



BACKGROUND PAPER

RISK FACTORS FOR PROBLEM GAMBLING: ENVIRONMENTAL, GEOGRAPHIC, SOCIAL, CULTURAL, DEMOGRAPHIC, SOCIO-ECONOMIC, FAMILY AND HOUSEHOLD

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www.gamblershelp.com.au

ACKNOWLEDGEMENTS

Sponsors: Serge Sardo, Rosa Billi

Author: Helen Miller

Editor: Linley Kensitt

Layout and design: Stephanie Regan

ENQUIRIES

Michelle Bryne +61 3 9452 2619

michelle.bryne@responsiblegambling.vic.gov.au

Grace Keyworth +61 3 9452 2616

grace.keyworth@responsiblegambling.vic.gov.au

ACCESSIBILITY

If you would like to receive this publication in an accessible format, such as large print or audio: call +61 3 9452 2600 or email contact@responsiblegambling.vic.gov.au

FOREWORD



Problem gambling is recognised as an important public health issue for Victorians. Each year, 30,000 Victorians experience a problem with gambling and a further 105,000 are at moderate risk of developing a problem (Hare 2009). Despite these statistics, the risk factors for problem gambling are not well understood.

This paper examines the environmental, geographic, social, cultural, demographic, socio-economic, family and household risk factors for problem gambling. The aim of the paper is to identify risk factors to inform approaches to the prevention of problem gambling. The paper is based on a review of the existing literature on the risk factors for problem gambling, with a particular focus on the prevalence studies conducted by the various Australian states and territories.

The review identifies evidence that demographic and socio-economic risk factors, such as younger age, male gender and low socio-economic status are linked to problem gambling. In addition, people who work in gambling venues may be at greater risk of developing a problem with gambling.

Social risk factors have received less attention in the research literature. However, there is some evidence that low social capital may be linked to problem gambling. Aboriginal identity, in Australia and elsewhere, is cited in the literature as a cultural risk factor. There are also environmental and geographic risk factors for problem gambling, particularly the accessibility of gambling products.

While this paper outlines the environmental, geographic, social, cultural, demographic, socio-economic, family and household risk factors for problem gambling, it is important to note not all possible risk factors are included. For example, risk factors that relate to an individual's personality or gambling behaviour are excluded from the paper. These individual risk factors are likely to interact in complex ways with the factors discussed in this paper. The characteristics of an individual, or their gambling behaviour, may compound the risk factors discussed in this paper, or equally, they may reduce them.

A full understanding of problem gambling would require an in-depth analysis of all risk factors and the way they interact. It is also important to note that risk factors are not causes: further longitudinal analyses are required to examine the likely causes of problem gambling.

An understanding of risk factors can inform approaches to planning for, and regulation of, gambling activities in communities, as well as policy development. The findings of this paper will inform the foundation's future service delivery.

I commend this paper to you.

Serge Sardo

Chief Executive Officer

Victorian Responsible Gambling Foundation

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KEY FINDINGS

ENVIRONMENTAL, GEOGRAPHIC, SOCIAL, CULTURAL, DEMOGRAPHIC, SOCIO-ECONOMIC, FAMILY AND HOUSEHOLD RISK FACTORS FOR PROBLEM GAMBLING

Environmental and geographic

- Accessibility of gambling is a significant risk factor for problem gambling.
- More research is required to understand the multiple dimensions of accessibility, such as temporal and social.
- Greater expenditure at gaming venues is associated with an increased risk of problem gambling in the local area.
- There is some evidence that area-level socio-economic disadvantage is a risk factor for problem gambling. This may be independent of the effects of individual-level socio-economic disadvantage.
- A lack of alternative leisure options and other services in the local area may be a risk factor for problem gambling, but we have identified no studies which have examined this issue.
- There is no previous research which examines whether urban or rural location is a risk factor for problem gambling.

Social

- Low levels of social capital may be linked to problem gambling.
- Concepts such as social cohesion, social norms, social trust, social exclusion, social (dis)organisation and discrimination have not been studied in relation to problem gambling.
- There is some evidence loneliness may be a risk factor for problem gambling.
- Although concerns have been raised about the effects of the normalisation of gambling, there is limited evidence about the effect of community attitudes to gambling on gambling problems. Further research is required on this issue.
- There is inconsistent evidence about whether the attitudes of family and friends are a risk factor for problem gambling.
- Being in the correctional system is a risk factor for problem gambling.

Cultural

- Aboriginal people are at higher risk for problem gambling.
- There are inconsistent results about whether being from a culturally and linguistically diverse community is a risk factor, with more Australian studies showing a lower risk for these communities.

- It is unclear whether recent migration to Australia is a risk or protective factor.
- There is preliminary international evidence that religious adherence may be a protective factor.

Demographic and socio-economic

Age and gender

- Male gender is consistently associated with increased risk for problem gambling in both Australian and international studies.
- Rates of problem gambling decline with age. Some studies have found that young people aged 18 to 34 are at the most risk of problem gambling among adults but further research is required to confirm this assessment.
- Rates of problem gambling are higher in adolescents than in adults.

Socio-economic status

- Lower socio-economic status is a risk factor for problem gambling. Some studies have shown lower educational attainment and lower income are associated with higher rates of problem gambling.
- There is some evidence for an association between unemployment and problem gambling, although this may be because problem gambling is known to cause employment problems.
- There is limited evidence that other indicators of socio-economic status, such as lower occupational status, or experience of financial stress, are risk factors for problem gambling.

Occupation

- People employed in gambling venues may be at increased risk of problem gambling.
- There is preliminary evidence that shift work may be a risk factor for problem gambling, however further research is required.

Family and household factors

- Family structure may be a risk for problem gambling, however, results vary as to which types of families are at risk. Further research on this question is required.
- There is some evidence homelessness is linked to problem gambling, although it is not clear whether homelessness is a risk factor for problem gambling or a result of financial difficulties related to problem gambling.

INTRODUCTION

Each year, 0.7 per cent of the adult population or 30,000 Victorians experience a problem with gambling. A further 2.36 per cent of adults, or 105,000 Victorians are at moderate risk of developing a problem (Hare 2009).

Problem gambling has been linked to a variety of harms for the individual, their family and friends, and the community as a whole, including crime, relationship breakdown, suicide and financial hardship (Productivity Commission 1999).

The impacts on those surrounding the person with a gambling problem can be severe, with five to ten other people negatively affected for each person with a gambling problem (Productivity Commission 1999).

Because of its negative effects on the community, problem gambling is becoming increasingly recognised as an important public health issue. However, despite the increased interest, the risk factors for problem gambling are not well understood.

This paper examines the existing research on the environmental, geographic, social, cultural, demographic, socio-economic, family and household risk factors for problem gambling. The aim of the paper is to identify risk factors to inform approaches to preventing problem gambling.

Literature on risk factors for problem gambling

The paper uses a review of the existing literature on the risk factors for problem gambling to identify those risk factors which have the strongest evidentiary support. The paper also identifies gaps, where further research is needed to understand whether particular factors increase the risk of problem gambling. We have examined both the academic literature on problem gambling, and grey literature published by governments and other sources not subject to peer review.

The paper has a particular focus on the prevalence studies conducted by the various Australian states and territories, as these often involve large samples of the general population, providing a strong evidence base for understanding risk factors.

Risk factors and causality

It is important to note the risk factors for problem gambling discussed in this paper may not be causes of problem gambling. The variables included in this paper are considered risk factors because they are associated with problem gambling, usually in a cross-sectional study. However, this association may not be the result of a direct causal relationship between the risk factor and problem gambling. In many cases, the causal relationship may

be more complex. For example, the risk factor and the problem with gambling may both be the result of a third variable, such as an underlying personality trait, which was not measured in the study. Therefore, it is important not to draw conclusions about the causes of problem gambling based on this paper.

This paper is not exhaustive and does not discuss all possible risk factors for problem gambling. Instead, we focus on environmental, geographic, social, cultural, demographic, socio-economic, family and household risk factors for problem gambling. We have chosen to examine these risk factors as they are most likely to be relevant to prevention programs, as they operate at a population level.

Individual risk factors for problem gambling (such as emotional vulnerability and impulsivity) have been discussed in detail in other publications (Blaszczynski & Nower 2002). In brief, some key risk factors identified in the literature which have been excluded from this paper include:

- an individual's personality, such as impulsivity (Nower & Blaszczynski 2006)
- family history of problem gambling (Dowling et al 2010)
- trauma and life events (Billi et al 2014)
- co-morbid health conditions (Miller 2014)
- cognitive distortions (Cunningham, Hodgins & Toneatto 2014).

In particular, it is important to note we have not considered an individual's gambling behaviour as a risk factor. Frequent participation in high risk gambling activities has been strongly associated with problem gambling (Billi et al 2014), as has participation in higher risk products such as gaming machines (Castrén et al 2013). These are clearly important risk factors that should be considered in prevention activities.

Interactions between risk factors have not been widely studied and may be important in fully understanding the risk associated with problem gambling.

For example, an individual's personality may interact with environmental, geographic, social, cultural, demographic, socio-economic, family and household risk factors to compound risk for problem gambling. At the same time, other personality characteristics may reduce the impact of other risk factors.

There have been few studies which examine the way different risk factors interact, with most research focusing on independent risk factors. Although we discuss each risk factor independently, the risk factors identified in this paper may interact in complex ways which have not yet been studied.

With the exception of the section on age, which discusses the increased risk associated with adolescence, the factors discussed in this paper are risks for adults. Risk factors specific to adolescent gamblers are covered in *Gambling and young people: impacts, challenges and responses* (Phillips 2013), and in an extensive literature specific to this population.

The focus of this paper is on risk factors within the Australian community. Although some international studies are discussed, there is a focus on Australian research. It is therefore important to note the findings in this paper should be applied to other jurisdictions with caution as there may be significant differences between nations – in particular regarding social, environmental and cultural risk factors.

ENVIRONMENTAL AND GEOGRAPHIC RISK FACTORS

Gambling availability and accessibility

The availability of gambling products in the community, often termed accessibility, has frequently been linked to problem gambling (Vasiliadis et al 2013). For example, Welte et al (2006) found proximity to lottery outlets, bingo venues and casinos were all associated with problem gambling. Similarly, the New Zealand Ministry of Health (2008) found people who lived closer to gambling venues were more likely than those who lived further away to have gambling problems.

The relationship between access to gambling and problem gambling fits well with public health theories, as accessibility can also be conceptualised as relating to exposure to gambling.

The accessibility of gambling has most often been studied with reference to gaming machine venues. For example, Young, Markham and Doran (2012) found venues in an accessible location, such as near a supermarket, and those with higher numbers of gaming machines, were associated with higher levels of gambling-related harm. This study is particularly persuasive because it has the advantage of using a validated measure of problem gambling to gauge harm. Barratt et al (2014) found a similar result, using rates of help-seeking as an indicator of problem gambling.

Some researchers have theorised that the effect of access to gambling may be mitigated by adaptation to higher levels of gambling exposure (Storer, Abbott and Stubbs 2009; Productivity Commission 2010). These authors argue there would be a threshold of gambling access above which there would not be any further increase in problem gambling. However, Storer, Abbott and Stubbs (2009) found no support for the adaptation hypothesis in a review of prevalence studies conducted in Australia and New Zealand, although this study did show strong support for the effect of access to gambling on problem gambling prevalence.

Although several studies have established a strong relationship between accessibility of gambling and problem gambling, there are still gaps in understandings of the details of how accessibility relates to problem gambling.

Accessibility is a complex concept with a variety of dimensions that require further exploration in their relationship to problem gambling.

Accessibility can include the types and combinations of gaming machines, technological innovation, the proximity of venues to community facilities, consumer preferences, venue marketing strategies, convenient travel routes and parking facilities, and other externalities (McMillen & Doran 2006).

It is also important to note accessibility of gambling is not merely geographical. Thomas et al (2011) noted temporal accessibility (including opening hours) and social accessibility are important. This study found venues provide a 'safe, welcoming and social atmosphere' for gamblers, making them more accessible. They also facilitate access, by providing courtesy buses, for example.

Venues offer an accessible retreat, a space where problems can be left 'outside the door' (Thomas et al 2011). These non-geographic aspects also need to be considered when discussing accessibility as a risk factor.

Gambling expenditure

Previous research has suggested expenditure at gaming venues is associated with problem gambling. Markham, Young and Doran (2014) found increased per-capita gaming machine expenditure was associated with increased problem gambling harm in a geographic area.

An increase from a mean per-capita expenditure of \$10 to an expenditure of \$150 was associated with an increase in gambling-related harm from 9 per cent to 18 per cent (as measured by endorsement of two or more items of the Problem Gambling Severity Index), once venue type and number of gaming machines were controlled for. Based on this research, expenditure at gaming venues is associated with an increased risk of problem gambling in the local area.

Socio-economic disadvantage at an area level

There is some evidence that area-level socio-economic disadvantage is linked to problem gambling. Previous research has established that gaming machines are more likely to be located in disadvantaged areas and expenditure on gambling is higher in these areas (Rintoul et al 2013). In addition, lower socio-economic status at an area level has been linked to increased rates of help-seeking for problem gambling (Barratt et al 2014).

Interestingly, this link between problem gambling risk and problem gambling may not be the result of the socio-economic status of individual gamblers.

Welte et al (2006) found living in a disadvantaged neighbourhood was linked to an increased risk of problem gambling, but this effect was not explained by the socio-economic status of individuals participating in their survey. This suggests an effect of the area, independent of the characteristics of the individuals studied.

Socio-economic disadvantage at an area level may therefore be a risk factor for problem gambling, independent of individual characteristics.

Alternative leisure options or other services

A lack of alternative leisure options has been suggested as a possible risk factor for problem gambling (Abbott et al 2013). However, we have identified no studies that examine the effect of a lack of alternative leisure options on risk of problem gambling.

Alternative leisure options could include sporting facilities, as well as entertainment facilities that do not offer gambling. This risk factor could be broadened to include a lack of other services, such as public transport, which make other leisure options accessible.

The absence of alternative leisure activities may make people more likely to gamble, increasing their exposure to gambling (Abbott et al 2013). It may also lead to feelings of loneliness or isolation, and there is some evidence that these negative emotions are associated with an increased risk of problem gambling.

Urban, regional and remote areas

Living in a regional or remote area may influence health (Australian Institute of Health and Welfare 2008). Given the importance of accessibility of gambling venues to risk for problem gambling, it might be expected the risk of problem gambling may be lower in regional and remote areas, with less proximity to gambling.

Alternatively, given the possible role of a lack of alternative recreation activities in risk of problem gambling, it may also be proposed that the risk would be higher in these areas. However, there has been no previous research which examined the relationship between rural or remote location and problem gambling. It is therefore unclear whether urban or regional location is a risk for problem gambling.

Key findings

- Accessibility of gambling is a significant risk factor for problem gambling.
- More research is required to understand the multiple dimensions of accessibility, such as temporal and social.
- Greater expenditure at gaming venues is associated with an increased risk of problem gambling in the local area.
- There is some evidence that area-level socio-economic disadvantage is a risk factor for problem gambling. This may be independent of the effects of individual-level socio-economic disadvantage.
- A lack of alternative leisure options and other services in the local area may be a risk factor for problem gambling, but we have identified no studies which have examined this issue.
- There is no previous research which examines whether urban or rural location is a risk factor for problem gambling.

SOCIAL RISK FACTORS

Social capital and related concepts

Previous research highlights that the social environment, in addition to individual characteristics, is important for health (Lin, Smith & Fawkes 2007; Baum 2002). This is sometimes explored from the perspective of social capital.

Definitions of social capital vary, but the Organisation for Economic Co-operation and Development (OECD) (2001, p. 4) defined social capital as ‘networks together with shared norms, values and understandings that facilitate cooperation within or among groups’. Scrivens and Smith (2013) further argue there are four interpretations of social capital:

- personal relationships
- social network support
- civic engagement
- trust and cooperative norms.

Most studies of social capital consider one or more of these interpretations. Social capital is sometimes measured at an individual level, but may also be considered a property of a community.

At least one study has suggested low social capital at an individual level is associated with problem gambling. Billi et al (2014) found people with gambling problems were less likely to feel valued by society, participate in community activities, volunteer or be able to raise \$2,000 in an emergency.

However, interpreting this result as indicating that low social capital is a risk factor for problem gambling is complicated by evidence that gambling may act to reduce social capital.

Several studies have reported problem gambling may reduce social capital in communities near gambling venues (Dyall 2007; Wall et al 2010; Griswold & Nichols 2004). Therefore, it is possible the individual’s low social capital reported in Billi et al (2014) is the result of problem gambling, not a risk factor of it. Likewise, it might be that gambling accessibility acts to reduce social capital in the community.

The relationship of gambling to social capital for communities may be complex, and operate in multiple ways. For example, while social capital may be eroded by problem gambling, high social capital may be a protective factor, mitigating harm from gambling for communities (Brown 2011).

It is clear further research is needed to fully understand any complex causal relationship between social capital and problem gambling. In addition, key aspects of social capital, such as trust, have not been examined in the existing literature, and social capital at a community level has not been considered as a risk factor. More evidence is required to determine whether a person or a community having low social capital is a risk factor for problem gambling.

In addition to social capital, there are a variety of related concepts such as social cohesion, social norms, social trust, social exclusion, social (dis)organisation and discrimination which describe different aspects of the social environment and have been related to health outcomes (Lin 2007). However, our review has not identified any research considering whether any of these concepts are risk factors for problem gambling.

Loneliness or social isolation

There is strong evidence loneliness or social isolation is linked to poorer physical and mental health (Hawkey & Cacioppo 2010). However, there are few studies that have considered loneliness as a risk factor for problem gambling.

We identified one study (Castrén et al 2013), which examined loneliness in a telephone survey of 3,451 gamblers in Finland. This study found problem gambling was linked to higher rates of loneliness. McQuade and Gill (2012) also found a link between loneliness and problem gambling.

Evidence that loneliness may be a risk factor for problem gambling also comes from studies that show gambling at venues may be a way to alleviate feelings of isolation (Thomas et al 2009).

This suggests loneliness may be a motivation for problem gambling behaviour. Therefore, there is some evidence loneliness may be a risk factor for problem gambling.

Community attitudes and normalisation

Public discussion has often focused on the effect community attitudes have on problem gambling. For example, concerns have been raised that particular forms of gambling may become normalised, which could lead to increased risky gambling behaviour (Thomas & Lewis 2011). However, there is limited evidence about the effect of overall community attitudes on problem gambling.

Positive attitudes to gambling by the community do appear to be associated with increased gambling activity (Orford et al 2009). However, there is some evidence to suggest the impact of individual gamblers' attitudes on problem gambling behaviour is more complex than may appear at first glance. For example, Salonen et al (2014) found non-problem gamblers have more positive attitudes to gambling than problem gamblers or those at risk. Orford et al (2009) found the reverse, with problem gamblers and at-risk gamblers having more positive attitudes to gambling.

Due to these differing findings, further research is required to determine whether community attitudes are a risk factor for problem gambling.

Attitudes of family and friends

Previous research has shown positive attitudes to gambling among family and friends is linked to increased gambling behaviour. This has been shown in adolescents (Delfabbro & Thrupp 2003) and adults (Welte et al 2006).

However, Welte et al (2006) found attitudes of family and friends were not associated with problem gambling. In addition, Salonen et al (2014) found concerned family and friends of people with gambling problems have more negative attitudes to gambling (although it is not clear from this study whether these negative attitudes were the result of gambling harm).

Due to the differences shown in studies, more research is required to address the issue of whether attitudes of family and friends are a risk factor for problem gambling.

The correctional system

There is some evidence that rates of problem gambling are higher among correctional populations (Butler and Milner 2003; Queensland Corrective Services 2005). For example, Perrone (2013, p.10) surveyed 173 Victorian prisoners and found that about a third (33 per cent) were past-year problem gamblers. This is further discussed in our previous paper *Complex lives: co-occurring conditions of problem gambling* (Miller 2014).

Key findings

- Low levels of social capital may be linked to problem gambling.
- Concepts such as social cohesion, social norms, social trust, social exclusion, social (dis)organisation and discrimination have not been studied in relation to problem gambling.
- There is some evidence loneliness may be a risk factor for problem gambling.
- Although concerns have been raised about the effects of the normalisation of gambling, there is limited evidence about the effect of community attitudes to gambling on gambling problems. Further research is required on this issue.
- There is inconsistent evidence about whether the attitudes of family and friends are a risk factor for problem gambling.
- Being in the correctional system is a risk factor for problem gambling.

CULTURAL RISK FACTORS

Ethnicity, migration and Aboriginal identity

Cultural background may be a risk factor for problem gambling. Several studies have linked problem gambling and Aboriginal identity (Sproston, Hing & Palankay 2012; Young et al 2006; Office for Problem Gambling 2012; Hare 2009).

For example, Sproston, Hing & Palankay (2012) found 1.7 per cent of people of Aboriginal heritage had gambling problems, compared with 0.8 per cent of the general population.

This increased risk for Aboriginal peoples has also been found in New Zealand (Mason & Arnold 2007; Ministry of Health 2012) and North America (Wardman, el-Guebaly & Hodgins 2001).

The evidence of an association between problem gambling and other cultural backgrounds is less clear. Some studies have shown problem gambling in Australia is associated with non-English speaking backgrounds (Young et al 2006). In addition, an increased risk associated with non-white ethnicity has been found overseas. Welte et al (2006) found 'the odds of a white American being a problem gambler are only one-fifth the odds of a minority American being a problem gambler'.

However, in contrast, other studies have shown lower rates of problem gambling among those whose country of birth was not Australia (Davidson & Rodgers 2010; Allen Consulting Group 2011).

It seems likely the relationship between ethnicity and problem gambling is complex and may require an analysis which considers differences between different cultures.

Most Australian studies have considered only two categories: born in Australia or born overseas (or sometimes English and non-English speaking).

In Australia, having a non-English speaking background may be related to also having migrant experience or family background. Hare (2009) found people who migrated to Australia in the past five years were at lower risk of problem gambling.

However, Raylu and Oei (2003) have suggested the process of acculturation, where a migrant adapts to the host culture, may be associated with an increased risk of problem gambling. This occurs because problems with acculturation lead to stress, boredom and loneliness, which may lead to problem gambling.

On the other hand, successful adaptation to a culture which is accepting of gambling may also be associated with risk, as a migrant may be more likely to engage in gambling as a result of this adaptation.

The effect of migration may also be different, depending on the cultural background of the migrant. Further research is therefore required to determine how migration may be linked to problem gambling.

Religious beliefs

International research suggests religious belief may influence problem gambling risk. Spritzer et al (2011) found increased religiosity was associated with a decreased risk of problem gambling in a survey of 3,007 individuals aged over 14 in Brazil.

Specific religious beliefs may also be associated with gambling behaviour. In a US study, Welte et al (2006) found Catholics are more likely to gamble than people of other faiths. However, being a Catholic does not predict problem gambling.

However, the relationship between religion and problem gambling is complex. Eitle (2011) found that in the US the influence of religiosity on problem gambling depends on the religious context of the local area.

There is preliminary evidence religious adherence may be a protective factor for the development of problem gambling. However, given there are no Australian studies addressing this issue, and the effect of religion is highly culturally dependent, further research is required to determine whether religious adherence is related to problem gambling in the Australian context. This research would also need to examine the relationship between religious adherence and other risk and protective factors, such as social capital and isolation.

Key findings

- Aboriginal people are at higher risk for problem gambling.
- There are inconsistent results about whether being from a culturally and linguistically diverse community is a risk factor, with more Australian studies showing a lower risk for these communities.
- It is unclear whether recent migration to Australia is a risk or protective factor.
- There is preliminary international evidence that religious adherence may be a protective factor.

DEMOGRAPHIC AND SOCIO-ECONOMIC RISK FACTORS

Age and gender

Male gender has been consistently associated with increased risk for problem gambling (Johansson et al 2008). For example, a recent Victorian prevalence study found problem gambling was twice as prevalent in men (0.95 per cent) as it was in women (0.47 per cent) (Billi et al 2014).

Most recent Australian prevalence studies have also found a significant association between problem gambling and male gender (Hare 2009; Davidson & Rodgers 2010; Sproston, Hing & Palankay 2012; Office for Problem Gambling 2012). Similar results have occurred in international studies (Ipsos Reid Public Affairs 2008; Kessler et al 2008; Wardle et al 2010).

The reasons men are at greater risk of problem gambling have not been well accounted for in the research literature. However, this increased risk may be partially explained by increased exposure to gambling products.

Men may be more likely to gamble on risky activities, such as electronic gaming machines or horse racing, than women (Hare 2009). Similarly, Wardle et al (2010) found male gamblers participate in more activities and play on more days of the year than female gamblers.

Some studies have suggested there is an interaction between age and gender, with young men aged 18 to 34 at particular risk of developing problems with gambling. However, most studies have not found a significant association between problem gambling and younger age in adults (Hare 2009; Queensland Government 2012; Office for Problem Gambling 2012). Hare (2009) found people with gambling problems were less likely to be aged over 65, but this may relate to the small samples of people with gambling problems who participate in most prevalence studies.

There is some evidence to suggest problem gambling prevalence declines with age (Wardle et al 2010; Johansson et al 2008). In contrast, however, one study has found people aged 25 to 34 are less likely than other adults to develop a problem with gambling (Young et al 2006). Shaffer, Hall & Vander Bilt (1999) found rates of problem gambling are higher in college student samples than general population adult samples. Due to these discrepancies, further research is required to confirm the common view that young adults are at higher risk of problem gambling.

There is, however, evidence to suggest that rates of problem gambling are higher in adolescents than in adults.

Previous research in Australia found between 2.4 per cent (Delfabbro et al 2009) and 5 per cent (Purdie et al 2011) of adolescents are problem gamblers, with a further 6.4 per cent (Delfabbro et al 2009) to 16 per cent (Purdie et al 2011) at risk of problem gambling.

This high prevalence of problem gambling has been replicated in most (Kristiansen & Jensen 2011; Forrest & McHale 2012; Shaffer et al 1999), but not all (Welte et al 2007), international research.

Socio-economic status

Lower socio-economic status has been identified as a risk factor for problem gambling, although results vary for different indicators of socio-economic status.

Education

Some studies have linked higher rates of problem gambling to lower levels of educational attainment (Wardle et al 2010; Young et al 2006; Sproston, Hing & Palankay 2012).

For example, in the most recent South Australian prevalence study, the rate of problem gambling among people with no more than a secondary education was 0.9 per cent, compared with 0.2 per cent of people with a university degree or higher qualification (Office for Problem Gambling 2012). However, education was not significantly associated with problem gambling in the most recent Victorian prevalence study (Hare 2009). In a longitudinal study, Billi et al (2014) found education below Year 10 predicts the development of higher risk gambling.

Employment

Some studies have found that being unemployed is associated with problem gambling (Davidson & Rodgers 2010; Wardle et al 2010; Johansson et al 2008). However, this has not been replicated in most studies, including those conducted in Victoria. This may be a result of the sample sizes of problem gamblers in prevalence studies being too small to capture sufficient numbers of unemployed people with gambling problems to demonstrate an effect.

Studies with people seeking treatment for gambling problems have also suggested higher rates of unemployment. Kellie (2014) found that 16.6 per cent of people seeking treatment for gambling problems were unemployed and looking for work, compared with 3.7 per cent of the general population.

Although unemployment has been associated with problem gambling, this may be because problem gambling can cause problems with employment (Productivity Commission 2010).

Further examination of the complex relationship between problem gambling and employment is required.

Income

Problem gambling has also been associated with lower income in some studies (Young et al 2006; Office for Problem Gambling 2012).

Interestingly, the most recent Victorian prevalence study found people with very low personal incomes (less than \$31,199 per annum) were at lower risk of problem gambling, while those with slightly higher incomes (\$31,200 to \$51,999) were at higher risk than other income groups (Hare 2009).

This could be explained by hypothesising that people with very low incomes are unlikely to spend money on gambling, and are therefore not exposed to gambling. However, this result has not been replicated in other studies, and the most common finding has been that low income is associated with higher rates of problem gambling.

Other indicators

There is limited evidence about other indicators of socio-economic status and problem gambling. Hare (2009) found that people employed as sales workers, machinery operators or drivers and labourers are at higher risk of problem gambling, suggesting a possible link between lower occupational status and problem gambling. Similarly, the Office for Problem Gambling (2012) found problem gambling is more common in people showing signs of financial stress. However, these results have not been explored in other studies to provide confirmation.

Summary

Overall, problem gambling has been associated with lower socio-economic status. However, different studies have linked problem gambling to different indicators of socio-economic status. Although most studies do not report effect sizes, it seems likely that socio-economic status is less strongly linked to problem gambling than gender, where a consistent effect is seen across almost all studies.

Occupation

Gaming venue employees

A person's employment may be associated with an increased risk of problem gambling. In particular, people employed in gambling venues may be at increased risk. A study of casino, hotel and club employees in Queensland found 4.5 per cent of participants had gambling problems, compared with 0.47 per cent of all Queenslanders (Hing & Gainsbury 2011).

Similarly, research in Victoria showed 5.6 per cent of hotel and club employees surveyed were problem gamblers, nearly six times higher than the rate of the general population (Hing & Nisbet 2009).

A high rate of problem gambling in venue staff (over three times greater than those of the general population) was also found in Canada (Guttentag, Harrigan & Smith et al 2011).

These studies were limited as they did not use a random sampling methodology. This means that the results cannot be generalised to all gaming venue workers, and may not even accurately represent the workplaces studied.

However, it is notable these high rates of problem gambling were observed in Queensland, even though many of the venues studied did not permit staff to gamble in their workplace (Hing & Gainsbury 2011). Hing and Gainsbury (2011) hypothesised the increased rate of problem gambling among venue staff was due to increased exposure to gambling while in the workplace, as well as normalisation of gambling and increased familiarity with gambling.

Shift workers

Other types of employment may also be associated with an increased risk of problem gambling. Thomas et al (2010) suggested the accessibility of gambling venues late at night may make them attractive to shift workers, who may have limited choices for entertainment when late shifts finish.

Similarly, Huggett and McDonald (2012) found that for some people with gambling problems, venues provided a safe and accessible place to go after completing shift work.

In addition, Tse, Wong and Kim (2004) suggested Asian immigrants or students involved in shift work may be at greater risk of problem gambling. It could be speculated that they are even more likely to lack entertainment options outside of normal hours due to lower access to social capital.

Overall, the evidence for a link between shift work and problem gambling is preliminary and largely based on qualitative interviews. Further study is required to examine the risk of problem gambling for shift workers.

Key findings

Age and gender

- Male gender is consistently associated with increased risk for problem gambling in both Australian and international studies.
- Rates of problem gambling decline with age. Some studies have found that young people aged 18 to 34 are at the most risk of problem gambling among adults but further research is required to confirm this assessment.
- Rates of problem gambling are higher in adolescents than in adults.

Socio-economic status

- Lower socio-economic status is a risk factor for problem gambling. Some studies have shown lower educational attainment and lower income are associated with higher rates of problem gambling.
- There is some evidence for an association between unemployment and problem gambling, although this may be because problem gambling is known to cause employment problems.
- There is limited evidence that other indicators of socio-economic status, such as lower occupational status, or experience of financial stress, are risk factors for problem gambling.

Occupation

- People employed in gambling venues may be at increased risk of problem gambling.
- There is preliminary evidence that shift work may be a risk factor for problem gambling, however further research is required.

FAMILY AND HOUSEHOLD FACTORS

Family structure

Family structure has been linked to the development of problem gambling, although results are inconsistent between studies. In a South Australian study, the Office for Problem Gambling (2012) found people who are separated or divorced at higher risk of problem gambling. In addition, this study found people living in households with only one adult aged over 16 years at increased risk. Billi et al (2014) found being in a lone parent or 'other' family predicts the development of higher risk gambling over time, and Young et al (2006) found rates of problem gambling are lower in couples with children and higher in group households.

International studies have found similarly inconsistent results about the relationship between family structure and problem gambling (Johansson et al 2008). Some other studies, such as Hare (2009), have found no association between household structure and problem gambling.

Given different studies have identified different types of families as at risk, further research is required to examine the relationship between family structure and problem gambling. This research should also examine the mechanisms which place certain types of families at risk.

Housing and homelessness

Several recent articles have suggested a link between problem gambling and homelessness (Sharman et al 2014; Nower et al 2014). However, these articles have been based on non-random samples, meaning they cannot be translated to the general population, and further research is required to confirm their findings.

It is not clear from these studies whether homelessness is a risk factor for problem gambling, or a result of financial harm experienced by people with gambling problems.

None of the large prevalence studies of problem gambling in Australia have included a question on housing tenure, which means it is unclear what relationship problem gambling has to housing tenure and homelessness.

Of course, unless specifically designed to target homeless participants, general population landline telephone surveys are unlikely to uncover the relationship between problem gambling and homelessness.

However, future surveys could indicate whether people with gambling problems are more likely to live in housing with less secure tenure, which might be anticipated given the financial difficulties experienced by people with gambling problems.

Key findings

- Family structure may be a risk for problem gambling, however, results vary as to which types of families are at risk. Further research on this question is required.
- There is some evidence homelessness is linked to problem gambling, although it is not clear whether homelessness is a risk factor for problem gambling or a result of financial difficulties related to problem gambling.

CONCLUSION

There is strong evidence that some groups of people are at higher risk of problem gambling.

Men, younger people and those of lower socio-economic status are all at risk, as are Aboriginal people and gaming venue workers. In addition, it is clear that increased accessibility of gambling, socio-economic disadvantage and increased expenditure on gambling are risk factors for communities.

This paper has a number of limitations. We did not examine other risk factors, such as individual personality and gambling behaviour. This means that the paper is not a full examination of all possible risk factors. Equally, it is possible that there are other environmental, geographic, social, cultural, demographic, socio-economic, family and household risk factors that we have not identified as part of our literature review, particularly if there was limited evidence available.

In addition, risk factors are not causes. There is very limited evidence available about the causes of problem gambling, and further longitudinal research is required to expand our understanding of the causal pathways that lead to problem gambling.

There are many gaps in our understanding of the risk factors for problem gambling. More research is required on a number of topics, particularly social factors such as loneliness, social capital and attitudes of family and friends and the community as a whole. Some risk factors, which are raised frequently in the literature, such as a lack of alternative leisure opportunities in a community, have not yet been studied.

To prevent harm associated with problem gambling, the Victorian Responsible Gambling Foundation is targeting prevention activities to those at risk.

An understanding of risk factors can also inform approaches to planning for, and regulation of, gambling activities in communities, as well as policy development.

This paper has summarised the key environmental, geographic, social, cultural, demographic, socio-economic, family and household risk factors for problem gambling, for use in these future activities.

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