from research involving surveys that require a significant degree of literacy. There is therefore recognition of the need to draw on a wider range of evidence that embraces ethnographic and child-centred methods in order to capture children's own experiences and views of their lifeworlds. Indeed, there is a rich vein of in-depth qualitative work with young people within the field of gambling studies (e.g. Griffiths 1995, 2002). Rather, than relying exclusively on evidence from large-scale studies employing standard screening instruments this review also includes evidence from qualitative research, notwithstanding the fact that it is based on small sample sizes recruited through subjective sampling techniques.

### **3. Patterns of Young People's Gambling Behaviours**

#### ***3.1 Traditional Forms of Off-line Gambling***

Over nearly 20 years prevalence studies of children and young people's gambling in North America and Australia have consistently found that between 60 to 90 per cent report having gambled in the past year (Fisher 1999, McGowan et al. 2000, Poulin 2000, Welte et al. 2008, Splevins et al. 2010, Yip et al. 2011). The figures for Great Britain and Germany are slightly lower with prevalence studies suggesting that the percentage of young people who have gambled in the past year ranges between 54 and 75 per cent (Volberg et al. 2010). While the most recent *Report on Gambling Behaviour in England and Scotland* identified that only 50 per cent of 16-24 year olds had participated in a form of gambling (excluding the National Lottery) over the past year (Wardle et al. 2014). According to the latest prevalence survey of underage gambling in England and Wales (based on a representative sample of 2275 11-15 year olds attending maintained schools) 17 per cent of those aged 11-15 reported gambling with their own money in the previous week (Ipsos MORI 2015). This rate of underage gambling is consistent

with that recorded in the 2012 Ipsos MORI Young People's Omnibus and represents a decrease in children's overall participation rates since 2007 (Ipsos MORI 2015). Likewise, the 2015 Omnibus identified a fall in the number of children who had bought a National Lottery ticket or scratchcard in the past week, with just five per cent of respondents to the survey stating that they had spent their own money in this way (Ipsos MORI 2015).

Popular off-line forms of gambling by young people in North America include betting on games of skill, particularly cards (Gerstein et al. 1999, Welte et al. 2009) and sports pools and related wagering on horses/dogs; dice and board games played with family and friends (often in the private space of the home); as well as the lottery (and associated products) and bingo (Jacobs 2000). In addition, young people gamble in arcades, on slot machines and table games in casinos, and on the internet (Volberg et al. 2010).

In Australia the most popular activities are also lotteries and lottery products (e.g. scratch cards) card games as well as scratch cards, and sports betting (Delfabbro, Lahn and Grabosky 2005a/b, Volberg et al, 2010). In the UK fruit machines (category D) – which are legal for children to play – have been popular for several decades – particularly in pubs and amusement arcades (Moran 1987, Griffiths 1990a/b/c, 1991, 1995, 2009, Ipsos MORI 2015) and playing the lottery, and associated products, are also a common (albeit declining) form of gambling (Ipsos MORI 2009, 2011, 2013, 2015). Likewise, fruit machines are the most popular game for young people in Norway where they are readily accessible in public places (such shopping centres as well as restaurants and amusement arcades) despite an age limit of 18. In Sweden, lottery games and slot machines are the favoured form of gambling for young people, although as in Norway fruit machines are also frequently played despite the same age ban also applying (Fröberg 2006). Fröberg (2006) suggests that Norwegian young people appear to gamble slightly more frequently, regularly and for larger sums of money young people in Sweden.

Children's high levels of gambling have been related to the accessibility/availability of gaming machines (e.g. Fisher 1993a, Griffiths 1997a/b, Griffiths 2009) - used here to refer to a wide range of amusement equipment that has different names (such as slots, fruit machines, poker machines and video gaming machines) in different international contexts. In the UK, gaming machines have been commonly located in entertainment and leisure spaces frequented by families and children and young people (e.g. amusement arcades, fast food outlets, cafes, and public houses). Similar provision is also available in other international contexts. In Las Vegas,

US, for example, Casino Hotels cater for all ages, and have arcade games where children can gamble with tokens to win toys as prizes.

In the UK gambling venues such as arcades, as well as being places that young people visit as part of family-oriented entertainment, also attract young people individually and in groups. The evidence is not very clear however, as to whether the opportunity to gamble attracts young people to gambling settings; or whether gambling venues merely provide a convenient and congenial place for young people to gather because of the lack of alternative spaces available to them. The evidence from the social studies of childhood literature suggests that young people have little privacy relative to adults. Both homes and schools are spaces that are constituted through sets of parental/adult rules and regulations which often channel children into organised activities, and are spaces within which young people commonly have limited autonomy. Beyond the home, there is little public (as opposed to private) provision of facilities for young people in UK towns and cities. Moreover, teenagers in particular, commonly want to participate in adult-like activities rather than be corralled with young children in specialist environments. Public space is therefore an important arena for young people wanting to escape adult surveillance and to define their own identities (Valentine 2004). However, the redevelopment and gentrification of many urban areas has resulted in 'undesirable others', including young people, being priced out or driven out of many commercial, retail and leisure complexes by private security industries (including security personnel and closed circuit television surveillance). As such, amusement arcades have provided particularly important spaces (warm, dry, lively décor and music) for young people to meet with friends and have fun free from adult supervision, where gambling can result from the coincidence of location rather than representing a specific motivation for being there.

The lack of availability of legal gaming machines for under 18s in other countries does not necessarily mean however, that adolescents are unable to access these forms of gambling. Rather the evidence of prevalence studies in Australia, Canada, Norway, and US shows that young people still manage to access gaming machines, and even in some rare cases casinos - considered to be the most regulated gambling space (though young people tend to only migrate towards the most age-restricted forms of gambling near the age where they would be legally able to participate) - despite age restrictions (Smeaton et al. 2004, Delfabbro, Lahn and Grabosky 2005a/b, Adlaf et al. 2006, Volberg et al. 2010). Likewise, despite Government guidelines in the UK which define 16 as the minimum age at which young people can legally purchase a scratchcard, research shows that lottery products are still highly accessible to young

people (Ipsos MORI 2011, 2013, 2015), although the number of children gambling underage in this way is falling (Ipsos MORI 2015). Research in Canada has also found that retailers fail to comply with lottery laws and sell tickets to those underage (St Pierre et al. 2011). Older research with young people, has identified that despite being aware of the legal age limits on the purchase of lottery tickets, they nonetheless report going to stores specifically just to buy them, and encountering few, if any problems, when doing so (Felsher et al 2004, Ipsos MORI 2011). This is both because young people are often able to 'pass' as older than they actually are, making the law hard to enforce; and because some retailers/entertainment complex managers are lax, or even deliberately turn a blind eye, to breaches of the law by young people (See also Section 8: Regulator Frameworks to Protect Young People). Indeed, many young people flout the law because they believe there should be no age restrictions on the lottery (Griffiths 2000). Here, there are obvious parallels with public concerns about the sale of alcohol to young people under-age.

### ***3.2 On-line Gambling and Social Gaming***

Over the last 20 years the emergence of the internet has provided a new potentially omnipresent opportunity (e.g. at home, school or work) for people to gamble in privacy and with anonymity without the stigma attached to entering off-line gambling venues, such as a betting shop (Griffiths 1996, 2001a, 2003, Griffiths and Wood 2000, Griffiths and Parke 2002, Derevensky and Gupta 2007, King, Delfabbro and Griffiths 2010a, King, Delfabbro and Griffiths 2012, Shead et al. 2012). Indeed online gambling opportunities are now available through multiple platforms (e.g. desk top computers, laptops, tablets and smart phones): platforms which are readily accessible to most young people as the rapid development of these technologies has produced a steep reduction in their price (Wong 2010, McBride and Derevensky 2012). Moreover, gambling applications have also emerged within other applications such as social networking sites and gaming sites, as a consequence drawing those who were not initially online with the intention of gambling into doing so (see also below) (Floros et al 2013). Griffiths (2004) and Griffiths, Wardle et al. (2008) have observed the similarities between interactive television quizzes to lottery-style gambling experiences, and of penny auctions to internet gambling - raising concerns that such non-gambling leisure activities might normalise gambling behaviours. This has led to speculation that the internet may exacerbate young people's ability to access gambling opportunities both legally and illegally given that young people - the so-called 'net generation' - use the internet more than any other age group.

In many households, children have higher levels of ICT competence than their parents giving them relative freedom to use the internet unsupervised. As a disembodied technology, in the absence of adequate age verification, young people are more readily able to 'pass' as adults on-line than in off-line gambling venues. Young people's ability to illegal access on-line gambling activities is further facilitated by the fact that nearly many young people aged 11-18 are debit card holders – the usual means for setting up an on-line account (Griffiths and Wood 2000, Wong 2010); and that young people can also gamble using pre-paid debit cards which are issued more easily and with fewer controls than credit cards (Wong 2010).

Internet gambling currently still makes up a relatively small proportion of gambling in UK but is growing rapidly. Surveys of young people's gambling carried out for the National Lottery Commission and the Gambling Commission in Great Britain have reported online gambling among a small minority of children and adolescents. In the first study, a national survey of 8017 young people aged 12-15 carried out by MORI in collaboration with Griffiths and Wood (2007) found evidence that young people can, and are, gambling on-line illegally. Of the respondents, 29 per cent claimed to have played free demonstration games on-line with 18 per cent claiming that the system allowed them to register on-line despite security setting by operators designed to prevent illegal underage participation. Indeed, there was also evidence of parental consent helping young people to access games on-line. The survey also found that problem gamblers (defined by DSM-IV-MR-J screen) were more likely to have played the national lottery game on the internet than social gamblers (Griffiths and Wood 2007). A survey of 11 to 16 year olds (n=2595) in England and Wales for the National Lottery Commission in 2013 found that 2 percent of the respondents had played National Lottery games online underage using a parent's account with permission and one percent had done so without permission; 13 per cent had played free or practice gambling games online (Ipsos MORI 2013).

Likewise, in North America and Nordic countries research has also found evidence that young people are able to engage in on-line gambling underage despite legal age restrictions. In 2006 a study in Nova Scotia, Canada, employing an online survey of 499 young people aged 15-20 (the data was weighted to reflect Statistics Canada population data for age and gender), and a qualitative on-line methodology (password protected message board, to foster discussion, debate and reflection) involving 37 young people aged 13-20 found higher levels of self-reported on-line gambling by young people than adults. Of the sample 19 percent of the 15-17 year olds reported gambling on line compared with only 2 percent of adults (Meerkamper 2006). In 2009 a



much larger survey by (Brunelle et al. 2009 – cited in Griffiths and Parke 2010) of 1,876 Canadian high school students aged 14 to 18 years old found that 8 per cent of the respondents had gambled on the internet in the preceding 12 months – although figures were much higher for young men (13 per cent) compared to young women (3 per cent). These findings bear strong similarities to results from two separate studies of undergraduates: one in Canada, and the other in the United States. An off-line questionnaire about internet gambling and risk taking completed by 465 undergraduates at two anonymous urban universities in Canada found that 8 per cent of the respondents had gambled for money on the internet in the past year, with significantly higher rates of gambling reported by male students (11.8 per cent) than female students (0.6 per cent) (McBride and Derevensky 2012). Likewise, an online survey of 909 students at the University of California–Los Angeles identified that 8.1 per cent had gambled for money on the internet at least once in their lifetime, and 5.7 per cent had done so within the previous 12 months. Again male students were much more likely to report gambling online than their female counterparts (Shead et al. 2012).

The Nordic countries have some of the highest rates of gambling in Europe which has been attributed to the faster penetration of the internet in this region than elsewhere (Floros et al. 2013). This is evident in relation to studies of children and young people with for example, one Danish study reporting that 34 per cent of those surveyed gambled on line (Kristiansen and Frederiksen 2008) and an Icelandic survey of young people (n=1537) aged 13 to 18 reporting a comparable figure of 24.3 per cent (Olason et al. 2011). Gendered patterns similar to those identified in North American studies were also evident with boys more likely to gamble on the internet than girls.

While levels of young people's participation in online gambling has been lower than that recorded for their participation in off-line gambling activities (such as lottery games, scratchcards, slot machines, cards and so on) Volberg et al (2010) speculate that young people's propensity to gamble on the internet may increase over time. This is not only because young people will become more familiar with online technologies but also because of the growth of video gaming technologies which share similarities with software and activities on gambling websites may increase young people's interest in, and familiarity with, gambling (Griffiths and Wood 2000, Wood et al 2004, Griffiths, Wardle et al. 2009, King, Delfabbro, and Griffiths 2010b). For example, both gaming and gambling include colourful graphics and interesting audio features (Temcheff, St.Pierre and Derevensky 2011); they share structural characteristics de-

signed to prolong play (Parke and Griffiths 2006, Griffiths 2011, King, Delfabbro and Griffiths 2011); and both fulfil similar emotional needs such as competitiveness, escapism, and a release from stress or boredom (Griffiths and Wood 2000, Hellstrom et al. 2012).

Griffiths, Wardle et al. (2009) identify a diverse range of what they term 'gambling like' activities which are increasingly apparent on smartphone devices, social networking sites as well as in video gaming technologies. These simulate the experience of gambling by allowing players to take part in gambling activities without spending any money, with rewards in the form of achievement points and 'trophies' (King, Delfabbro and Griffiths 2010a). Owens (2010) for example, found that a simple keyword search for gambling applications on Facebook revealed over 350 poker apps, 120 casino betting apps, 80 slot machines apps, and 20 sports-betting apps. Likewise, a wide range of casino, poker and sports betting applications were available for the Apple iPhone (Owens 2010). Griffiths (2010a) highlights the significance of these 'gambling like' opportunities observing that the Zynga Poker application on Facebook had at the time of writing in excess of 36 million active monthly users. An Ipsos MORI (2015) study of the prevalence of underage gambling in England and Wales found that 11 per cent of survey respondents (n=2275) aged 11 to 15 reported that they had played online gambling-style games at some point, and a third of these stated that they had done so within the past week. The concern is that 'gambling-like' activities may increase children's exposure to advertising for gambling products (Gainsbury, Russell et al. 2015), foster their confidence in their ability to win (Bednarz et al 2013, Bramley and Gainsbury 2015) and give them an illusion of control that might motivate their involvement in gambling (Derevensky, Gainsbury et al. 2013), as well as further normalising gambling as a fun activity which is free of risk (Griffiths 2010a, Parke et al. 2013).

In a review of the relationship between gaming and gambling Gainsbury, King, Abarbanel et al (2015) conclude that products in the gaming and gambling industries are converging: gambling products are including gaming themes; gambling themes are being integrated into games; and operators are encouraging customers to engage in both types of activity. Likewise, gaming and gambling operators are also converging. As a result, they have developed a typology of the features of both gaming and gambling in order to identify their distinctive and overlapping characteristics. They define gaming by its: interactivity, skill-based play and the presence of contextual indicators of progression and success; and gambling by its betting and wagering components, chance-based outcomes and elements of monetisation (i.e. risk and pay outs)

(Gainsbury King, Abarbanel et al 2015). Identifying many activities which represent a blurring of gaming and gambling, they conclude that it may be appropriate to consider some hybrid or converging activities according to specific features due to their complexity.

Such trends are particularly significant given that prevalence studies indicate that over 50 per cent of all young people play video games on a weekly basis (e.g. Desai et al. 2010, Rehbein et al. 2010), with boys in particular having a high propensity to play video games to excess (King, Delfabbro, and Griffiths 2012). Yet, no regulation has been specifically developed for gambling themed games. In the British context, demonstration games and gambling-like activities within video games are not considered to be covered by the legal definition of gambling in the *Gambling Act* because they do not offer any direct monetary prizes and do not provide a means to cash out any winnings, or to withdraw any payments that have been made towards acquiring or subscribing to the game (Purewal, 2012). This means that they are not subject to the rigorous age-verification regime that applies to gambling, falling instead under the remit of regulations for video games and online gaming. However, some companies such as Google and Apple are looking at self-regulation.

The Ipsos MORI (2009) survey for the Gambling Commission (described above) found that over a quarter of the children had played free or practice modes of 'real' gambling in the preceding week and when a similar survey was conducted in 2015 a third of children reported that they had played online gambling-style games in the previous week. Using statistical modelling to further investigate the 2009 data Forrest, McHale and Parke (2009) found that playing in money-free mode was the most important predictor of whether a young person had gambled for money and one of the most significant predictors of problem gambling. A similar pattern was evident in the data collected by the 2011 Ipsos MORI survey. Over half (51 per cent) of the children responding to the survey who had played free online trial gambling games in the preceding week had also gambled for 'real' money, compared with around one fifth (18 per cent) of those who had not engaged in such activities. The Report (Ipsos MORI 2011) recommended as a consequence that children's access to free trial gambling games needs to be monitored by regulators.

Several other studies have identified a correlation between demonstration games and gambling (King, Delfabbro and Griffiths 2010a, Forrest and McHale, 2012), and social games and gambling (Kim et al. 2014) raising potential concerns about the implications of these

associations for the protection of minors from gambling related harms (Derevensky, Gainsbury et al. 2013, Griffiths 2010a, Griffiths 2011, Parke et al. 2013) (for further discussion see Section 8 Regulatory Frameworks to Protect Young People and Section 9 The Prevention and Treatment of Problem Gambling). Kim et al. (2014), for example, found that a large proportion of those who begin as social gamers move on to gamble for money within six months of starting to play on social sites.

However, other research has indicated that such associations may only be coincidental (Bednarz et al. 2013, Gainsbury, King, Delfabbro et al. 2015), because those who are attracted to free gambling games on gambling websites may already be predisposed to gambling (Floros et al. 2013) and that, despite similarities, social gaming and gambling for money may attract different types of players (Gainsbury, Hing et al. 2014). Moreover, Gainsbury, Hing et al. (2014) argue that social gambling may actually discourage young people from being tempted to gamble for real money. One qualitative study conducted in schools in London and Kent, UK found significant differences (alongside some similarities) in pupils' (aged 14 to 19) motivations to play and forms and intensity of engagement with monetary and non-monetary forms of gambling, and the emotions associated with these activities (Carran and Griffiths 2015). The pupils taking part in focus groups were clearly able to differentiate between gambling and gambling-like activities, and there was no automatic translation of interest from one to the other, with only limited evidence found of demonstration games being used as training for future monetary gambling.

Given that the existing empirical evidence about the relationships between 'gambling-like' activities and 'real' gambling is relatively limited in scope/scale and inconclusive (King, Ejliva and Delfabbro 2012, Parke et al., 2013, Gainsbury, King, Abarbanel et al 2015) there is a clear need for more research to investigate how young people experience monetary and non-monetary gambling, and whether they are sufficiently aware of the differences and associated risks. This is necessary to inform legislators and policy-makers' considerations about whether gambling-like activities are adequately regulated to protect minors from gambling-related harm (Harris and Hagan 2012).

#### **4. The Prevalence of Children and Young People's Problem Gambling: evidence from UK and international research**

An extensive international evidence base in relation to the prevalence of problem and pathological gambling among young people has developed over several decades (e.g. Gupta

and Derevensky 1998a, Jacobs 2000, Gillespie et al. 2007a/b, Welte et al. 2008, Blinn-Pike et al. 2010, Volberg et al. 2010, Wardle et al. 2014). Broadly, the consensus is that notwithstanding some variation (both higher and lower) in specific individual studies the typical rate of youth problem gambling in a range of international jurisdictions is around 3-5 per cent (e.g. Shaffer & Korn, 2002, Delfabbro and Thrupp 2003, Delfabbro, Lahn and Grabosky 2005a/b Fröberg 2006, Delfabbro and King 2011, Purdie et al. 2011, Rossen et al. 2013).

Some of the variations between studies may be attributable to methodological issues (e.g. Volberg et al 2010 observe that surveys conducted by phone tend to produce lower prevalence rates than those completed in classrooms) and the complexities of comparing studies with very different sample sizes and which are conducted in very different geographical contexts even with one national context (e.g. rural versus urban areas). This is demonstrated, for example by a set of Australian studies. A study of 926 young people aged 11-19 attending State, independent and Catholic schools in the Australian Capital Territory found that 70 per cent of the respondents had gambled within the last 12 months and 10 per cent gambled at least weekly. Approximately, 4 per cent of the respondents were classified as problem gamblers (using the DSM-IV-J screening tool) (Delfabbro, Lahn and Grabosky 2005a). A similar study of 252 students aged 12–18 years, attending four private schools in the Eastern suburbs of Sydney five years later recorded a higher prevalence rate of 6.7 per cent (using the DSM-IV-MR-J screen) (Splevins et al 2010). The lowest prevalence rate of problem gambling (DSM-IV-MR-J) recorded in Australia to-date was reported in a 2011 survey of 1107 young people aged 14 to 18 in the Northern Territory, sampled from two metropolitan high schools in Darwin and one high school in Humpty Doo. This found about half (50.8 per cent) of the respondents said they had gambled at least once in the previous year, 6.3 per cent stated they gambled weekly but only 0.2 per cent were classified as pathological gamblers (Delfabbro and King 2011).

In an international review of youth gambling prevalence surveys carried out over three time periods: 1984-89, 1990-99, and 2000-09 in North America, Europe and Oceania, Volberg et al. (2010) concluded (notwithstanding the methodological difficulties of comparing individual studies) that repeat studies show that since the early 1990s that adolescents' participation in gambling and rates of problem gambling have remained stable or declined in most of the jurisdictions considered by their study. For example, in the UK repeat studies of underage gambling (under 16s) on the National Lottery have recorded a drop in the percentage of those classified as problem gamblers (all using DSM-IV-MR-J screen) from 5.4 per cent in 1999

(Ashworth and Doyle 1999), to 3.5 per cent in 2006 (MORI 2006), to 1.9 per cent in 2009 (Ipsos MORI 2009) and to 0.6 per cent by 2015 (Ipsos MORI 2015).

Specifically, the 2009 survey conducted by Ipsos MORI for the National Lottery Commission with children aged 11 to 15 from 201 schools (n=8958) found that the prevalence of problem gambling (DSM-IV-MR-J) in this age group was 1.9 per cent, compared with 0.6–0.9 per cent in most of the comparable adult surveys at that time (Forrest and McHale 2012). Child income emerged as a key predictor of gambling and problem gambling. The more money a child had, the more likely he or she was to gamble. Forrest and McHale's (2012) analysis predicted that an increase from nearly £14 to just over £25 per week would increase the overall problem gambling risk for the baseline subject by more than 50 per cent. However, in 2015 the Ipsos MORI Omnibus (for the National Lottery Commission) found that only 0.6 per cent of the children who responded to the survey were classified as problem gamblers (DSM-IV-MR-J), suggesting that the incidence of problem gambling amongst children had fallen to the same levels as that recorded amongst adults (Ipsos MORI 2015). A survey of young people's gambling in England and Scotland (Wardle, Seabury et al. 2014) recorded a higher prevalence of problem gambling amongst those aged 16 to 24, with 1.2 per cent in this age group classified as problem gamblers (DSM-IV). A much higher rate of problem gambling was also observed for young men (2.1 per cent) compared to young women (0.3 per cent).

Research from a number of different national contexts has identified that rates of problem gambling amongst young people may be higher among those who gamble on the internet compared with those who only gamble offline (e.g. Kristiansen and Frederiksen 2008, Griffiths, Wardle et al. 2009, Wood and Williams 2009, Derevensky 2011, Olason et al. 2011, Potenza et al. 2011, McBride and Derevensky 2012, Shead, Derevensky, Fong and Gupta 2012). For example a survey (n=1,537) of Icelandic teenagers (aged 13 to 18) found that over half had gambled at least once in the past 12 months. Based on the DSM-IV-MR-J criteria 2.2 per cent were classified as problem gamblers, with internet gamblers more likely to be defined as problem gamblers (7.7 per cent) than non-Internet gamblers (1.1 per cent) (Olason et al. 2011). Similar results were evident in an offline survey conducted in two urban Canadian universities (McBride and Derevensky 2012). Again higher rates of problem gambling (using DSM-IV criteria) were found amongst students who had gambled on the internet, than those who had not. Those who had gambled online also had a greater risk-taking motivation than those who had not gambled in this way. McBride and Derevensky (2012) conclude that gambling on the internet

may be harmful for: young men, those with high risk-approach motivation, and those with pre-existing problem gambling behaviours.

Such patterns have led to speculation about whether problem gamblers are more susceptible or vulnerable to gambling online because of the unique opportunities it affords (e.g. to gamble any time, anywhere); or whether teenage problem gamblers merely add the internet to a pre-existing repertoire of gambling behaviours (Forrest, McHale and Parke 2009, Wood & Williams 2009). Griffiths and Parke (2010) urge caution in relation to attempts to define the role of internet gambling in creating young problem gamblers. However, in a review of current evidence they suggest that the opportunity to gamble online without money is critical in introducing young people to the principles and excitement of gambling - with between a third and a quarter of young people reporting they have gambled in this way. Given young people's proficiency in using information and communication technologies, research to explore further the role of internet gambling in terms of creating new forms of gambling-related harm and/or exacerbating existing harms needs to be made an urgent priority (Griffiths and Parke 2010).

In all of the countries considered in this review, problem gambling is inversely related to age with a higher prevalence of gambling amongst young people. For example, Gupta and Derevensky's (1998a) study of 817 high school students (aged 12-17) in Montreal region of Canada found that pathological gambling (using the screening instrument DSM-IV-J) was higher in grade 7 (pupils aged 12-13) than grade 11 (pupils aged 16-17). This is consistent with the findings of other studies (e.g. Nowak & Aloe, 2013). Levels of problem gambling tend to be between 2 to 4 times higher (i.e. 1 to 5 per cent) among young people than adults (Delfabbro, Lahn and Grabosky 2005b, Welte et al. 2008, Blinn-Pike et al. 2010, Volberg et al. 2010, Purdie et al 2011, Forrest and McHale 2012, Wardle, Seabury et al. 2014).

A significant body of 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 (Fisher 1993a/b, Shead, Derevensky and Gupta 2010, Mentzoni et al. 2012, Derevensky 2012). Other commentators have argued however that young people may grow out of gambling problems as they get older (Tepperman 2009) or that prevention programmes (see Section 9 Prevention and Treatment of Problem Gambling), by reducing risk factors (e.g. peer environmental risks) and fostering compensatory factors (e.g. social bonding), may produce lower levels of problem gambling (Lussier et al. 2014) and so it might be reasonable to conclude

that levels of young people's gambling should not be considered a cause of undue concern. (However, it is important to note that they may experience long-term consequences of their gambling behaviour, for example as a result of dropping out school). Others still argue that this pattern can be interpreted in different ways and may have significant implications for the well-being of young people as they move into adulthood (Volberg et al. 2010). For example, exposure to gambling opportunities may vary with age such that contemporary young people are being exposed to new gambling opportunities compared to previous generations and as a consequence this has yet to materialise in higher adult prevalence rates (Lepper 2005); or the early onset of gambling problems may be leading to treatment that might account for the decline in the number of problem gamblers by age. Indeed, there is some evidence that motivations for, and perceived benefits of gambling change as people get older: younger adults (those aged 18-24) for example are more likely to see gambling as an excuse to socialise, and escape boredom than older adult age groups (25-34) and are more likely to perceive stress as a more significant factor in gambling than older people (Wiebe, Single and Falkowski-Ham 2001). Moreover, different measures of problem gambling as a result of the different screening instruments used with children and adults (see Section 1 – Definitions above) may mean that in effect such comparative studies are not truly comparative because they are measuring different things (Lepper 2005).

To-date relatively few longitudinal studies have been undertaken to explore whether gambling under age increases the likelihood of gambling in adulthood. The longest running longitudinal time-series analysis of young people's gambling – which has tracked a sample of young people in Minnesota, US since 1992 – has identified a pattern of declining interest in gambling despite the proliferation of opportunities to do so which have emerged in this period. Stinchfield (2011) speculates that gambling may be replaced by other "risky" activities as young people make the transition to adulthood or may become a less salient interest as a consequence of growing maturity. Likewise, a study to investigate problem gambling severity trajectories in a sample of young adults in Manitoba Canada, using latent growth curve modelling of four wave longitudinal data, found the risk of problem gambling declined over time, suggesting that targeted prevention campaigns may be effective (Edgerton et al. 2015). An Australian study which followed 578 young people, collecting data from them annually between the ages of 15 and 18, found considerable individual variability in patterns of gambling during the transition to adulthood. Only 1 in 4 of those who gambled at the age of 15 went on to gamble every year and very few of participants continued to engage in the same specific gambling activities from year to



year (Delfabbro, Winefield and Anderson 2009). Likewise, a four-wave longitudinal study in South Australia that has followed a sample of 256 young people, aged 16 to 18 in 2005 through to the age of 20-21 found that the participants showed little stability in their gambling. Rates of participation in gambling increased as young people made the transition to adulthood and then generally stabilised. Relatively few of those sampled gambled on the same activities consistently over time. In this sense, the pattern of young people's gambling in early adulthood (at 20-21) was not generally aligned with their gambling in their teenage years (Delfabbro, King and Griffiths 2014).

The evidence of longitudinal research therefore appears to show that those who gamble underage do grow out of their participation in this activity. However, given this is a relatively small body of work and its findings are inconsistent with the complex set of findings from non-longitudinal studies of gambling at different ages (described above) it suggests that further longitudinal research is needed to be confident of the reliability of the pattern reported here.

Young people often fail to recognise that they have a problem (Hardoon, Derevensky and Gupta 2003, Splevins et al. 2010). Even where young people have some degree of self-recognition, their problem gambling is not necessarily visible however, because they often do not seek help from formal agencies for their problems because of shame, fear they will be denied help, or because their problem gambling can be hidden within, or by, the family (Valentine and Hughes 2010, 2012) (See also Section 9. The Prevention and Treatment of Young People's Problem Gambling . Although, it is important to recognise that contrary to this evidence base the Australian study (described above) which tracked 578 young people from age 15 into early adulthood found that early exposure to gambling – where controlled, for example through parental supervision - may actually contribute to young people developing resilience to becoming problem gamblers because they learn the futility of games of chance (Delfabbro, Winefield and Anderson 2009).

Much less is known however, about why some individuals become problem gamblers while for others gambling remains a casual activity without harmful consequences (Derevensky and Gupta 2004a/b). There is no universally agreed model or understanding of addiction within gambling studies, though Jacobs' (1986) General Theory of Addictions and Blaszczynski and Nower's (2002, see also Nower and Blaszczynski 2004) Pathways Model are two different frameworks that attempt to explain the development of problem gambling and which are

commonly drawn on within the field (see for example Gupta and Derevensky 1998a, Wood and Griffiths 2007a).

Traditionally, addiction has been understood through a medical model as a disease in which an activity (such as gambling) or a substance (such as alcohol or drugs) is understood to produce a compulsion beyond an individual's self-control. Here, young people are viewed as psychological subjects driven to make particular behavioural choices by specific internal drivers including addictive pathways in the limbic system, a failure of impulse control or an attraction to high risk behaviour associated with adolescent brain development (e.g. Slutske et al. 2005, Betancourt et al. 2012, Hood and Park 2015, Edgerton et al. 2015). A Web of Science survey of the literature on young people and gambling found that of 177 outputs, 72 per cent drew on such psychological, psychiatric or neuroscientific explanations for young people's gambling (Wilson and Ross 2011). This way of thinking has been contested by more 'social' understandings of 'addiction' which have sought to understand compulsive, or problematic behaviour in terms of the complex relationships between the characteristics of individuals, the nature of particular 'addictive' behaviours and the environment in which these activities occurs rather than through a clinical lens (e.g. Blinn-Pike et al. 2010, Barmaki 2010). Such conceptualisations of addiction allow for a wider spectrum of addictive behaviour and to recognise that individuals may follow pathways in, and out, of problematic behaviour over periods of time.

Blaszczynski and Nower's (2002) pathway model for adults (later adapted in relation to young people - Nower and Blaszczynski 2004), recognised that problem and pathological gamblers are not a homogeneous group. Rather they integrated empirical and clinical knowledge concerning the biological, development of personality, cognitive, learning theory and environmental factors associated with problem gambling into a coherent framework. This theorised three different pathways to gambling problems – one of which is predicated on biological or neurological components. Subsequent studies have sought to test this theoretical framework empirically in an attempt to better understand different subtypes of pathological gamblers. A study by Faregh and Derevensky (2011a) has suggested that there may be a gendered divergence in the pathways that young gamblers negotiate according to the nature of their gambling behaviours. They argue that vulnerability to developing gambling problems among young male and female gamblers with prior addictions is more likely to involve behaviours with physiological or neuroadaptive components than antisocial elements. Moreover, they suggest that this vulnerability is particularly acute for young female gamblers who are substance-dependent

where the development of tolerance (i.e. the positive effects are reduced with repeated exposure) plays a key role. Faregh and Derevensky (2011a) conclude by arguing that treatment programmes need to address the specificity of young people's individual gambling pathologies, while also arguing that more research is needed to investigate biological markers for gambling pathology. Other studies have also sought to test empirically the effectiveness of Nower and Blaszczynski's (2004) framework for understanding and differentiating among subtypes of problem and pathological young gamblers. Notably, a study by Gupta, Nower et al. (2013) identified five distinct subtypes of young problem gamblers, three of which align with those proposed by Nower and Blaszczynski (2004): those who do not demonstrate any psychopathology (pathway 1); those who are characterized by past trauma, depression, self-hatred, family conflict, and suicidal tendencies (pathway 2); and those who are mainly antisocial and impulsive (pathway 3). In addition, Gupta, Nower et al. identified a 'depression only' subtype and a subtype characterised by internalizing and externalizing symptoms. Their work further deviated from the Pathways Model with its finding that Attention Deficit/Hyperactivity Disorder (inattentive) characteristics were found to be present across four of the five classes leading them to conclude that ADHD/inattentiveness appears to be a common risk or contributing factor in problem gambling among young people.

Pathological and problem gambling by young people has been associated with a higher incidence of psychological and psychosocial concerns including risk-taking (Slutske et al. 2005), and impulsivity (Nower et al. 2004, Slutske et al. 2005, Dussault et al. 2011, Vitaro and Wanner 2011, Shenessa et al. 2011) leading to research to examine whether neurological deficits in particular areas of the brain may explain these patterns of behaviour. Research with adult pathological gamblers has identified apparent deficits in executive cognitive functions which are essential for cognitive and emotional self-regulation such as the working memory, impulse control and reward processing. These are functions located in the prefrontal cortex (PFC) an area of the brain which develops after birth over an extended period throughout childhood becoming increasingly refined in later adolescence. This has led to speculation that high levels of risky behaviour displayed by teenagers may be a product of immature prefrontal executive function (Romer et al. 2009, 2011) Betancourt et al. (2012) undertook a longitudinal study with a sample of children (between ages of 10 and 15) in order to investigate the relationships between executive cognitive functions and trajectories of gambling/problem gambling. They identified two groups: early gamblers and late gamblers – who were similar in terms of socio-economic status, ethnicity, parents' marital status and level of monitoring, The early gamblers

were more likely to be male, to demonstrate higher levels of impulsive behaviour and to have a higher incidence of problem behaviours and drug use yet showed similar levels of executive cognitive function compared to late gamblers.

Other research has hypothesized that as well as problem gambling Attention-Deficit/Hyperactivity Disorder (ADHD) may also be due to neurological deficits in the same areas of the brain responsible for impulse control. In a study of the relationship between impulsivity and gambling Derevensky, Pratt et al. (2007) found that young people who reported problem gambling behaviours were more likely to exhibit a greater number of ADHD symptoms (likewise depression, substance abuse, and suicidal tendencies also commonly correlate with problem gambling and ADHD). In a subsequent study involving a survey of 1,130 young people aged 12 to 19 from six English speaking high schools in Canada Faregh and Derevensky (2011b) found that those who screened positive for ADHD were significantly more likely to engage in gambling and develop gambling problems than those who did not. They also identified an association between emotional problems, a depressive affect and gambling severity, highlighting in their conclusion the clinical importance of looking at subtypes of ADHD amongst young gamblers (Faregh and Derevensky 2011b). Similar findings have been produced in US studies. For example, research drawing upon a longitudinal study (Fuentes et al. 2006) in which children in elementary schools (aged 7 to 11) were screened for disruptive behaviour, impulsiveness and executive functioning and then tracked into early young adulthood (now aged 18 to 24) known as the Minnesota Competence Enhancement Program, found that participants who had ADHD symptoms that had persisted into early adulthood exhibited more severe problem gambling than those without ADHD or with non-persistent ADHD (Breyer et al. 2009). Likewise, US research drawing on data from the National Longitudinal Study of Adolescent Health (n=6145) found that young people with symptoms consistent with Hyperactive-Impulsive type ADHD in childhood were significantly more likely than other study participants to report participation in multiple forms of gambling as young adults and major losses in the past year. Such findings reinforce the value of longitudinal data and highlight the need for gambling prevention and harm minimisation interventions to target children with ADHD (Clark et al. 2013) (see also Section 9 The Prevention and Treatment of Problem Gambling).

Without exception all of the gambling studies reviewed have found that boys start gambling earlier than girls and gamble more often, and are more at risk of becoming problem gamblers than girls (Fröberg 2006, Johansson et al. 2009, Currie et al. 2011, Splevins et al. 2010, Forrest

and McHale 2012, Scholes-Balog 2014, Ipsos MORI 2015, Simmons et al. 2016). Boys are also less likely to consider gambling frequently to be a risky activity and are more likely to have confidence in their own gambling skills than girls (Kristiansen, Jensen and Trabjerg 2014). This gendered pattern is evident even into early adulthood – for example, a study (n=7,517) of U.S. college student-athletes found that male respondents were more likely to participate in gambling and to have gambling problems than their female counterparts (St-Pierre, Temcheff et al, 2014). Jacobs (2004) suggests that the ratio of boys to girls with severe gambling problems is in the range of 3-1 and 5-1. To take one form of gambling as an illustration - slot machines -- the evidence of Griffiths and Wood's (2000) research is that very few young women have gambling problems in relation to this activity. When young women do become problem gamblers there is some evidence to suggest that this is motivated by a desire to escape personal problems; whereas young men are more likely to explain their behaviour in terms of a desire to win, chase losses or in terms of competition (Grant and Kim 2002, Ellenbogen et al. 2007). Other research has suggested that differences in personality factors (in terms of openness and agreeableness) between young men and women may also account for gender differences in gambling behaviours (Buckle et al. 2013).

Further evidence of the gendered nature of problem gambling is provided by studies of adult problem gamblers which suggest that women pathological gamblers are more likely to have emotional problems as a result of relationship difficulties, loneliness, depression or history of physical abuse; whereas men are more likely to have issues around sensation seeking, impulse control, to have a history of heavy drinking or alcoholism (Shead, Derevensky and Gupta 2010, Yip et al. 2011, Rahman et al. 2012), and to resort to other criminal/illicit behaviours to fund their gambling (Ladd and Petry 2002). Despite the fact there is relatively limited evidence to support these apparent gendered patterns they do appear to fit wider traditional understandings of gendered behaviour. However, it is worth noting that the gendered nature of alcohol consumption has changed significantly in recent years as opportunities for women to drink, and social attitudes to women's drinking have evolved. Thus, it is reasonable to speculate that attitudes to women gambling and women's patterns of gambling behaviour may also change as a result, particularly with the development of internet gambling which offers a more conducive space for women to gamble.

Since the early 2000s a number of studies have begun to produce evidence that young people from minority ethnic groups are more likely to gamble and to become problem gamblers than

those from majority groups (e.g. Stinchfield 2000, Derevensky and Gupta 2000, Haroon, Gupta and Derevensky 2004, Nower et al. 2004, Ellenbogen et al. 2007, Martins et al. 2008, Zangeneh et al. 2010, Simmons et al. 2016). A number of different explanations have been offered to account for this pattern. Martins et al. (2008) suggests that growing up in neighbourhoods where there are high levels of poverty and adult unemployment, as well as weak parental supervision, may contribute to explaining the involvement of African-American teenage girls in risky gambling activities. It is an explanation which Simmons et al. (2016) agree may account for the pattern of higher levels of participation in gambling and problem gambling they found among African-American compared to young people of white ethnicities (aged 13 to 20) in a survey (n=1076) conducted in four urban public high schools in the south east of the United States. In the UK one of the unanticipated findings of the NLC survey was that the probabilities of problem gambling were significantly elevated among Asian children despite the fact that the majority were from Pakistani, Bangladeshi or Indian backgrounds where as a consequence of Muslim and Hindu teachings gambling is commonly disavowed. Notably, an Asian child was four times more likely to be a problem gambler than a white child where both shared other baseline characteristics (Forrest and McHale 2012). Other studies (e.g. Ellenbogen et al. 2007) have identified that immigrants face considerable challenges adjusting to a new culture and that as a consequence some may be at risk of developing mental ill health and gambling, alcohol or substance abuse. Such explanations linking higher rates of problem gambling to socio-economic disadvantage and the challenges of integration perhaps also chime with the findings of the British Gambling Prevalence Survey 2010 which found that Asian/Asian British or Black/Black British adults were more likely to gamble for enhancement or coping reasons than those who were classified as White/White (Forrest and Wardle 2011, Wardle, Moody et al. 2010).

Recognising that young people with gambling-related problems have been found to experience more negative major life events than those who do not gamble (Bergevin et al. 2006), Storr et al (2012) explored cross-sectional associations between adverse life events and gambling, drawing on a sample largely comprised of African-American students from urban neighbourhoods. Contrary however to other studies, they did not find that the experience of adverse life events was associated with having a gambling-related problem, although it was connected to the frequency of gambling.

Other studies have also begun to look at the relationship between cultural differences (including for example language and religious beliefs) and patterns of problem gambling. A study of parents from two of Canada's largest cultural groups – Anglophones and Francophones- found a number of cultural differences in their attitudes towards gambling, the degree to which they consider young people to be at risk and their actual parenting practices. For example, Francophone parents were more likely to consider young people to be more at risk of problem gambling than adults; to be suspicious about whether their child was gambling and reported finding it easier to initiate conversations with their child about gambling and did so more often than the Anglophone parents. Such cultural differences may influence the degree to which young people from these communities are at risk of becoming problem gamblers (Campbell et al. 2012). In contrast, a US study of young adults (using data from the National Longitudinal Study of Adolescent to Adult Health) raised in different religious traditions and those with no religious affiliation did not find that those raised in traditions with prohibitions against gambling were less likely to gamble. Moreover, rather unexpectedly, those young adult gamblers who attended religious services up to three times per month as teenagers were more likely to experience gambling problems than those who reported they did not do so (Ueker and Stokes 2015). These findings indicate the need for further exploration of cultural and religious differences in patterns of gambling and problem gambling.

A number of authors, in a range of international contexts, have sought to summarise the risk factors associated with problem gambling. The characteristics they identify are broadly similar (see for example: Winters et al 1993b, Jacobs 2000, Barnes et al. 2005, Storr et al. 2012, Gori et al. 2015). In the UK Griffiths (2002) lists them as:

- being a young man;
- having a big win early in a gambling career;
- starting gambling at an early age;
- having parents who gamble or engage in other addictive behaviours;
- having low self esteem;
- achieving low grades at school;
- chasing losses;
- gambling alone;
- being depressed before a gambling session;
- using gambling to cultivate status among peers;
- having erroneous perceptions about gambling;

- engaging in other addictive behaviours such as smoking, illegal drugs or alcohol;
- having a history of delinquency;
- stealing money to fund gambling;
- truanting from school to go gambling;

Other factors that might be added include: having a positive attitude to gambling (Dickson et al. 2002a/b); demonstrating impulsive behaviour at an early age (Shenassa et al. 2011, Vitaro and Wanner 2011); moving home frequently; living in a disorganised neighbourhood (Scholes-Balog et al 2014); coming from a conflictual family (Scholes-Balog et al 2014); having low levels of parental monitoring or support (Dowling et al 2010); and failing to properly understand the risks involved in gambling (Wood, Griffiths et al. 2002) including being susceptible to erroneous beliefs concerning randomness and chance (Delfabbro, Lambos et al. 2009).

In contrast, key protective factors have been identified by Scholes-Balog et al. (2014) as:

- being female;
- being close to parents;
- being rewarded for pro-social involvement in the family (e.g. parents praise hard work and tell their child they are proud of them);
- being rewarded for pro-social involvement in the community (e.g. people in the neighbourhood provide encouragement to do well);
- being rewarded for pro-social involvement in school (e.g. teachers praise hard work; friends respect school achievements);
- interacting with pro-social peers (e.g. having friends who also try hard at school);
- having a belief in the moral order (e.g. being honest);
- being adaptive and able to cope with stress;
- having emotional self-control;
- having self-efficacy;

Whereas most studies concentrate just on risk factors, Scholes-Balog et al (2014) used a large longitudinal dataset to explore a wide range of both risk and protective factors for problem gambling together across multiple domains of young adults' lives. When each risk and protective factor was considered separately (controlling for age and gender), a wide range of factors associated with the family, school, peers and the individual were predictive of young adult problem gambling in line with other studies cited above. However, when these risk and



protective factors were considered together being female was identified as the only statistically significant protective factor. An interesting interaction was also found between a risk factor and a protective factor with family rewards for prosocial involvement moderating the risk relationship between alcohol use and young adult problem gambling. In other words, these findings suggest that the relationship between alcohol use and problem gambling is dependent on the nature of the family environment in which a child grows up (see also Section 6 The Transmission of Patterns of Gambling). The implications of this are discussed further in Section 9 on the Prevention and Treatment of Young People's Problem Gambling.

## **5. Motivations for Gambling**

### ***5.1 The Buzz of Playing and Rewards of Winning***

Griffiths (1995) has argued that slot machines themselves are one of the attractive features of play for young people. He points out that these machines motivate young people to play not only because they are rewarding as they require a low stake and produce frequent wins, but also because they are aurally, and visually stimulating, with flashing lights and sound effects contributing to the generation of a sense of fun and activity. Indeed, several commentators have suggested that manufacturers use both art-work and the structural characteristics of slot machines to attract players and to induce them to continue to play (Fabian 1995, Griffiths and Wood 2000). Likewise, Griffiths (2000) has also shown how scratchcards, as products, motivate young people to gamble: dubbing them 'paper fruit machines'. He argues that these instant win products are potentially addictive because they involve rapid event frequency, short payout intervals, psychological rewards and no skills are needed.

There is some limited evidence of links between slot machine gambling and both video lottery terminal (VLT) gambling and video game playing because these activities share many of the same features. For example, a survey of 996 young people aged 10-17 in Montreal, Canada, found a clear relationship between video game playing and gambling. Problem gamblers (defined by the DSM-IV-J screen) were significantly more likely than non-problem gamblers or non-gamblers to: spend excessive amounts of time playing video games; to rate themselves as excellent video game players; and to regard video games as a relaxing form of escape (Wood et al 2004).

Indeed, research suggests that young people overestimate the role of skill and ability in gambling and their chance of winning (Kristiansen, Jensen and Trabjerg (2014), believing that

practice will make them a better gambler in the same way that repetition can bring improvements in performance in relation to other types of games (Derevensky, Gupta and Cioppa 1996). Other studies have also found evidence that young people may have trouble differentiating between the concepts of: luck, fate, chance and probability and that they often use these terms interchangeably, whereas adults are more aware of the difference between these terms (Wood and Griffiths 2002, Delfabbro, Lambos et al. 2009). Younger children also appear to believe that the higher the winnings the more the chance of winning and to engage in superstitious behaviour (e.g. using lucky numbers) that they believe will influence their chance of winning (in other words, they have an illusion of control) and which motivate them to continue to play particular games, such as the lottery (Derevensky, Gupta and Cioppa 1996, Wood and Griffiths 2002).

Whereas research to understand why young people gamble has tended to focus on their motivations for pursuing these activities, findings from drug and alcohol studies highlight the importance of understanding outcome expectancies in young people's decisions to engage in high risk behaviour. This evidence base suggests that those who perceive less risk of addiction in drugs are more likely to experiment and have drug problems; whereas positive outcome expectancies have been found to be significantly more effective at predicting young people's alcohol use than negative outcome expectancies (Gillespie et al. 2007a). Gillespie et al. (2007a) have developed a Gambling Expectancy Questionnaire (GEQ) (this includes 48 risk/benefit items addressing the multifaceted consequences of gambling and using a 7-point Likert scale to capture a range of expectancy strength) to measure the positive or negative outcome expectancies that influence young people's participation in gambling. The GEQ was administered in groups to 1,013 young people aged 11-18 in schools from the greater Montreal area of Canada.

The study found that positive outcomes were most likely to be anticipated from gambling by young people with gambling-related problems, despite the fact that this group were actually experiencing negative consequences from their gambling activities (e.g. chasing losses, lying to family members, truancy, conflict etc). Gillespie et al. (2007b) explain this pattern by drawing on immediacy assumption theory. This understands positive outcomes (e.g. excitement, enjoyment, socialising with friends, impressing others, feeling in control, financial gains etc.) to be 'more immediate and therefore more powerful in influencing behaviour than are long-term negative outcomes' which are commonly delayed costs (e.g. debt, guilt etc.) (Gillespie et al. 2007b: 78).

Thus despite recognising and experiencing the negative consequences of their behaviour the probable pathological young gamblers surveyed perceived the potential benefits of gambling to outweigh the costs because of this temporal factor. Moreover, the young men surveyed were more likely to anticipate that gambling would provide pleasure and financial gains than young women who were more aware than their male counterparts of the risk of the emotional impact of gambling. Gillespie et al. (2007b) suggest that these findings may therefore also contribute to explaining gender differences in gambling prevalence rates.

## **5.2 The Role of Advertising**

Gambling advertisements have proliferated in the last two decades. The development of the internet and social media has not only led to new forms of gambling but also to new ways in which gambling can be promoted through multiple media environments (Lindsay et al 2013, Thomas 2014). There has also been an explosion in the promotion of gambling through sport – which McMullan (2011) has dubbed the ‘gambification of sporting matches’. Both trends have raised particular concerns about the implications for young people’s exposure to gambling given their online activities and consumption of social media as well as engagement with sport (Lindsay et al. 2013). Advertisements commonly portray gambling as glamorous, and exciting (Derevenesky, Gupta et al. 2009, McMullan et al. 2012). However, there are relatively few empirical studies to-date which investigate young people’s awareness of gambling advertisements and their impact on behaviour.

A qualitative study (n=59 families) to look at how parents and young people (aged 14 to 18) interact with, and interpret messages, in gambling advertisements found that the gambling messages that most resonated with families were those that evoked culturally valued activities and aspirations (e.g. they highlighted social connectedness such as spending time with family members or winnings that would enable them to provide for family and friends). Advertisements that used positive emotional framing techniques were also well received (Thomas 2014).

A survey of 1,147 young people aged 12 to 19 from five secondary schools in Quebec and three secondary schools in Ontario, Canada found that 61 per cent had received spam gambling advertisements by e-mail and 96 per cent had seen advertisements for gambling on television (Derevensky, Sklar et al. 2010). While most of the young people recognised common key messages such as: winning is easy, the chance of winning is high and that gambling is an easy way to become wealthy, the pupils were also dismissive of these messages and aware of the

risks associated with gambling. Rather than inciting non-gamblers to begin gambling, the research found that it was problem gamblers who were more likely to recall view gambling advertisements and to report gambling after seeing an advertisement, and who were also the most susceptible to the suggestion in ads that success was imminent. However, Derevensky, Sklar et al. (2010) caution against jumping to the conclusion that exposure to advertising may be causally related to problem gambling. Rather, they observe that problems gamblers may notice such advertisements and find it easier to remember them because a preoccupation with gambling is a typically associated with problem gambling. Indeed, individuals with gambling problems were also more likely to recall that advertisements advocate and promote responsible gambling, although recognising this message did not seem to have affected their own behaviours (see also Derevensky, Gupta et al. 2009).

While the gambling industry is not supposed to target advertisements specifically at young people, nonetheless the type of advertisements used, are often attractive to those under 18 (Derevensky and Gupta 2004a/b, Derevenesky, Gupta et al. 2009). May-Chahal et al (2004) draws parallels with the advertisement of alcoholic drinks. Here, following concerns that alcohol was being promoted by the drink industry in ways designed to appeal to the under 18s, a voluntary code of practice was developed by the UK drinks industry body (at the time – now no longer in existence) The Portman Group (Measham 1996): a practice recently followed by the gambling industry, which has also developed its own industry code in relation to responsible advertising.

To-date there is insufficient empirical evidence to assess definitively the impact of gambling advertising on young people's motivation to, or participation in, gambling (Wood and Griffiths 2004, Binde 2014, Thomas 2014). The UK *Gambling Act* (2005) was criticised for allowing children to be exposed to pro-gambling messages because it eased restrictions on gambling products and advertisements (Moodie and Hastings 2008). However, gambling advertisements are regulated. Specifically, the Gambling Commission, Advertising Standards Association (ASA), and Ofcom are responsible for enforcing regulations in relation to gambling advertising. The Gambling Commission's (2007) Licence Conditions and Codes of Practice require that all operators comply with the broadcast (BCAP) and non-broadcast (CAP) Advertising Standards Codes and the industry code of practice (*Gambling Act*, 2005). In particular, these codes require that advertisements do not exploit the 'susceptibilities, aspirations, credulity, inexperience or lack of knowledge of children, young people or other vulnerable people'; and that they should not 'be likely to be of particular appeal to children and young person's, especially by reflecting or being

associated with youth culture'. Advertisements that breach the code are amended or withdrawn. If the breach of the code is serious or repetitive the ASA may refer an advertiser to the Gambling Commission, or broadcaster to Ofcom, to take legal or regulatory action (*Gambling Act 2005*). A survey by the Advertising Standards Association's compliance team (2007) of a sample of 784 advertisements in the national press, consumer magazines, outdoor posters, direct mailings, circulars, internet, and on television and radio found that only seven (one per cent) appeared to have breached the CAP or BCAP Codes. Six of these advertisements were on television; the seventh was on the internet.

Despite a relatively limited evidence base to assess whether gambling advertising has a direct effect on young people's gambling activities Griffiths (2005) argues that notwithstanding this, there is a need for more socially responsible advertising – which he suggests might include a government warning on lottery/scratchcard products akin to those on cigarettes and alcohol -- and for potentially 'vulnerable' groups, such as children, to be further protected from exposure to gambling products/premises through advertising (see also Wood and Griffiths 2004). Other researchers have also called for responsible codes of practice and guidelines to be established (Monaghan and Derevensky 2008, Monaghan et al. 2008, Thomas 2014). In the United States, lottery corporations are exempt from the Federal Truth in Advertising statute. While some jurisdictions have approved such codes enforcement by regulatory boards is frequently absent. Indeed, in some cases the advertising agency responsible for developing social responsibility messages is the same agency charged with increasing revenues from gambling (Derevensky, Sklar et al. 2010).

## **6. The Transmission of Patterns of Gambling: intergenerational, and peer group factors**

There is an extensive and very convincing body of international evidence dating back nearly 40 years (e.g. Ladouceur & Mireault 1988, Gambino et al 1993, Becoña et al. 1995, Winters et al 1995, Gupta and Derevensky 1997, Wood and Griffiths 1998, Jacobs 2000, Delfabbro and Thrupp 2003, Felsher et al 2003, Langhinrichson-Rohling et al. 2004, Oei and Raylu 2004, Delfabbro, Lahn and Grabosky 2005a, Tepperman et al. 2011, Delfabbro, King and Griffiths 2014) which demonstrates the role of parents in introducing children to gambling (for example, by showing them how to use gaming machines and providing them with money with which to gamble) and normalising this activity as part of banal family activities/histories (which in some cases have been passed down the generations as family traditions: see Moscovitch 2006).

In the UK a self-reported questionnaire survey of 1195 young people aged 11-15 found a significant link between parents' and children's gambling in relation to lottery products, with young people stating that most lottery tickets and scratchcards were bought for them by their parents (Wood and Griffiths 1998). Subsequent work by Griffiths (2000), Wood (2004) and Wood and Griffiths (2002) in the UK provides repeated evidence of the role of parents in purchasing scratchcards for young people, and of the way that young people perceive the national lottery and associated products to be a social activity enjoyed with other family members. The 2009 Ipsos MORI survey (n=8,598) found that the children (aged 11-15) who stated that their parents gambled were significantly more likely to gamble themselves than those who reported that their parents do not gamble (Griffiths 2010b). The findings also indicated that parents may be less likely to talk to their children about gambling than about other 'risky' behaviours such as drinking, smoking and drugs. For example a fifth of those surveyed did not know how their parents would feel about them gambling on fruit machines, in contrast only five per cent reported that they were unaware of their parents' attitudes to smoking (Griffiths 2010b).

This strong link between parents' and young people's gambling is a cause for concern especially as other research evidence suggests that the earlier young people start to gamble the more they are likely to become problem gamblers (Wood and Griffiths 1998, Volberg 2002, Delfabbro and Thrupp 2003, Griffiths 2010b, Shead, Derevensky and Gupta 2010, Derevensky 2012). A review of four independent studies exploring the intergenerational and familial transmission of gambling problems in Australia (Dowling et al., 2010) found that people who had a parent or sibling with a gambling problem were between two and ten times more likely to follow suit than those who did not come from families where there was a history of problem gambling. The 'modelling' of gambling behaviour (Tremblay et al 1998, Forrest and McHale 2012, McComb and Sabiston 2010) has been termed the 'intergenerational multiplier effect' (Abbott 2001). It commonly follows gender lines: although having a father who is a problem gambler increases the risk that a son will follow suit, more than having a mother who is a problem gambler raises the likelihood that a daughter will do so (Walters 2001, Dowling et al. 2010). Wood and Griffiths (1998) also suggest that it is not only family members who may model gambling behaviour to young people, but also celebrities such as the television and music stars that commonly feature in televised lottery programmes.

In last decade research has moved away from relying on children's assessments of their parents' attitudes to underage gambling – which has indicated tacit parental acceptance – towards a focus on the parents' own accounts. For example, an on-line national survey of Canadian adults with one or more teenager offspring (n=3315) found that the parents considered underage gambling to be a less important cause for concern than other potentially risky behaviours, and few were aware of the potential seriousness of youth gambling (Campbell et al. 2011). The fact that signs of a gambling problem are not easily observable (Derevensky 2012), and that most parents consider gambling an adult matter, may account for this lack of parental concern. Mothers responding to the survey were more likely to report gambling on raffle and lottery scratch cards with their children, whereas fathers were more likely to indicate that they take part in sports related or competitive forms of gambling (i.e., poker, games of skill) with their children (especially sons). Fewer fathers than mothers considered underage gambling to be a serious issue. Unsurprisingly, mothers were the parent most likely to talk to their offspring about gambling and to be the most aware of any educational materials they had received at school. Shead, Deverevenky and Meerkamper (2011) argue that underage gambling prevention programmes need to take account of, and address, the gendered nature of parental attitudes and behaviours. More broadly research highlights the importance of educating parents as well as children about the risks associated with young people's gambling in the same way that UK public health campaigns have addressed issues of childhood smoking, and obesity (see also Section 9). Otherwise, it will be hard to control under age gambling if strong familial cultures of gambling persist

While parents can actually directly model 'gambling' to their offspring so transmitting attitudes towards, and practices of gambling across the generations, they can also have a more indirect influence on their children's development of problem gambling. In particular, family stress while not having a directly casual relationship with gambling behaviour can nonetheless be a source of vulnerability. For example, among the factors which increase the risk of young people becoming problem gamblers Griffiths (2002) cites the following familial contexts as risk factors: coming from a fragmented, or disruptive family; encountering difficult and stressful situations at home; being aware of a heavy emphasis on money within the family; the death of a parent or parental figure in childhood; serious injury or illness in the family; infidelity by a parent; high incidence of verbal, physical or sexual abuse at home; feelings of rejection as a child; and feeling belittled or disempowered as a child.

Other North American studies have also identified similar familial risk factors including coming from families that are: strict but inconsistent in terms of discipline (Politzer et al. 1992); perceived as lacking cohesion and as offering low social support (Ciarrocchi and Hohmann 1989); where parents are perceived as emotionally distant or overly critical (Hardoon, Gupta and Derevensky 2004); where there have been experiences of traumatic life events and poor coping skills are evident (Hardoon, Gupta and Derevensky 2004) or where children have been maltreated emotionally, physically or sexually (Felsher et al. 2010). A longitudinal study (n=514 predominantly African American) in Baltimore, US, to examine the relationship between parental monitoring of children (aged 11 to 14) and their offspring's subsequent gambling activities between the ages of 16 and 22, found that low and/or declining levels of monitoring by parents of children aged 11 to 14 were significantly associated with problem gambling (SOG-RA screen) in early adulthood (Lee, Stuart, Jalongo and Martins 2013). In a review of 21 empirical studies published between 1997 and 2008 McComb and Saviston (2010) classify family influences on young people's gambling and gambling related problems in terms of: (1) sociodemographic factors, (2) general family climate, (3) family members' attitudes and behaviours, (4) parenting practices, and (5) family relationship characteristics. They conclude by arguing that more research is needed to understand the complexity of the influence of family relationships, parenting practices and socio-demographics on gambling behaviours.

Here, there is also need to consider the potential influence of family members other than parents. Lang and Randall (2013) point out that grandparents are growing in importance in the lives of contemporary young people as a consequence of increased longevity, and their frequent role as child-care providers in dual-income households. They observe that a study by Wiebe and Cox (2005) found that out of a sample of 1,000 adults aged 60 and older 75 per cent had gambled in the past year at least once a week, with 2.8 per cent meeting DSM-IV criteria for problem or pathological gambling. Given these trends, Lang and Randall (2013) collected data from students (aged 18 to 25) at an upper Midwestern university, US about their perceptions of the gambling attitudes and behaviours of their closest grandparent. Their findings support the hypothesis that young people are susceptible to internalizing the views and practices of other family members, besides parents with whom they are close. Lang and Randall (2013) argue that as a consequence more attention needs to be paid to understanding the intergenerational transmission of gambling between grandparents and grandchildren.



Siblings have also received surprisingly little attention in gambling research despite the fact that they might be expected to exert a similar influence on young people's attitudes and behaviours as close family members or friends. One exception is a study by Vitaro et al. (2015) which explored whether gambling in early teenage years can be fostered by a sibling's gambling behaviour given that previous studies have shown that delinquency can be encouraged in this way. It involved a sample of 628 same sex twins who were raised together (151 male dyads, 163 female dyads). They were each asked to provide self-reports on their involvement in gambling and delinquency at the ages of 13, 14 and 15. Employing a longitudinal actor-partner interdependence model, Vitaro et al. (2015) found that while higher levels of delinquency in one twin did produce systematic increases in the delinquent behaviour of the other twin, somewhat unexpectedly, similar between-twin effects were not found for gambling. The research also identified that delinquency systematically fostered an increase in gambling between the ages of 13 to 14, and 14 to 15, whereas gambling only furthered an increase in delinquency between the age of 14 to 15. Given the unanticipated findings reported in this study, and the lack of an evidence base about the effect of sibling relationships on young people's gambling, it is an area that needs future research.

Beyond the familial context, peer groups have an important influence on young people's risk-taking behaviours (including not only gambling but also smoking, drinking, and under age sex) which represent an inherent part of the process of making the transition from childhood to adulthood (Plant & Plant 1992, Parke et al 1998). Evidence from the social studies of childhood literature suggests that for children contemporary status within their own peer groups is more important to them than adult concerns about their education or future health and well-being (Valentine et al. 2010). James' (1993) qualitative research demonstrates that in managing their peer group relationships young people commonly walk a tight-rope between 'conformity' and 'individuality', in other words behaving like others to fit in with the group while at the same time contributing something different that makes them valued. In particular, Jones and Jones (2000) argue that problematic or anti-social behaviour is 'contagious' because 'influential friends' legitimise these activities and enrol others into them through processes including goading, coercion and competitiveness. The more embedded in a lifestyle or peer group that individuals become the more the practices of that group can become a reference points for individuals' own behaviours, motivating them to engage in particular activities – such as gambling - in order to achieve status amongst their peers (Prus 2004, Wanner et al. 2009). For example, Griffiths' (1990a, 1995) work demonstrates the significance of young people's social networks in relation

to gambling. This has shown that young people who are in peer groups of problem gamblers put pressure on each other to continue gambling; whereas those who participate in gambling with non-problem gamblers actually used peer pressure to look after each other and to try and stop vulnerable individuals gambling too heavily. Likewise, in North America Derevensky and Gupta (1999) have found that the long lasting friendships of young people with severe gambling problems are often replaced by their gambling associates.

Certain youth subcultures may also foster particular types of gambling – such as participation in sports team and sports gambling (DiCicco-Bloom and Romer 2011). Here, Kristiansen, Trabjerg and Reith (2015) suggest that young people gamble with sporting peers in order to maintain a sense of belonging rather than necessarily through a desire to win. These emergent relationships between specific types of peer relationships and gambling point to the need for further research on this theme.

Within the gambling studies literature specifically there is some evidence that the majority of young people are aware of the potential dangers gambling poses in terms of addiction and debt. However, the evidence from the wider social studies of childhood literature suggests that children and young people often ignore public health messages (e.g. about alcohol, obesity, sex etc.) despite being aware of the risks they run with their own behaviour (cf. Valentine et al. 2010). This is for a number of reasons including: because young people commonly regard themselves as invulnerable or immune from problem behaviour; they believe their risky behaviour is only a temporary phase during their youth that will be curtailed as they move into adulthood and that as a consequence their contemporary risky behaviour will have no long term consequences for them; that their risky behaviour is offset by other positive behaviours which negate any harmful effects; or that they will ‘naturally’ recovery self-control. The lesson from this literature is that there is a need for more research to explore the type and style of public health education messages about the potential harms which gambling can pose to which young people might respond (see Section 9 The Treatment and Prevention of Problem Gambling).The following section examines the impact of gambling on young people and their families.

## **7.The Impact of Gambling on Young People and Families**

Problem gambling can have effects on young people’s mental, material, and social well-being (e.g. Jackson 1999). In particular, young people who have developed problem gambling also commonly experience a range of mental health issues including high rates of depression, (e.g.

Gupta and Derevensky 1998a/b), increased risk of suicide and attempted suicide (e.g. Gupta and Derevensky 1998a/b), as well as feelings of guilt and shame and problems with relationships (Raisamo et al. 2013). Some research (e.g. Huxley and Carroll 1992) has found evidence of young people stealing from other family members to fund their gambling. The 2015 Prevalence of Underage Gambling survey for the Gambling Commission in the UK found that 3 per cent of children (aged 11 to 15) had taken money without permission from their family or outside their family, from dinner/fare money, or from things they had sold elsewhere to spend on gambling. Nearly one fifth (19 per cent) of those who had played the National Lottery underage in the previous week admitted having done so with money obtained in such ways (Ipsos MORI 2015).

The lack of financial commitments of young people living at home can act as a cushion against the full negative effects of their gambling and many families go to great lengths to support young people, including paying off their debts in what have been termed 'self-correcting' pathways out of gambling (e.g. Valentine and Hughes 2010, 2012). This can mean that the extent of children and young people's 'problems' can go unrecognised not only by wider community/support agencies but also by young people themselves. In doing so, the impact of young people's problem gambling is commonly transferred onto other family members – particularly parents/carers, and siblings. These impacts not only include financial stress (including money that is voluntarily given to support the gambler, or money stolen from family members by a gambler, which is often not reported to the police) on the wider family, but can also include emotional impacts (e.g. parental guilt about or self-blame for their child's problems), including causing domestic arguments (for example, between mothers and fathers about whose fault it is or how they should deal with the problem) and the disruption of family life (Valentine and Hughes 2010, 2012). Indeed, young gamblers can sometimes trade on parental guilt about their child-rearing practices or exploit differences between parent's individual responses to their gambling in order to avoid taking self-responsibility for their own behaviour, to be 'rescued' and in some cases to enable them to carry on gambling (Grant Kalischuk et al. 2006).

Problem gambling has also been correlated with other negative behaviours including truancy from school, poor academic performance, depression and absenteeism from work (Fisher 1993b, Griffiths 1995, Ladouceur, Dubé and Bujold 1994, Ladouceur 1996, Gupta and Derevensky 1997, Cook et al. 2015, Räsänen et al 2015). Of particular concern is that a loss of time spent studying, poor grades or early criminal convictions which may have longer term

consequences for young problem gamblers beyond the gambling problem itself (Gupta and Derevensky 2014) (e.g. in terms of under or unemployment) that are not readily apparent until adulthood when they are difficult to overcome (Raisamo et al. 2012). One study has also identified an association between gambling and young fatherhood. This longitudinal research followed 294 boys from first grade in nine inner city public schools in the US for 16 years, collecting self-reported accounts of gambling during their late adolescence. It found that those who gambled – particularly problem gamblers – were more likely than those who did not to become fathers before they were aged 20 (Lee, Storr, Jalongo and Martins 2013).

There is a significant body of international evidence that suggests that young people's problem gambling often correlates with other addictive behaviours such as smoking, drug and alcohol abuse (e.g. Ladouceur 1996, Dickson et al. 2002a/b, Ste-Marie et al 2006, Ellenbogen et al 2007, Cook et al. 2015, Räsänen et al 2015). For example, studies by Griffiths (1994a/b) in the UK have produced repetitive evidence of such cross addiction, including one survey (with Sutherland) of 4000 young people which found a relationship between gambling, drug-taking and alcohol abuse (Griffiths and Sutherland 1998). Though from the research evidence it is not always clear which of, and to what extent, these factors were present prior to problem gambling; or whether problem gambling caused these outcomes. In other words, problem gambling is often one element in a general pattern of high risk or anti-social behaviour (Dickson et al. 2002a/b, Magoon et al. 2005, Ellenbogen et al. 2007).

The evidence of the relationship between problem gambling and juvenile delinquency and crime is less clear. Some studies have produced evidence of increased levels of aggression among male problem gamblers which can manifest in conflict (Barham 1987, Griffiths 1990a & 1995, Huxley and Carroll 1992, Fisher 1993b, Gupta and Derevensky 1997). However, there is no evidence that such behaviour has a substantive impact on wider communities. For example, a study of 1851 juvenile offenders in Plymouth found that only 4 per cent of juvenile crime in the areas was associated with gaming machines (Yeoman and Griffiths 1996).

There is a lack of research on the relationship between gambling and young people's health. However, one study looking at the effects of gambling on adults' health suggested that problem gambling can lead to poor posture, extended periods indoors, a lack of exercise and poor patterns of eating/drinking which in turn result in high blood pressure, back problems, heart

disease, alcohol abuse, smoking related problems (first hand and passive) and stress related symptoms (Potenza, Fiellin et al. 2002).

Much less is known about the impact of problem gambling on young women because of their lower prevalence rates (Derevensky and Gupta 2004a/b). In a small scale study of young people's problem gambling with 32 participants – 16 men and 16 women – Wiebe, Cox and Mehmel (2000) found that young women were more likely than the male respondents to attribute their gambling to familial and peer group problems and to have borrowed or stolen money (usually from family members) to cover their gambling debts. The International Center for Youth Gambling Problems and High Risk Behaviours at McGill, Canada scaled-up data from five studies carried out between 2002 and 2005 producing a sample of 7819 (2750 young men and 2563 young women) young people aged 12-18 (in which problem gambling was measured using the DSM-IV-MR-J screen) (Ellengbogen et al. 2007). This meta-analysis produced some evidence of gender differences in terms of the effects of problem gambling. Young male problem gamblers were more likely to describe psychological difficulties (such as a pre-occupation with chasing losses) and young women to report behavioural problems (including: truancy, and stealing from family members at home, lying and having family conflicts) as a result of their gambling. However, rates of depression and substance use did not vary significantly by gender: a finding which runs counter to the evidence from some smaller-scale studies (Ellengbogen et al. 2007).

The following section considers the regulatory frameworks established to protect young people in different jurisdictions.

## **8.Regulatory Frameworks to Protect Young People**

Laws and government policies in most national contexts are generally very inconsistent in relation to young people (for example, allowing them to consent to sex and get married at 16 but not vote or buy alcohol till 18). Young people's rights and responsibilities are shaped in effect by a complex mixture of legal rights, informal social rules, parental rules and individual circumstances. In relation to the regulation of gambling young people occupy an ambiguous position in many jurisdictions being regarded as having autonomy to participate in some activities, yet being constructed as 'dependents' requiring protection in others. For example, access to casinos in the UK is limited to those aged 18 years and above, yet from the age of 16 young people can legally purchase National Lottery tickets and scratch cards, and children of

any age can play low stakes/low prize Category D fruit machines (it is high prize money gaming machines that have been particularly linked to problem gambling) (Fisher 1995) in leisure centres, arcades and other family entertainment venues. Likewise, in Finland, Denmark and Poland there are minimum age limits on casinos and slot machines but no age regulations in relation to the purchase of lotto tickets or scratch cards (Temcheff et al. 2011).

There is also considerable variability in the regulation of young people's access to gambling between jurisdictions. In many jurisdictions worldwide the minimum age at which a young person can be admitted to a casino is the same as in the UK: 18 years old. Yet, for some Canadian provinces the age of entry is 19 or older, and in many jurisdictions in the US the minimum age for entry is 21.

In the US where the regulation of gambling varies by State there are huge inconsistencies in minimum age legislation. For example, all forms of gambling are illegal for individuals under 21 in the state of Nevada, although it does not have a state lottery; whereas West Virginia currently permits bingo playing at 16. Some jurisdictions have placed limits on wager sizes, the amount of money spent per excursion and where casino gaming can be offered (Blaszczynski 2001). Only six states - Louisiana, Montana, Nevada, Oregon, South Dakota & West Virginia - allow EGMs outside gambling venues (Williams et al. 2012). The National Coalition Against the Spread of Legalized Gambling established to oppose new, and repeal existing, legislation to permit gambling has had success in some states (e.g. removal of slot machines from South Carolina). The provision of responsible gambling, self-exclusion, and education programs are also variously implemented across states. Like the situation in the US – in Canada -- because each province sets its own regulations there are regional variations in access to gambling. In most provinces age restrictions prevent minors from participating in government regulated gambling. These age bars vary according to the type of activity and also differ by province. For example, the legal age for buying lottery tickets in the provinces varies between 18 and 19, with provincial laws also differing with regard to the age at which young people are permitted to play provincially regulated EGMs (Canadian Partnership for Responsible Gambling, 2009 cited in Campbell et al. 2011).

While minimum-age legislation and regulatory policies are important in the prevention of underage gambling participation, they have been only moderately effective in reducing young people's access to gambling (Temcheff et al. 2011). Large-scale prevalence surveys in a

number of national jurisdictions continue to show significant levels of underage gambling particularly on lottery and scratch card type activities. A Masters study by St-Pierre (2008, reported in Campbell et al. 2012) which investigated retailer compliance with lottery laws in and around the city of Montreal, found that young people aged 15 to 17 were regularly allowed to buy lottery products without providing any form of identification. Subsequent research (St-Pierre et al. 2011) indicated that only two thirds of retailers were compliant with statutes. The gender of the purchaser and vendor, and the type of store were found to be significant predictors' of young people's ability to purchase age-restricted merchandise, with male vendors and those in independently owned stores more likely to sell lottery products to those underage. This is a matter of concern and suggests that lottery operators need to take into account the characteristics of differing vendor groups in the provision of training and when checking compliance (St Pierre et al 2011). Variations in minimum age requirements and divergent laws and regulations across controlled products (such as gaming activities, alcohol and tobacco) provide a further challenge to retailer training (Age-Restricted Products Review Group, 2010, Temcheff et al. 2011) and suggest that common legislation governing all aspects of the sale of age-restricted products might facilitate the ability of retailers to understand and implement the law (St-Pierre et al 2011).

Blaszczynski et al. (2014) have argued that operators have a significant role to play in enforcing age restrictions. They suggest that staff training should convey the potential implications for the employee, the consumer and the organisation if they fail to enforce age restrictions. It should also promote active rather than passive engagement by staff with customers (for example, checking age-appropriateness rather than just whether a young person possesses valid identification). In the UK the national lottery operator uses: retailer training; test purchasing visits carried out by over 16s who look younger; and provides educational resources for schools as measures to support the enforcement of this age restriction. In addition to serving as a mechanism for restricting sales of lottery products to minors, research suggests that requesting age identification from young-looking customers can deter individuals from making future attempts to purchase lottery products while underage (Ipsos MORI 2009). In Australia, Queensland was the first state to establish a *Responsible Gambling Code of Practice* which is a voluntary, industry commitment to best practice. All gambling providers in Queensland are responsible for its implementation. Provisions specifically in relation to young people include: the prohibiting of minors from gambling and from accessing designated gambling areas; and a ban on advertisements and promotions that are implicitly or explicitly directed at minors or vulnerable

or disadvantaged groups (Queensland Department of Justice and Attorney General 2015). In New Zealand gambling establishments have to prove actively that underage gamblers are denied access or they can have their licenses revoked (particularly in relation to types of gambling like EGMS which are considered to be the most addictive) and fines can be imposed on those attempting to participate in gambling underage.

While some researchers (e.g. Temcheff et al 2011) have suggested that stricter measures and penalties are needed to further enhance operators' compliance with minimum age legislation and policies, Blaszczynski et al. (2014) point out that it is also important to recognise that part of the responsibility of enforcing age restrictions lies beyond the operators' remit. As Section 6 (The Transmission of Patterns of Gambling) above identified, there is a significant evidence base to suggest that friends and family members play a critical role in helping young people to circumvent age verification and to access gambling opportunities underage. This suggests that there is a need to raise public awareness of the potential risks associated with underage gambling. Strategies to do so are discussed in Section 9 on the The Prevention and Treatment of Young People's Problem Gambling.

### **8.1 On-line Gambling and Social Gaming**

The legal position of internet gambling is complex and varies from country to country and also within different jurisdictions within some countries (Wood and Williams 2007). Australia was the first nation to legalise internet gambling and 25 other nations have so far followed suit. Given that the internet enables gambling across national borders it presents new challenges for government regulation. Some countries have legalised online gambling enabling residents and non residents to gamble in all forms of online gambling within and beyond the country. Other countries have adopted more complex regulation making certain forms of online gambling legal (e.g. lotteries, sports betting) and other forms illegal (usually casino games). Others still have sought to regulate on the basis of residency, prohibiting non-residents from accessing jurisdiction-based on-line gambling sites (e.g. Canadian provinces, Finland); or prohibiting residents from accessing or transferring money to on-line gambling sites located outside the country (e.g. Netherlands, Norway). Some countries even prevent residents from accessing jurisdiction based on-line sites' (paraphrased from Wood and Williams 2007: 5). For example, in 2001 Australia's *Interactive Gambling Act* came into force. This prohibits Australian residents from accessing certain interactive gambling sites such as on-line casino services but allows access to other sites, such as interactive sports betting (although it does not stop Australian



residents from gambling in overseas on-line casinos, nor Australian companies setting up on online companies in overseas countries to service Australian online gamblers) (Bostock 2005). However, the Productivity Commission's (the Australian Government's independent research and advisory body which covers a range of economic, social and environmental issues that affect the welfare of its citizens) inquiry into gambling industries concluded that although the ban on online gaming had probably limited its growth, it had also had the unintended effect of driving consumers onto international sites, some with poor harm minimisation features (Productivity Commission 2010). It considered that regulated access to domestic or licensed overseas online providers would enable consumers to access some of the benefits of online gambling while reducing their risk of harm by drawing them away from unsafe sites. The Commission therefore recommended the Australian Government to amend the *Interactive Gambling Act* to allow online poker games, subject to a strict regime of consumer protection.

Other countries have taken a more hard-line approach to internet gambling. This is in part because of fears that on-line gambling is potentially a riskier form of gambling because of the anonymity afforded by the internet and because on-line gambling is often done in isolation. In the US most on-line gambling is prohibited by federal and state laws, and federal enforcement agencies are also attempting to clamp down on cross-border gambling. In October 2006 the Federal *Unlawful Internet Gaming Enforcement Act* (UIGEA) came into effect. This made it illegal for financial transaction providers to make fund transfers to on-line gambling sites and illegal for internet gambling providers to accept money transfers from potential American on-line gamblers (Wood and Williams 2007: 6). The law exempts online intra-state sales of lottery tickets, inter-state horse race betting and other intra-state online gambling where the state does not prohibit it (some states prohibit internet gambling). Delaware, Nevada and New Jersey have since introduced state laws to legalise online gambling, though UIGEA means online gamblers can have difficulty getting payments processed online. In October 2014 the European Commission referred Sweden to the European Court of Justice, deeming its restrictions of online betting to fall foul of EU free trade law (European Commission 2014). In theory online gambling is legal in Sweden but in practice only one state-backed company has been awarded a licence to operate. The Swedish Government has stated its intention to introduce new gaming legislation by 2018. The EU permits restrictions on online gambling only for the public policy objectives of preventing problem gambling and criminal activities.

Despite this complex and developing international legislative context for internet gambling Campbell et al (2011) observe that governments have largely ignored young people as a group in need of protection from gambling related harms on line. The approach to internet gambling in the UK has been to establish mandatory measures to protect young people: operators must not make sites attractive to children; should carry out random credit card checks to verify age; should use best publicly available data to verify age from whichever country the customer is from (Gambling Commission 2007). The *Gambling (Licensing and Advertising) Act (2014)* brought about regulatory changes for online gambling to regulate at the point of consumption rather than supply. This Act ensures that all remote service operators providing online gambling facilities to British consumers are subject to regulation (Gambling Commission 2014).

However, given the complexities of on-line regulation controlling under age gambling is problematic. Age limits obviously vary on foreign websites according to different national legislation. While the prerequisite of a credit card makes it difficult in theory for some young people to participate in on-line gambling, in practice increasing numbers of young people under 18 have access to debit and credit cards. There has also been some work done to develop software to block gambling websites from personal computers. A number of parental control packages are now available to purchase which can prevent access to inappropriate content such as gambling websites (Campbell et al. 2011), although research (described below in Section 9 The Prevention and Treatment of Young People's Problem Gambling) suggests that few parents consider gambling by children and young people to be a major concern. While the evidence base about young people's underage gambling on-line is still relatively limited, some research has found evidence that young people can still register on gambling sites even though they are under-age. Indeed, forms of age verification can vary widely. Good practice requires that two forms of identification should be provided, one of which should include a passport. However, there is growing concern about young people's access to internet gambling and recognition of the need for internet gambling sites to have more effective age checks and to prevent underage gamblers from playing freebie demos on on-line web sites as well as more proactive standards to be established by regulators (e.g. Derevensky, Gupta and McBride 2006, Campbell et al 2011, Gainsbury et al 2013). Though it is also worth noting that the internet can also provide important help and support/guidance services for problem gamblers (see Griffiths and Cooper 2003, Wood and Griffiths 2007, Valentine and Hughes 2010).

There is an ongoing debate in the UK as to whether social gaming (gambling-style games available through social network platforms and gaming websites) should be subject to legal regulation in the same way as gambling. It is associated with both problem gambling-type risks and transitional risks leading to real money gambling, especially for young people. Social gaming is currently subject to general consumer protection legislation only (such as protection from scams) and the gambling industry's regulatory body, the Gambling Commission (2015), has adopted a 'watching brief' stance. However, Carran and Griffiths (2015) argue there is a need for a system of regulation that would require social gaming and 'demo' gambling to ensure the odds of winning are not misrepresented. They draw attention to the EU Commission's recommendation that Member States should ensure that *'play-for-fun games used in commercial communications are subject to the same rules and technical conditions as the corresponding play-for-money game's* (VIII.42 Commission's Recommendation 2014/478/EU, 2014). Carran and Griffiths (2015) also argue that social gambling games should be required to carry warnings akin to 'real' gambling sites.

In Australia all video games intended for commercial sale must be assessed by the Australian Office of Film and Literature Classification (OFLC). This is a federal government body which provides consumer advice and warnings about the age-appropriateness of video game material. While many jurisdictions (e.g. van Rooij et al. 2010), operate an age rating systems for video games that attempt to restrict young people from accessing certain content in video games, King and Delfabbro (2010) point out that Australia does not currently have adults-only classification system. This is a matter of concern given research that shows that in the last decade, over 100 video games containing simulated gambling have been classified in Australia as suitable for commercial sale to young people yet consumer advice and warnings related to video game material are often inconsistent and/or not adequately provided (King, Ejoval and Delfabbro 2012). King, Ejoval and Delfabbro (2012) have argued that without effective regulation video games with gambling content may put young players at risk given concerns about the impact of simulated gambling games on young people's knowledge, beliefs, attitudes and behaviours towards gambling.

The International Social Games Association has drafted Best Practice Principles for the social games industry and launched a Smart Social Gamers consumer education portal which provides information and guidance about the control of in-app purchases and responsible play. However, beyond self-regulation, Gainsbury King, Abarbanel et al (2015) argue that a set of international

standards to classify games need to be produced for developers and operators. They argue that gambling themed games should be subject to the same policies and restrictions as gambling products even if they do not pay out money. Specifically, they suggest that such games should be labelled for adult use and not be advertised in ways that are likely to be attractive to children. Gambling practice games should be obliged to include information about responsible and problem gambling, and gambling themed games should allow players to set limits on participation time and expenditure, as well as to access their time and expenditure histories and to self-exclude (Gainsbury King, Abarbanel et al 2015).

### **In Sum:**

Age restrictions would appear to be important to minimising the potential harms of gambling because young people have a greater disposition for risk-taking, and less financial experience particularly in complex environments (e.g. e-commerce) than older consumers (Blaszczynski 2014). However, if access to gambling opportunities was an important contributory factor to developing problem gambling then the prevalence rates in international contexts with stricter regulations should be lower. However, as the evidence presented in Section 4 (The Prevalence of Children and Young People's Problem Gambling) of this report demonstrates there is a consistent pattern of relatively high rates of problem gambling across a range of international contexts with variable legislative frameworks. This casts doubts on the significance of regulatory frameworks in influencing rates of problem gambling amongst young people. Indeed, the evidence from countries where young people's access to gambling is more tightly regulated than in the UK is that these regulations are difficult to enforce and that young people gamble illegally regardless of the law (Volberg et al 2010).

The problem of enforcement occurs because of the limitations of age verification controls: young people can often 'pass' as older than they are, particularly on-line if they have access to credit cards; and some operators/retailers turn a blind eye to breaches of the law. Indeed, 'testing boundaries' is a rite of passage that is part of the process of growing up. Enforcement is easier where gambling occurs in adult-only highly regulated venues (e.g. casinos, bars) and is harder to control where gambling opportunities are available in public unregulated locations and online. This is evidenced by the fact that in North America and Australia rates of under age casino and gaming machine play by young people are relatively low because these forms of gambling are only available in adult venues whereas rates of underage lottery and scratch card play are much higher because they are available in public locations. For example, in some states unattended

scratch card lottery vending machines are readily available to potential underage gamblers. Likewise, in the Nordic countries gambling machine play is one of the most common gambling activities amongst young people because these machines are in public locations (Williams et al. 2007).

Moreover, the Australian Productivity Commission's (2010) review of gambling industries suggests that the evidence based to inform policy making and the development of regulation is relatively poor. It identifies uncertainties about which gambling policies can effectively reduce harm and attributes this to insufficient policy-focused research as well as difficulties in genuinely testing the effectiveness of social policies (Australian Productivity Commission 2010). This suggests that there is a need for more research to address this lacunae as well as a greater exchange of ideas and co-operation between researchers, policy-makers, and legal professionals if more effective regulation is to be developed (Campbell et al 2011).

In the light of the prevalence of problem gambling among young people and the limited success of regulatory and enforcement problem gambling has been argued to be a potential public health issue – with young people the group at highest risk (e.g. Messerlian et al. 2004, Derevensky and Gillespie 2005, Orford 2005). The prevention and treatment of young people's problem gambling is explored in the next section.

## **9. The Prevention and Treatment of Young People's Problem Gambling**

Despite the negative impacts of problem gambling which can stretch across the generations, there is little public awareness or concern about the extent, or potential risks, associated with underage gambling (Jacobs 2000). Indeed, recent research suggests that parents (Campbell et al. 2012), teachers (Derevensky, St-Pierre, Temcheff and Gupta 2014) and even mental health professionals (Temcheff, Derevensky et al. 2014) continue to show little concern that young people may be at increased risk of developing gambling problems compared with adults (Welte et al. 2008, Volberg et al. 2010, Shead, Walsh et al. 2011) despite academic recognition that this should be a cause for concern (Gupta and Deverensky 2014). Indeed, young people's gambling has been dubbed a 'hidden addiction' (Derevensky, Shek and Merrick 2011, Derevensky 2012) because their problems do not tend to become visible in the same way as adults. They do not lose houses because they are usually still living at home with their parents; they do not lose their jobs because they are normally still at school; and they do not have spouses who might pick up on emotional or physical signs of stress. As a consequence it can be

some time before problem behaviours and their consequences are recognised. Forrest and McHale (2012) have therefore developed a predictive model for teachers, social workers and health professionals which provides broad guidance to facilitate them to identify individual pupils who may be engaged in problem gambling. They recommend that a similar predictive model based on school-level and geographical variables needs to be developed at a macro level to enable schools where there is likely to be a prevalence of problem gambling to be identified and for specialist public health resources to be targeted. In addition, longitudinal studies have highlighted the importance of targeting education, prevention and intervention efforts at children and young people who are known to have ADHD and/or problems with impulse control (Clark et al. 2013).

Within educational contexts where children are subject to prevention and awareness programmes to address a range of 'risky' behaviours (e.g. bullying, smoking, alcohol use, substance use and so on), there is relatively little provision of information which is directed towards problem gambling (Campbell et al. 2011, Derevensky 2012, Ladouceur, Goulet and Vitaro 2013, Todirita and Lupu, 2013, Williams et al. 2012). A survey of parents' perceptions of problem gambling in Canada found that only 8.1 per cent of parents recalled their child ever having brought home information from school related to gambling prevention. Likewise only 9.7 per cent reported that their child had taken part in an educational programme about the risks of gambling at school. In contrast, the majority stated that their children had received considerable prevention programmes or educational material in relation to other 'risky' behaviours such as sex (82.9 per cent), bullying (79.9 per cent), drug use (79.8 per cent), smoking (66.7 per cent), and alcohol (64.2 per cent). Parents identified that they would like to receive information about gambling themselves via school bulletins (57 per cent), brochures (46 per cent), and websites (42 per cent) (Campbell et al. 2011).

An on-line survey of teachers with pupils aged 12 to 18 (n=390) in Canada identified that most recognise that young people gamble, they are aware that gambling can be addictive, are familiar with warning signs for problem gambling. But they also regard gambling as the least serious issue facing young people compared with concerns such as drug use and school violence (Derevensky, St-Pierre et al. 2014, see also Graham et al. 2011, Sansanwal et al. 2015). This despite the fact that over half (53 per cent) of the teachers had overheard students talk about gambling in the previous year and 38 per cent had seen students engage in gambling activities and most reported a lack of available resources and policies focused upon gambling in their

schools (Derevensky et al 2014). However this, and other studies, have also found that teachers are willing to receive training to help them identify problem gamblers (Derevensky, St-Pierre et al. 2014, Derevensky, St-Pierre, Temcheff and Gupta 2014). This is potentially significant because teachers spend significant amounts of time with young people on a daily basis and so have the potential to play an important role in identifying those with gambling problems and helping them to access support from appropriate services (Derevensky, St-Pierre et al. 2014).

Delfabbro, Lambos et al. (2009) observe that many students appear to have a limited knowledge of gambling odds or how to calculate probabilities. They recommend that by educating pupils to understand randomness and chance teachers can give students the skills to make informed decisions if they chose to gamble. Such interventions might be usefully targeted at young male gamblers given that research suggests they tend to prefer skill-based games and to have a misplaced understanding of their own gambling skills (Kristiansen 2014). For those already experiencing problems with gambling Delfabbro, Lambos et al. (2009) recommend using role-playing or supervised interactive tasks based around chance outcomes where the pupils can receive feedback on their decisions and the outcomes under supervised conditions to teach them to recognise errors in their reasoning and to learn to use their knowledge to override their emotions. As such greater emphasis needs to be put on raising teachers' awareness of gambling in teacher education training and in establishing prevention programmes to address gambling with young people similar to those used in relation to other 'risky' behaviours (Gupta and Derevensky 2014, Derevensky, St-Pierre et al. 2014). Indeed, Shead, Derevensky and Gupta (2010) argue that such initiatives need to go beyond basic risk prevention to also foster protective interventions for example helping children to acquire coping skills and develop alternative socialising strategies (Rahman et al. 2012, Gori et al. 2015).

Gambling has only been conceptualised as a public health issue for just over a decade (Messerlian et al. 2005). Korn and Shaffer (1999) first proposed adopting a public health framework to examine gambling from a population health, health promotion and human ecology perspective; including the assessment of the potential social costs and benefits of gambling upon communities. Messerlian et al (2004) argued that a public health model of gambling must involve (i) *De-normalising gambling* through strategies to encourage society to question and assess underage gambling. (ii) *Preventative policies* (e.g. public education) which might better equip young people with the skills to understand the potential negative impacts of gambling. For example, a Youth Gambling Prevention Model developed by Messerlian et al. (2005) recognised

a continuum of risk, identifying prevention objectives at each level of risk and the strategies required to achieve these objectives. (iii) *A harm reduction strategy* (including specific treatment programs aimed at young people) to reduce the risk of young people who gamble in an at risk manner from developing a gambling problem, and to diminish the potential negative consequences of gambling without making abstinence a goal (see for example Dickson et al. 2003).

Although public education campaigns are relatively common across most jurisdictions evidence from research with adults has suggested that they have very limited effectiveness if people are not explicitly asked to address the information or have no intrinsic interest in it (Turner et. al 2005). However, a recent review of prevention campaigns aimed at young people about problems other than gambling (e.g. smoking, drinking and drug use) identified that public service announcements featuring celebrities have been successful and may have potential to achieve similar outcomes in relation to underage gambling (Shead, Walsh et al. 2011). Research suggests that the most effective educational messages to reach young people are simple, non-judgemental, and based on real-life stories which emotionally engage young audiences and demonstrate the negative consequences of gambling. Critical 'don't do it' style messages – which have often characterised public health campaigns aimed at young people (e.g. sex, drugs and alcohol) – are not likely to be successful in changing young people's attitudes towards or gambling behaviour (Messerlian and Derevensky 2006). Moreover, Blaszczynski (2014) has observed that problem gamblers often have pre-existing vulnerabilities to making poor choices and impulsive decisions and so just presenting information to those young people with emergent problems is unlikely to make a significant difference to their future gambling behaviours.

On the basis of findings from a study about the influence of positive outcome expectancies on gambling behaviour (reported above), Gillespie et al. (2007b) argue that it is important that prevention messages for young people must address positive beliefs about gambling rather than merely focusing on promoting abstention. In particular, drawing on a harm minimisation paradigm they argue for the need to inform young people about how the long-term costs of gambling can become, and outweigh, the short-term benefits. They suggest that interventions to highlight the perceived benefits and costs of gambling in treatment plans might motivate young people to change their behaviour and encourage them to pursue similar benefits from other less harmful activities. They also recommend that gambling expectancy scales might be employed to assess the effectiveness of treatments (Gillespie et al. 2007b). Other studies have identified that



in order to treat young people's problem gambling it is important to consider any underlying psychological issues in order to achieve long term success (Gupta and Derevensky 2008, Felsher et al. 2010).

School-based prevention programmes to address problem gambling are relatively rare, although these are evident in some jurisdictions. In a review of such initiatives Williams et al (2012) identified that they tend to cover a wide range of issues including: providing information about the risks of addiction, explaining gambling statistics and gambling fallacies, and teaching strategies to develop personal esteem and resist peer pressure. They cite the following examples of such programmes: "Don't Bet On It" in South Australia for ages 6 to 9; "Gambling: Minimising Health Risks" in Queensland for grade 5 students; "Facing the Odds" in Louisiana for grades 5 to 8; "All Bets are Off" in Michigan for grades 7 and 8; "Kids Don't Gamble...Wanna 23 Bet" in Minnesota and Illinois for grades 3 to 8; "Youth Making Choices" for high school students in Ontario; "Count me Out" in Quebec for ages 8-17; the "Problem Gambling Prevention Program" in Florida for middle and high school students; and "Gambling: A Stacked Deck" in Alberta for grades 9-12' (Williams et al. 2012: 22-23).

To-date there have been relatively few evaluations of such initiatives (though see Williams et al. 2004, Williams et al 2010). For example, a before and after study in Ontario, Canada of a 60 minute programme produced by the Centre for Addiction and Mental Health found that it significantly improved pupils' understanding of random chance, but did not produce any changes in their attitudes towards gambling or gambling behaviours (Turner, MacDonald, Bartoshuk, Zangeneh, 2008). Likewise, an evaluation of the "Don't Gamble Away our Future" (45 minute) programme which was run in primary, junior high, and high schools in Midwest US, observed that afterwards the pupils demonstrated significant improvements in their knowledge of gambling and its potential negative consequences (Taylor and Hillyard 2009). A more comprehensive high school curriculum intervention in Alberta, Canada (including 5 to 6 interactive lessons about gambling and related misconceptions, the causes of problem gambling and good decision making) found that 3 to 7 months after undertaking the programme pupils demonstrated: significantly improved understanding of gambling/problem gambling, better decision making, more negative attitudes towards gambling and there was a reduction in both the frequency of gambling and in problem gambling (Williams et al. 2004, Williams et al. 2010). On the basis of the existing, albeit limited, evidence base, Williams et al. (2012) suggest that the results of such programmes are encouraging, although they acknowledge that their effectiveness needs to be

tracked over a longer time period. Moreover, they also recognise that evaluations of more comprehensive programmes to address other issues such as smoking, alcohol and drugs have tended to produce only small to modest positive effects in both the short and the long term. The Australian Productivity Commission (2010) also identified reservations about the benefits of school based gambling education observing that such programmes can sometimes unintentionally encourage the behaviours they aim to prevent. It concluded that governments should not extend school-based programmes without further thorough evaluation of existing initiatives.

Given the rapid increase in opportunities to gamble on-line – and that some research (Floros et al. 2013, Valentine and Hughes 2010) has shown that ‘control’ measures exercised by parents/relatives can fail to limit or prevent internet gambling – young people (as well as their parents, teachers and other practitioners) need education and guidance to help them cope with the specific risks associated with what Griffiths and Parke (2010) have called ‘convenience gambling’. Likewise, the convergence of gambling and gaming activities suggests that public education campaigns are also needed to inform young people, parents and teachers about the potential risks associated with gambling themed games (Gainsbury King, Abarbanel et al 2015).

When it comes to the treatment of young people’s gambling problems generalist youth services are often over-stretched and lack the resources/understanding to properly support gambling addiction; while the services of specialist problem gambling agencies are often not targeted at young people. Few underage problem gamblers present themselves for treatment at specialist centres (Gupta and Derevensky 2008). A number of studies (e.g. Griffiths 2001b, Derevensky, Gupta and Winters 2003, Hardoon, Derevensky and Gupta 2003, Chevalier and Griffiths 2004 and Gupta and Derevensky 2008) have suggested various reasons for why so few young people are enrolled on gambling addiction programmes compared to adults. These include young people’s: fear of being identified; belief that they can control their own behaviour; belief in their invulnerability; guilt associated with their gambling problem; lack of recognition and acceptance of gambling problems despite self reports of high scores on gambling screens; reluctance to seek treatment in general; and negative perceptions of therapy. Other factors identified also include: the treatment of underlying problems (e.g. depression) which can reduce/resolve gambling problems; financial support by family members which can conceal gambling problems; and the location of treatment in sites such as hospitals or mental health facilities which may be perceived by young people as stigmatising (Gupta and Derevensky 2008).

In a review of treatment approaches for young people with gambling problems Gupta and Derevensky (2008) observe that there are relatively few empirically based treatment studies of young people and these are commonly based on very small sample sizes. Based on their own research and clinical experience they suggest that effective outreach programmes (employing posters and brochures distributed to schools as well as media campaigns and an internet site) provide an important mechanism through which to access young people needing treatment. This can have a snowball effect because young people who seek help often have social networks which include other problem gamblers whom they will then recommend for treatment. Moreover, given the importance of the internet and social media in the lives of young people on-line peer groups might offer an effective way of reaching and supporting young people, especially those who fear the stigma of seeking help off-line or are isolated geographically (Monaghan and Wood 2010, Floros et al. 2013). While a pilot study of such support found that the website received many visitors, very few young people actively engaged with the support offered which the researchers attributed to ineffective advertising (Monaghan and Wood 2010). More proactive dissemination strategies through social network sites and in game advertisements may have the potential to improve engagement (Floros et al. 2013).

As young people have relatively limited access to independent income Gupta and Derevensky (2008) argue that the provision of free, state treatment for young people is of fundamental importance. Their McGill University treatment paradigm is based on Jacob's (1986) General Theory of Addictions, and Blaszczynski et al's Pathways Model (Blaszczynski and Nower 2002, Nower and Blaszczynski 2004). Jacobs (1986) regards addiction as a dependent state acquired over time. He theorised that gambling enables people to escape from or block out negative feelings in their life and to foster positive or desired mood states. This positive mood state is gratifying or rewarding and so consequently is pursued by the gambler with increasing frequency. On the basis of clinical observation Blaszczynski and Nower (2002, and Nower and Blaszczynski 2004) identify three different types of pathological gamblers (behaviorially conditioned problem gamblers, emotionally vulnerable gamblers, and anti-social impulsivist problem gamblers) that are characterised by different etiologies and consequently require different types and durations of treatment. Gupta and Derevensky (2008: 276) draw on commonalities in these approaches which both accept that young problem gamblers have 'a combination of emotional and/or psychological distress coupled with a physiological predisposition towards impulsively seeking excitement'. Their treatment procedure begins with

an intake interview to collect information about the clients': gambling behaviours, familial situation and relationships, academic/work status, alcohol and drug use, presence of other risk taking behaviours, personality traits, expectations and personal goals, as well as an evaluation for clinical depression. A staff psychologist provides regular individual therapy and each client is given a page or mobile phone for emergency support. The goals of the therapy are to: understand motivations for gambling; analyse gambling episodes; identify gambling-free time; establish a baseline of gambling behaviour and encourage a decrease in gambling behaviour, address cognitive distortions; establish the underlying causes of stress and anxiety; evaluate and improve coping abilities; rebuild healthy interpersonal relationships; restructure free time; foster effective money management skills and relapse prevention (Gupta and Derevensky 2008).

Given the family environment (see Section 6: the Transmission of Patterns of Gambling) is increasingly recognised as an important influence on the later gambling behaviour of children and adolescents (Dowling et al., 2010, Williams et al. 2012) commentators have highlighted the need for treatment programmes to include family-based therapy and to address family dynamics rather than only focusing on the gambler per se (Abbott et al 1995, Orford 1994), although such programmes are currently limited. An Australian large-scale longitudinal study (n=2328) of the risks and protective factors for problem gambling in young adulthood by Scholes-Balog et al (2014) identified a clear relationship between young people's alcohol use and problem gambling and the nature of the family environment in which they had grown up. In doing so it, highlighted the significance of effective parenting practices and a rewarding family environment in protecting against negative influences linked with the development of problem gambling by young people (see also Dowling et al 2010). Such findings demonstrate that community intervention strategies to strengthen families and to educate them about how to create positive domestic environments are likely to be effective in addressing problem gambling by young people (Dowling et al. 2010, Scholes-Balog et al 2014). Moreover, Dowling et al. (2010) draw attention to the need to target primary, secondary and tertiary intervention strategies at children and young people who are growing up in problem gambling families as they are most at risk of developing gambling problems.

To-date, the UK lags behind the other countries reviewed in this report in terms of developing prevention, harm reduction and treatment programmes to support young problem gamblers in systematic ways (notwithstanding, the existence of a national gambling helpline, GamCare and Gordon House Association, a specialist residential facility for problem gamblers: see Griffiths,

Bellringer et al. 2001, Griffiths 2001b). There is a need for more government departments to work together effectively because problem gambling crosses policy domains including: public health, criminal justice, education, and culture, media, and sport.

## **10. Recommendations for Future Research**

The evidence of this review is that:

1. Online gambling opportunities are now available through multiple platforms (e.g. desk top computers, laptops, tablets and smart phones) and gambling applications have also emerged within other applications such as social networking sites and gaming sites, as a consequence drawing young people who were not initially online with the intention of gambling to do so. Further research is therefore needed to continue to explore the impact of technological change on the prevalence and patterns of young people's gambling; and to monitor whether social gaming (gambling-style games available through social network platforms and gaming websites) should be subject to legal regulation.
2. Given that the existing empirical evidence about the relationships between 'gambling-like' activities and 'real' gambling is relatively limited in scope/scale and inconclusive there is a need for more research to explore how young people understand and experience both types of activity and whether they are sufficiently aware of the differences and associated risks.
3. The proliferation of gambling advertisements highlights the importance of research to examine the impact of various types of advertising on young people's attitudes toward gambling and responsible gambling and actual behaviour.
4. Further longitudinal research is needed to test the evidence of recent findings which show that young people may grow out of gambling problems as they get older because this trend counters the findings of an earlier body of non-longitudinal research which appeared to show that the younger the age at which problem gambling developed the greater the consequences and severity of gambling in later life
5. There is an extensive body of international evidence which demonstrates the role of parents in introducing children to gambling and normalising this activity as part of banal family activities/histories. Yet, much less is understood about the complexity of wider family relationships, parenting practices and socio-demographics which may influence gambling behaviours. In particular, research is needed to investigate the role of grandparents and siblings in influencing young people's gambling, as well as the gendered nature of parental attitudes and behaviours.

6. Preliminary evidence suggests that young people from minority ethnic groups are more likely to gamble and to become problem gamblers than those from majority groups. Further research is needed to understand these patterns as well as to explore cultural and religious differences in patterns of gambling and problem gambling.
7. Parents, teachers, schools and even mental health professionals show little concern that young people are at increased risk of developing gambling problems compared to adults. There is relatively little public information about, or awareness of, the potential risks associated with underage gambling in relation to other risk taking behaviours such as alcohol and drugs. As such more research is required to understand young problem gamblers' help-seeking strategies (on-line and off-line) and to evaluate and improve the effectiveness of prevention programmes through the long-term evaluation of school education programmes similar to those used in relation to other 'risky' behaviours.

## About the Study

This review was based on a thorough search of the following data sources:

- **Electronic bibliographic databases** e.g.: Applied Social Science Index and Abstracts; International Bibliography of Social Sciences; Sociological Abstracts, Social ScSearch, Social Services Abstracts, Dissertation Abstracts, CareData, psyInfo, Social Work Abstracts, NHSEED etc.
- **Reference lists:** taken from primary review articles and also collated through contact with other known scholars/professionals working in this field.
- **The Internet:** employing on-line search engines such as Web of Science, Ingenta, BIDS, Google scholar.
- **Grey literatures:** These are non-academic publications (i.e. non peer reviewed work) including research reports or briefings by government departments and bodies, and non-governmental organisations (for example publications by: GamCare, Gamblers' Anonymous, The Gordon House Association, the UK Forum on Young People and Gambling, the Joseph Rowntree Foundation etc).
- **International policy:** of comparable international jurisdictions in terms of both legislation/policy and other official government documentation relating to children and the regulatory frameworks in place to protect children.
- **Case study initiatives:** evidence from the evaluation of specific research projects

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