

Focused Literature Review for the Problem Gambling Programme

[Final report for the Health Sponsorship
Council]

September 2010

Prepared for:

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Acknowledgements

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The authors thank Jane Gabites, Sian Morgan, Julia Woolford for their input into the literature searches, Dr Christian Krägeloh for discussions around some of the data, Dr Maria Bellringer, and Kylie Mason (HDI, Ministry of Health) for preparing additional analyses from 2006/07 New Zealand Health Survey data. The authors also thank staff at the Health Sponsorship Council for their ongoing input into the focus of the report.

This report was commissioned and funded by the Health Sponsorship Council.

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Executive Summary

The Health Sponsorship Council (HSC) contracted the Gambling and Addictions Research Centre to produce a rapid update of the gambling literature with respect to a range of specific issues of importance to the HSC's planning. A systematic search of relevant databases was undertaken, with relevant research identified and evaluated. The structure of the report and the issues that were focused on were specified by the HSC.

Gambling in New Zealand

The HSC wanted to know the prevalence of gambling in New Zealand and why New Zealanders gamble. The research suggests people generally gamble to "win money", although a variety of additional reasons are frequently cited (such as boredom, stress, fulfilling financial obligations, and loneliness). Although participation rates seem to have decreased slightly, the majority of New Zealanders still participate in some form of gambling (Lotto the most frequently cited form). A small but significant proportion of New Zealanders spend a disproportionate amount of their time and/or income on gambling activities. An estimated 0.4% of the New Zealand population are problem gamblers, and a further 1.3% are moderate risk problem gamblers. At risk and problem gamblers are much more likely to participate in four or more gambling activities, and participate in continuous forms of gambling such as playing electronic gaming machines when compared to recreational gamblers.

Impacts of gambling

The HSC were interested in an up-to-date summary of what the impacts of gambling are. It was found harmful gambling is related to a variety of impacts – there are clear links to psychological distress, reduced self-rated health, hazardous alcohol use, and smoking. There is a growing understanding of the likely impacts on relationships, families, communities, and links to crime. Some work has suggested qualitative differences between different cultural groups; however, further research is needed. In general, causal relationships between gambling and suggested impacts have not been established, and methodological issues will continue make this difficult. Nevertheless, the complexity of these issues means acceptance of the notion of distributed causality (i.e. the cause is not due to one specific factor) will be important. Relatively infrequently, positive impacts of gambling are cited (e.g., supporting marae infrastructure), however these tend to be associated with an altered view of what gambling is.

Risk Factors

The identification of the risk factors for problem gambling was an aim of the HSC. In New Zealand the following are currently risk factors for problem gambling.

- Age: people aged 35-44 are at significantly greater risk
- Ethnicity: people of Maori or Pacific ethnicity are at significantly greater risk
- Education: people with lower educational attainment are at greater risk
- Neighbourhood deprivation: people living in the 40% most deprived areas (NZDep2006 – an index of deprivation – quintiles 4 & 5) are at greater risk.

In addition there is evidence suggesting the accessibility and marketing of gambling, along with other environmental cues, are important issues to consider. There are also individual and cultural factors such as co-morbidities and peers/family that appear to play important roles in increasing or decreasing risk.

Influences on gambling behaviour

The HSC wanted to find out what influences gambling behaviour. Evidence suggests social factors play a strong role. In addition to gambling to win money, people gamble for reasons such as a means of escape or coping, to fulfil financial obligations, and as a social activity. It is becoming clear that an individual's relationships can influence both their gambling behaviour, and their recovery – while the reverse seems to be true – their primary mode of gambling can also influence the nature of their social relationships. Marketing may play a significant role in attracting gamblers and maintaining gambling behaviour. This is especially the case in vulnerable and at risk groups. Several models have been proposed to explain how gambling problems develop, however the well-designed longitudinal studies needed to evaluate these hypothesised processes have yet to be undertaken.

Preventing harm and supporting positive change

The HSC wanted to uncover the factors which prevent harm and support positive change. In general the evidence remains inconclusive most likely because of the complexity and distributed causality of gambling problems. Nonetheless, studies show people generally do not seek help until they reach a crisis, although there is some tentative evidence that some help seekers in New Zealand are more aware of preventing problems from becoming worse. Unfortunately, the evidence base for gambling treatment effectiveness and efficacy is weak in comparison to related areas (e.g. alcohol and other substance addictions). The best supported treatment approach is cognitive behavioural therapy, but even that has not been clearly established. However, gambling problems seem to respond well (at least in the short-term) to any focus on them. Gambling treatment is hindered by very high dropout rates; thus brief motivational interviewing approaches have recently been the focus of some

empirical attention. A proportion of problem gamblers recover without any formal assistance, and there is growing evidence that controlled or responsible gambling is a viable goal for treatment.

Research focused on developing a better understanding of the role that gambling plays in peoples' lives is an important step towards the development of effective interventions at any level. Some protective factors (general resilience, supportive families/communities, higher education and increased awareness of gambling issues) have been identified. However, public health approaches should take into account the high levels of co-morbidity and engage with related areas such as alcohol and other drugs, and youth and community development initiatives. Overall, gambling problems seldom happen in strict isolation and formal and informal networks can play important roles in both prevention and recovery.

Background

The Health Sponsorship Council contracted the Gambling and Addictions Research Centre to produce a rapid update of the gambling literature with respect to a range of specific issues. Four broad questions were specified, with a range of more specific questions within them. These form the structure of the report, and are:

- An overview of gambling in New Zealand
 - Including prevalence of gambling, problem gambling, and the impacts of gambling
- Risk factors for problem gambling
- Influences on gambling behaviour
 - Why people gamble, influence of relationships and marketing
- Preventing harm and supporting positive change
 - Factors that prevent harm, effective public health and clinical approaches, motivation to change, and personal networks.

In agreement with the Health Sponsorship Council, the structure of the review has remained very consistent with the original brief. There is necessarily some overlap between sections that address specific issues, and while attempts have been made to minimise this, some overlap remains.

Methodology

The literature reviews were conducted in four concurrent phases, which consisted of:

- a) Electronic bibliographic indexes accessed via on-line database searches
- b) Specialist libraries accessed via web-based searches and searches through personal collections
- c) Grey literature accessed via personal collections and through professional and informal networks
- d) Professional and information networks contacted via personal communications

Electronic bibliographic indexes

A search of the following on-line databases accessible through the AUT library system was conducted to locate potentially relevant literature:

- Academic Search Premier (EBSCO)
- Cochrane Library
- CSA Social Services Abstracts
- EBSCO MegaFile Premier

- ProQuest Central
- PsycARTICLES
- PsycINFO
- PsycEXTRA
- ScienceDirect

The searches were performed through May and June 2010 utilising the key words below. Truncated words are indicated either by an asterisk (*), which means that all words starting with the truncation (the letters before the asterisk/question mark) were automatically searched for within each database. The search results were restricted to articles published in the previous 10 years only.

(Gambling or gaming) and social network

(Gambling or gaming) and positive change

(Gambling or gaming) and protective factor

(Gambling or gaming) and (recover* and/or pathway)

(Gambling or gaming) and abstinence

Alcohol* and addict* and social network

In addition, the following key words were searched, but search results were restricted to articles published in 2005 and later:

Gambling or gaming

(Gambling or gaming) and harm

(Gambling or gaming) and (intervention or treatment of counsel*)

(Gambling or gaming) and (educat* or community or health)

(Gambling or gaming) and (risk factor or predictor or indicator)

(Addict*) and (treatment or intervention)

(Gambling or gaming) and (treatment or prevention or public health or services)

(Gambling or gaming) and (marketing or advertising)

Each literature search on each database accessed varying numbers of articles, sometimes numbering several hundred. There were varying degrees of overlap between the databases. A full list of titles

and/or abstracts was obtained from each search. For titles or abstracts that appeared to be relevant to this project, full text publications were accessed electronically and viewed.

Specialist libraries

Various gambling-related organisations and government departments have websites which include searchable databases and/or libraries, or which detail gambling-related publications and reports, and were searched for literature relevant to the project. Any material that appeared to be relevant was downloaded and reviewed. The major websites accessed included:

- Centre for Gambling Studies
(<http://www.health.auckland.ac.nz/populationhealth/gambling-studies>)
- Gambling Helpline (<http://www.gamblingproblem.co.nz/home/index.htm>)
- GamblingWatch (<http://www.gamblingwatch.org.nz>)
- NZ Lotteries (<http://www.nzlotteries.co.nz>)
- Department of Internal Affairs (<http://www.dia.govt.nz>)
- Ministry of Health (<http://www.moh.govt.nz>)
- Sky City (<http://www.skycity.co.nz>)

The Reviewing Team also had access to personal libraries on gambling and related subjects. These collections contain reports that have not been published in mainstream literature plus publications that are difficult to obtain. They also include pre-publication reports and articles from a variety of sources. Where relevant, these materials were utilised for this project.

Grey literature

Grey literature, being unpublished works not widely available to the general public, was accessed by two means. Firstly, through the personal library collections detailed previously, and secondly, via professional and informal networks, detailed below.

Professional and informal networks

Each member of the Reviewing Team has a network of professional colleagues within the gambling field. This includes researchers, treatment/service providers, public health specialists, government officials and gambling industry personnel. Where appropriate, the Reviewing Team contacted (generally by telephone or Email) specific people who were considered to possibly have information that would be useful to the project. Some grey literature and information regarding newly published material was obtained in this manner.

Gambling in New Zealand.

Why do people gamble?

Many theories have been developed to explain why people gamble, and perhaps more critically why a proportion of those that gamble go on to develop gambling problems (e.g., Abbott, 1999; Blaszczynski & Nower, 2002; Clarke et al., 2007a; Raylu & Oei, 2002; Walker, 1992; Wildman, 1998). A fundamental weakness in the evidence base remains the reliance on cross-sectional designs (Abbott & Volberg, 1996; Shaffer, LaBrie & LaPlante, 2004). A cross-sectional design is where data is concurrently gathered from groups of individuals (cohorts) who are at different stages of development or who are of different ages. This is to measure for temporal or age differences (Busk, 2005). The lack of prospective longitudinal studies still remains of key concern, although these sorts of studies are critical, they present substantial practical and financial difficulties. Longitudinal studies involve monitoring a given characteristic of the same group of individuals over an extended period of time (Babbie, 2008).

Gambling has been established as a legitimate recreational activity in New Zealand for many generations. It is obvious a key motivator to gamble is to win money, as it is the nature of the activity. Beyond that there are a range of commonly cited reasons for gambling typically given by New Zealanders; these include to socialise, escape, cope with stress, relieve boredom, excitement/challenge, fun, support worthy causes, hobby/habit, curiosity, exercise skill and accumulate knowledge. The reasons given for gambling vary across gambling forms and across ethnicity. The relationships are likely to be very complex with distributed causality (i.e. the cause is not limited to one specific factor), thus developing a better understanding of the relationships between individuals, families, communities and gambling is important. In the absence of detailed information at that level, there is a tendency to oversimplify the relationships between contextual and individual relationships.

Perese, Bellringer and Abbott (2005) overviewed the reasons for gambling and since then, the major piece of work specific to this area (and New Zealand) was reported by Clarke and his colleagues (Clarke et al., 2007a; Clarke, Abbott, DeSouza & Bellringer, 2007b). Clarke and colleagues used a community-based convenience sample of 345 participants. Of those, 209 were regular (weekly gamblers) – 103 problem gamblers and 106 non-problem gamblers. Clarke et al. (2006a) suggested a framework they termed e-PRESS to categorise the reasons for beginning and continuing gambling (economic, personal, recruitment, environment, social, and spiritual). Economic reasons (to win money, financial problems, family/ community financial obligations) were the most commonly cited reasons for starting and continuing gambling. Social, cultural, situational and environmental reasons were more important than personal reasons for starting gambling (see Table 4 below). However,

personal reasons, largely stress and loneliness, were cited as being more important in terms of continuing gambling. All ethnicities cited advertising, ease of access to money and electronic gaming machines (EGMs), and gaming facilities in social venues as incentives to begin and continue gambling. This is consistent with broader evidence suggesting that in New Zealand at-risk groups are explicitly targeted by both the location of gambling activities, and gambling advertising (e.g., Dyall, Tse, & Kingi, 2009; Ministry of Health, 2009; Pearce, Mason, Hiscock & Day, 2008).

Table 1. Percentage of respondents from each ethnic group endorsing specific reasons for starting gambling (from Clarke et al., 2007a)

	Pākehā	Māori	Cook Island	Niue	Samoan	Tongan	Asian
<i>n</i> =	53	62	27	22	30	30	71
economic (e)							
I hoped to win some big money	98	100	93	86	100	83	78
I needed to solve my money problems	85	89	82	81	93	80	51
I needed money for my family	83	75	78	68	90	93	38
I needed money to fulfil my obligations	76	54	74	55	87	80	36
Personal (P)							
I looked for excitement and entertainment	93	92	89	82	83	93	70
I saw gambling as a form of reward	94	84	81	64	80	57	59
Gambling is one of my few entertainment options	91	92	82	73	97	100	57
I used gambling to escape from my stress and troubles	89	87	7	32	33	30	44
I needed time out	83	87	11	41	57	41	77
I wanted to get rid of my boredom	81	84	59	59	83	93	41
I had a lot of spare time	81	82	11	32	55	50	58
Gambling helped me deal with my loneliness	76	72	7	24	35	23	40
Recruitment (R)/Environment (E)							
The places I socialise have gambling facilities	91	93	82	77	90	93	46
Advertisements encouraged me to think I could win	89	80	44	50	38	37	61
I got involved in fund-raising	83	69	22	41	53	43	54
Lowered drinking age increased my exposure to gambling	4	23	4	14	10	13	27
Social (S)/Spiritual (S)							
It was a form of socialising	93	86	78	82	80	100	52
Friends and family introduced me to gambling	90	83	78	68	77	77	43
It began with a social activity	87	95	81	64	93	93	61
Migration and associated difficulties initiated my gambling	2	15	4	27	7	7	36

Gambling Participation in New Zealand

Since 2005, several national surveys have been reported in New Zealand which estimated how many people gamble, and what the preferred forms of gambling are. In the late 1990s the most popular reported activities were lotteries (72% participation rate in the last six months), instant lotteries/scratchies (36%), EGMs (24%), and race betting (18%) (Abbott & Volberg, 2000). When compared with Australia, lottery style products were more popular in New Zealand, but a much smaller proportion of the New Zealand population gambled on EGMs (approx 40% of Australians

were estimated to use EGMs). More recently there has been converging evidence suggesting a decline in participation rates, although there remains variation in estimates across surveys.

The 2006/07 New Zealand Health Survey (NZHS, Ministry of Health, 2009) included a sample of 12,488 adult New Zealanders aged 15 and over who were interviewed face-to-face. The 2006/07 NZHS suggested approximately two-thirds (65.3%) of adult New Zealanders had gambled in the last 12 months. Lotto (55.2%) was the most common form of gambling. In addition to the one third of adults that had not gambled in the last 12 months, a further one third (32.4%) reported gambling on only one activity. As will be discussed later in the context of problem gambling, it was notable that 4.9% of the population reported gambling on four or more activities.

The previous iteration of the NZHS - the 2002/03 NZHS - used slightly different wordings for questions around gambling participation, meaning some caution is required when comparing rates across the two surveys. Nonetheless, the age-adjusted participation rate was significantly lower in 2006/07, as were age adjusted participation rates for Lotto, Instant Kiwi, non-casino gaming machines (NCGMs), track betting and keno (Ministry of Health, 2009). Participation rates had decreased overall for both males and females, but not among Maori. In contrast to the general trend, there was a statistically significant increase in the participation in sports betting.

Another national survey undertaken in 2007 used computer assisted telephone interviewing (Centre for Social and Health Outcomes Research and Evaluation & Te Ropu Whariki, 2008 – hereafter, SHORE, 2008). In terms of participation this survey produced results very similar to the 2006/07 NZHS – the 12 month participation rate was 61.8%, and Lotto (53.9%) was the most participated in form of gambling. Of respondents who gambled on more than just Lotteries products, the majority (67.4%) reported spending less than 15 minutes per week on gambling activities, while a substantial minority (12%) reported spending more than one hour per week on gambling activities. SHORE also reported data on the loss-to-income ratio of those that gambled (who had an annual income of more than \$1,000 per annum). The majority (67.3%) of gamblers (again, other than those who solely used Lotteries products) lost less than 0.5% of their annual income, with a further 18.3% losing between 0.5 and 2%. When these data were related to time spent gambling per week, people that reported gambling from less than 15 minutes up to four hours per week lost between 1.1 and 2.72% of their annual incomes. These percentages rose sharply when more than four hours a week were spent gambling (5.27% for 4-6 hours, and 10.16% for 7+ hours).

Every five years from 1985 to 2005 the Department of Internal Affairs conducted replications of a survey measuring participation in and attitudes towards gambling in New Zealand. Across these 20

years, 12-month participation rates for at least one form of gambling had remained relatively stable: 1985 – 85%; 1990 – 90%; 1995 – 90%; 2000 – 87%; and 2005 – 80% (Amey, 2001; Christoffell, 1992; Department of Internal Affairs, 2008; Reid & Searle, 1996; Wither, 1987). Overall, there is converging evidence that the decrease in participation noted in 2005 is a meaningful one. In the context of gambling harm, however, it is important to note participation rates in each form of gambling considered, dropped between 2000 and 2005, with the exception of NCGMs. The report does not provide a measure of response rate, however it was suggested that one reason for the higher reported participation rates could be an increased refusal rate among non-gamblers in this gambling-specific survey (when compared with a general health survey such as the 2006/07 NZHS). The Department’s survey also included a slightly broader range of gambling activities than the 2006/07 NZHS, as did the 2006/2007 Gaming and Betting Activities Survey which suggested that 83% of New Zealander’s 15 or older had gambled in the last 12 months (National Research Bureau, 2007).

As a whole the data show a consistency in the trends in gambling behaviour, and while there are variations, these are in some part attributable to methodological issues. In general, the evidence suggests there has been a small decline in gambling participation across many forms of gambling. However, there remains a small but significant minority of New Zealanders that spend large amounts of time gambling, usually on several forms of gambling, and as evident in the data reported by SHORE (2008) the loss to income ratio for these individuals is much higher than for the majority.

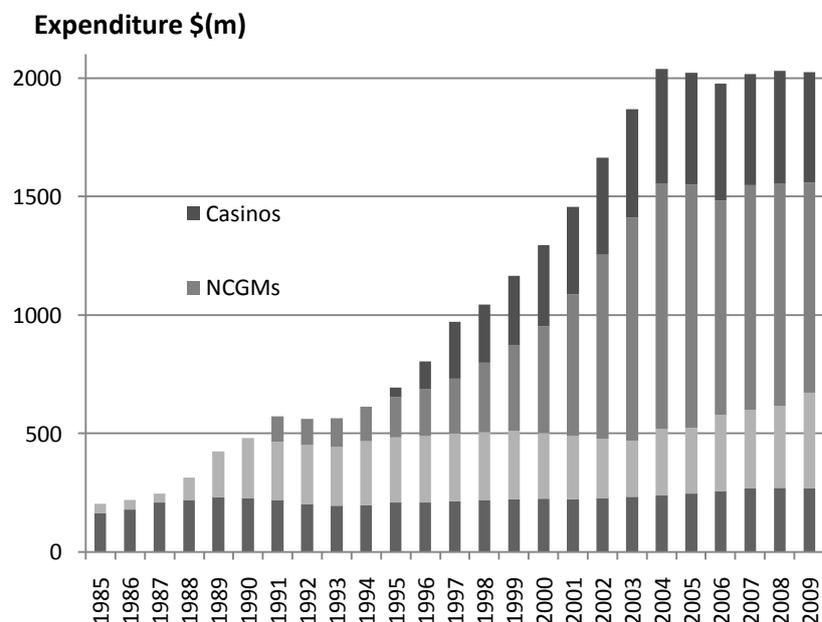


Figure 1. Annual gambling expenditure (gross amount wagered minus the amount paid out or credited as prizes/winnings) in New Zealand by gambling activity, 1985-2009. Expenditure is non-inflation adjusted. Source: Department of Internal Affairs, 2010

Data published by the Department of Internal Affairs (Figure 1 above) suggest that annual overall gambling expenditure (gross amount wagered minus the amount paid out or credited as prizes/winnings) in New Zealand reached a peak in 2004 (\$2,039 million) and has remained relatively constant since then (in 2009 the figure was \$2,028 million). However, when the data are examined by gambling activity, expenditure has increased substantially on Lotteries Commission products (\$239 million in 2003 to \$404 million in 2009). Expenditure on race betting and at casinos remained relatively constant over the same period, while expenditure on NCGMs decreased substantially from a high of \$1,035 million in 2004 to \$889 million in 2009.

Prevalence of Problem Gambling

Much of the research relating to the development of problem gambling measures predates the scope of this review. The South Oaks Gambling Screen (SOGS) and modifications of it were for much of this time the de-facto measure of choice in population surveys assessing the prevalence of problem gambling. However, the SOGS was not designed for use in this way, rather it was initially developed to use in the screening of alcohol and drug patients in a New York hospital (Lesieur & Blume, 1987). It was a quick and efficient way of identifying people for more detailed clinical interviews, and provided a flexible continuous measure of problem gambling giving an indication of the severity of a person's problem gambling. A revised version of the SOGS, the SOGS-R, was validated in general population studies in New Zealand (see, e.g., Abbott, 1999; 2001; Abbott & Volberg, 1999; 2000a; 2000b).

Respondents in the 2006/07 NZHS who indicated they had participated in any form of gambling in the last 12 months were administered the 9-item Canadian Problem Gambling Index (CPGI). This scale has advantages over most of the alternatives, specifically because it was designed, developed, and validated for use in the general community (unlike SOGS which was used in several previous estimates of prevalence in New Zealand). Recent studies (Jackson, Thomas, Blaszczynski, & McMillen, 2003; McMillen, Marshall, Ahmed & Wenzel, 2004; McMillen & Wenzel, 2006; Wenzel, McMillen, Marshall & Ahmed, 2004) have considered which gambling screen is the most appropriate for population research in Australia, while in New Zealand related work has considered the use of a range of screens in clinical settings (Bellringer, Abbott, Volberg, Garrett & Coombes, 2008a; 2008b). In the present context, although conducted in Australian populations, it is the former research in population samples that is more directly relevant.

The study by Wenzel and colleagues (2004) assessed the psychometric properties and suitability for population research of the SOGS, the CPGI, and the Victorian Gambling Screen (VGS) in a random telephone sample of over 8,500 Victorians supplemented by 433 regular gamblers. The results

suggested the CPGI and the VGS were superior for this purpose on several evaluative criteria. Importantly, scores from the CPGI and VGS contained greater variability, indicating they captured a greater range of gambling behaviour, and critically were more effective at identifying those “at risk” in addition to those that currently have gambling problems. All three gambling screens are purported to be validly represented by a single score – that is, they are unidimensional constructs (whilst theoretically this is debatable, empirically this is testable and important regarding what is reported in terms of prevalence). Principal component analyses suggested that items from the VGS and the CPGI respectively, loaded onto a single factor supporting the unidimensionality of each scale. This was further supported by internal consistency checks which provided high alpha coefficients (0.94 and 0.92 respectively) for each scale. However, for the SOGS, principal component analyses suggested the items loaded onto 6 factors, with the first factor accounting for only 33% of the variance in scores – c.f., 55% and 63% for the VGS and CPGI). Thus, the assumption of unidimensionality was not supported for the SOGS. The alpha coefficient for the SOGS was 0.86, but there are two important caveats with this – first, alpha coefficients are reliant on the unidimensionality of the construct in question (as above, this was not supported with the SOGS), and second, alpha coefficients generally increase with the number of items in a scale (SOGS has 21 items, VGS 21 and the CPGI 9). In terms of construct validity, the VGS and CPGI also had advantages as scores were more strongly related to some of the established correlates of problem gambling, such as depression, anxiety, wanting help, and suicidal ideation.

Overall, Wenzel et al (2004) and McMillen and Wenzel (2006) concluded that the VGS and CPGI were superior to the SOGS for measuring the prevalence of problem gambling. They concluded the CPGI was the most suitable measure for Australian populations. The CPGI had small advantages on several of the criteria used, but the main advantage was its brevity (9 items) which is a key practical issue in large scale quantitative surveys. Most of the same conclusions were reached in reviews of problem gambling measures by Neal, Delfabbro and O’Neill (2005) and Abbott and Volberg (2006). At present, the general consensus through review and empirical investigations is that the CPGI is the most suitable scale available to assess the prevalence of problem gambling (and at risk gambling behaviour) at a population level.

Using the CPGI, the estimate of problem gambling from the 2006/07 NZHS (Ministry of Health, 2009) was 0.4% of the population aged 15 or more. A further 1.3% of the adult population were classified as moderate risk problem gamblers. Thus, approximately 54,000 people in New Zealand were likely to be gambling at levels that were likely to be leading to negative consequences. In addition, a further 3.5% of the population were classified as ‘low-risk’ gamblers – this is indicative of current

gambling behaviour not leading to negative consequences; however these people could be potentially at risk of harm in the future.

The highest prevalence of problem gambling was in the 35-44 year age group (1.2%). When age was adjusted for, Maori and Pacific males and females were approximately four times as likely as males and females from the general population to be problem gamblers. This is despite the consistent finding across numerous surveys (including the 2006/07 NZHS) that Pacific people were less likely to gamble at all than other ethnic groups. There were no significant gender differences in the age standardised prevalence of problem gambling, however males were significantly more likely to be moderate risk gamblers, and when the categories were combined males had a significantly higher prevalence of problem or moderate risk gambling.

With respect to problem gambling, logistic regression analyses were used to assess the relationship between a range of demographic and socioeconomic variables and problem gambling. The variables included in the analyses were: gender, age group, prioritised ethnic group, household size, education, work status, neighbourhood deprivation, and urban/rural classification. The analysis suggested that the significant risk factors for problem gambling were:

- Age: people aged 35-44 were at significantly greater risk
- Ethnicity: people of Maori or Pacific ethnicity were at significantly greater risk
- Education: people with lower educational attainment were at greater risk
- Neighbourhood deprivation: people living in the 40% most deprived areas (NZDep2006 quintiles 4 & 5) were at greater risk.

The analysis suggested that the risk among Maori and Pacific people was not fully explained by other variables included in the analysis, and that gender, household size, work status, and urban/rural classification were not significantly associated with problem gambling.

In addition to risk factors for problem gambling, the Ministry of Health (2009) also examined some of the relationships between gambling behaviours and problem gambling. A raised awareness of these could be of use in terms of self-identification, or identification by significant others of potentially problematic gambling. As shown in the SHORE (2008) survey discussed above, the time spent engaged in gambling activities is a key criterion in terms of losses, and likely harm. The 2006/07 NZHS showed there was a relationship between the number of gambling activities participated in and problem gambling. Among recreational gamblers, just 5.3% reported participating in four or more gambling activities in the last 12 months. In contrast, the majority of problem gamblers (60%) reported participating in four or more gambling activities (see Figure 2 below). Clearly once more

than one gambling activity is engaged in, the likelihood of problem gambling increases, and the majority of problem gamblers participated in four or more forms of gambling.

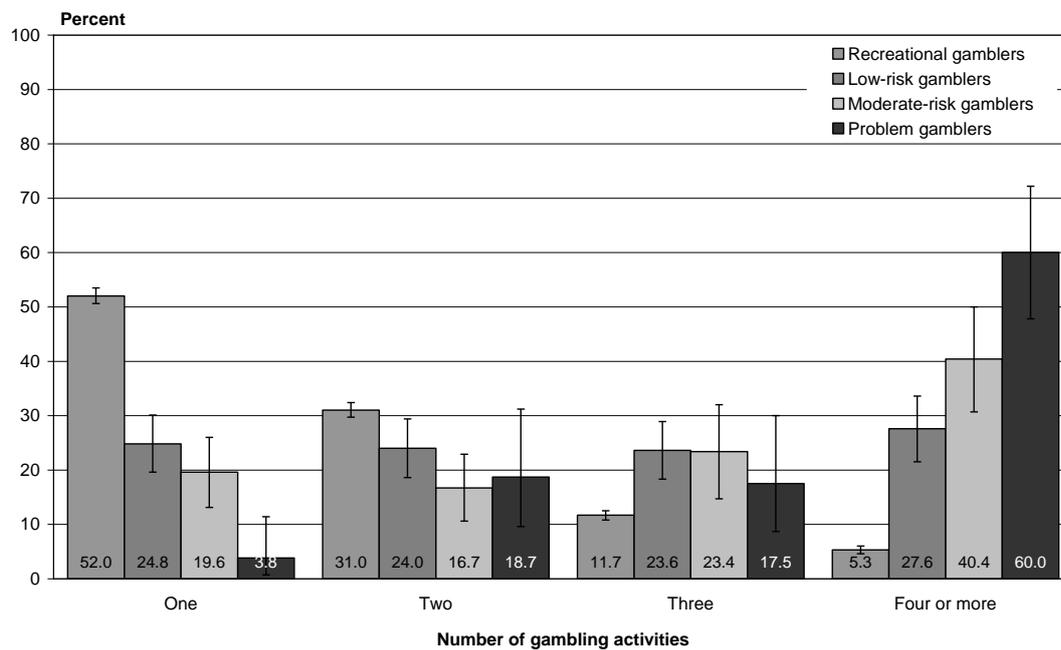


Figure 2. Number of gambling activities participated in during last 12 months, total population aged 15 years and over, by problem gambling level (unadjusted prevalence). The error bars show a 95% confidence interval. Source: 2006/07 New Zealand Health Survey (Ministry of Health, 2009)

Some very strong relationships between specific gambling activities and problem gambling were also shown (see Table 2). For instance, the great majority of problem gamblers (84.2%) reported having played Lotto in the last 12 months, however just 0.5% of problem gamblers reported playing **only** Lotto in the last 12 months. What is particularly interesting about Table 2 below, is that while the majority (or close to) of problem gamblers, moderate-risk, and low-risk gamblers play Lotto, Instant Kiwi and Gaming Machines (of any type) are played proportionately more by problem gamblers. However, when recreational gamblers are considered too, it is the use of gaming machines that seems clearly indicative of some risk or problems associated with gambling (i.e., the percentages in Table 2 decrease markedly from problem to recreational gamblers). Almost all (93%) problem gamblers reported playing gaming machines of some type in the last 12 months. In addition, the majority of moderate risk gamblers (74.2%) and low risk gamblers (57.6%) also reported playing gaming machines. In contrast, just 19.4% of recreational gamblers reported playing gaming machines.

Table 2. Past-year participation in specific types of gambling activities, by problem gambling level, total population aged 15 years and over (unadjusted prevalence) Source: 2006/07 New Zealand Health Survey, Ministry of Health (2009)

Gambling activity	Past-year participation (95% CI)			
	Prevalence (%) for problem gamblers	Prevalence (%) for moderate- risk gamblers	Prevalence (%) for low-risk gamblers	Prevalence (%) for recreational gamblers
Lotto	84.2 (75.5–92.9)	79.7 (73.0–86.3)	78.0 (73.2–82.7)	85.0 (84.0–86.0)
Instant Kiwi or other scratch ticket	67.3 (56.1–78.5)	50.7 (42.0–59.5)	49.2 (43.7–54.7)	39.7 (38.4–41.1)
Non-casino gaming machines	81.7 (72.3–91.1)	62.3 (53.5–71.1)	40.8 (34.6–46.9)	12.6 (11.6–13.7)
Track betting	28.5 (16.4–43.4)	32.3 (22.9–41.7)	28.2 (21.8–34.6)	11.9 (10.8–12.9)
Casino gaming machines	54.7 (43.6–65.9)	36.3 (28.2–44.4)	31.2 (25.2–37.2)	9.9 (8.8–11.0)
Sports betting	28.9 (16.1–44.8)	26.1 (17.2–35.0)	19.0 (13.8–24.1)	6.8 (6.1–7.5)
Casino table games	15.9 (6.8–29.5)	12.4 (6.9–20.0)	11.1 (7.4–14.7)	2.5 (2.0–3.0)
Keno (not in a casino)	17.9 (9.7–28.9)	13.0 (7.9–18.0)	7.9 (4.9–11.0)	1.7 (1.4–2.1)
Housie	14.8 (6.6–26.9)	8.4 (4.5–14.1)	6.0 (3.2–8.8)	1.9 (1.5–2.3)
Internet-based gambling	3.1 (0.3–11.2)	6.0 (2.0–13.2)	2.8 (1.3–5.2)	0.4 (0.2–0.6)
Any gaming machine (casino or non-casino)	93.0 (87.4–98.5)	74.2 (66.6–81.8)	57.6 (51.5–63.6)	19.4 (18.1–20.7)
Any casino gambling (table games or gaming machines)	54.7 (43.6–65.9)	39.5 (31.0–48.1)	34.6 (28.6–40.5)	11.4 (10.3–12.5)

None of the information discussed above is terribly surprising, but in terms of raising a general awareness of risky gambling, and potential problem gambling, the evidence as a whole suggests that time spent devoted to gambling activities, the number of gambling activities participated in, and the use of EGMs in any venue are key indicators.

It is evident when considering the literature that the vast majority of research has focused on problem gambling and the risk factors associated with it. The foregoing discussion suggests that the majority of recreational gamblers tend not to participate in 'continuous' forms of gambling, most notably EGMs. Approximately half of low risk gamblers use EGMs or scratchies as well as Lotto, whereas for recreational gamblers the majority participate in Lotto, and 39.7% use scratchies (Table 2 above). Thus, at a population level there seem to be clear difference in the forms of gambling that gamblers exposed to varying risks participate in.

While the risk factors for problem gambling had been identified, the Ministry of Health had not reported the demographic profile of low-risk and recreational gamblers (aside from the data on gambling activities engaged in, as discussed above). Table 3 below presents an overview of these characteristics from the 2006/07 NZHS provided by Kylie Mason of the Ministry of Health. The table collapses problem and moderate risk gamblers into a single category, and their demographic profile can be compared with that of low risk, recreational, and non-gamblers on key demographic categories (gender, age, ethnicity, deprivation, and urban/rural status).

As would be expected the demographics differ along the lines of the risk factors, however some additional patterns are evident. The majority of problem and moderate risk gamblers are male (but being male is not a risk factor for problem gambling). With respect to urban-rural status, there were a higher percentage of recreational gamblers and non gamblers who lived in rural areas than evident in the other categories of gambler behaviour. Some interesting patterns are evident in each of age, ethnicity and NZDep2006 quintile.

Figure 3 and Table 3 show the age distribution is missing the notable 35-44 peak evident in the problem and moderate risk gamblers, and slightly older. However, the general inverted U distribution remains, in contrast to the relatively flat age profile of non-gamblers. When ethnic profiles of each category are considered, it is clear the percentage of gamblers in each category that are NZ European increase as risk decreases (excluding non gamblers). With Maori and Pacific gamblers the opposite is true, as risk increases the percentage of gamblers in each category that are of Maori or Pacific ethnicity increases (note again that there is a high percentage of non gamblers that are Pacific, meaning the line in Figure 4 for Pacific people is distinctly U shaped).

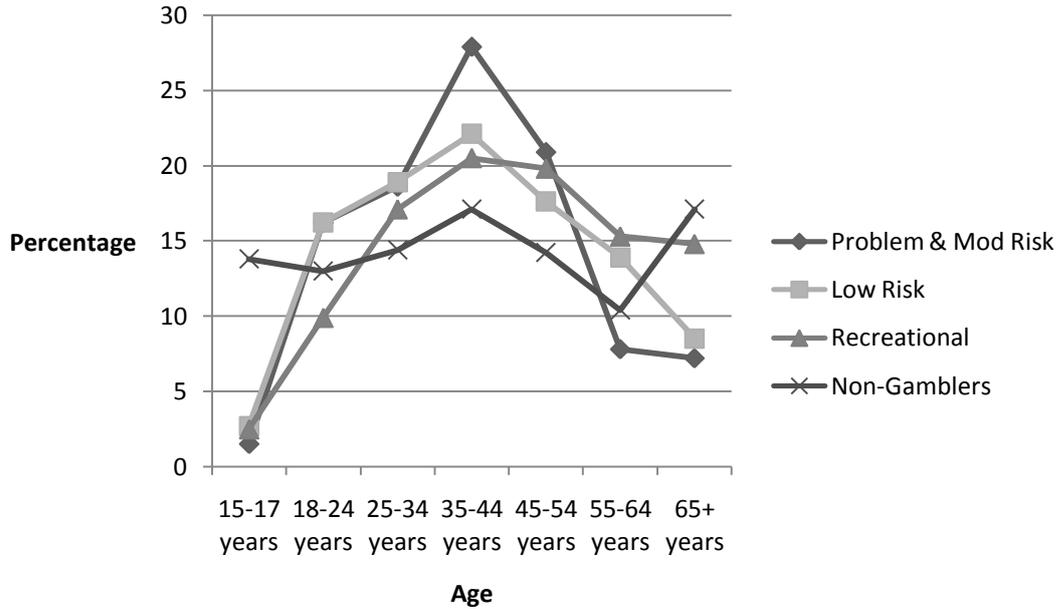


Figure 3. Age profile of problem and moderate risk gamblers, low risk gamblers, recreational gamblers and non-gamblers from Table 3 (source: 2006/07 NZHS)

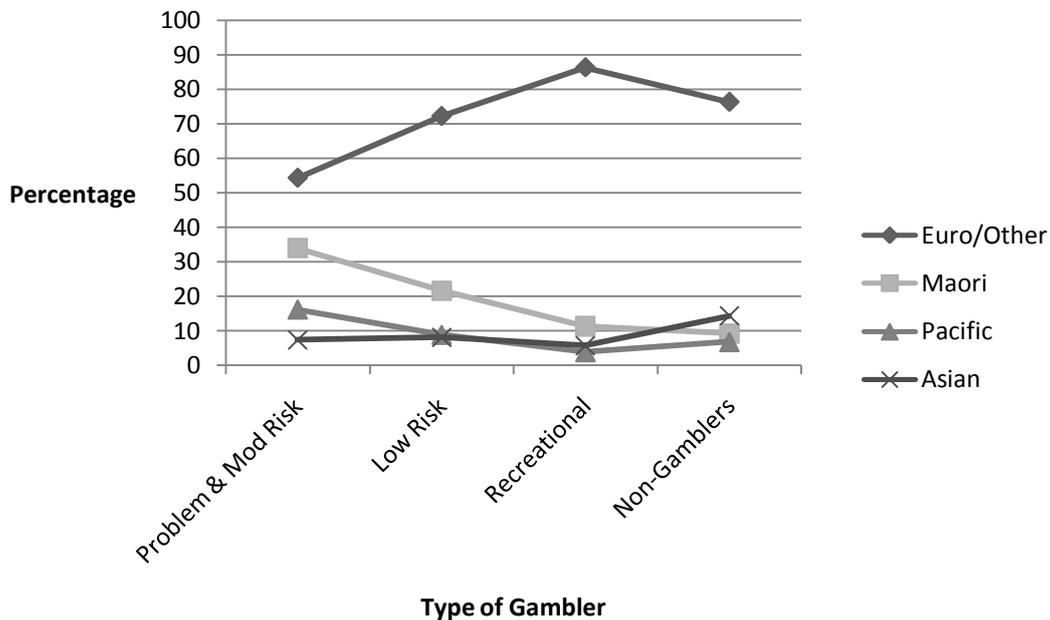


Figure 4. Ethnic profile of problem and moderate risk gamblers, low risk gamblers, recreational gamblers and non-gamblers from Table 3 (source: 2006/07 NZHS)

Figure 5 and Table 3 show clearly the relationship between neighbourhood deprivation and gambling risk. As noted earlier, being resident in NZDep2006 Quintiles 4 and 5 is a risk factor for problem gambling. When problem and moderate risk gambling are combined and plotted in Figure

5, very clear patterns are evident. First, it is clear the distribution of problem gamblers and moderate risk gamblers is heavily skewed towards more deprived neighbourhoods. In the other gambler categories, the distribution is more equitable through the population (i.e., approximately 20% in each quintile, as per the overall population). It should be noted that amongst low risk gamblers, an estimated 48.9% reside in Quintiles 4 and 5, compared to the 40% that might be expected (note, however, that the 95% confidence intervals in each category overlap 20%, and no statistical significance is implied). In fact the only category in which the 95% confidence intervals do not overlap the 20% that would be expected is among recreation gamblers, where 16.4% (14.2-18.64%) reside in NZDep2006 Quintile 5.

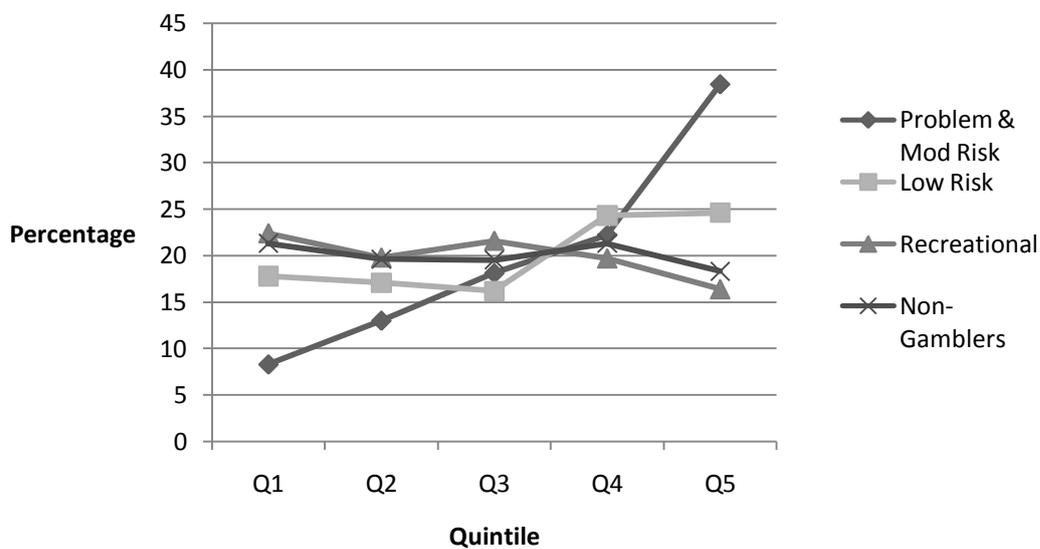


Figure 5. Percentages of problem and moderate risk gamblers, low risk gamblers, recreational gamblers and non-gamblers in each of the NZDep2006 quintiles from Table 3 (source: 2006/07 NZHS)

Table 3. Characteristics of problem and moderate risk gamblers, low risk gamblers, recreational gamblers and non-gamblers

Variable	Output	Prevalence (%) (95% confidence interval)			
		Among problem and moderate risk gamblers	Among low risk gamblers	Among recreational gambler (not problem, moderate or low risk)	Among non-gamblers
Gender	% who are male	65.4 (59.2 - 71.6)	53.4 (47.8 - 58.9)	47.5 (46.6 - 48.3)	47.5 (46.0 - 48.9)
	% who are female	34.6 (28.4 - 40.8)	46.6 (41.1 - 52.2)	52.5 (51.7 - 53.4)	52.5 (51.1 - 54.0)
Age	% who are 15-24 years	17.7 (9.4 - 25.9)	18.9 (14.1 - 23.8)	12.4 (11.7 - 13.1)	26.7 (25.6 - 27.9)
	% who are 15-17 years	1.5 (0.2 - 4.7)	2.7 (0.9 - 6.1)	2.5 (1.9 - 3.0)	13.8 (12.7 - 14.9)
	% who are 18-24 years	16.2 (8.2 - 24.2)	16.2 (11.5 - 20.9)	9.9 (9.2 - 10.7)	13.0 (11.7 - 14.3)
	% who are 25-34 years	18.6 (12.8 - 24.4)	18.9 (14.5 - 23.4)	17.1 (16.5 - 17.8)	14.4 (13.4 - 15.4)
	% who are 35-44 years	27.9 (21.4 - 34.4)	22.1 (17.9 - 26.4)	20.5 (19.9 - 21.2)	17.1 (16.1 - 18.2)
	% who are 45-54 years	20.9 (15.4 - 26.3)	17.6 (13.3 - 21.9)	19.8 (19.2 - 20.4)	14.2 (13.2 - 15.2)
	% who are 55-64 years	7.8 (4.4 - 12.6)	13.9 (10.2 - 17.5)	15.3 (14.8 - 15.8)	10.4 (9.5 - 11.2)
	% who are 65+ years	7.2 (3.5 - 12.9)	8.5 (5.9 - 11.1)	14.8 (14.2 - 15.4)	17.1 (16.1 - 18.1)
Ethnicity (total response)	% who are European/Other	54.3 (47.0 - 61.5)	72.2 (67.5 - 76.8)	86.3 (85.5 - 87.0)	76.3 (75.1 - 77.5)
	% who are Maori	34.0 (27.3 - 40.8)	21.7 (18.0 - 25.5)	11.4 (11.0 - 11.7)	9.3 (8.7 - 9.9)
	% who are Pacific	16.2 (11.3 - 21.2)	8.9 (6.5 - 11.4)	3.9 (3.5 - 4.2)	6.8 (6.2 - 7.4)
	% who are Asian	7.4 (4.4 - 11.7)	8.2 (4.9 - 11.5)	5.8 (5.4 - 6.3)	14.4 (13.6 - 15.2)
NZDep2006 quintiles	% who are in Q1	8.3 (3.2 - 16.9)	17.8 (12.7 - 22.9)	22.4 (19.7 - 25.1)	21.3 (18.3 - 24.3)
	% who are in Q2	13.0 (7.7 - 18.4)	17.1 (12.2 - 22.0)	19.8 (17.6 - 22.1)	19.6 (16.5 - 22.6)
	% who are in Q3	18.1 (11.7 - 24.4)	16.2 (11.7 - 20.8)	21.6 (19.3 - 24.0)	19.5 (17.1 - 22.0)
	% who are in Q4	22.2 (15.4 - 29.0)	24.3 (19.2 - 29.4)	19.7 (17.5 - 22.0)	21.3 (18.7 - 24.0)
	% who are in Q5	38.4 (31.5 - 45.2)	24.6 (19.4 - 29.7)	16.4 (14.2 - 18.6)	18.3 (15.7 - 20.9)
Urban/rural status	% who are in main urban areas	70.1 (62.4 - 77.9)	75.7 (70.1 - 81.3)	71.4 (68.8 - 74.1)	75.1 (72.1 - 78.0)
	% who are in secondary urban areas	7.1 (3.1 - 13.7)	6.6 (4.1 - 9.2)	6.4 (5.1 - 7.8)	4.6 (3.4 - 5.8)
	% who are in minor urban areas	14.1 (6.8 - 21.4)	8.8 (5.8 - 11.8)	8.1 (6.6 - 9.7)	7.0 (5.4 - 8.6)
	% who are in rural areas	8.6 (4.7 - 12.6)	8.8 (5.3 - 12.3)	14.0 (12.1 - 15.9)	13.3 (11.0 - 15.7)

Source: 2006/07 New Zealand Health Survey

Prepared by Kylie Mason (HDI, Ministry of Health) for Jason Landon, 7 July 2010

SUMMARY: Gambling in New Zealand.

People gamble for a range of reasons with the most common being “to win money” (Clarke et al., 2007a). The majority of New Zealanders (65.3%) participate in at least one form of gambling (e.g. electronic gaming machines, scratchies, casinos, races and Lotto). Lotto is the most common form of gambling participated in (Ministry of Health, 2008b). Recently, there has been converging evidence of a slight decline in gambling participation in New Zealand. However, a small but significant proportion of New Zealanders still spend a large amount of time and/or proportion of their income gambling on several forms of gambling.

It has been estimated that 0.4% of the New Zealand population are problem gamblers, and a further 1.3% are moderate risk problem gamblers. The majority of problem gamblers participate in four or more forms of gambling (60%), in contrast to 3.8% of recreational gamblers. In the past year the overwhelming majority of problem gamblers (93%) played electronic gaming machines of some type, compared to just 19.4% of recreational gamblers. Moreover, the majority of low-risk (57.6%) and moderate-risk (74.2%) gamblers also played electronic gaming machines in the last 12 months. Therefore, the use of gaming machines seems clearly indicative of some risk or problems associated with gambling.

Impacts of Gambling

In most jurisdictions it is well accepted that gambling can have a number of interrelated effects on personal well-being. In New Zealand, the main proxy measure for gambling harm remains the number of people seeking assistance from problem gambling service providers. However, an evidence base is growing showing a range of harms that are experienced and there is a developing understanding that harms are experienced by a group larger than just those who are problem gamblers or those that seek help. Nonetheless, these issues remain contentious, principally because causality is not easily demonstrated. Thus, the overall body of evidence and its convergent nature is critical.

Health-related impacts

In addition to the important information on the prevalence of risky and problem gambling and their relationships to various gambling behaviours, studies have also provided crucial information on the relationships between problem gambling and various health issues. Goodyear-Smith et al., (2006) reported a study in which 2,536 consecutive patients at 51 primary care services completed a primary care screen for lifestyle and mental health risks. One gambling item (“*Sometimes I’ve felt depressed or anxious after a session of gambling*”) was included in the screen, and that item was validated against Early Intervention Gambling Health Test-copy annexed (EIGHT) screen (Sullivan, 1999). Three percent of the patients responded yes to the gambling item. When the patients

responding yes to the gambling item were compared with the cohort as a whole, they were significantly more likely to also report concerns about smoking, alcohol consumption, recreational drug use, depression, anxiety and anger control (but not weight control, physical activity or abuse). They were also significantly more likely to want help with depression, anxiety, smoking and/or other drug use.

As described earlier, the 2006/07 NZHS (Ministry of Health, 2009) included the nine-item CPGI, a validated and widely used instrument for measuring problem gambling, and problem gambling risk in population surveys. Of specific relevance to the work conducted by Goodyear-Smith et al (2006), and earlier work by Sean Sullivan and colleagues (e.g., Sullivan, Arroll, Coster, Abbott & Adams, 2000) discussing the important role general practitioners (GPs) can play in the identification and support of problem gamblers, is the relationship shown between problem gambling and health care service use. Problem gamblers (92%) were significantly more likely to have seen a GP in the last 12 months than people with no gambling problems (81%) or the general adult population (81%). Whilst this difference is small, it is indicative that the vast majority of problem gamblers are in touch with health professionals and, as will be discussed later, tend to suffer from a range of co-morbidities. So, while problem gamblers might not access dedicated problem gambling services as early as would be optimal, it is clear they are in contact with the health system more generally. Although the restrictions on GPs are substantial, and problem gambling is not likely to be foremost in their thinking (and ultimately the prevalence of severe problems remains relatively low) a general raising of awareness combined with the ongoing development of quality relationships between GPs and patients means that these interactions are a potential point of intervention.

The 2006/07 NZHS (Ministry of Health, 2008b, 2009) also included a range of instruments measuring health status in a number of areas of interest. Depression specifically was not measured using a validated scale; however participants were asked if they had been diagnosed by a doctor with a range of psychological disorders (specifically, depression, bipolar disorder, anxiety disorder, eating disorder, alcohol-related disorder, drug-related disorder, schizophrenia, or any other mental health condition). Unfortunately, no analyses of the relationship between these self-reported diagnoses and gambling behaviour has been reported to date. Depression had a population prevalence of 10.5%, with females being more likely than males to report this diagnosis, and NZ Europeans being more likely than the general population, and Maori, Pacific and Asian peoples being less likely than the general population.

The 2006/07 NZHS also included the Kessler 10-item scale (K-10). This is an internationally validated instrument used to screen populations for non-specific psychological distress. It has been

consistently shown that the higher one's score on the K-10 the more likely one is to have symptoms meeting DSM-IV criteria for a mental disorder, especially mood and anxiety disorders. Approximately 15% of the population had a moderate probability of a mood or anxiety disorder according to the K-10, while a further 6.6% of adults had a high to very high risk. While the self reported sex differences remained, Maori and Pacific peoples each had a significantly higher prevalence of high or very high probability of a mood or anxiety disorder than the general population.

Subsequent analyses showed a clear relationship between problem gambling level (none, low risk, problem and moderate risk) and a high or very high probability of a mood or anxiety disorder (see Figure 6 below). Among males, 20.9% of problem and moderate risk gamblers were at high or very high risk of a mood or anxiety disorder (c.f., 5.7% of males generally). Among males with low risk or no gambling problems there were no significant differences (4.5%, and 5.2% respectively). Among females the pattern was different, with those with low risk gambling (15.4%) and those with problem or moderate risk gambling (23.2%) being significantly more likely to have a high or very high probability of a mood or anxiety disorder (c.f., 7% and 7.7% for no gambling problems, and females generally). Further, logistic regression analyses were used to control for possible confounds (age group, sex, ethnicity, household size, education level, NZDep2006 quintile, and urban/rural status). With these factors controlled for, males with problem or moderate risk gambling were 3.5 times more likely than males with no gambling problems of having a high or very high risk of a mood or anxiety disorder. Similarly, females with problem or moderate risk gambling were 2.6 times more likely. Additionally, females with low risk gambling were two times more likely than females with no gambling problems to be at high or very high risk of a mood or anxiety disorder.

Perese (2009) reviewed and investigated Samoan gambling using a combination of Grounded Theory and Pacific approaches. Her participants' experiences were consistent with the effects found at the population level, reporting psychological effects such as depression, anxiety, delusional thinking, guilt and loss of self esteem. They identified additional interpersonal conflicts, often resulting from time away from their family because of their gambling, while depression, low self esteem, and guilt were linked to time away from family and the lies told to family to conceal their gambling. Participants also discussed delusional and anticipatory aspects to their thinking related to their gambling. Impacts on their physical health were also discussed, with sleep disturbances (often linked to the psychological aspects), increased smoking, and a lack of self care as gambling took up increasingly large amounts of their time. Almost identical issues (e.g., depression preceding and following gambling, helplessness, anger, low self esteem, poor diet, sleep problems, alcohol

consumption, and smoking) were identified in a study focused on Asian gambling (Tse, Wong & Chang, 2007).

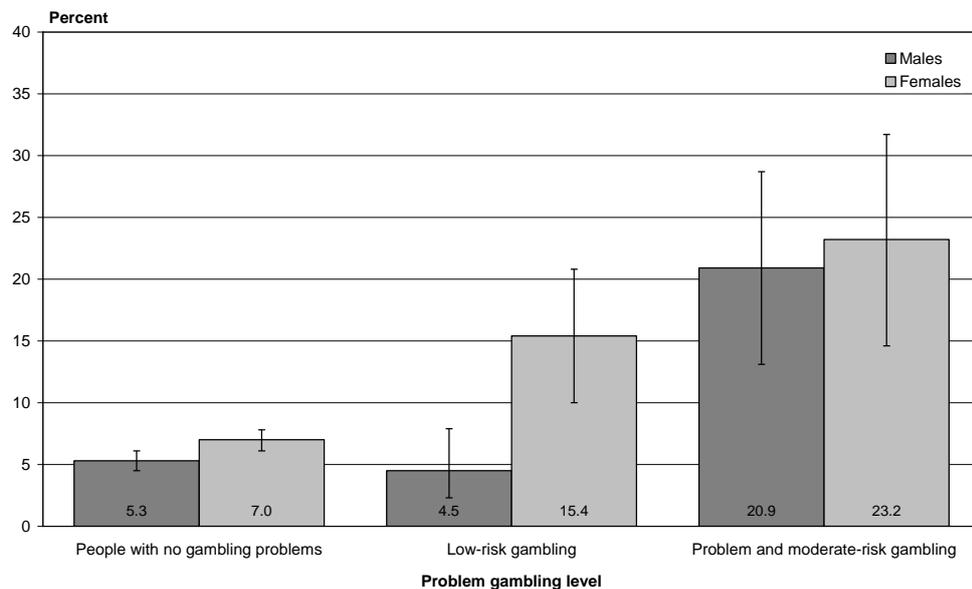


Figure 6. Prevalence of high or very high probability of anxiety or depressive disorder, among problem gamblers and among adults aged 15 years and over (unadjusted prevalence) Source: 2006/07 New Zealand Health Survey, Ministry of Health (2009)

Suicidality

The most recent summary of national service user statistics (Ministry of Health, 2008a) showed the percentage of callers to the Gambling Helpline evidencing some form of suicidal behaviour (thoughts, planning, attempts, or currently at risk), remained constant at approximately 10%. Unfortunately, more recent service user data have not been published; however, the figure has been consistent at 10% for a number of years and it has been confirmed with the Gambling Helpline that the figure remains steady. It should, nevertheless, be stressed that this figure is for all Gambling Helpline clients, so includes significant others. Thus, it is not unreasonable to suggest that the actual figure for gamblers might be higher. Earlier data from Australia support this contention (e.g., Blaszczynski & MacCallum, 1999; The Productivity Commission, 1999).

Recently, Penfold, Hatcher, Sullivan and Collins (2006a, 2006b) reported two studies on 189 admissions to an Auckland hospital over a 20-week period for suicide attempts or self-harm. Of this sample, 70 participated in further data collection related to the study. The primary reason for non-participation of eligible participants was logistical – principally staffing constraints at various times. In the first study (Penfold et al., 2006a) participants were administered the EIGHT problem gambling screen, and 12 of the 70 participants (17%) screened positive for problem gambling. The problem gamblers were more likely to be Maori, and to have co-existing problems with alcohol use (2006b) as

indicated by the CAGE screen. While this study consisted of a small number of participants, and no causal link was demonstrated, the number of problem gamblers identified was very large in the context of national prevalence estimates. Penfold et al., also highlighted the relatively hidden nature of problem gambling in terms of the perception and attribution of cause by the individual involved. That is, rather than problem gambling being perceived as the cause of a suicide attempt, the attribution might be to relationship or family issues, social isolation, legal difficulties, or financial difficulties, all of which are a corollary of problem gambling. Thus, while the evidence is not compelling, it does underscore the importance of screening for problem gambling in vulnerable populations, or at least raising the awareness of problem gambling in health professionals working with vulnerable groups.

Alcohol

The majority of New Zealanders consume alcohol at least occasionally (Ministry of Health, 2007). On its own alcohol use is a substantial public health issue in New Zealand, with excessive consumption having a central role in a range of physical health issues (e.g., cirrhosis of the liver, Korsakoff's disease, foetal alcohol syndrome, hypertension etc) and a range of behavioural risks (e.g., traffic accidents, drowning, domestic violence, assaults, and crime generally) (Connor, Broad, Rehm, Hoorn & Jackson, 2005).

High levels of alcohol consumption have been consistently evident in samples of problem gamblers in New Zealand studies. As outlined above, Penfold et al., (2006b) showed that in a sample of hospital admissions for suicide attempts or self harm the prevalence of problem gambling was high, and 9 of the 12 problem gamblers that attempted suicide also screened as positive on the CAGE screen for possible alcohol abuse. Again, while these results on their own are not compelling, in the context of previous population level research around the relationship between problem gambling and harmful alcohol use they assume a greater importance.

In the 2006/07 NZHS adults that had consumed an alcoholic drink in the last 12 months completed the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT covers the volume and frequency of alcohol consumption as well as a range of alcohol-related problems. In their analyses the Ministry of Health used a cut-off score of 8 on the AUDIT as indicative of hazardous alcohol use. This indicates a pattern of consumption that carries a risk of future harm to physical or mental health, if it is not already causing harm.

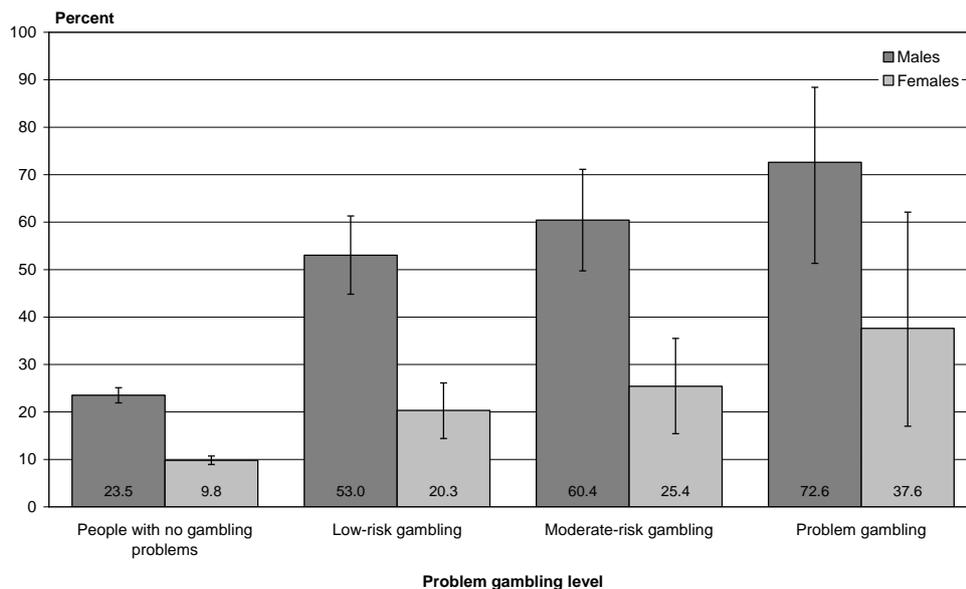


Figure 7. Prevalence of hazardous drinking behaviour, by problem gambling level and gender, among adults aged 15 years and over (unadjusted prevalence). Source: 2006/07 New Zealand Health Survey (Ministry of Health, 2009)

The prevalence of hazardous drinking behaviour in the adult population was 17.7%. However, 72.6% of male and 37.6% of female problem gamblers were also consuming alcohol in a hazardous manner. Figure 7 (from Ministry of Health, 2009) clearly shows the relationship between severity of gambling problems and hazardous alcohol use.

Logistic regression analyses were then used to control for confounding variables (sex, age group, ethnicity, household size, work status, education level, NZDep2006 quintile, and urban/rural status) to assess the association between hazardous drinking and problem gambling. This clarified the strong relationship between hazardous drinking and risky gambling. Problem gamblers had more than five times the odds of also having hazardous drinking behaviour than people with no gambling problems. Moreover, those with moderate risk gambling (odds ratio 4.08) and low-risk gambling (odds ratio 2.91) also were significantly more likely to also have hazardous drinking behaviours.

Table 4. Odds ratio of hazardous drinking, by gambling level, adjusting for other possible confounding variables

Gambling level	Odds ratio (95% CI)	p-value
Problem gambling	5.20 (2.70–10.01)	< 0.0001
Moderate-risk gambling	4.08 (2.75–6.03)	< 0.0001
Low-risk gambling	2.91 (2.18–3.89)	< 0.0001
People with no gambling problems	1	–

Source: 2006/07 New Zealand Health Survey (Ministry of Health, 2009)

Smoking

Smoking is a leading cause of preventable mortality (in NZ the mortality primarily attributable to smoking is approximately 5,000 deaths per annum). It is the main cause of lung cancer and chronic obstructive pulmonary disease, and a primary risk factor for cardiovascular disease and a range of other cancers (Ministry of Health, 2008c). The 2006/07 NZHS confirmed the long established link between problem gambling and smoking. The prevalence of current smoking in the general population was 19.9%. However as Figure 8 shows, the prevalence of current smoking increases with severity of gambling problems to a peak amongst problem gamblers of 76.3% among males and 58.4% among females.

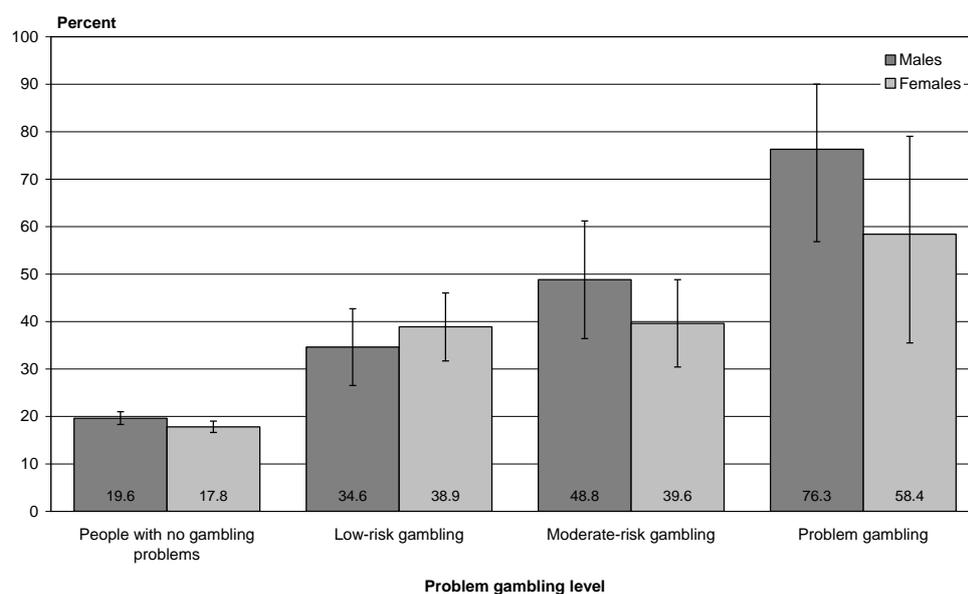


Figure 8. Prevalence of current smoking among problem gamblers and adults aged 15 years and over, by gender (unadjusted prevalence) Source: 2006/07 New Zealand Health Survey (Ministry of Health, 2009)

Again, logistic regression analyses were used to control for confounding variables (sex, age group, ethnicity, household size, work status, education level, NZDep2006 quintile, and urban/rural status) to assess the association between problem gambling and smoking. Table 5 shows at each level of gambling problems individuals are much more likely to be current smokers (from odds ratios of 2:1 with low-risk gamblers, to 3.7 to 1 among problem gamblers).

Table 5. Odds ratio of being a current smoker, by gambling level, adjusting for other possible confounding variables. Source: 2006/07 New Zealand Health Survey (Ministry of Health, 2009)

Gambling level	Odds ratio (95% CI)	p-value
Problem gambling	3.73 (1.91–7.28)	0.0002
Moderate-risk gambling	2.26 (1.39–3.67)	0.0013
Low-risk gambling	2.00 (1.55–2.60)	< 0.0001
People with no gambling problems	1	–

Self-rated health

Studies in New Zealand (Ministry of Health, 2006) and internationally (e.g., SERCIS, 2001; Volberg, Harwood & Tucker, 1999) have shown relationships between gambling problems and deteriorating self-rated health. The 2006/07 NZHS included the SF-36 (Ware & Sharebourne, 1992) as a measure of self-rated health. The SF-36 has been widely adopted as a measure of self-rated health in many international surveys, most likely because it provides a psychometrically sound compromise between brevity and comprehensiveness essential for research of this nature. It has been used extensively for documenting differences between sick and well individuals, and estimating the burden of a range of medical conditions. The SF-36 provides scores in eight health domains (physical functioning, role limitation (physical), bodily pain, general health perception, vitality, social functioning, role limitation (emotional), and mental health).

Figure 9 below shows the relationships between gambling status and scores of each of the SF-36 domains. Firstly, it is clear that problem gamblers report worse self-rated health in each of the domains than people with no gambling problems. But, there is also evidence of an incremental relationship between severity of gambling risk and scores in almost all of the SF-36 domains. The relationship is evident most clearly in the domains more closely linked to mental health (rightmost end), but it is also evident in the physical health domains.

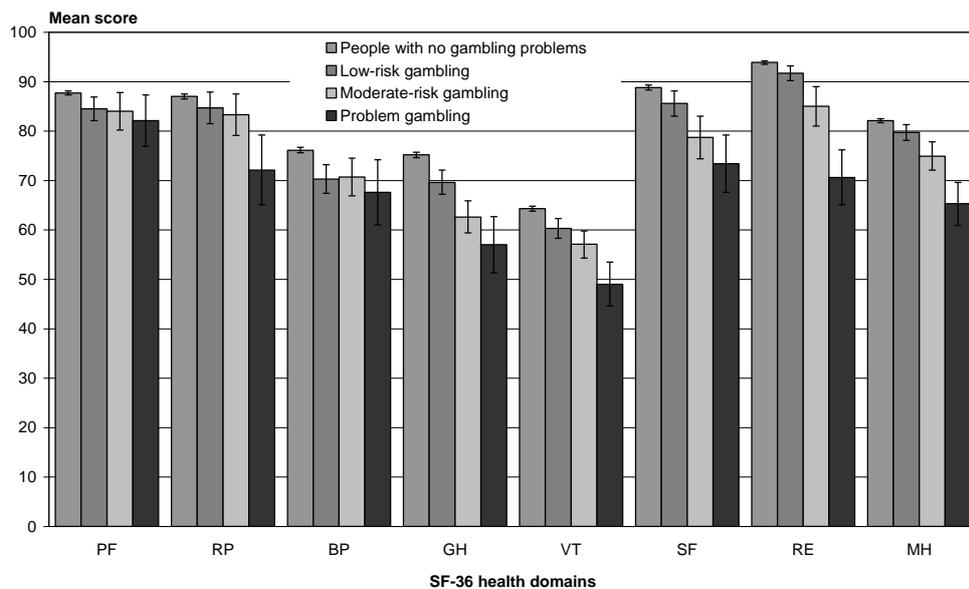


Fig 9. Mean SF-36 scores for adults, by gambling status (age-standardised). Physical functioning=PF, role limitation (physical) =RP, bodily pain=BP, general health perception=GH, vitality=V, social functioning=SF, role limitation (emotional) =RE, and mental health=MH. Source: 2006/07 New Zealand Health Survey. (Ministry of Health, 2009)

SHORE (2008) reported related effects using a range of purpose designed measures (the origins and psychometric properties of which have not been clearly discussed). The SHORE study did not focus on problem gambling as such, but looked at the volume of gambling behaviour, and specific forms of gambling. The results showed high participation gamblers (those that gambled more than 3 hours per week, or reported losing more than 5% of their personal income) reported lower physical health, lower mental wellbeing, worse feelings about themselves, and lower overall life satisfaction. Additionally, as the loss to income ratio increased, self reported physical health, mental health and overall life satisfaction ratings became lower. With respect to specific forms of gambling, those that reported a longer time playing EGMs in bars and casinos reported lower physical health, mental wellbeing, worse thoughts about themselves and poorer overall life satisfaction (many similar patterns were observed with increased time spent playing at casino tables and increased time at the TAB). An indicative measure of overall quality of life was unaffected by participation level, but reduced as loss-to-income ratio increased, and with increasing time spent playing EGMs in bars or casinos, or playing casino table games.

The SHORE (2008) study also found some positive self-reported health relationships with specific forms of gambling, although these were comparatively rare. Time spent at the race-track betting was associated with increased self-reported ratings of physical health, better feelings about one's self, and higher overall life satisfaction. In addition, playing cards and/or poker with friends was

associated with increased ratings of quality of life. With respect to track betting, this has previously been identified as a resilient form of gambling and problem gambling (Abbott, Williams & Volberg, 2004), and findings such as this suggest the need to develop a better understanding of the role specific forms of gambling play in people's lives, and their social relationships.

Impacts on Families and Relationships

The 2006/07 NZHS (Ministry of Health, 2008b) also contained a measure of family cohesion, and responses were collected if there was a child in the household in question. At present, no analysis has been reported examining the relationship between family cohesion and risky or problem gambling measured in this survey. The relatively small numbers involved might make this analysis problematic, but these are data that intuitively seem relevant to the sorts of impacts problem gambling is understood to have at a family/whānau level. The reported analyses show overall 4.3% of parents rate family cohesion as fair or poor, and with respect to ethnicity this is highest in Maori (7.1%).

The 2006/07 NZHS (Ministry of Health, 2009) also reported 2.8% (3.3% of females and 2.6% of males) of people (over 15) had experienced problems related to someone's gambling – these problems were primarily attributed to gaming machines (NCGM and casinos). The people affected were mostly **not** experiencing problems due to their gambling (20% non-gamblers and 55% were recreational gamblers). In addition, Maori and Pacific peoples were 2-3 times more likely than the general population to experience problems due to someone's gambling, and subsequent analyses confirmed that remained the case in Maori and Pacific recreational and non-gamblers. NZ European males and females, and Asian females were significantly less likely than the general population to experience problems related to someone's gambling.

While these figures are not surprising in the context of what is known about problem and risky gambling, they are inconsistent with the significant other calls made to the Gambling Helpline in New Zealand. Of those seeking help via the Gambling Helpline, approximately 20% of new callers to the Gambling Helpline are 'significant others' (approx 15%) or 'interested others' (approx 5%). In contrast to the 2006/07 NZHS data, the majority of these callers are female (70+%) and NZ European (70+%). Although males are equally affected by the gambling of others, and Maori and Pacific people are more likely to be affected by someone else's gambling, this is not reflected in those that are seeking help or information with respect to someone else's gambling (the proportions of individuals seeking help for their own gambling more closely represents national prevalence estimates).

SHORE (2008) reported level of gambling had no significant effect on measures of relationships with family/friends (again, it is important to reiterate that problem gambling was not assessed in any way

and that effects might become discernible at the higher end of problems). However, if loss to income ratio was higher, then significantly poorer relationships with family and friends were reported. In addition, when specific forms of gambling were considered, those that spent a longer time playing EGMS in bars or casinos also reported significantly poorer relationships with family/friends. The SHORE study also examined caregiving relationships (both of children, and the elderly). The only significant effect found was those who spent more time playing EGMs in bars rated themselves as poorer parents/caregivers than others. In terms of caregiving for the elderly or others, no significant differences were evident.

Consistent with the importance of family relationships in the Samoan culture, in a qualitative study of Samoan gambling Perese (2009) identified a range of effects on the family and the broader community. With respect to spouses, increased arguments and compromised trust and communication were highlighted, and these were linked to money and time which were due to gambling. The impacts on children were of foremost importance, with unstable environments and neglect cited (in a broad sense – lack of time, lack of *quality* time, lack of supervision, and compromised provision of food/clothing). A transition from children being central to being somewhat peripheral was noted, and there were concerns both about the normalisation of gambling and the exposure of children to the stresses of debt. Older children were of special concern, with it not being uncommon for them to take on extra debt or work to cover their parent's gambling expenses.

Perese's (2009) participants discussed the "abuse" of traditional familial support systems for food, financial support, shelter and childcare. Of particular interest was how participants had identified that the strength of family networks, which is clearly a part of Samoan culture and very adaptive, can either be used or become quite maladaptive in the context of problem gambling. Family networks can either explicitly or inadvertently delay the identification of problem gambling, and ultimately a greater level of harm can be experienced by a larger group of individuals.

In the context of the wider community, Perese (2009) discussed the impact of gambling on customary obligations associated with fa'alavelave and the church. Of course, it should be noted the hope of winning in order to support these obligations is part of the complex nature of gambling in Samoan people. An inability to meet these obligations contributes to reduced self-worth, shame and embarrassment, while the hope of winning can maintain the problem gambling. A very real risk of suicide was raised, although in a way different from most western understandings. The issue of 'sili le oti I lo le ma' or 'death is better than shame' was raised, in essence a risk of 'altruistic suicide' (MacPherson & MacPherson, 1987), suicide attributable to an individual's concern for a kin group

over their conduct. Similar issues of 'loss of face' and/or 'loss of trust' were discussed by Tse et al., (2007) in the context of Asian gambling, particularly with reference to students in New Zealand gambling away fees and living allowances often accrued through extra work by their family. Tse et al., also noted the more broad effects of Asian gambling and what some of the illegal and undesirable correlates of it have on the image of Asians in New Zealand more generally. There was concern expressed about the impacts on Asians and New Zealand citizens, and how some of these issues could facilitate stereotypes, and more worryingly, racism.

Employment

There are many anecdotal reports of reductions in engagement/performance in the workplace, and perhaps eventual loss of employment resulting from gambling-related issues. The often covert nature of gambling problems might mean that it is not detected as a factor in unacceptable job performance, with the notable exception of fraud and related activities. In addition, both qualitative research (e.g., Perese, 2009; Tse et al., 2007) and the population level risk factors (Ministry of Health, 2009) suggest that many risky and problem gamblers might be in more vulnerable employment relationships.

This is a sparsely researched area; nonetheless it is clear the psychological health issues that are associated with problem gambling (and indeed risky gambling) will almost certainly lead to some employment performance issues. Whether or not these are detectable to others is likely to vary, as is the importance of the individual's gambling in these issues arising. Raising awareness in people and communities in contact with those at risk is key. In addition to broadly developing a better understanding and more recognition of the role gambling can potentially play in detectable changes in behaviour.

In her study with Samoan participants, Perese (2009) described patterns of behaviour with key features being extended lunch hours, a loss of trust and confidence in others, and a loss of enthusiasm for career development. Participants described a growing amount of time participating in, thinking about, and concealing their gambling, and a gradual transition to working to support their gambling. While this was a study of Samoan gambling, these features would seem likely to be generalisable to other ethnicities.

Finance

The nature of gambling activities means in almost all instances any prolonged period of gambling activity necessitates some financial loss. Whether one suffers from harm as a result of this is in a sense dependent on whether the less tangible outcomes outweigh the financial loss. Just as a

financial loss does not guarantee harm, ongoing gambling in the face of financial loss does not necessarily imply that the outcomes beyond financial ones outweigh the financial losses.

SHORE (2008) showed clearly there was a strong positive relationship between time spent gambling and an individual's loss to income ratio. As outlined earlier, the loss-to-income ratio seems a relatively simple way to contextualise financial impacts, and in the absence of any assessment of problem gambling, was clearly related to a range of harmful effects of gambling. It is evident that a range of gambling behaviours (not just problem gambling) results in some harm to individuals, families/whānau and communities, but it remains that the primary reason for seeking help for gambling problems are financial difficulties or crises (Pulford et al., 2009a, 2009b). Financial counselling and advice remains an important component of many intervention services in New Zealand (Bellringer, Pulford, Abbott, DeSouza & Clarke, 2008c).

Qualitative and other small *n* research has repeatedly referred to losses of assets, at the extreme end mortgagee sales etc. Some of this work will be discussed; however these effects have not been detected in population level research. That is not to say these events do not occur, rather this is an area where qualitative and/or small focussed quantitative projects can provide depth beyond that possible in larger studies. When considering the literature as a whole, it becomes apparent that in many cases the worst financial outcomes are avoided because of a range of factors: often people seek support or are encouraged to seek support prior to substantial assets being lost; in some cases, serious fraud (KPMG, 2008) or petty crimes (e.g., Bellringer et al., 2009) can offset substantial financial losses, or be used to further the pattern of harmful gambling. In others, particularly in Maori and Pacific peoples, family and community can protect against financial losses due to informal lending and cultural practices (Perese, 2009). While this has the effect of sharing the financial burden, and is an indicator of the strength of family and community ties, in a sense it can perpetuate the gambling problems and enable gamblers to avoid facing their problems and/or seeking assistance beyond the financial support.

Criminal Behaviour

In a formative investigation of gambling and crime in New Zealand, Bellringer et al., (2009) concluded from their review of the literature that there was mounting but not unequivocal evidence of a link between reported crime and increased gambling availability. Theft was commonly cited as the predominant crime, although violent crimes, child neglect and other crimes against individuals are becoming more prevalent. Surprisingly (especially given the long history of association between crime and gambling in the popular media) this remains an under investigated area in New Zealand, which seems plagued by stereotypes, preconceptions, and limited methodologies.

In the latest of their biennial fraud surveys, KPMG (2009) reported on the motivations for fraud in the public and private sector. Gambling was identified as the primary motivation for fraud, with 44% of the total value of fraud attributable to gambling (the most common, and a two-fold increase since the 2006 survey). Greed and lifestyle was the second most common motivation (37%), down from 54% in the previous survey. When the average value of major fraud associated with each motivation was examined, “gambling as a motive resulted in an average value per incident of \$1,101,808” (KPMG, 2009, p.18). Without further detail these figures are difficult to reconcile, and the average figure (given other information in the report) suggests perhaps another measure of central tendency would be more appropriate. Nonetheless, serious fraud is clearly a significant issue for organisations, and gambling plays a significant role. But, these seem to be high profile instances involving substantial sums, rather than the types of issues faced by the majority of problem and risky gamblers.

SHORE (2008) also found some interesting relationships around gambling and self-reported illegal activity. Those in the high participation group were significantly more likely to have been involved in illegal activities than those in low participation group. However, unlike most of the previous impacts, the loss to income ratio did not have any significant effect. When specific forms of gambling were considered, people who played EGMs or who played cards/poker at someone else’s house were significantly more likely to have been involved in illegal activities than those who did not gamble. Perhaps most importantly, of those that reported being involved in criminal activities (1.3% - mainly stealing and fraud), a substantial proportion (25%) reported they would not have been involved in any illegal activity if they had not been gambling.

Bellringer et al.’s (2009) work identified a range of crimes through their focus groups. These included financial, benefit/social security, physical, family, community, workplace, directly related to gambling and legal but undesirable behaviours (e.g., prostitution). Some were identified as being specific to certain ethnic or cultural groups in New Zealand. However, these were based on anecdotal reports, and do have a somewhat stereotypical feel to them. For example, kidnapping and murder were associated with Asian gamblers, and family violence with Pacific gamblers. Most await empirical support, and some have not been supported - for example, Schluter, Abbott and Bellringer (2010) found no link between gambling and intimate partner violence in a recent study with Pacific families. In their key informant interviews, Tse et al., (2007) identified a similar list of crimes associated with Asian gambling (e.g., theft, false identification, kidnapping, drug use) along with prostitution. While the qualitative work has yet to be supported in a compelling way by more

objective verifiable observations, it does strongly suggest a range of issues to which attention should be focused.

Impacts on Maori

It is well established that Maori are disproportionately affected by gambling in New Zealand. Unfortunately, despite their unique position as tangata whenua it remains that research on Maori gambling has not been systematically prioritised. Dyall (2007) has argued gambling is now an “integral part of the cultural life of being Maori” (p. 321) in New Zealand, and that many Maori social institutions (e.g., marae, Kohunga Reo and sporting groups) have been established using funds from gambling, and are to some extent dependent on continued gambling for their continued existence and functioning. Whilst (at an individual level, at least) many of the impacts of gambling on Maori are much the same as the impacts on other ethnicities, this highlights the growing need to develop a better understanding of the relationships between individuals and groups, and gambling. As Dyal suggests, the role gambling plays at quite fundamental levels in peoples’ lives can differ markedly. Developing a better understanding of these relationships and the role gambling plays in individuals’, families’ and communities’ lives is critical in developing effective interventions or appropriate support at each level.

A recent study (Watene, Thompson, Barnett, Balzer, & Turinui, 2009) used a combined Kaupapa Maori and focus group approach to investigate the impacts of gambling on Maori. Data were reported from 31 focus groups with 194 participants in total. Quotes from focus groups were used to illustrate themes, but the primary method analysis was quantitative – simple counts of positive/negative impacts and the percentage of participants that described positive or negative impacts. In all, 88% of participants described negative impacts – these included debt, suicide, crime, unemployment, neglect of children, and breakdowns in relationships, marriages, whanau, and communities. Many of these are consistent with the general literature discussed earlier, but some are not evident in population level data. Nonetheless, these impacts are worthy of further exploration and can inform efforts to support communities and whanau. In addition, however, positive effects of gambling were reported by 41% of participants. These included community fundraising activities and financial support for community development/building etc, consistent with the observations of Dyal (2007). These activities were not always considered gambling, but activities that actively support social and cultural infrastructure and events.

SUMMARY: Impacts of Gambling.

Problem gamblers are more likely than others to have seen a General Practitioner in the last 12 months. This indicates the vast majority of problem gamblers are in touch with health professionals and the evidence is clear that they tend to suffer from a range of co-morbidities such as hazardous

drinking, cigarette smoking and suicidality. Studies have shown there are strong relationships between risky gambling and both hazardous alcohol use and smoking. There is also a clear positive relationship between problem gambling level (none, low risk, moderate risk/problem) and measure of psychological distress. In addition, the level of gambling risk is associated with decreases in self-rated health across numerous domains.

More focused research is beginning to illuminate the negative impacts on families, relationships, employment and crime. Issues of increased arguments between significant others, neglect of care of children, poor work performance and fraud have been some of the negative impacts highlighted. However, the impact of gambling on cultures has also been raised. Gambling is now viewed as an integral part of Maori life. Many negative impacts have been shown such as debt, suicide, crime, unemployment, neglect of children, and breakdowns in relationships, marriages, whānau, and communities. However, a better understanding of the relationship between Maori and gambling is still required.

Risk factors in New Zealand

As described earlier, at a population level in New Zealand analyses of data from the 2006/07 NZHS have identified the following risk factors for problem gambling.

- Age: people aged 35-44 were at significantly greater risk
- Ethnicity: people of Maori or Pacific ethnicity were at significantly greater risk
- Education: people with lower educational attainment were at greater risk
- Neighbourhood deprivation: people living in the 40% most deprived areas (NZDep2006 quintiles 4 & 5) were at greater risk.

Internationally, recent population-level studies have found similar risk factors, although approaches have differed somewhat and investigations have not always been driven by a public health perspective (e.g., Kessler et al., 2008; Park et al., 2010).

Kessler et al., (2008) investigated temporal associations between problem gambling and other DSM-IV disorders in a United States household population (given the DSM-IV focus, the gambling was assessed according to the pathological and problem gambling criteria). In addition to current and lifetime prevalence of problem gambling, retrospective data on age of onset (AOO) of gambling and the range of disorders considered were collected in an attempt to examine the temporal relationships. The majority (78.4%) of respondents reported gambling in their lifetime, while smaller proportions reported gambling frequently (27.1% reported more than 100 times, and 10.1% more than 1,000 times). Using conditional probabilities the authors claimed a “dose response relationship” (p. 1353) between the numbers of times gambled and probabilities of problem and

pathological gambling, with the highest conditional probability of problem gambling (12.2%) and pathological gambling (4.3%) occurring in respondents who had gambled more than 1,000 times. Their retrospective accounts also suggested that AOO of gambling was important – age of first gambling was significantly lower among those who developed problem gambling than those with no symptoms. Additionally, AOO of gambling was also significantly lower amongst pathological gamblers than problem gamblers.

In the United States population, Kessler et al., (2008) identified the primary risk factors for pathological gambling as being young, male and non-Hispanic Black (notable, because like Pacific peoples in New Zealand, non-Hispanic Black peoples were less likely to gamble overall). When the temporal patterns of pathological gambling and other DSM-IV disorder were examined, the onset of pathological gambling was preceded by anxiety, mood, impulse-control and substance use disorders. However, pathological gambling predicted subsequent onset of generalised anxiety disorders, post-traumatic stress disorders, and substance dependence.

In a large sample of clinical admissions for pathological gambling, Jiménez-Murcia et al., (2010) explored the relationships between AOO of gambling problems and current psychopathological and clinical status. They found that older AOO was related to higher levels of depressive, paranoia and psychotic symptoms. In contrast, younger AOO was related to a higher severity of pathological gambling, higher novelty seeking, and less self-directedness. They therefore suggested two subtypes of pathological gamblers, those with an earlier onset of problems and greater impulsiveness, and those with later onset and greater social isolation. Earlier Lesieur and Rugle (2000) had similarly suggested a group of pathological gamblers characterised by older age of onset, and greater psychopathology (depression and anxiety) and labelled them “escape seekers”. Although not unequivocal, there is converging evidence suggesting a group of gamblers gamble to escape, as a means of coping with the difficulties of day-to-day living. While retrospective temporal relationships such as those reported by Kessler et al., (2008) are inherently limited (and best assessed via longitudinal methodologies), they do provide information useful in terms of developing an understanding of those that might be at increased risk of gambling harm. Temporal relationships could not be assessed in the 2006/07 NZHS (Ministry of Health, 2009), however issues such as psychological distress (high K-10 scores) were clearly related to problem and moderate risk gambling across the population, and low risk gambling in females. Thus, in New Zealand, it seems likely that proportion of the cohort of NCGM users and some of the Asian gamblers in casinos might be described in this way. Dyall (2007; and in various personal communications) has stressed this

particular issue with Maori women, and more generally several studies have reported results along similar lines (e.g., Clarke et al., 2007b; Clarke et al., 2007a; Li, 2007; Tse et al., 2007).

Who is at risk in New Zealand?

The population level risk factors (age, ethnicity, education, and socio-economic deprivation as outlined more specifically earlier) in New Zealand have been identified most recently in the 2006/07 NZHS (Ministry of Health, 2009). While the risk factors are clear at a population level (and remain relatively constant), and these studies are invaluable, they are not sufficiently sensitive to detect lower-level effects on communities or smaller groups in New Zealand.

As there has been for many years, below the general population level risk factors there is some evidence for other at-risk groups. One such group is Asian New Zealanders who are commonly cited by service providers and anecdotal reports as being frequent risky and harmful gamblers. Population level studies generally aggregate a large range of ethnicities under the umbrella term 'Asian' (as indeed they do for Pacific people). With respect to the New Zealand Asian population, the people at greatest risk seem to be a sub-group, particularly relatively recent migrants from South East Asia (Tse et al., 2007; Tse, personal communications).

In qualitative work with key informants, Tse et al., (2007) focused largely on Chinese and Koreans. They identified international students from Asia and Asian people who work within certain occupational groups seemed to be at increased risk. Key informants suggested between 50-80% of Asians in the food industry (employees and employers) gamble in afternoon breaks and in the evening after work. A lack of English language skills and a lack of contact with mainstream society were cited as strong motivations or risks for gambling. Five primary reasons were cited for engaging in gambling behaviour, most of which were related to the lack of viable alternative activities during leisure time:

- Irregular working hours and few other entertainment options
- >2 hours break in afternoon, and gambling only viable option
- Many/most paid in cash, so cash available to gamble
- Most limited social networks to those in food industry – where a culture of gambling already exists
- Gambling an easy mechanism for socialising and communication

Tse et al., (2007) also cited tourism operators as being possibly at increased risk. They frequently took groups of Asian tourists to casinos for entertainment and gambling. There is growing anecdotal evidence that some operators were developing gambling problems themselves.

Li (2007) examined the issue of Chinese students' gambling more closely using a narrative approach. Chinese students rarely reported having problems related to gambling in China – but frequently had problems in New Zealand. They cited 'study shock', acculturation stress, not feeling 'welcomed' by the host society, and achievement stress as being important in terms of beginning as recreational gamblers. Most reported having played Mah-jong in China but considered it a game, and not gambling. They also discussed the lack of the strong community attachments in New Zealand that were present in China, and the lack of parental supervision.

Recent studies of Maori (Dyall, 2007; Watene, Thompson, Barnett, Blazer & Turinui, 2009) and Samoan (Perese, 2009) gambling have suggested related issues with Maori and Pacific populations. Specifically, that there are few easily accessible alternative 'entertainment' options and gambling has become imbedded in peoples' lives in a number of ways. Consistently, a range of forms of gambling behaviour are participated in and normalised, while not being considered 'real gambling'. Perese's participants expressed concern over children's exposure to activities such as housie from a young age, and the concurrent exposure to soft drinks and junk food. The simple association of the various activities which are often viewed as pleasurable could potentially lead to shifts in attitudes towards these behaviours. While the evidence remains formative, in all the ethnic groups described as "at risk" there is growing evidence suggesting that gambling in some form has become an intrinsic part of their day-to-day lives in a range of ways – whether it be because of social networks, a means of coping, community development, or supporting cultural practices.

As it has been made clear in earlier sections, beyond the population level risk factors, those at risk are very likely to be participating in a number of forms of gambling (almost always including EGMs) and devoting a substantial amount of time to their gambling activities. Clarke et al., (2007a) reported on some key indicators of the transition between social and problem gambling, highlighting some of the individual (and sometimes transient) risks that might be indicative of harmful gambling. Clarke et al., confirmed many of the population level indicators such as lower socioeconomic status and hazardous use of alcohol and other substances. Others are only indicators that the individual themselves - or those in close relationships with them - may be aware of. These indicators are principally around the motivation for gambling (e.g., social isolation, boredom, gambling to reduce negative affect, disconnectedness, socio-cultural ambivalence) and what might occur during gambling sessions (e.g., loss of control). Clarke et al., (2007b) suggested migration might increase vulnerability, and also reiterated that many people gamble as a way to escape and to cope with feelings of loneliness, isolation, and homesickness. In addition, Clarke et al., noted some gamblers were particularly susceptible to marketing, social inducement and features of gambling

environments. Dyall et al., (2009) have suggested there is evidence that some at-risk groups (notably Maori and Pacific peoples) seem to have a better recall of gambling advertising but less knowledge about how the proceeds of gambling are used. Dyall et al., further argued for the need to regulate gambling advertising in New Zealand, particularly to prevent the use of cultural icons, and to discourage high-profile individuals from within these at-risk populations from participating in gambling advertising.

While the complexity of the situation should not be ignored, the evidence is suggestive that the socio-economic disparities in the New Zealand population, the individual/family/community level difficulties that come with those disparities, and the inequitable access to gambling opportunities (i.e., there is easier access to gambling opportunities in lower socioeconomic areas) coupled with a reduced understanding of how the gambling industry works and an inflated view of the chances of winning, seems to make gambling a more attractive proposition for some of the more vulnerable sectors of the New Zealand population. Without an accurate understanding of odds, given its legitimate status gambling can seem like an attractive option to quickly deal with financial stress, and to regain or gain status within society.

Accessibility of Gambling

Concerns have been expressed on several occasions that a higher accessibility of gambling might exacerbate the prevalence of problem gambling or gambling behaviour more generally (Middleton & Latif, 2007). Internationally, several studies have suggested associations at a neighbourhood or community level (Marshall, 2005; Rush, Veldhuizen, & Adlaf, 2007) and at a national level (Welte, Wieczorek, Barnes & Tidwell, 2006).

In Canada, Gilliland and Ross (2005) showed gaming machines in Montreal were more likely to be located in more 'distressed' neighbourhoods (as defined by unemployment, low educational attainment and sole parenthood). In New Zealand, it is well established that the distribution of NCGMs is biased heavily towards more socio-economically deprived areas (e.g., Ministry of Health, 2006; Wheeler Rigby & Huriwai, 2006). In addition, high K-10 scores were significantly more likely among Maori and Pacific peoples, who are overrepresented in New Zealand's more socio-economically deprived neighbourhoods. Thus, there is a situation where easy access to the most harmful form of gambling is readily available in communities that are collectively at higher risk of problem gambling.

Pearce and colleagues (2008; see also Ministry of Health, 2008) noted much of the focus of research on the risk factors for problem gambling had been on individual level characteristics such as age, gender, ethnicity, substance use etc, while environmental and contextual issues had been

comparatively ignored. Pearce et al., considered a range of models in examining the relationship between the gambling behaviour of 2006/07 NZHS respondents and the locations of NCGM venues, TAB outlets, and casinos. They found those living in neighbourhoods with closer access to gambling opportunities were significantly more likely to be gamblers, and problem gamblers (adjusted for age, sex, socioeconomic status, urban/rural status, and deprivation level). The relationship was very similar when NCGMs and TAB venues were considered independently. In addition to the closeness of the gambling opportunity, Pearce et al. also considered the density of gambling venues with a 5km radius – this was associated with a higher likelihood of gambling, but no relationship was evident with problem gambling.

Risk factors and influences for problem or risky gambling

There is a lack of research examining the transition from social gambling to more problematic forms of gambling. One of the reasons for this gap in current research is the methodological and practical difficulties associated with initiating the sorts of longitudinal studies that could address these issues most effectively. Abbott and Clarke (2007) argued strongly for the profound influence well-designed longitudinal studies could have in the area, both in terms of developing a more detailed understanding of hypothesised pathways (e.g., Blaszczynski & Nower, 2002), and in terms of moving the field from one preoccupied with description to being a cumulative science focused on understanding determinants and consequences. In the interim, a pragmatic solution is to focus on help-seeking problem gamblers, but this results in the exclusion of the majority of problem gamblers who never seek professional treatment. In addition, using help-seekers as study participants only allows for retrospective recollection of the path from social to problem gambling, as almost all help-seekers are already at the stage where they fit the criteria for problem or pathological gambling.

Due to the above constraints that are apparent in much of the gambling literature, as well as the relatively under-researched nature of problem gambling, findings from related fields - such as alcohol and substance dependence – may offer insights into possible risk factors and influences for problem or risky gambling. As touched on in previous sections, New Zealand research on gambling and these other addictions has pointed to a wide range of social, cultural, economic, environmental, and situational factors that influence the transition from social gambling to problem gambling (Abbott et al., 1999, 2000; Adams, 2002; Clarke et al., 2007a). Clarke's (2005) model - based on literature examining the relationship between substance abuse indicators and problem gambling – appears to be supported by much of the literature on risk factors. Therefore the following areas, referred to by Clarke, will be explored in more detail:

- Personal characteristics and other addictions

- Sociodemographics
- Environmental cues
- Social influences
- Cultural background

Personal characteristics and other addictions

Research has shown there are significant differences between sexes when examining the risk factors or influences for problem or risky gambling. Toneatto and Wang (2009, p468) found in outpatient problem gambling treatment-seekers, women were more likely to have a “more rapid progression towards a gambling problem” than men. However, this may also be attributed to the fact that women were more likely to have problems with EGMs (gambling mode and its relationship to problem development will be touched on later in this section). Women also showed less improvement than men on measures of gambling severity and rates of abstinence. In addition, women rated the cognitive behavioural gambling-related treatment sessions as less helpful than men.

Female problem gamblers have also been found to be more likely to suffer from comorbid psychiatric disorders, including depression and anxiety, than male problem gamblers (Getty, Watson, & Frisch, 2000). In line with Toneatto and Wang’s (2009) findings, Getty et al. (2000) suggest any negative affect that women are likely to be experiencing may influence the extent to which gambling treatment is effective. Additionally, it is argued that gambling may act as a coping mechanism more so for women than for men, as they are more likely to be suffering from disorders that may contribute to feelings of an inability to cope. These assertions are supported by Hodgins and Peden (2005) who found gambling triggers for women differed significantly from triggers for men, with women reporting heavy gambling when stressed, depressed, unhappy or experiencing conflict (Hodgins & Peden, 2005). In addition, a study conducted on Gamblers Anonymous (GA) members showed a significant relationship between women suffering from depression and poor coping mechanisms (Getty et al., 2000).

The pathways model proposed by Blaszczynski and Nower (2002) is a useful framework when considering some of these apparent gender differences. Blaszczynski and Nower proposed three pathways in their model, a basic process involving behavioural conditioning (operant conditioning, classical conditioning, habituation and chasing) which is fundamental in developing gambling problems, a second pathway that involves some emotional and/or biological vulnerability (Figure 10), and a third which involves some antisocial and/or impulsive tendencies (Figure 11). A substantial body of psychological evidence supports the contention that basic behavioural processes

(as per Pathway 1) are essential. In the context of some of the gender differences observed it is the proposed Pathways 2 and 3 that are interesting. Clearly, any attempt to dichotomise in this way is a substantial oversimplification, nonetheless the evidence as a whole suggests Pathway 2 is consistent with general observations of female problem gamblers, and Pathway 3 with its focus on impulsivity, risk taking, and substance abuse is more consistent with observations of male problem gamblers. The limitations of such a generalisation need to be stressed, nonetheless in terms of a general approach to understanding problem gambling this remains a useful framework.

Daughters, Strong and Breen (2005) found in relapsed gamblers, those who had not gone for more than two weeks without relapsing, showed higher levels of negative affect and were more reactive to stress. It was also seen that those who had experienced more than three months of abstinence before relapsing persevered for longer on a psychologically stressful task during the experiment than those who had relapsed before two weeks. These findings indicate that negative affect and the way an individual reacts to stressful events and situations may play a role in problem gambling recovery.

Loss of control and negative affect has been cited in the literature as indicators of the development of substance abuse and the transition from social to problem gambling. Clarke et al., (2007a) also found these indicators predicted continuing gambling in their New Zealand sample. Loneliness, stress, and escaping troubles were named as the most dominant personal reasons for starting and continuing gambling for both Pakeha and Maori participants. All respondents, except Asians, cited small wins as major reinforcers for continued gambling. Then, in a 2009 study comparing relapsed and abstinent gamblers, it was found high psychological distress predicted gambling relapse (Sander & Peters, 2009). In addition, when psychological stress was coupled with low quality of life, this relationship was strengthened.

The above findings relating to the relationship between gender, psychological distress, poor coping styles and problem gambling may be able to assist in differentiating between those demonstrating risky behaviours and those who go on to develop more serious gambling problems. It appears problem gamblers are more likely to suffer from comorbid disorders, indicating that this is a significant risk factor or predictor.

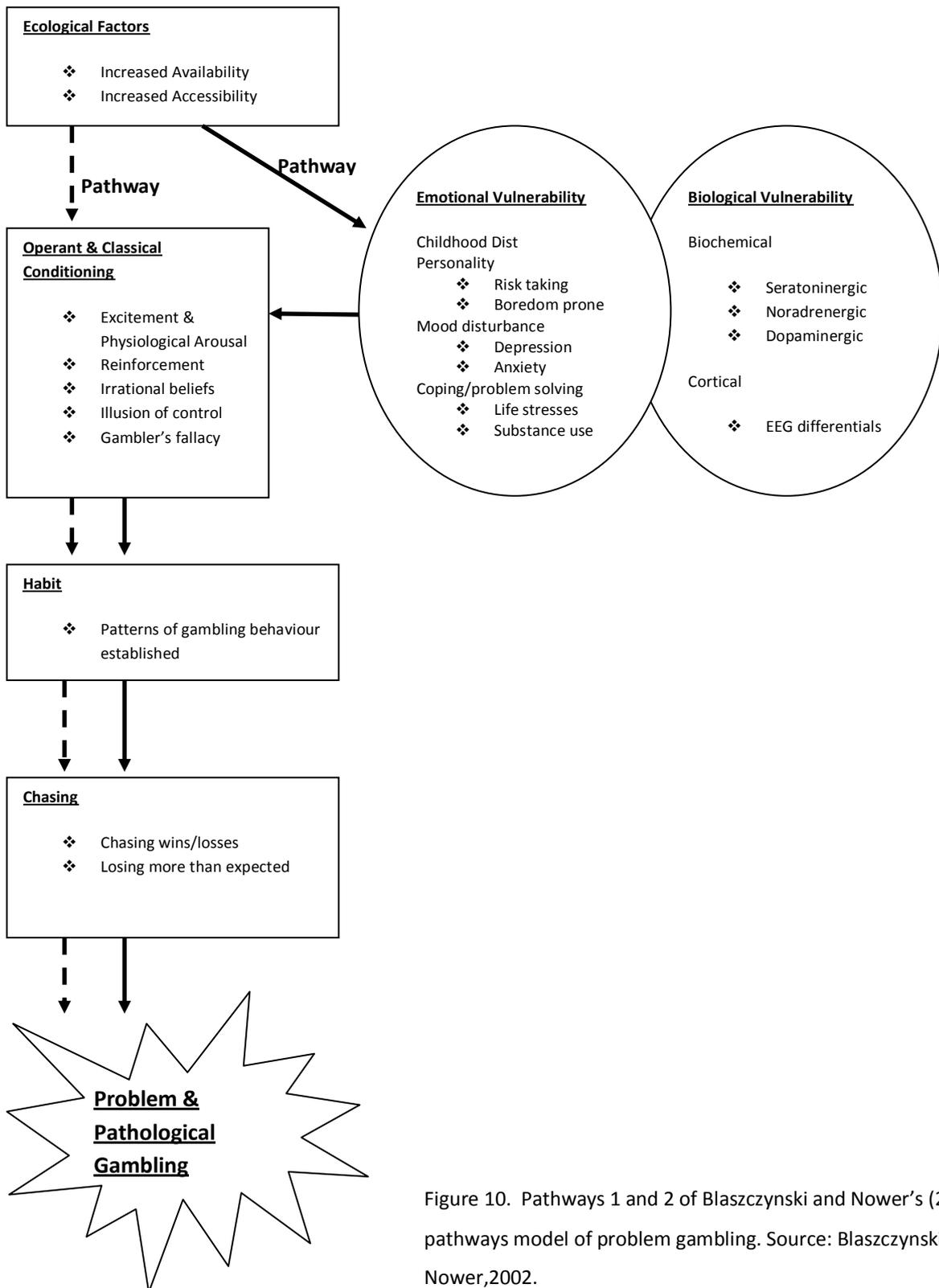


Figure 10. Pathways 1 and 2 of Blaszczynski and Nower's (2002) pathways model of problem gambling. Source: Blaszczynski & Nower, 2002.

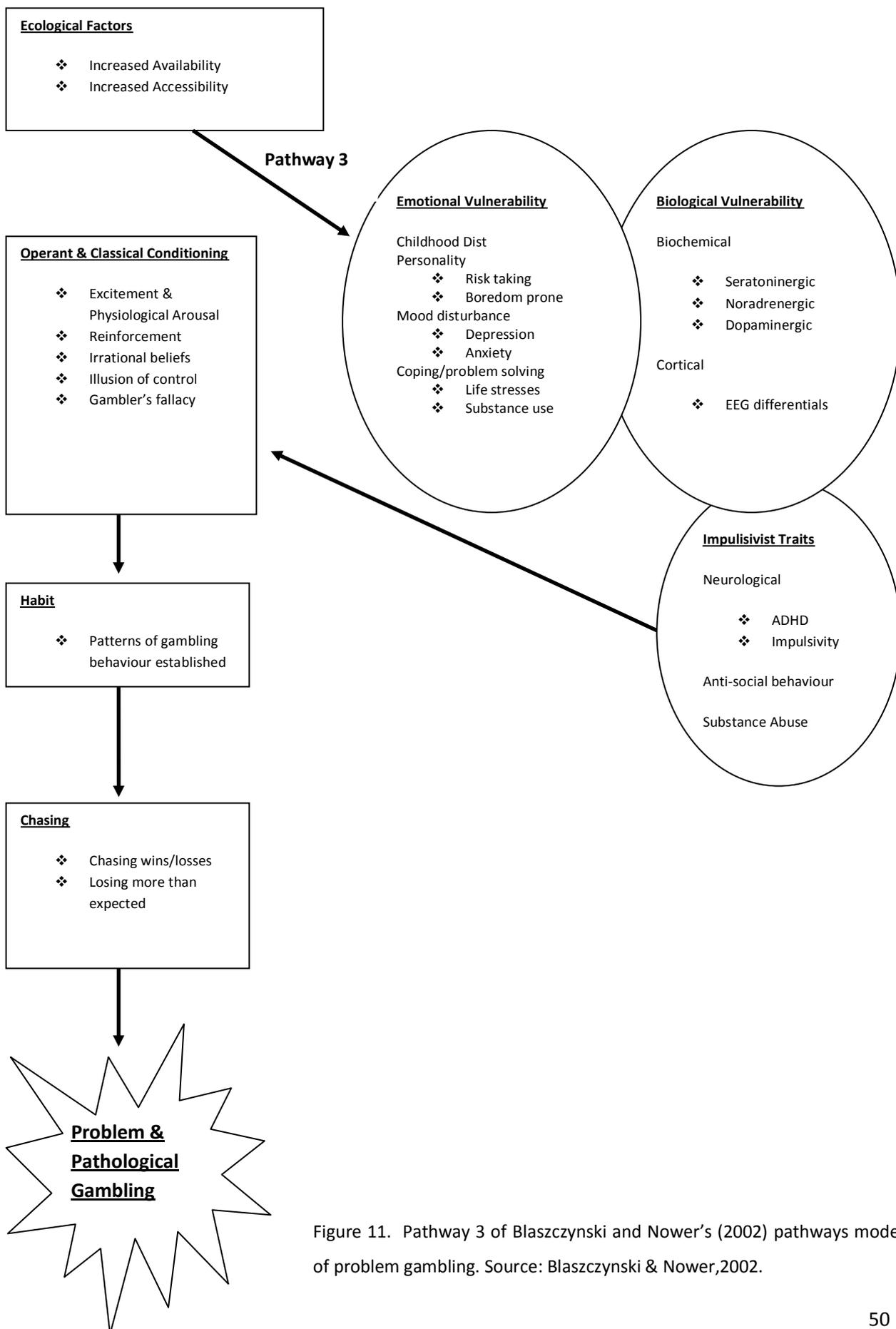


Figure 11. Pathway 3 of Blaszczynski and Nower's (2002) pathways model of problem gambling. Source: Blaszczynski & Nower, 2002.

Clarke et al.'s (2007a) review of the evolution of social gambling to problem gambling to recovery, found personal preference for certain modes of gambling was shown to play a part in the development of problem gambling. It is now widely acknowledged that certain types of gambling are more associated with problem gambling than other types (e.g. Abbott & Volberg, 1999, 2000; Productivity Commission, 1999). The higher continuous nature of EGMs – involving fast cycles of play with ample opportunities to reinvest - contributes to this type of gambling being the most associated with a rapid progression into problem gambling, as opposed to those who choose to gamble primarily on sports, horses or cards (Breen & Zimmerman, 2002). Women have been shown to prefer gambling on non-strategic games of chance, such as EGMs (Clarke et al., 2007a). This suggestion is supported by client data from New Zealand counselling services showing that 95% of female clients presenting cited EGMs as their main problem compared with 81% of males (Ministry of Health, 2005). This pattern is echoed in many parts of the world (e.g. Hunter, 1990).

Sociodemographics

Low socioeconomic status has also been found to be a key indicator in the transition from social to problem gambling (Clarke, 2005). This is supported by research showing urges or beliefs that gambling can provide big financial rewards, and solve money problems were more likely in individuals with a low socioeconomic status (Clarke et al., 2007a). The literature also shows Pacific Island migrants to New Zealand often look to gambling as a way to meet traditional monetary obligations in the form of church donations and remittance payments (Clarke et al., 2007a; Perese, 2009). This view is reinforced by findings from the Pacific Island Family Study - a longitudinal study being carried out by AUT that began in 2000. Findings from this study showed participants who engaged in traditional gift giving were more likely to gamble, and to spend more when they gambled, than those that did not give gifts (Bellringer, Perese, Abbott & Williams, 2006). In Clarke et al.'s (2007a) study, solving financial problems – and later covering gambling losses – was found to contribute to transitioning from social to problem gambling across all ethnic groups, with the exception of Asians.

New Zealand studies in this area show that: there are more gaming machines in low income areas; residents of low income areas engage in gambling activities at a higher rate than residents of higher income areas; and Maori women are the fastest growing group in the treatment-seeking population of gamblers (Clarke et al., 2007a). Although these observations and relationships have been shown repeatedly, the causal relationships have yet to be understood. Moreover, the complexity of these relationships means it is almost certain the notion of distributed causality will have to be adopted.

Literature suggests another key difference between social and problem gamblers is that problem gamblers believe they are 'due' for a win (Delfabbro, Lahn & Grabosky, 2006; Ladouceur, 2004). Petry (2003, 2005) found erroneous cognitions - such as believing that one can control gambling outcomes on games of chance and having greater recollection of wins than losses - and gambling urges are highly correlated with problem gambling. This is supported by Oei and Gordon's (2008) study examining GA members. They found those that relapsed were more likely to engage in erroneous cognitions regarding gambling than those who remained abstinent.

Environmental Cues

Drawing on findings from studies looking at substance abuse (drug and alcohol) a link has been found between ease of access to the substance, advertising and the development of a problem (Clarke et al., 2007a). When examining the gambling literature, parallels can be drawn. Clarke et al., (2007a) found the most significant reason for starting and continuing gambling in all ethnic groups was availability of gambling facilities (usually EGMs) in places where people socialised. The advertising of gambling venues and online gaming was also cited by young people, Pakeha, Maori, and students as a strong attraction (Clarke et al., 2007a).

In a study looking at gambling amongst New Zealand youth, Rossen (2008) found the environment young people were in had a significant impact on their future gambling habits, commenting that "gambling is more than just an individual behaviour: young people's choices around gambling are influenced by factors such as their life experiences and circumstances, and the messages conveyed to them concerning gambling" (p.19).

Social influences

Clarke et al., (2007a) argue, like substance abuse, gambling is initiated, normalised and reinforced by family and peers. This suggestion is echoed by Rossen (2008) who found some of the risk factors for problem gambling in youth were: having a parent with a gambling problem; exposure to gambling; or early commencement of gambling. In addition, Nguyen (2009) found Southeast Asian American adolescents were more likely to gamble often if they perceived their family or friends to be high-frequency gamblers.

Adolescents who fit the criteria for problem or at-risk gamblers differ from their peers on a range of measures, including feelings of family inclusion and general social support. Hardoon, Gupta and Derevensky (2004) carried out a study on 2336 adolescents and found problem and at-risk gamblers were more likely to report their family as "uncaring, harsh, or overly critical, and they may feel emotionally detached or distant from family members" (p. 176). These feelings, as well as other

predictors of gambling problems – alcohol or drug abuse, conduct problems and being of male gender – are illustrated in Figure 12 (Hardoon et al., 2002, p.64).

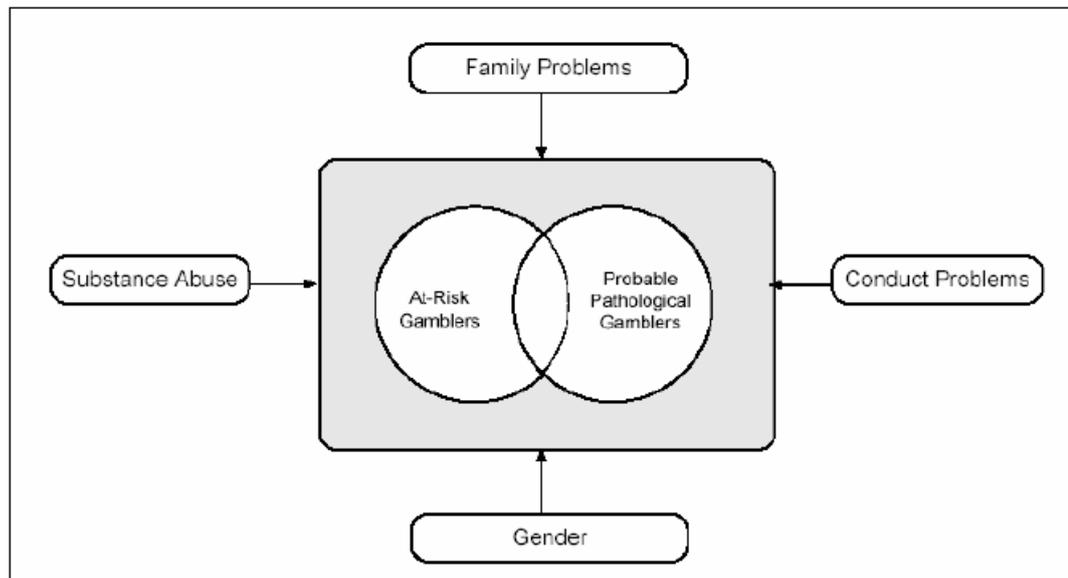


Figure 12. A conceptual model for at-risk and problem gambling. Source: Hardoon et al., 2002, p64.

In terms of peer group influence for older gamblers, Clarke (2005) found problem gamblers who socialised with other problem gamblers were more likely to reinforce and pressure one another into heavier gambling. Similarly, showing the important influence that peer groups exert, a study looking at the difference between abstinent and relapsed members of GA found those with stronger social support networks were less likely to relapse. Additionally, those who remained abstinent were more likely to have attended and participated in GA meetings which act as a type of peer support session (Oei & Gordon, 2008).

Cultural background

Migration and the associated difficulties faced were cited as an important factor in Asians starting gambling. ‘Saving face’ was cited as a major reason for continuation of gambling in this group. Additionally, Asians were less likely to be influenced by financial reasons and friends and family than were other ethnic groups (Clarke et al., 2007a). For Pakeha and Maori gambling trajectories (i.e. progression from social to problem gambling) were similar, but Pacific Island groups differed from each other. Samoans and Tongans were more similar to Maori than other Pacific Island groups. Migration and other difficulties were only found as a strong reason for gambling amongst Nuieans (Clarke et al., 2007a). Another study by Bellringer et al., (2006) found Tongan people in New Zealand gamble more and spend more money on gambling than people of other Pacific Island ethnicity.

As mentioned previously, most studies in New Zealand have shown Pacific peoples are significantly less likely to engage in gambling than Pakeha (e.g. Ministry of Health, 2008). However, a study carried out in schools in the North Island of New Zealand showed Pacific youth were 11.5 times more likely than Pakeha/New Zealand European students to fit the diagnostic criteria for problem gambling (Rossen, 2008). This may indicate a shift in the way gambling is viewed by the younger generation of Pacific Island people.

As touched on earlier in this section, using research from other areas of addiction can complement gambling understandings. Using data from the 2002-2003 Diabetes Heart and Health Study (DHAHS), the authors compared alcohol use across Pacific ethnic groups and European New Zealanders. In line with gambling patterns, it was found fewer Pacific adults consumed alcohol than their European counterparts, yet those Pacific adults who did choose to drink were more likely to consume more on one occasion than European New Zealanders (Sundborn et al., 2009). This is supported by the 2008 New Zealand Health Survey which reported that nearly double (39.2%) the amount of Pacific adults engaged in hazardous drinking than did Other New Zealanders (20.1%). Other research has also shown Pacific people in New Zealand are more likely to experience negative consequences from their drinking (Huakau et al. 2005).

There are also ethnic differences in drinking patterns within the Pacific community, much like there are thought to be in gambling patterns. Sundborn et al., (2009) found although non-drinking was significantly more common amongst Pacific peoples (51.3%) than Europeans (6.2%), Niueans were significantly less likely to report being non-drinkers than other Pacific peoples (32.9%). Amongst Pacific women the differences were greater, with 92% of Samoan women reporting abstaining, compared with 78% of Tongan, 75% of Cook Islands and 65% of Niuean women. One finding that could potentially be transferred across to the problem gambling field with positive results was that compared to New Zealand Europeans, Pacific adults were five times more likely to give up drinking during their lifetime, reporting family and social reasons as their main motivations (Sundborn et al., 2009). This indicates that public health initiatives targeting Pacific people may benefit from emphasising the effects that gambling can have on families and social circles.

The journey from low-risk to problem gambling

In terms of the journey from low-risk or 'healthy' gambling into problem gambling, a review of the literature on gambling mode found EGM play is strongly associated with problem gambling development (Abbott, 2006). Abbott also suggests this may be the case with track racing and casino table games which are also continuous in nature and contain an element or perception of skill. Support for this comes from the 1999 New Zealand Prevalence survey (Abbott & Volberg, 2000)

which showed problem gamblers were more likely than non-problem gamblers to prefer these three gambling modes. In addition, help seekers in both Australia and New Zealand mostly cite problems with these three gambling modes (Productivity Commission, 1999; Abbott, 2001).

However, as previously mentioned, the literature is unable to comprehensibly explain the journey from a low-risk to a problem gambler. A reason for this gap in current research is the methodological and practical difficulties associated with initiating longitudinal studies. This type of study would address these issues most effectively, as argued by Abbott and Clarke (2007). They believe well-designed longitudinal studies could have a profound influence in the area of gambling through developing a more detailed understanding of pathways hypothesized to lead to problem gambling (e.g. Blaszynski & Nower, 2002 – pathways which highlight that everyone is potentially at risk). Another of Abbott and Clarke's arguments suggested longitudinal studies will move the field of gambling from one that is preoccupied with description to one that is a cumulative science which is focused on understanding determinants and consequences.

While temporarily, a practical solution is to focus on help-seeking problem gamblers, other problems arise. This is because the majority of problem gamblers who never seek professional treatment are excluded. Using help-seekers as study participants also only enables a retrospective recollection of the path from social to problem gambling, as almost all help-seekers are already at the stage where they fit the criteria for problem or pathological gambling.

Early signs of problem gambling

A study by Dickerson, Haw and Shepherd (2003) shows even though there are certain individual characteristics and factors that may predispose someone to periods of loss of control whilst gambling, this may only be the case for a minority of gamblers who lose control. They found although depression, non-productive coping and impulsivity were related to impaired control in gambling, they only accounted for 25% of the outcome variance. Due to the nature of certain gambling modes, it can be argued that loss of control is arguably inevitable for many gambling participants, with Dickerson et al., concluding that impaired control and subsequent problem development is an understandable outcome of regular, high intensity gaming machine involvement. Abbott (2006) adds that this research highlights the need for people who do engage in continuous forms of gambling to use "active and planned strategies" in order not to exceed their limits (Abbott, 2006, p7).

Recovery and responsible gambling

Controlled gambling as a goal for problem gamblers has been largely ignored in the empirical literature, with abstinence being historically touted as the only way to recover fully from pathological gambling (Dowling, Smith & Thomas, 2009). This emphasis on abstinence has been the case across most fields of addiction, most notably alcohol addiction. Ladouceur (2005) argues that controlled gambling as a treatment option for problem gamblers has been responded to in the same manner as controlled drinking for alcohol abusers was in the preceding decades. The ideological opposition to controlled gambling - which Abbott (2006) reports as being 'scathing' to those who offer moderation as a treatment goal - has resulted in a subsequent lack of scientific exploration of the issue until recently (Ladouceur, 2005).

Ladouceur, Lachance, and Fournier (2009) suggest controlled gambling could be a realistic and attractive goal for treatment. Furthermore, they suggest the goal of abstinence might actually discourage some problem gamblers from seeking treatment, and controlled gambling might reduce the typically high attrition rates seen in gambling treatment studies (and in clinical practice). They studied 89 individuals enrolled in a cognitive-behavioural treatment programme with the outcome goal of controlled gambling. Participants completed a series of measures at the end of the treatment programme, then six months later and twelve months later. At the end of treatment 62% of participants had a score of four or less on the DSM-IV diagnostic criteria for problem gambling (an individual must have five or more symptoms to be diagnosed as a pathological gambler). At six and twelve months, 56% and 51% of participants respectively had a score of four or less. However, if only those who completed the entire treatment programme are included in the analysis, the percentages of participants who no longer qualify as problem gamblers are 92%, 80% and 71% at end of treatment, six months following, and twelve months following. These findings indicate controlled gambling is a viable outcome for those diagnosed with pathological gambling.

Recent studies have shown the most significant predictor of recovery in alcoholics has been the beliefs of the individual about abstinence or moderation as a necessary or attainable goal, and their personal preference for treatment type (el-Guebaly, 2005; Heather 1995, 2006; Marlatt, Larimer, Baer, & Quigley, 1993; Ojehagen & Berglund, 1989; Orford & Keddle, 1986; Rosenberg, 1993; Sobell & Sobell, 1995). It has also been observed that successful recovery is more likely when the individual has a choice in the type of treatment they receive (Booth, Dale & Ansari, 1984; Hodgins, Leigh, Milne & Gerrish, 1997; Miller, Leckman, Delaney & Tinkom, 1992; Ojehagen & Berglund, 1989; Orford & Keddle, 1986; Sanchez-Craig & Lei, 1986).

In a study of 85 female help-seeking problem gamblers in Australia, one-third of the sample elected controlled gambling as their treatment goal with two-thirds selecting abstinence. This shows that controlled gambling is a moderately popular goal for those seeking help. A comparison was carried out between those who selected controlled gambling and those who selected gambling abstinence. The significant differences between the groups were:

1. Controlled gambling selectors were significantly older than abstinence goal selectors (a finding echoed in alcohol dependency literature, e.g. Hodgins et al., 1997).
2. Controlled gambling selectors were less likely to believe problem gambling was a life-long difficulty or disease

The differences between the two groups indicate there may be individuals that possess certain attributes or beliefs that increase their likelihood of being able to successfully gamble responsibly following a period of problematic gambling.

In an attempt to investigate attributes or beliefs that separate problem gamblers who choose controlled gambling from those who choose abstinence as their treatment goal, Dickerson, Hinchy and Legg England (1990) studied a sample of 21 treatment-seeking pathological gamblers. At the outset of treatment, each individual chose abstinence or controlled gambling. At three months, two-thirds of those who had chosen controlled gambling were in fact abstaining from gambling, while of those who chose abstinence only half were abstaining. This aligns with the 'persuasion hypothesis' - taken from the alcohol dependency literature - which asserts that treatment outcome is dependent on the extent to which an individual believes the goal is achievable. Dowling and Smith (2007) support this with their research which found that one of the most common reasons cited for selecting controlled gambling as a treatment goal was a lack of belief by the individual that they could realistically abstain from all gambling for the remainder of their lives.

In line with some of the results from studies cited, abstinence as a treatment goal has been suggested as possibly detrimental to the successful treatment of problem gambling. Ladouceur (2005) argues abstinence – promoted as the main treatment route in New Zealand – may be viewed as a highly unattractive option by those who value controlled gambling as an emotional and social outlet. Ladouceur also suggests that due to this negative perception of abstinence, gamblers may resist seeking help until their problem reaches crisis point. Even then, the research indicates that asking people to completely abstain from gambling may be setting them up for failure.

Ladouceur et al., (2009) also found individuals that were able to achieve their goal of controlled gambling differed on a number of measures from those who did not meet their goal of controlled gambling. Those who fit the criteria for being controlled gamblers

“Had lower scores on anxiety and depression, a higher score on the quality of life measure, made less attempts to commit suicide in the past, and spent less money on gambling activities. Also, the gamblers who successfully maintained their controlled gambling objective had less negative consequences of gambling in their family life, which could indicate the presence of more social support” (Ladouceur et al., 2009, p196).

Conversely, some studies have found problem gamblers who opt for controlled gambling as their treatment goal do not differ from those who choose abstinence in other respects. In a review of three studies comparing abstainers and controlled gamblers, it was found there was no difference between the two groups on a range of measures, including anxiety, depression, social functioning and sensation seeking (Blaszczynski, McConaghy & Frankova, 1991).

In the field of alcohol treatment, differences have been observed between alcoholics who can successfully control their drinking and those who cannot. Heather and Robertson (1981) found controlled drinkers were more likely to be younger, female, to hold steady employment, have less severe alcoholism and to have had less contact with Alcoholics Anonymous groups. However, these differences are not supported by current literature in the gambling field. For example, in a recent study by Dowling and Smith (2007), individuals choosing controlled gambling and those choosing abstinence did not differ on the majority of the measures of gambling severity, including frequency and duration of gambling activities, expenditure, and problem gambling duration.

The actual definition of ‘controlled’ gambling is a question that has not yet been answered. Due to non-abstinence goals being offered in treatment, more notably internationally than in New Zealand at present, it is imperative that more research be undertaken to look at the merits of this approach, beginning with a clear definition of controlled gambling. Ladouceur (2005) suggests using a combination of subjective measures around control over one’s gambling and behavioural measures of gambling frequency and amount spent - such as the Timeline Follow-Back Technique (Sobell & Sobell, 1992) – would give the most accurate result. Robson, Edwards, Smith & Coleman (2002) suggest controlled gambling could be defined as spending less than 5% of one’s monthly income on gambling activities. This figure was generated from Statistics Canada data showing that Canadians

spend 4-7% of their income on recreation and that gambling does qualify as a form of recreation for some individuals. However, various problems with this measure were reported, including difficulties calculating a figure for individuals with variable incomes.

As mentioned above, Abbott (2006) indicates that research into the area of continuous forms of gambling – EGMs especially – suggests a causal relationship between regular participation in this type of gambling and the development of uncontrolled gambling. This suggests the frequency that one gambles, along with the type of gambling one engages in, is an important measure of control. A consistent finding in the literature is individuals who gamble once a week or more on EGMs, track racing or casino table games are significantly more likely to have gambling problems than those who gamble less regularly or just gamble on non-continuous forms such as Lotto (Abbott, 2001; Ministry of Health, 2008). It would seem therefore that a limit should be put on the frequency of gambling participation in order to adhere to the label of ‘engaging in controlled gambling’, as well as measures around income-to-loss ratios and subjective measures of control.

Moving in and out of problem gambling

Two decades ago, Dickerson (1989) likened problem gambling to alcoholism, saying it is highly likely that individuals will cycle in and out of problematic gambling behaviours without making any contact with help services. Since then, studies have shown this to indeed be the case. A prospective study undertaken by Abbott et al., (1999, 2004) examined problem gamblers and regular but non-problem gamblers that had completed the 1991 New Zealand national gambling prevalence survey. Participants were followed up seven years after completing the survey, and their gambling was re-assessed. Abbott and colleagues found of the 77 participants who had met the criteria for problem gambling in 1991, the clear majority did not meet the criteria when re-assessed. In addition, none of the 77 problem gamblers had received formal treatment for their gambling problem in the intervening seven years. These findings strongly suggest that problem gambling is a transient problem that is subject to ‘natural’ recovery over time.

These findings regarding the transient nature of gambling problems are supported by other prospective studies. Wiebe and colleagues conducted a prospective study in Canada that, although of shorter duration than Abbott and colleagues’ (1999, 2004) New Zealand study, used a larger sample (Wiebe, Cox, & Falkowski-Ham, 2003a; Wiebe, Single, & Falkowski-Ham, 2003b). The time gap between assessments of gambling severity was only one year but despite this, most participants either reported no longer having a gambling problem or a reduction in problem severity. Those participants who reported not having gambling problems when first assessed, but who subsequently

developed a problem in the intervening year, were shown to score higher on measures of loneliness, social isolation and emotional stress than non-problem gamblers at follow-up. However, these measures were only used at follow-up so it cannot be known whether they were a product of or a contributing factor to the development of problem gambling. In terms of factors that predict this cycling in and out of gambling problems, other prospective studies have shown that the severity of the gambling problem at first assessment, issues with alcohol consumption, and a preference for gambling on track races predicted a greater likelihood of continuing gambling problems throughout an individual's lifetime (Abbott et al. 1999; 2004).

Hodgins & el-Guebaly (2000) argue recovery from addictions, such as alcohol, smoking, and gambling, without undergoing formal treatment has been accepted in the current literature as a relatively common pathway to recovery. Although there is a lack of longitudinal data on natural recovery, prevalence studies showed 39% of those who had ever had a gambling problem reported no problems in the past year (Hodgins, Wynne & Makarchuk, 1999). Considering this figure is well above the rates of problem gamblers who use professional treatment programmes, it indicates that natural recovery is comparatively common. It is also argued that due to the lack of knowledge in the community about the range of gambling treatment options available, such as support groups, counselling and telephone interventions, it is likely that problem gamblers will choose to recover naturally by default (Hodgins & el-Guebaly, 2000).

Other findings that point to problem gambling being a fairly transient disorder include results from population studies which explore the lifetime and current problems with gambling. These often-replicated studies show that of those who have had gambling problems at some point during their lifetime, less than half of them have current problems (Abbott & Volberg, 1991; 1996). This difference between lifetime rates and current rates can be regarded as an indicator of recovery rates from problem gambling (Abbott, 2006).

Adding to the literature on gambling problems being transient, Abbott (2006) argues problems are subject to environmental, social, and other pressures. Abbott cites findings from a naturalistic study where EGMs were deactivated for three months in South Dakota, USA. Gambling treatment services reported a significant drop in the number of help seekers – from 68 per month to 10 per month - while the EGMs were out of service and a subsequent increase in numbers of help seekers following their reinstatement. Abbott (2006) argues this data shows problem gambling is related to environmental changes, amongst other things, resulting in its highly transient nature.

People do move in and out of problem gambling behaviour, but is it possible for people to gamble in a 'healthy' way their entire lives? Although the lack of longitudinal studies in the gambling literature has resulted in this question remaining unanswered, the transient nature of problem gambling and the addictive potential of certain modes of gambling, points to the likelihood that regular 'healthy' gamblers will experience periods of uncontrolled gambling in their lifetimes. As commented on above, various academics argue that loss of control is inevitable considering the nature of gambling, and in particular with the addictiveness of EGMs (e.g. Tse, Abbott, Clarke, Townsend, Kingi & Manaia, 2005). The differences between those who gamble in a non-problematic manner and those who have a gambling problem may be summarised by looking at the information regarding risk and preventative factors.

In terms of the transient nature of gambling, it is no surprise that relapse in recovering problem gamblers is common. Hodgins & el-Guebaly (2004) found only 8% of pathological gamblers did not relapse at least once during a 12-month follow-up period. Similar findings are echoed throughout the literature. Out of the majority of those who did relapse during Hodgins and el-Guebaly's (2004) study, most did so in the evening when they were alone and thinking about their financial situation. In contrast to alcohol relapses which are often preceded by negative affect, gambling relapses were equally as likely to occur when the participants were experiencing positive moods. Relapses were most commonly attributed to the desire to make money and the urge to experience a win.

SUMMARY: Risk factors and influences for problem or risky gambling

Age, ethnicity, education and neighbourhood deprivation are all current risk factors for problem gambling in New Zealand. The risk factor of neighbourhood deprivation is illustrated through low income areas having more electronic gaming machines (EGMs) per capita and being home to people who gamble at a higher rate. Family and peers play a significant role in initiating, normalising and reinforcing gambling behaviour. This has been clearly demonstrated with youth who have a parent with a gambling problem, who have had exposure to gambling or had early commencement of gambling. Southeast Asian American adolescents were also more likely to gamble often if they perceived their family or friends to be high-frequency gamblers.

Environmental cues play a part in enticing individuals to begin gambling, especially youths. The most significant reason for starting and continuing gambling in all ethnic groups was availability of gambling facilities (usually EGMs) in places where people socialised. Yet, winning money is often cited as the main motivator for gambling. The advertising of gambling venues and online gaming was also cited by young people, Pakeha, Maori, and students as a strong attraction. The way gambling is

portrayed to youth also affects their perception of it and their later behaviour towards it. However, approaches to gambling vary between cultures. Migration and the associated difficulties faced were cited as an important factor in Asians starting gambling. Yet, Asians were less likely to be influenced by financial reasons, friends and family than were other ethnic groups. Pacific peoples are significantly less likely to engage in gambling than Pakeha according to most studies in New Zealand. Nevertheless, when Pacific peoples do gamble, a study conducted in schools in the North Island of New Zealand showed Pacific youth were 11.5 times more likely than Pakeha/New Zealand European students to fit the diagnostic criteria for problem gambling. This suggests a shift in the way gambling is viewed by Pacific youth.

Comorbid disorders, negative affect and poor coping style – especially in women – are all associated with a greater likelihood of engaging in problem or risky gambling. However, in men risk taking, substance abuse and impulsive traits appear to be of greater significance. Games that are continuous in nature such as EGMs, track racing and casino tables are most addictive and therefore tend to be the most common form of gambling participated in by problem gamblers.

Recent studies have shown controlled gambling is a viable and seemingly popular treatment goal for problem gamblers. However, gambling problems appear to be transient in nature and often resolve themselves naturally over time (although significant harms – as touched on in earlier sections – are still evident).

Influences on gambling behaviour.

What influence do an individual's relationships have on their gambling behaviour?

The link between social isolation and poor mental health is well established, however research has mainly examined the impact of more crude aspects of social relation such as total network size, and little work has been done around various aspects of social networks (e.g. family vs friends components or frequency of contact) and their health and wellbeing implications (Fiori, Antonucci, & Cortina, 2006). Theory posits that the composition and quality of the network is shaped over time by factors that are personal (age, gender and personality) and situational (role expectations, resources and demands) (Antonucci, 2001). The optimal level of social “embeddedness” clearly varies by individual for example along the introversion/extraversion continuum (Fiori, et al. 2006). Multiple role expectations (e.g. co-worker, partner, churchgoer, friend) may promote greater social connectedness and integration, which in turn can reduce isolation and provide opportunities for social support. Weiss’ (1974) theory of the functional specificity of relationships posits that different relationships perform various functions for different individuals including attachment, social

integration, reliable alliance, guidance, and reassurance of worth which are essential for personal adjustment.

Typologies have also been developed using qualitative inquiry and cluster analysis techniques to examine multiple combinations of social relationships. Litwin (2001) used cluster analysis of the following variables to determine types of social networks: current marital status, number of proximate children, and frequency of contact with children, contact with friends, contact with neighbours, attendance at a synagogue, attendance at a social club which he related to morale among older Jewish persons. Litwin found a typology of five networks: (a) diverse, (b) friends, (c) neighbours, (d) family, and (e) restricted, with restricted and family networks related to lowest morale. Research also shows people tend to have specialised networks based around different kinds of social support such as informational support, emotional support and companionship (Saint-Charles, Mongeau, & Biron, 2008). Network analysis tools allow researchers to identify structural characteristics of social networks such as size, density (proportion of existing ties that are active) or heterogeneity (which can be expressed by the number of components, i.e. subgroups of connected others linked together and not linked to others). Both the central person's attributes and tie characteristics (nature, strength, reciprocity, frequency, etc.) are considered in the analysis.

Studies related to social support, social capital and social network composition show the critical role of interpersonal relationships on psychological and physical health and highlight the importance of the scope and diversity of the social network for social support (Stansfeld & Candy, 2006; Lin, Dumin & Woelfel, 1986; Wellman & Wortley, 1990). However, this reasoning can also be reversed because as the range of an actor's personal network narrows, social ties can also create a net which can imprison a person in maladaptive situations and supporting norms that facilitate undesirable behaviour (Borgatti & Foster, 2003; Gargiulo & Benassi, 2000). The range of a social network is a combination of its size, density (the proportion of ties that are 'active' or strong, frequent and reciprocal) and heterogeneity (number of connected groups in a person's life that are not connected to other groups)—larger size, lower density and greater heterogeneity would be indicators of greater range (Wellman, 1990).

Studies on the social networks of people with addictive behaviours, in particular users of marijuana and cocaine, have shown that the social networks of these users were generally small and dense (Lee, 2000, 2002). In his literature review on social network composition and social support, Wellman (1990) found smaller social networks were associated with less social support and showed denser social networks seem to augment pressure to conform and limit access to new information or to 'outside' specialists—for example not encouraging the individual to visit a doctor. Again

according to Wellman (1990), the average size of active and significant ties for white middle-class people in North America is 20. These ties are those with whom one has repeated sociable contact, support, or feelings of connectedness. While it is often self-reported that women in particular gamble to relieve boredom and/or out of a sense of social isolation, Trevorrow and Moore (1998) found although women with EGM gambling problems experienced more boredom, isolation, and loneliness than women having mild or no problems, there were no differences between the three groups using measures of social network adequacy – although the authors comment these measures were somewhat crude.

Saint-Charles et al. (2008) used a structured interviewing process to explore potential differences between the structure and composition of social networks of regular EGM gamblers in treatment, regular EGM gamblers not in treatment and Bingo gamblers. The visual maps of the typical social networks the authors created for each group appear in Figures 13-15. For clarity the gambler is not shown in the diagrams but the strength of the tie between the gambler and other is indicated by the colour of the node, e.g. black = strong tie, white = weak. Level of support given is indicated by the size of the node. Round nodes are women while square nodes represent men. The strength of the ties between network members is indicated by the thickness of the line between them where thinner = weaker.

Significant findings included:

- EGM gamblers have smaller networks
- EGM gamblers in treatment report having more supportive people in their network (offering all types of social support) than did EGM gamblers not in treatment
- EGM gamblers know fewer people but see most of them more often than bingo players
- Bingo gamblers have a greater proportion of their network composed of ‘activity partners’ (acquaintances they do an activity with) than EGM players
- EGM gamblers have proportionally more EGM gamblers present in their networks compared to the other groups overall.
- There were no differences between groups in terms of being in a relationship with a significant other.

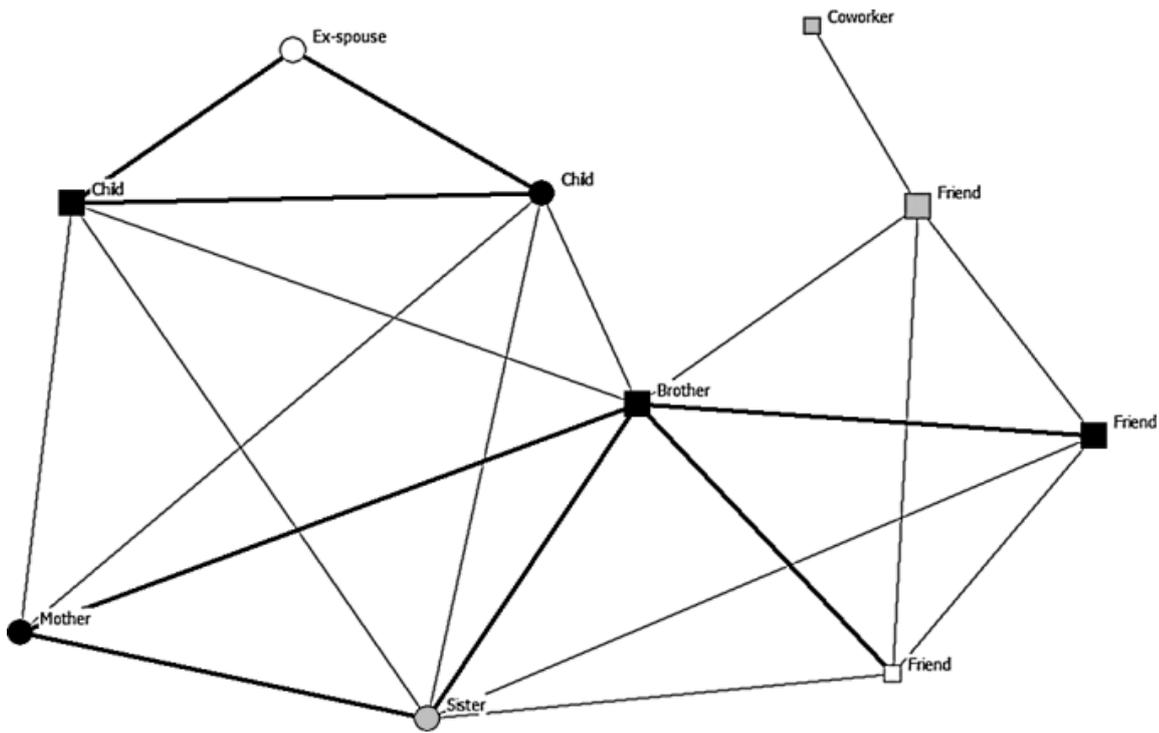


Figure 13. Typical network of a regular EGM gambler

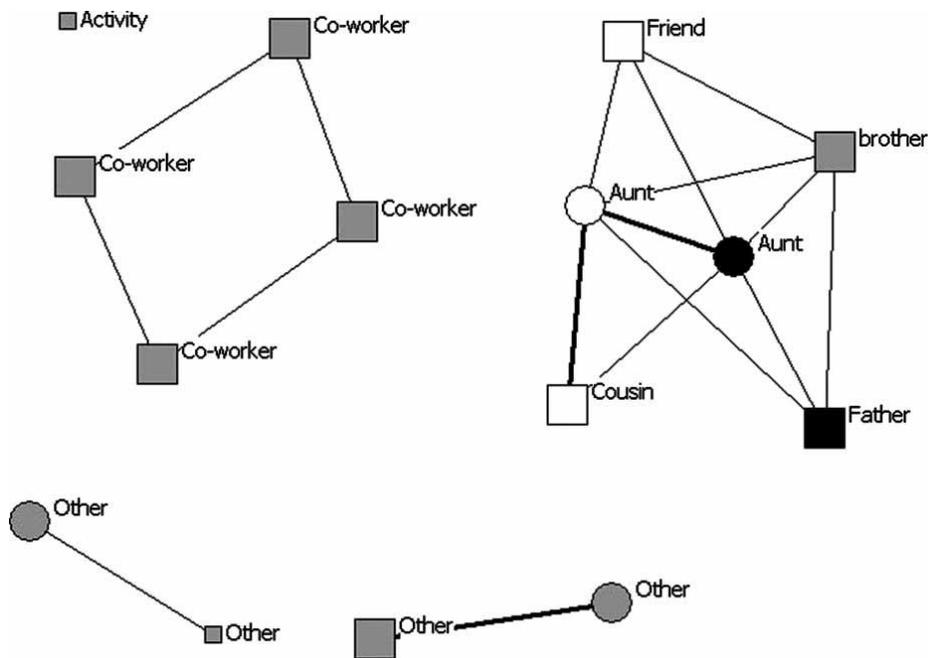


Figure 14. Typical network of an EGM gambler in treatment

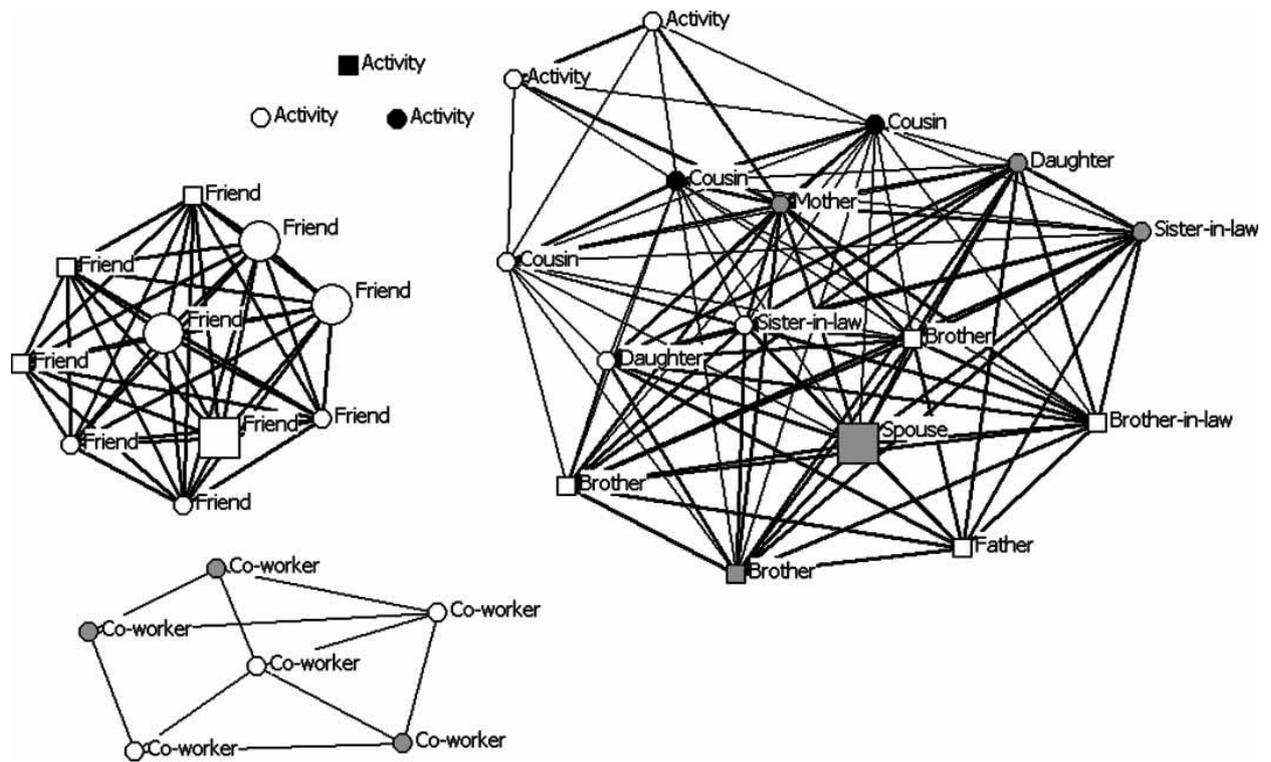


Figure 15. Typical network of a bingo gambler

The most salient difference in the networks of EGM gamblers compared with bingo players is the density of the networks. Regular EGM gamblers have less diverse networks with high connectivity compared to bingo players, as is illustrated by the example in Figure 13. Similarly, EGM gamblers in treatment have sparser networks, yet the level of support provided is higher. The authors comment that

“it is our contention that this may have an important impact on the social behaviour of the individuals of this [EGM] group since they belong to a homogeneous group where people meet on a regular basis. In such a network, individuals have access to less diversified information, have less social capital, and also have less freedom and therefore less opportunity to ‘redefine’ themselves; defined as ‘deviant’ (gambler) by the interactions they share with their group, they may tend to maintain this definition of themselves and therefore maintain this deviance”(Saint-Charles et al., 2008, p. 244).

The authors also suggest a longitudinal or retrospective study is needed to investigate the possibility that the regular EGM gamblers’ social network reflects the result of their gambling practice which may have driven away all but their closest kin and friends. However, “such an explanation implicates individual behaviour (gambling) as the cause of the problem; an individual-centred perspective that does not take into account the social and communicational context” (Saint-Charles et al., 2008, p. 243). A brief discussion of the discursive context of gambling and problem gambling can be found in the section on social construction of gambling problems below.

Longitudinal health studies have found network phenomena seem to have a strong influence on alcohol consumption behaviour (Rosenquist, Murabito, Fowler, & Christakis, 2010). Hussong, Hicks, Levy, and Curran (2001) found college students with lower social support were more likely to engage in drinking after a negative event than were peers with elevated social support. Jessor, Costa, Krueger, and Turbin (2006) found social controls against problem behaviours, such as friends' disapproval, to be a significant protective factor against engaging in binge drinking in college students. These studies demonstrate the importance of social support and its influence on the development (buffer/support) and maintenance of problem behaviours. Excessive gamblers often report lack of satisfaction with their family relationships and lack of support (Kalischuk, Nowatzki, Cardwell, Klein, & Solowoniuk, 2006; Saint-Charles, et al. 2008). However it remains notable that the relationship between social support and pathological gambling has received little attention.

Social ties and mental health

In their review on the relationship between social ties and mental health, Kawachi (2001) describes how the costs and benefits of social ties are not randomly distributed in the population, but vary systematically with gender, socioeconomic position and stage in life. For example, the fact it is widely documented that women report significantly higher rates of psychological distress than men could in part be explained by differences in the components and utilization of social networks, where women's tendency towards more close and emotionally intimate connections may predispose them to the "contagion of stress" when stressful life events happen to those with whom they are closest (Kawachi, 2001, p462).

Effects on treatment outcome

Petry and Weiss (2009) assessed social support as part of a randomized clinical trial looking at treatment outcomes following referral to GA alone versus referral to GA plus cognitive-behavioural therapy delivered via workbook or with a therapist. The study involved 231 gamblers recruited via the media for whom social support assessed by the Social Support Scale (as part of a collection of assessments) was measured at baseline and two and twelve months later. Both participants and a nominated friend or family member were interviewed regarding the participant's gambling behaviours and a high degree of similarity in reports was found. It was found social support played an important role in moderating clinically relevant treatment outcomes in this study, independently of the type of treatment administered and whilst controlling for other distinguishing variables.

Those with high levels of social support at baseline demonstrated greater reductions in ASI [Addiction Severity Index] gambling scores than those with lower levels of social support at

baseline. These data also revealed that social support increases during treatment for pathological gamblers, especially those with low levels of baseline social support. While participants with relatively high baseline social support demonstrated no further increases in social support, these gamblers may already be at an acceptable level of social support. Moreover, this study revealed that social support is associated with long-term (12-month) gambling outcomes. Participants who had post-treatment social support scores at or above the median had lower 12-month ASI-gambling scores, indicating fewer gambling related problems at the long term follow-up. Our findings complement previous studies showing that higher social support in problem gamblers is associated with longer abstinence from gambling (Petry & Weiss, 2009, p407).

In regards to the treatment effects of enhancing social support, further work is needed to deepen our understanding of the design, timing and dose of interventions that work well as well as the characteristics of individuals who benefit the most (Kawachi, 2001; Petry & Weiss, 2009). For example, in the clinical trial referred to above, gamblers with psychiatric symptomology reported lower social support, however the level of psychiatric symptoms was not related to treatment outcome.

Social construction of gambling

As a social construction, gambling is not inherently evil or good. Its acceptability is greatly influenced by the values used to give it meaning. Gambling can be seen as both accepted and condemned – representative of conflicting values in society (for example the hard work ethic and perseverance conflicting with the glamour of beating the system/overnight success). From one value perspective, the pathological gambler may be seen as a victim who is exploited for profit by commercial enterprise. From a conflicting value perspective, the pathological gambler may be seen as more actively engaged in using a culturally created and sanctioned safety valve in an unsafe and pathological way (Abt & McGurrin, 1992).

Jennifer Borrell (2008) asserts that gambling behaviour needs to be understood in terms of the part that gambling plays in people's everyday life. Race tracks, lotteries, pokies and casino games are argued to be a way for individuals to control risk in a way that they are unable to do over other life events (Abt & McGurrin, 1992). Other theories explore the idea that gambling is a form of rebellion against oppressive dominant cultural values, or that it provides the only space that certain groups of people feel 'safe' to engage in recreation (Borrell, 2005; 2008). Uncovering the meaning of gambling should be a high priority given the enormous numbers of "non-pathological" gamblers that participate and who are subsequently at risk of developing serious gambling problems in the future.

Borrell (2005, 2008) also comments on the need to connect individual experiences and daily realities with analysis of the social-collective situation in which they occur –through the medium of a broad concept of culture. Borrell’s conception of culture “provides the space where individuals acquire a sense of the choices they have and don't have, where they learn to negotiate power and its expressions in relationship [with others]”(Borrell, 2005, p. 5). “Culture” also provides a collective means by which humans deal with risk. These risks are distributed beyond the individual’s control, and are continually touched on in everyday life. This relational and contextual view provides critique of predominant models of prevention, of ‘problem gambling’ and other forms of addiction, which in focusing on the prevention of specific diseases and disorders and/or on the minimisation of harm arising from these, they “overwhelmingly assume an individualised locus in which the disorder is thought to “reside” and therefore needs to be addressed”(Borrell, 2005, p. 1). Borrell takes a social constructionist view which posits that the ‘reality’ of a social phenomenon does not exist independently of the way it is talked about in everyday life or the meaning it is given. She also comments that the parameters of meaning or social discourse often serve the interest of the dominant group.

Borrell (2005) comments that:

The relevance of all of this to the area of so-called problem gambling should be obvious; marginalised people are more susceptible to problematic gambling. Women who are socially isolated or who want to escape from difficult life circumstances are drawn to electronic gambling machines (EGMs) (Borrell, 2004). They often report being drawn to a place where they have a sense of belonging, are treated with what looks like respect, and where they feel welcome. In general, male problem gamblers tend to gamble to be “winners” and to have their sense of skill and competence validated (“beating the machine!”). At the same time, there is great shame and stigma associated with problem gambling that is consistently reported in all qualitative research. This has implications for the design of “preventative” advertising, which may unwittingly be counterproductive in those cases where it increases stigma and thus prevents people from identifying that they may have a problem (however this is understood) or from seeking help or from calling on solidarity within their own cultural groups and relationships (Borrell, 2005, p. 6).

Future research is needed to support Borrell’s (2005) assertions about why people gamble and the stigma public health campaigns may help to increase. Critically examining why people gamble using qualitative methodologies would offer more reliable insights into the role that relationships play in

the development and maintenance of problem gambling. As it stands at present, relationships do play a part but in what way is still uncertain.

What influence does marketing have?

The role of external socialising agencies, for example, media, advertising, peer groups and workmates, is little investigated but may be particularly important. This may be specifically noteworthy in groups such as Pacific peoples and some categories of recent migrants that had little or no gambling involvement in their families of origin (Tse, et al. 2005).

Community concerns about social impacts of gambling and the level of advertising activities have been mentioned in a number of reports (e.g., Rankine & Haigh, 2003). According to these reports, different population groups, for example, indigenous people and people in low socioeconomic areas, are drawn to gambling activities (Clarke et al., 2007b).

There is growing interest internationally in the process of developing guidelines around gambling marketing and advertising to ensure gambling is represented in a responsible manner, with many proposing that representations and messages around gambling should ‘first do no harm’, be honest (non-misleading) and socially responsive and not target children or vulnerable people. The power of marketing in influencing consumer behaviour and attitudes, as well as increasing their share of a relatively stable market, has been widely researched and discussed in a commercial context. More recently these ideas have also been discussed in the context of health promotion or the “social marketing” of particular ideas, choices and behaviours to the public.

Specific marketing strategies that work to make gambling alluring to the public are identified in the literature. These strategies are designed to attract new custom and encourage people to continue to gamble through utilising characteristics that are both situational or “external” (encourage people to gamble in the first instance: such as the location, number and accessibility of gambling outlets and the use of advertising to stimulate people to gamble) and structural or “internal” (elements of product design such as familiarity of media-themed EGMs) (Zangeneh, Griffiths & Parke, 2008). The literature describes the ways in which gambling advertising accentuates the positive - and less probable - aspects of the product while disseminating a “chance ideology” or “ethos of winning” consisting of illusions of equal opportunity and plenitude (Zangeneh et al., 2008; McMullan & Miller, 2009). Examples of this in New Zealand include Big Wednesday’s “You could win it all” slogan, and the “rags-to-riches” theme of its television advertisements exalting how easily your lifestyle and circumstances could change. Internal or structural techniques, such as those employed in EGM design, tap into elements of familiarity in naming (after a person, place, event, TV show or film).

They appeal to the customer through allusion to celebrities and 'trusted' or fun brands like the sitcom 'Friends' or association with other games of skill like Tetris where skill transfer might be possible. They also utilise general principles of persuasion through sheer exposure and attention capturing gimmicks (Zangeneh et al., 2008). Zangeneh et al., (2008, p.152) comment in their review of analysing the different forms of gambling and their marketing, "it is clear that the marketing of gambling through the use of situational and structural characteristics have the potential to induce gambling regardless of the gambler's biological and/or psychological constitution".

Despite this work, little research has been conducted that quantifies the influence of gambling marketing, advertising and sponsorship. Areas to explore include differences of these influences on the attitudes and gambling behaviour of the general population, problem gamblers, those considered to be vulnerable to developing problems, or those considered especially susceptible to the gambling marketing strategies described above – such as children, young people and those on low incomes. In reference to the principle 'first do no harm', recent reviews of the literature have concluded there are currently no reliable figures on the impact of gambling advertising on problem gambling. However, it can be inferred from research findings that advertising does work to increase the prevalence of problem gambling but it's effect is most likely less than other contributing factors such as jackpot/payoff information, increased availability and accessibility of gambling forms (Binde, 2007; Griffiths, 2005). There are also some studies of self-reported influence of advertising on gambling behaviour. Binde's (2008) qualitative research found a quarter of the participants with current or past gambling problems reported gambling advertising had no impact on their problems, slightly over half of them reported that advertising had a marginal impact, and one fifth reported a tangible impact. However, none considered advertising to be a main cause of their gambling problems. The negative self-perceived impact was primarily that advertising triggered their impulses to gamble. Advertising seemed to increase already high involvement in gambling and/or made it harder to stick to a decision to gamble less or not at all. It would seem intuitive to suggest that gambling advertising is more cognitively and emotionally relevant and potentially distressing to problem gamblers.

Studies also show gambling advertising may be more readily noticeable to these groups (Binde, unpublished-summarised in Binde 2007; Abbott et al., 1999), as well as particularly noticeable to young people (Monaghan, Derevensky & Sklar, 2008; Amey, 2001; (Derevensky, Sklar, Gupta, & Messerlian, 2010). A tentative relationship model between exposure to gambling TV shows and advertisements (or anti-gambling media exposure), attitudes to gambling shows and advertisements, and gambling intention was recently developed among 230 college students using

structural equation analysis. It was found media gambling exposure led to positive attitudes toward gambling shows and advertisements, both of which led to gambling intentions (Lee, Lemanski & Jun, 2008). On the other hand, problem gambling media exposure did seem to lead to negative attitudes towards gambling advertisements and gambling shows suggesting an effect of these competing messages. The variability of research findings around the impact of gambling marketing can in part be ascribed to methodological issues around requiring participants to engage in self-report - either in questionnaire format or the in-depth interview situation - around the often unconscious, embarrassing or just plain complicated intersection of strategic gambling marketing messages, other social messages and more internally located desires, drives and identity. Furthermore, all studies recently reviewed rely heavily on participant recall of the type, frequency and intensity of media they have seen.

Although no research has examined the effect of gambling sponsorship on gambling perceptions and behaviour to date, research findings linking alcohol industry sponsorship and hazardous drinking - particularly the provision of free or discounted alcoholic drinks - may also be worthy of attention in relation to gambling sponsorship. Similar to the “long standing relationship between alcohol and rugby” that exists in New Zealand (Maher, Wilson, Signal & Thomson, 2006, p.7), it can be commented that the association of lottery sponsorship with charitable or community activities helps to create the impression that gambling is approved of by society, and the observation of others (family, friends, celebrities, or ‘people like me’) associating themselves with lotteries products can result in modelling of the behaviour, especially amongst young people (Wood & Griffiths, 2004). However, there is no causal evidence that the popularity of the less problematic (non-continuous) lottery gambling leads to popularity of gambling on other forms.

Some sectors of the gambling industry in New Zealand spend substantial sums of money on the marketing of their gambling products. Apart from mass media and other forms of advertising, marketing here also includes the sponsorship of sports, cultural and social events. Marketing of gaming machine societies takes a different form, generally in the promotion of community benefits that accrue from the distribution of gambling proceeds. Reflecting and contributing to the international literature, studies in the New Zealand context have also suggested a relationship between gambling behaviour and advertising, as well as commented on groups in the community that gambling advertisements may have more potential to impact negatively, such as youth and Maori. Amey’s (2001) general population survey of 1500 people revealed the majority (89%) remembered seeing or hearing some form of gaming advertising in the last 12 months. It was also found that the younger the person, the more likely they were to remember some form of gambling

advertising, with 93% of individuals under the age of 25 recalling gambling advertising. Although not indicative of causation, results also showed the number of people recalling lottery advertising was found to be virtually identical to the number who had played the game. However, those who had played NCGMs still far exceeded the number who remembered seeing advertising for them. There also seems to be some association between participation in gambling activities and advertisement recall, as the number of modes of gambling activities people have participated in increases, so does the likelihood of recalling gaming advertising (National Research Bureau, 2007; Amey, 2001). Differences in advertising recall patterns were also found by Abbott et al., (1999) where probable “pathological gamblers” showed patterns of recall that differed slightly from those of “problem gamblers” as well as frequent gamblers.

An issue of considerable local importance is the visibility of Maori and Pacific in gambling advertising, combined with a perceived counter of “happy gambling images” in the media (Dyall, 2003 reported in Rankine & Haigh, 2003). There is also broader critique of the utilisation (and exploitation) of cultural practises and values, icons and symbols in promoting gambling to consumers such as “red pockets” free drink vouchers at casinos which references a Chinese practise where families give money to each other to promote their good health and wellbeing at Chinese New Year. The icon of the Chinese dragon has also been used as part of gambling venue marketing to coincide with Chinese New Year, in an attempt to evoke a sense of luck and prosperity. This form of marketing has occurred in a context where it is known that specific Asian communities are at risk from harm from casino gambling. Similar activities utilising Pacific food and music have led to questions around how gambling advertising should be regulated so gambling does not “invade further into changing our culture, our values and lifestyles” (Dyall, Tse & Kingi, 2009, p96).

Pacific respondents are most likely to say the amount of gambling advertising is *high* or *very high* (61% compared to 45% of other groups) (Department of Internal Affairs, 2008), while Pacific and Asian respondents together reported being introduced to gambling via advertising and the ‘desire to win’ more often than their European and Maori counterparts (Abbott, 2001b). Asian and Pacific respondents have also been found to be more likely than people of other ethnicities to feel that advertising and promotion done by gambling providers encourages more people to gamble or to gamble more often (National Research Bureau for HSC, 2007). Further, vulnerable people such as the unemployed or beneficiaries, were more likely to have seen gambling advertising in 2005 (87%) than in 2000 (79%) while rates for all other occupations remained consistent (Department of Internal Affairs, 2008). In one study, people living in the most deprived areas have been found to be more likely than those living in other areas to say that gambling advertising encourages more people to

gamble, or to gamble more often in general, i.e. across gambling types and not tied to the specific activity or venue advertised (National Research Bureau, 2007).

Some sectors of the gambling industry in New Zealand spend substantial sums of money on the marketing of their gambling products and there is evidence that advertising does contribute, to some extent, to problem gambling. However, it is also important to point out that while NCGMs are not associated with any direct “external” marketing, they are the form of gambling that accounts for more than half of the gambling expenditure in 2004 (Perese et al., 2005). In addition, progress has been made in the marketing of competing public health messages around the effects of, and more recently potential solutions to, problem gambling that extend beyond the individual problem gambler, for example, the “our communities, our problem” campaign. The variability of research findings around the impact of gambling marketing on attitudes and behaviour can partly be ascribed to the dynamic and filtered nature of any message that is received by an individual. Additionally, it may also reflect methodological issues around requiring participants to engage in self-report of their attitudes, intentions and behaviours and as well as recall of the type, frequency and intensity of media they have seen.

SUMMARY: Influences on Gambling Behaviour

Individuals gamble for a wide range of reasons, including as a form of escape or coping, as a means to try to fulfil financial obligations, and as a social outlet. The most common reason is to “win money”. An individual’s relationships influence both their gambling and their recovery. The type of primary gambling an individual engages in influences their social connections. EGM gambler’s in treatment tend to have sparser social networks, however these networks tend to provide greater support when compared to EGM gamblers not in treatment and Bingo gamblers. It has been found that social support plays an important role in moderating clinically relevant treatment outcomes, independent of the type of treatment administered. Conversely, social ties can also create a net which can imprison a person in maladaptive situations and supporting norms that facilitate undesirable behaviour. This is often seen in people with addictions.

Some sectors of the gambling industry in New Zealand spend substantial sums of money on the marketing of their gambling products and there is evidence that advertising does contribute, to some extent, to problem gambling. It may also play a significant role in attracting people to gambling and in maintaining gambling clientele. This may be especially the case in vulnerable groups such as the young and the unemployed.

Preventing harm and supporting people to make positive changes?

What are the protective factors that prevent individual gamblers from developing problems?

Studies across the field of addiction have identified many factors that may be protective in terms of the development of addictions. These include ethnicity, social networks, environment, and sociodemographics. The following table is taken from the substance abuse literature and highlights risk and protective factors that Clarke (2005) argues are likely to be applicable to problem gambling due to the parallels seen between the addictions elsewhere. How some of these factors may prevent individual gamblers from developing problems has been discussed in previous sections of this report focussing on risk. However, the protective factors of ethnicity, social networks and family will be discussed in more depth below.

Table 6: Risk and protective factors that contribute to the initiation and continuation of substance abuse.

Source: Clarke, 2005.

Risk Factors	Protective Factors
<i>Environmental</i>	<i>Environmental</i>
Availability and accessibility Advertising, favourable media portrayal Permissive social policy	Unavailability of substances Neighbourhood cohesiveness, stability Enforcement of legislation
<i>Cultural</i>	<i>Cultural</i>
Minority group status Norms that favour substance use Acculturation pressures	Majority group status Norms that mitigate substance use Cultural adaptation and cooperation
<i>Sociodemographic</i>	<i>Sociodemographic</i>
Male Adolescent or young adult Young age at initiation Poverty, unemployment, poor housing Family separation	Female Adulthood (30+) Later age of initiation Higher economic status, employment Intact families and marriage
<i>Social</i>	<i>Social</i>
Conflict and chaotic home environment Ineffective parenting, child abuse Disengaged and hostile families Negative peer influence Modelling use from significant others Leisure and social activities with substances	Stable home environment, family rituals Effective parenting, control Cohesive and affectionate families Conventional friends Abstinent role models Recreational, leisure and social activities without substances
<i>Personal</i>	<i>Personal</i>
Genetic predisposition to impulsivity and negative affectivity Lack of attachment to parents / caregivers Poor social and coping skills Early childhood conduct disorders Failure in school Peer susceptibility Lack of self-control Antisocial behaviours Novelty-seeking Unawareness of memory associations Liking advertising for substances	Genetic predisposition to emotional stability and positive affectivity Attachment to parents / caregivers Social competence High intelligence High academic achievement, preschool Self-confidence, conscientiousness Self-control, self-efficacy High moral standards Preference for safe activities Rational planning and foresight Awareness of substance-inducing cues

In the context of New Zealand's increasingly ethnically diverse population and the known risk and protective factors associated with being of minority group status, it is imperative that problem gambling be investigated in such groups. The Pacific Island Family Study - a longitudinal study being undertaken by AUT that began in 2000 – found of all the Pacific ethnicities included in the sample, those of Samoan ethnicity were least likely to gamble. Bellringer and colleagues (2006) argue this indicates that being Samoan may be a protective factor in terms of starting gambling. However, it was also found that Samoans who did gamble were more likely to spend higher amounts of money on gambling than other ethnicities (Bellringer et al., 2006). This pattern is echoed to some extent across many migrant and indigenous groups worldwide. Studies from Sweden as well as New Zealand have found significant 'bimodal' patterns of participation in these groups, meaning that many members of these ethnic groups do not participate in gambling or have very little involvement, yet the minority that do choose to gamble spend higher amounts than average and are more likely to develop gambling problems than those of the dominant ethnic group (Abbott et al., 2004).

Social networks and family have also been shown to play a protective role in the development of gambling problems. Rossen (2008) found that for New Zealand youth, the two most significant protective factors for both starting gambling and developing a gambling problem were measures of social connectedness: being securely attached to a maternal figure or having a close relationship with a school teacher. Other research has also shown that family unity and school involvement are protective with respect to youth gambling. Dickerson and colleagues (2003) found that of those adolescents reporting to be connected with their families nearly two thirds were classified as social- or non-gamblers. In contrast, just 11.1% of those who met the criteria for pathological gambling and 21.8% of at-risk gamblers reported being connected with their families. Conversely, being connected to one's family significantly decreased the likelihood of fitting the diagnostic criteria for pathological gambling, a trend that still existed even in the presence of gambling risk factors such as school issues and having close relationships with others who have a gambling problem.

Ainsworth's attachment theory (1989) states healthy attachment increases the likelihood of developing strong social skills and coping mechanisms. Research shows pathological gamblers often report low social adjustment (Pietrzak & Petry, 2005). Taormina (2009, p.1050) explores this relationship between attachment and gambling, proposing that

“family emotional support might be linked to gambling through social adjustment. If (i) people with supportive emotional family ties exhibit better social adjustment, and (ii) better socially adjusted individuals are less likely to gamble, then (iii) people who have emotionally supportive family relationships would be less likely to gamble. Consequently, the following may be

hypothesized...The more family emotional support received, (i) the less favorable will one's gambling attitudes be, and (ii) the less gambling behavior one will engage in."

However, the link between gambling and family emotional support through social adjustment has never been directly tested (Taormina, 2009). Therefore, the first part of the hypothesis needs to be interpreted with caution. In a related review of the literature, Abbott (2006) stated problem gamblers are more likely to have been exposed to gambling throughout their formative years by family members. Additionally, problem gamblers are more likely to have higher levels of gambling participation in their current families. Interestingly, Abbott and Volberg (2000) found individuals most at risk of developing a gambling problem were those that had started gambling either before the age of 13 or after the age of 25. The authors go on to speculate that being introduced to gambling during the teenage years or early 20s may serve as a protective factor.

Interactions with individuals and groups outside one's immediate family may also play a role in preventing or minimising gambling harm. In a study comparing abstaining and relapsed members of GA, Oei and Gordon (2008) found support from social networks, and attendance and participation at GA meetings were the variables that most significantly distinguished abstainers from relapsed gamblers. Oei and Gordon also found social support was associated with longer periods of abstinence within the entire sample. In support, Haroon and colleagues (2004) found in a sample of Canadian adolescents (grades 7-13), lower perceived social support was associated with pathological gambling. A more recent study (n=1000 college students) found pathological gamblers perceived lower social support in comparison to nonpathological gambling peers (Weinstock & Petry, 2008). The cause of this relationship remains unclear and future studies will need to replicate and explore the etiology of this finding.

Another social activity that may serve a protective function in terms of gambling problem development is organised religion. Diaz (2000) and Lam (2006) both found those individuals that frequently attended religious services gambled less often than infrequent service attendees. This remained the case when the social aspects of church attendance was controlled for, indicating that having strong religious beliefs may protect against problem gambling development.

What public health approaches are most useful?

"Primary Prevention is an effort to prevent individuals in the general populace from becoming problem gamblers. Secondary Prevention is an effort to prevent the development of problem gambling in individuals with risk factors for the condition." (Williams, West & Simpson, 2007, p.4)

In 2004, new gambling legislation was introduced. The legislation put more emphasis on public health promotion, prevention, and early intervention and gave local government the directive to take steps to ensure gambling harm is minimised in their locality (Abbott, 2005; Problem Gambling Foundation, 2007). In addition, the Department of Internal Affairs and Ministry of Health charge gaming venues with ensuring they facilitate responsible gambling and prevent and minimise harms caused by gambling (Ministry of Health, 2009). However, despite the mandatory host responsibility training around serving intoxicated patrons, how to prevent gambling harm at venues is not specifically described in the documentation or backed up with any empirical evidence.

In terms of secondary prevention – preventing the development of gambling problems amongst those that are already engaging in risky behaviours – New Zealand appears to be leading the way (Abbott, 2005). According to international comparisons, the New Zealand Gambling Problem Helpline Service experiences very high call numbers relative to the country's population and the estimated prevalence of problem gambling. In 2008, over 14,000 calls were received by the Helpline, 70% of which were from problem gamblers themselves, illustrating the high levels of outreach by those experiencing harm (Ministry of Health, 2008a). Supporting these statistics, a review of the literature on the transition from recreational to problem gambling by Clarke et al., (2007a) found over time the percentage of New Zealanders that report seeking professional help for problem gambling has increased. As well as in general, minority groups such as Maori have increased their level of help seeking at an even higher rate.

However, it is well documented the dropout rates in gambling treatment programmes are very high. For example, the United States National Gambling Impact Study Commission (1999) reported that of the 3% of problem gamblers that actually seek treatment, the majority of these individuals do not complete treatment. Therefore, it is crucial public health professionals prioritise interventions which increase the awareness of gambling problems in the community and educate people on how to identify problems and support people throughout treatment.

Sander and Peters (2009) argue identifying comorbid psychological disorders – including psychological distress and poor quality of life – is imperative to effectively preventing the development of problem gambling. Their study showed that individuals displaying such issues at the end of treatment had a significantly higher likelihood of relapse. Comorbid addictions and behaviours that span across addiction domains are also thought to be important in terms of prevention. Following a review of public health initiatives aimed at preventing tobacco, alcohol and drug addiction in youths, Dickson, Derevensky and Gupta (2003) concluded there are strong themes that run between the three behaviours. They extend this finding with the suggestion that

“prevention efforts arrived at [for] other addictions are rich sources of information to those working towards the prevention of youth problem gambling” (pp. 102-103). Barnes, Welte, Hoffman and Dintcheff (1999) support this view in regards to public health initiatives aimed at minimising gambling harm in youth. Their study illustrated the link between young males’ alcohol consumption and problem gambling, and also showed that youth engaging in other problematic behaviours, such as criminal activity, are more likely to be involved in problem gambling behaviours. Gupta and Derevensky (1997) argue awareness simply needs to be raised within the community regarding youth gambling. This is based on their findings that 52% of the juveniles in their study gambled once a week or more, and that the majority of these 9-14 year olds did so with a family member.

In regards to both youth and adult problem gambler populations, the family plays an important role. As was mentioned above, families can influence the development of problem gambling. In addition, financial assistance from family members or, conversely, the feeling of isolation from the family can contribute to the maintenance of the problem (Perese, 2009). Due to this powerful link between families and problem gambling, it stands to reason that public health interventions should be targeted at family groups. Perese suggests family-based interventions may be especially appropriate for Samoan families in New Zealand due to the cultural emphasis on the ‘aiga’ and the respect for the family unit. Messages that target families and highlight the important role they can play in early identification of problem gamblers are recommended. Shaw, Forbush, Schlinder, Rosenman and Black (2007) echo this view, arguing all families need to be included in any public health approach that targets problem gambling due to the significant role many aspects of family life play in the development of gambling issues, such as parental separation, abuse, and family members’ mental health.

In terms of the efficacy of various public health campaigns internationally, Williams and colleagues (2007) carried out a comprehensive review of the evidence around the prevention of problem gambling. The authors found that, despite the popularity of different forms of public health prevention initiatives, their efficacy is largely unknown. Of those initiatives where associated change has been measured, it is often through attitude or belief change. It has been shown in many areas of psychology that behaviours often do not align with attitudes; therefore the authors argue that being able to measure actual behaviour change is imperative for rating the success of public health initiatives.

One measure of behaviour change often used to demonstrate uptake of gambling related public health campaigns, is the number of people seeking help or advice for gambling. Jackson, Thomason and Ho (2002) found that following a mass-media campaign on problem gambling in Victoria,

Australia, calls to the regional gambling helpline increased significantly. Williams et al., (2007) argue this kind of behaviour change occurs because it follows the three principles proposed by Janz, Champion and Strecher (2002): the information is relevant to the person receiving it, behavioural change is relatively easy to achieve, and the costs of continuing the current behaviour are considerable. This indicates public health initiatives may be most effective when the information is disseminated to those who are gambling in a risky way (e.g. EGM gamblers), it promotes an easy form of behaviour change such as calling a helpline, and it is aimed at people experiencing significant harm from gambling. However, recently a political debate has arisen over the effectiveness of Victoria's mass-media campaign (McMillen & Wright, 2008; Rood, 2010).

Some public health campaigns have focussed on promoting an understanding of probability and the true odds of succeeding at non-strategic games of chance, such as EGM gambling, in order to reduce problem gambling. However, support for these types of public health initiatives is varied. Williams and colleagues (2007) liken educating problem gamblers about the odds of winning to warning alcoholics about the dangers of drinking, arguing that "individuals involved in these behaviours are usually already aware of these facts. Knowing something and having this knowledge alter your behaviour are often two different things. While knowledge is, in most instances, a necessary antecedent to changing or preventing harmful behaviour, it is often not sufficient on its own" (Williams et al., 2007, p.11).

In a 2006 study, participants who read about irrational gambling beliefs were shown to exhibit less risky gambling behaviour on a computer-based gambling task set in a laboratory (Floyd, Whelan & Meyers, 2006). Conversely, participants that read information regarding the slim chances of winning in a game of roulette were found to be just as likely as those that did not receive the information to gamble on roulette (Steenbergh, Whelan, Meyers, May & Floyd, 2004). Additional studies have shown problem gamblers do not differ on measures of knowledge of gambling odds, but have been shown to have more cognitive biases than non-problem gamblers (Lambos & Delfabbro, 2007; Delfabbro, Lahn & Grabosky, 2006). These mixed findings are also apparent in the alcohol and drug literature on public health initiatives (e.g. Wandersman & Florin, 2003; Gates, McCambridge, Smith & Foxcroft, 2005). In general, many of the drug and alcohol educational prevention programmes – including extensive school-based programmes – have not been shown to have large effects on future behaviour, if they have effects at all.

Taking a more societal view, Clarke et al., (2007a) argue to prevent individuals from developing serious gambling problems, issues outside those traditionally dealt with by public health interventions must be addressed. These include financial issues, such as increasing levels of income

inequality in New Zealand's society – ranked 24th out of 31 OECD (Organisation of European Collaboration and Development) countries in terms of income equality – (OECD, 2010), the structure of welfare, and employment opportunities. Clarke and colleagues also propose that social support for migrants be improved, as well as increasing opportunities for less harmful recreation in order to reduce the reliance on gambling as the default pastime for certain sections of society.

Williams et al. (2007) conclude in their review that most of the public health initiatives aiming to reduce problem gambling prevalence lack a theoretical basis. In addition, many of the initiatives have failed to show any significant behavioural changes in the target audience. The authors recommend that any public health programme should be designed using the most current research as its foundation and with clear measurable goals in order to assess efficacy.

What clinical approaches are useful?

New Zealand was one of the first jurisdictions to introduce dedicated services for problem gamblers (from 1993 onwards). In 2006/07 the Ministry of Health allocated over \$11 million to intervention services, principally the national Gambling Helpline and face-to-face specialist counselling services. The Helpline had 2,651 new clients in 2006, of which 1,630 were problem gamblers and 800 were people affected by others' gambling. The total number of gambling clients that year was 2,917 (Ministry of Health, 2007). A similar number (2,685) received face-to-face counselling. The Helpline provides information, screening, brief intervention, referral and follow-up services.

Although substantial financial resources are allocated to problem gambling treatment in New Zealand, it is not known how effective these services are or whether or not comparable outcomes could be produced more effectively using different approaches. Internationally, a variety of interventions have been developed (Abbott et al., 2004; Hodgins & Holub, 2007). A recent meta-analysis of relevant studies concluded, in general, psychological interventions for problem gamblers are associated with favourable outcomes compared with no treatment (Pallesen, Mitsem, Kvale, Johnsen & Molde, 2005).

From many reviews (Abbott et al., 2004; Hodgins & Holub, 2007; Petry, 2005; Toneatto & Ladouceur, 2003; Toneatto & Millar, 2004; Westphal & Abbott, 2006) it is evident that problem gambling efficacy, effectiveness and outcome studies are limited, and at present no intervention has been demonstrated to meet accepted efficacy standards. Some interventions, however, can be classified as "possibly efficacious" (Chambless & Ollendick, 2001) in that there is at least one randomised controlled trial from one investigator group. Psychological therapies in this category include a cognitive treatment (Ladouceur et al., 2001), cognitive behavioural treatments (Echeburua, Baez & Fernandez-Montalvo, 1996; Petry et al., 2006) and brief motivational and self-help interventions

(Hodgins, Currie, el-Guebaly, & Peden, 2004; Hodgins & el-Guebaly, 2004; Petry et al., 2008). While these and similar interventions are apparently being used in every day clinical settings, they have not been evaluated in effectiveness or benchmarking studies (controlled studies of efficacious treatment in community settings). There are also very few outcome studies (uncontrolled reports of treatment characteristics, number of clients and client characteristics and outcomes).

Reflecting on their examination of the gambling intervention literature, Westphal and Abbott (2006) concluded:

“In sum gamblers respond to several possibly efficacious treatments ... with the majority benefiting, at least in the short term, when conducted by the original investigators. There is no evidence that the beneficial effects occur when the treatments are performed by other investigators or community based clinicians” (p.131).

This is clearly a very serious shortcoming. These authors identified barriers to the development of evidence-based treatments including low sample size, heterogeneous samples, lack of protocol driven treatments, single site clinical trials, a lack of replication of studies by independent investigators and high rates of non-specific treatment response. They examined other fields that have overcome many of these barriers by, among other things, developing close collaborations between treatment providers and investigators and conducting multi-site studies.

In addition to those limitations, the small sample size of studies and lack of outcome and effectiveness research means little is known about individual characteristics associated with success in different treatments. This information would enable clients to be matched to particular interventions and treatment outcomes improved.

Cognitive Behavioural Therapy (CBT)

A meta analysis of CBT treatment effectiveness in problem gambling was recently reported by Gooding and Tarrrier (2009). Twenty-five studies met the inclusion criteria and effect sizes (Hedges' g : Hedges & Olkin, 1985) and 95% confidence intervals were calculated for each. The effect sizes calculated were generally medium to large (Cohen, 1988) across each sub-category of the studies (outcome measure, mode of therapy, type of therapy, and primary gambling type). Two-tailed tests were used to assess the significance of the effect sizes (the study's inclusion criteria included that there was either a control group comparison and/or pre and post outcome measures for the treatment group). The results showed large (and statistically significant) effect sizes regardless of outcome measure, mode of therapy, type of therapy, or primary gambling mode. The effects were also significant at six, twelve and twenty-four month follow-up periods. However at 6 months, only

the three studies using “desire to gamble” as an outcome measure retained significant overall effects.

Sub-group analysis suggested that both individual and group therapies were equally as effective in the 3 month time window; however this was not the case at the 6 month follow-up, with only group therapy having a significant effect size at 6 months follow-up. All variants of CBT (cognitive therapy, motivational interviewing and imaginal desensitisation) had significant benefits, although there was some tentative evidence that when different types of therapy were compared cognitive therapy had an added advantage.

Meta-regression analyses showed the quality of the studies influenced the effect sizes, with those of poorer quality having greater effect sizes. Recently, a meta analysis of studies of CBT used to treat depression in adult patients found that effect sizes were systematically overestimated due to publication bias where significant results have greater chance of achieving publication (Cuijpers, Smit, Bohlmeijer, Hollon, & Andersson, 2010). After controlling for publication bias their estimate of the effect size was 0.42 (a small to medium effect size, down from 0.67 reported across the 52 studies reviewed).

Gooding and Tarrrier’s (2009) meta analysis suggests CBT, in various forms, is effective in reducing gambling behaviours. However, caution is warranted because of the heterogeneity of the studies, a concern touched on above. The authors comment that evaluation of treatment for problem gambling lags behind other fields (see also Westphal & Abbott, 2006) and that this should be a priority for research across multiple jurisdictions.

Brief interventions

There is growing evidence that for many problem gamblers short-term and less intense (‘minimal’ or ‘brief’) interventions might be as effective as longer, more intensive therapies. Such approaches, typically including brief motivational interviews and/or self-help workbooks, have been shown to be effective with a variety of problems including alcohol and substance misuse. Meta-analyses comparing self-help workbooks and no treatment controls or therapist-directed interventions indicate that workbooks are more effective than no treatment controls and as effective as the same programmes administered by therapists (Gould & Clum, 1993). While it appears workbooks are generally effective, it remains unclear which particular types of intervention are most beneficial to which type of individual (Babor, 1994). In the alcohol field, however, there are indications that brief interventions are particularly effective, and highly cost effective, for people with less serious forms of disorder (Bertholet, Daepfen, Wietlisbach, Fleming & Burnand, 2005).

A promising application of brief interventions to problem gambling to date involves a short motivational telephone interview, followed by a self-help workbook (Hodgins, Currie, & el-Guebaly 2001; Hodgins et al., 2004). Motivational interviewing is based on the idea that behaviour change occurs through identifiable stages (pre-contemplation, contemplation, action and maintenance) where some motivation is present at each stage representing a general readiness to change that can be influenced with intervention. The approach involves therapists eliciting clients' understandings of their gambling and possible solutions with a view to strengthening commitment to change. Hodgins and colleagues (2001) compared this intervention with receipt of the workbook alone, and a wait-list control in a randomised controlled trial (RCT). The interview used motivational enhancement therapy principles directed towards building commitment to change. The workbook was based on a cognitive-behavioural model of problem gambling, relapse prevention and the findings of research on problem gambling recovery processes. Participants who received a motivational telephone interview and workbook in the mail, but not those who received the workbook only, had significantly better outcomes at one-month follow-up than participants in the wait list control. Participants in the combined motivational interview/workbook group also gambled less frequently and spent less money gambling at three and six months than those who only received the workbook. At three months, 42% of the former group was abstinent compared with 19% of the latter. At six months their respective outcomes were 33% and 22%. While there was no overall difference at 12 months, motivational interview/workbook participants with less severe gambling problems maintained a therapeutic advantage.

Hodgins et al., (2004) followed up 67 participants 24 months after they had completed the programme. While motivational interview/workbook and workbook only participants did not differ with respect to abstinence rates during the preceding six months, those in the former group gambled less often, lost less money, had lower problem gambling scores and were more often rated as having improved. Overall, more than three-quarters of total participants were rated as improved, over half scored below the cut-off for past year pathological gambling and over a third reported six months of abstinence.

This work indicates brief interventions that do not have to involve face-to-face contact can have clinically significant and enduring impacts. Hodgins and colleagues (2001) suggested the addition of further motivational interviewing 'booster' sessions might enhance outcomes. They also recommended that future studies examine the impact of treatment on other areas such as psychological distress and family and social functioning.

Across a variety of mental disorders, motivational interviewing has been shown to improve outcomes by enhancing treatment compliance (e.g., Arkowitz, Westra, Miller, & Rollnick, 2008; Miller & Rose, 2009). A pilot study with pathological gamblers (Wulfert, Blanchard, Fredienberg & Martell, 2006) found treatment drop-out was significantly higher for treatment-as-usual than it was for a combined motivational interview-cognitive behaviour therapy intervention. This study did not assess whether or not greater compliance was associated with improved outcome.

In contrast to the previous study mentioned, a recent trial of brief face-to-face interventions (Petry et al., 2008) did not find that a motivational interviewing component enhanced outcomes for problem gamblers recruited from substance abuse programmes and medical clinics. Furthermore, this study found that relative to participants who received assessment only (no treatment control), those who received 10 minutes of brief behavioural advice significantly decreased their gambling behaviour at a six-week follow-up. Additionally, participants in this group had clinically meaningful reductions in gambling at nine months. This study also examined some participant characteristics in relation to outcome. Participants with less severe gambling problems and fewer medical problems had better outcomes. Contrary to expectation, comorbid substance misuse/dependence and psychological distress did not influence outcome.

Pharmacotherapies

Lithium may be useful in pathological gamblers with bipolar spectrum co-morbidity, however more research is needed to explore the efficacy of pharmacotherapies for pathological gamblers in general as well as for patients with co-existing conditions. Hollander, Pallanti, Allen, Sood and Rossi (2005) conducted a 10 week double blind, placebo-controlled study with 40 pathological gamblers with a bipolar spectrum disorder who were randomized to receive sustained release lithium carbonate or placebo (29 patients completed the trial). Lithium was associated with reductions in gambling symptoms, thoughts and urges. More lithium treated respondents were judged “responsive to treatment” (83%) than placebo treated patients (29%).

Several recent studies have looked at the effectiveness of naltrexone as a treatment for problem gambling. Toneatto, Brands and Selby (2009) examined naltrexone as a treatment for concurrent alcohol use disorder and pathological gambling using a randomized, double-blind, placebo-controlled trial. Fifty-two, mostly male, subjects were recruited from the community and received 11 weeks of medication during which CBT was also provided. No significant group differences were found on any alcohol or gambling variable (i.e., frequency, quantity, expenditures) at post-treatment or at the one year follow-up. A strong effect on time spent gambling was found suggesting that the treatment was effective for gambling, but use of naltrexone to treat concurrent alcohol use and

gambling problems was not supported. Grant and Hartman (2008) investigated naltrexone in the treatment of pathological gambling urges in an 18-week, double-blind, placebo-controlled trial. The safety and efficacy of 3 doses of oral naltrexone for pathological gambling were evaluated. Seventy-seven individuals with DSM-IV diagnosed pathological gambling were randomly assigned to naltrexone (50 mg/day, 100 mg/day, or 150 mg/day) or placebo. In this case subjects assigned to naltrexone showed statistically significant reductions in gambling urges and behaviour. Low-dose naltrexone (50 mg/day) appeared as effective as higher doses (100 mg/day and 150 mg/day), and all doses were well tolerated (low side effects).

Comorbidity

The co-occurrence of pathological gambling and other disorders is well documented and poses problems for treatment of gambling in and of itself (Westphal & Johnson, 2007). For example Petry, Stinson and Grant (2005) found of 43,093 US adults participating in face-to-face interviews in a 2001-2002 health related survey, 73% of pathological gamblers had an alcohol use disorder, 38% had a drug use disorder, 60% had nicotine dependence, 50% had a mood disorder, 41% had an anxiety disorder and 61% had a personality disorder. Data from the US National Comorbidity Survey Replication (NCS-R), a nationally representative US household survey, were used by Kessler et al. (2008) to assess lifetime gambling symptoms and pathological gambling in 9282 participants along with other DSM-IV disorders. AOO of each lifetime disorder was assessed retrospectively. AOO reports were used to study associations between temporally primary disorders and the subsequent risk of secondary disorders. Onset and persistence of pathological gambling was predicted by a variety of prior anxiety, mood, impulse control and substance use disorders. Pathological gambling also predicted the subsequent onset of anxiety disorders, post traumatic stress and substance dependence. Importantly, in regards to clinical approaches, although none of the respondents with pathological gambling reported ever receiving treatment for gambling problems, 49% had been treated at some time for other mental disorders (Kessler et al., 2008). The authors conclude DSM-IV pathological gambling is an undertreated disorder where symptoms typically start during early adulthood and is frequently secondary to other mental or substance disorders that are associated with both pathological gambling onset and persistence.

Korman and colleagues (2008) evaluated an integrated treatment for comorbid problem gambling, anger, and substance use. Problem gamblers with comorbid anger problems (N=42), half of whom also had substance use disorders, were randomly allocated to either a 14-week integrated treatment targeting anger and addictions (i.e., both gambling and substance use) or a specialised treatment as usual (TAU) condition for gambling and substance use. Relative to the TAU, participants in the

integrated anger and addictions treatment reported significantly less gambling at the second and third assessments, and less trait anger and substance use at the final assessment. These findings suggest it is important to screen gambling clients for the presence of co-morbid anger and substance use problems and that, when present, these problems need to be addressed concurrently in gambling treatment in order to optimize treatment outcomes.

Addiction syndrome model

Shaffer and colleagues recently proposed that addiction is a “syndrome” based on non-specific biological risk factors across substance use disorders (Shaffer et al., 2004). The authors comment that a syndrome is a cluster of signs and symptoms related to an abnormal underlying condition, not all signs and symptoms are present in every expression of the syndrome, and that some manifestations of the syndrome have unique signs and symptoms.

Westphal (2010) suggested the evidence as a whole seems to support an “addiction syndrome” model which includes pathological gambling. Pathological gambling has a strong co-occurrence with a broad range of substance use disorders (Petry, Stinson, & Grant, 2005; Westphal, 2008). Genetic studies have suggested an association of pathological gambling and substance use disorders (Black, Monahan, Temkit, & Shaw, 2006). Further, some neuroscientists have proposed that an under-functioning dopamine reward system is a vulnerability for development of both substance use disorders and disorders of “excessive behaviour” (Blum & Braverman, 2000).

Many studies with pathological gamblers show shared psychological and social risk factors with substance use disorders (Shaffer & Korn, 2002). In addition, a non-specific response to treatment among patients with substance dependence and disorders of excessive behaviour has also been documented (Shaffer et al., 2004; Westphal & Abbott, 2006). Scholarship around “addiction syndrome” has led the American Psychological Association (APA) to consider an “Addiction and Related Disorders” category that would include substance related disorders and gambling as well as potentially other addiction-like behavioural disorders such as “internet addiction”. APA make the comment below (APA, 2010):

“The Substance-Related Disorders Work Group has proposed to tentatively re-title the category, Addiction and Related Disorders ... the word “dependence” is now limited to physiological dependence, which is a normal response to repeated doses of many medications including beta-blockers, antidepressants, opioids, anti-anxiety agents and other drugs. The presence of tolerance and withdrawal symptoms are not counted as symptoms to be counted for the diagnosis of substance use disorder when occurring in the context of appropriate medical treatment with prescribed medications. Finally, the work group is

addressing the disorder pathological gambling, which is currently listed under the diagnostic category Impulse-Control Disorders Not Elsewhere Classified.”

Is there an effect of specific problem gambling treatment beyond the effect of paying attention to the problem?

Recent reviews question whether there is an effect of specific problem gambling treatment beyond the effect of paying attention to the problem (Westphal, 2010; Westphal & Abbott, 2006). The average rate of placebo response among pathological gamblers in pharmacological clinical trials is 42% (Westphal, 2008). The duration of this response ranged from 6-8 weeks to 9 months. This response is defined as the “non-specific response to treatment”, equivalent to just paying attention to and observing the problem or behaviour. While on one level this suggestion is of some concern, it still supports continued focus on raising awareness and facilitating earlier support and help seeking.

For example Blanco et al., (2009) examined the relationship between gambling severity, impulsivity and obsessionality/compulsivity in 38 pathological gamblers representing the complete Minnesota sample of a randomised, placebo-controlled clinical trial of paroxetine for the treatment of pathological gambling. In this study, changes in PG-YBOCS scores (a reliable and valid measure of pathological gambling symptomology) after treatment correlated with changes in Impulsiveness scores (measured by the Eysenck Impulsiveness Questionnaire). These changes appeared independent of paroxetine treatment. The results suggest that, although pathological gambling exhibits features of both obsessionality/compulsivity and impulsivity, elements of both decreased with treatment. Impulsivity predominates however (especially in relation to acting without forethought rather than sensation seeking), and changes in gambling severity were most associated with changes in impulsivity. Taken together with the results of similar studies these findings suggest changes in impulsivity may be affected with relatively brief interventions, however the stability of this effect over time is yet to be investigated. The authors comment that “contrary to our hypothesis, there were no significant differences between the paroxetine- and placebo-treated groups regarding the changes in impulsivity or gambling behavior, suggesting that the changes in impulsivity were not due to a specific pharmacological effect. However the small sample size limits the ability to exclude this possibility.” (Blanco, et al. 2009, p. 166). Table 7 below canvasses reported placebo response as a percentage of the effect of the pharmacological treatment in recently published trials. The data were obtained from Westphal (2010), who further defined the placebo response as a non-specific response to treatment, equivalent to paying attention to and observing the problem or behaviour.

Table 7. Reported placebo response among pharmacological trials – as taken from (Westphal, 2010)

Study	Placebo (%)
Hollander et al (1998)	41.7
Kim et al (2001)	24
Kim et al (2002)	23.8
Blanco et al (2002)	59
Grant et al (2003)	49
Saiz-Ruiz et al (2005)	72
Hollander et al (2005)	25
Grant & Potenza (2006)	34

Natural recovery and relapse

It is well accepted a substantial proportion of those who quit smoking do so without any formal intervention. The phenomenon of “natural recovery” has only recently been extended to drugs and alcohol, though a review of studies have reported that more than three quarters (79%) of “recovered” alcoholics indulge in some low-risk drinking, and drug users in nearly half (46%) of the studies reported continued but limited drug use (Sobell, Ellingstad, & Sobell, 2000). It would seem intuitive to suggest individuals may similarly cycle in and out of gambling problems in response to personal and social factors over the course of a lifetime. Although, initially considered a chronic and progressive condition comparable to substance dependence, longitudinal data indeed suggests a more transient and varied course for a great proportion of problem gamblers in general, particularly in regards to problems with EGM gaming (Abbott, Williams & Volberg, 1999; Slutske, 2006). Further, self-reported lifetime rates of disordered gambling continue to be higher than past year rates (Petry, 2009). Slutske (2006) used two U.S. national surveys to estimate the prevalence of “natural recovery” among treatment seekers, defining recovery as the “the percentage of individuals with a lifetime history of DSM-IV pathological gambling who did not endorse any pathological gambling symptoms in the past 12 months”. Results indicated 36% to 39% reported no past-year gambling-related problems, and only 7% to 12% ever sought formal treatment or attended a GA meeting.

Recent studies have sought to identify characteristics of problem gamblers who report “recovery” without formal intervention or treatment, in order to comment on potential ways of assisting those with the desire to “do it on their own” to do so more efficiently and effectively (Hodgins & el-

Guebaly, 2000). In their Canadian study, Hodgins and el-Guebaly (2000) found more than half of self-reported resolved gamblers indicated they had received no treatment and a third had received treatment. Resolved gamblers stated they quit largely because of financial and family problems and emotional factors; they indicated avoiding gambling situations, taking up new activities, employing cognitive strategies, and attending treatment were the primary strategies that aided recovery. Those who resolved without treatment were more likely than other gamblers to have less severe gambling problems as well as that desire to “do it on their own” (Hodgins & el-Guebaly, 2000).

Nower and Blaszczynski (2008) in their review of findings related to the concept of natural recovery in problem gambling, also note how research seems to suggest a significant proportion of gamblers cease gambling without intervention. They note however, that defining “recovery” in terms of self-reported symptoms is problematic because it can be unclear whether the absence of past-year symptoms implies abstinence, controlled gambling, or altered perception of what constitutes the behaviours identified in the criteria. The authors explain:

“The most frequently endorsed symptoms of pathological gambling are chasing, preoccupation, escape, lying, and withdrawal. However, an individual who endorsed these symptoms, for example, during a period of stress-induced episodic gambling binges might not endorse these symptoms—or acknowledge having endorsed them previously—at a later time, when the stressful situation has passed and gambling has returned to manageable levels” (Nower & Blaszczynski, 2008, p. 1851).

Further research in this area will require work to define the term “recovery.” Nower and Blaszczynski (2008) conclude their review by noting it is also important that conceptualisations of recovery for all gamblers should incorporate assessment of comorbidity (especially in regards to substance use) both before and after any change in gambling behaviours. This is to determine whether the individual has actually recovered or has merely exchanged one addictive behaviour for another. To date, with respect to gambling problems, no studies have demonstrated the presence of symptom substitution or switching addictions either in “natural recovery” from gambling or in response to problem gambling treatment or examined the sustainability of “natural recovery” over time (Nower & Blaszczynski, 2008).

In the broader addictions sector, Moos (2007) reviewed approaches to intervention and concludes treatment and continuing care could focus more directly on strengthening the protective resources that are robustly associated with remission:

- Provision of positive social support, goal direction, and monitoring;

- Engagement in rewarding activities other than substance use,
- Exposure to abstinence-oriented norms and models,
- Attempts to build self-efficacy and coping skills.

While this focus is inherent in many treatment approaches in addiction and gambling, and their utility seems obvious, it is important clinical approaches continue to ensure there is a longer-term focus in order to minimise relapse.

Self-Help: GA

Despite its popularity, surprisingly few studies have evaluated the role of GA in the recovery of problem gamblers (Nower & Blaszczynski, 2008), and studies report high levels of drop out. Several studies have reported a percentage of gamblers attending treatment who also reported attending GA (Petry, 2005). Stewart and Brown (1988) surveyed GA attendees and found almost one quarter (22%) of the 232 members surveyed in Scotland failed to return after the first meeting; 16% attended only two meetings; and nearly 70% attended less than 10 meetings. In addition, only 8% of those surveyed maintained abstinence for 1 year from first attendance and only 7% for 2 years (Stewart & Brown, 1988). More positively, a study conducted by Petry (2003) evaluated prior GA participation rates among 300 gamblers attending a Connecticut treatment program and it was found 54% of the sample had attended GA before initiating a treatment program. In addition, nearly half of those who had attended GA in the past continued to attend after initiating professional treatment, in contrast to those who had no prior GA experience and either largely failed to attend or continue to attend. The study also reported that GA members reported higher rates of treatment attendance and abstinence after treatment. Similarly to their discussion of “natural recovery”, Nower and Blaszczynski (2008) comment “estimating the impact of GA attendance on recovery from problem gambling will require a systematic, randomised, and, ideally, longitudinal evaluation of GA attendees and the course of the gambling and related behaviours over time” (p. 185).

What motivates people to make positive change?

The majority of people who have gambling problems do not seek formal assistance. Recently, Slutske (2006) estimated that between 7-12% of problem gamblers seek some form of specialist help. This is an issue not just with respect to gambling problems, but the addictions sector more broadly (Teeson, Hall, Lynskey, & Degenhardt, 2000). It is clear promoting earlier awareness of gambling problems, and help seeking (formal or informal) is a key task for a public health approach such as that in New Zealand. However, it remains that relatively little is known about help seeking behaviour, and more generally what motivates people experiencing gambling problems to change.

Researchers typically have access to individuals that have sought help for their problem gambling, but the much larger group who either do not seek help, fail in their help seeking, or attempt (successfully or unsuccessfully) to change their problematic behaviour present obvious methodological issues for research. Two Australian studies (Evans & DelFabbro, 2005; McMillen, Marshall, Murphy, Lorenzen & Waugh, 2004) investigated the reasons for help seeking, and both found financial reasons were the main driver, and that help seeking was largely crisis driven. With respect to the former, Evans and DelFabbro listed 24 possible motivators for help seeking, and only five of those received a rating of “a bit important” in the context of help seeking, with three of those relating to finances. The study also suggested that shame, denial and other social factors were the main barriers to help seeking, rather than any dislike, misunderstanding or distrust of treatment agencies. Evans and DelFabbro concluded “Treatment agencies are not considered as points of intervention, but merely last resorts when all other possibilities have been exhausted” (p. 150).

More recently in New Zealand, Pulford et al., (2009a; 2009b) reported two studies examining the motivations and barriers to seeking help in Gambling Helpline clients, and a sample of gamblers in the general population. Pulford et al., (2009a) found financial concerns were the main motivation to seek help – this was true for both of those in treatment (35%) and those not seeking help. Both groups, however, believed help seeking was driven by multiple factors. The other common factors were psychological distress, preventing gambling from becoming a major problem (Helpline clients), relationship issues, physical health, and rational decision making. The issue of prevention of escalating problems was a novel one, suggesting that ‘hitting rock bottom’ is not necessarily a prerequisite for making a change and/or seeking help. Pulford et al., noted it was not often cited as the primary reason for help seeking, so the finding should be interpreted cautiously at this stage. However, it could be a result of the Public Health and general awareness raising efforts in New Zealand.

Pulford et al., (2009b) focused on identifying the barriers to seeking help among gamblers in treatment and in the general population. Both groups identified multiple barriers to seeking help, but the non-help seeking gamblers identified significantly more. Across both groups the barriers were generally psychological in nature, and centred on pride, shame, and generally being too overwhelmed with problems. In both groups, respondents commonly reported ‘wanting to solve the problem on their own and/or being too proud to seek help.’ Unfortunately this item was poorly constructed, but previous research has suggested brief self-help approaches are favoured by some

gamblers (e.g., Hodgins & el-Guebaly, 2000; Tavares, Martins, Zilberman, & el-Guebaly, 2002). There is growing evidence that raising awareness of the sorts of relatively brief, self-help treatment approaches that are available could be a useful strategy. With respect to non-help seeking gamblers, denial was also a frequently cited barrier. Clearly this is a complex area, and complicated further due to the fact that gambling is a socially legitimate entertainment activity so when problems do develop there is a certain stigma attached. In addition, a misunderstanding of the chances of winning coupled with hope (which in most other cases is a very adaptive trait) means people can continue to view the solution to their problems as being in the very activity that is causing the problems.

Suurvali, Hodgins and Cunningham (2010) recently reviewed the literature on resolving or seeking help for gambling problems. Unsurprisingly, help seeking generally occurred in response to harms (e.g., financial, relationship, psychological) that had occurred, or were imminent. While “hitting rock bottom” (p.21) was a common reason for seeking help or resolving issues, it was more strongly endorsed by those resolving problems with formal help than those resolving their problems without help. When problems were resolved without help, harms were commonly cited but in addition there was evidence of a more rational/evaluative decision making process, and changes in lifestyle and/or environment were also prominent (e.g., marital status, children, employment, location etc).

Suurvali et al., (2010) suggested gamblers with less severe problems were likely to have encountered fewer harms, and thus it would be potentially easier (psychologically and practically) to step back and consider the relevant issues rationally. In these sorts of situations relatively simple self-implemented or chance interventions (such as moving to where gambling is less accessible or self restricting exposure to gambling outlets/self exclusion) can be very effective. However, with some forms of gambling (notably the continuous forms, e.g. EGMs) the transition from recreational to problem gambling can be relatively rapid, compared to the likes of track betting, so the window of opportunity may be rather small (Abbott et al., 1999). Nonetheless, awareness raising, amongst at-risk groups could well have beneficial effects for some individuals.

On the basis of their review, Suurvali et al., (2010) outlined some hypothetical pathways to changing gambling behaviour which appear quite useful. They suggested many heavy gamblers, in theory, may be familiar with the risks of gambling but become so immersed in their gambling activities that they fail to recognise the negative consequences. However, as the consequences become more severe, others may begin to notice and comment and thus, overall levels of awareness and distress

are likely to increase. The gambler may then experience greater motivation to change and, with the support of family and friends, assess their lives and actively make a decision to quit or reduce their gambling. For others, this process might lead them to conclude they need more formal assistance to change or maintain the change in their behaviour. However, it is clear that even on reaching this point, there can remain many internal and external barriers to seeking help (e.g., shame, embarrassment, the feeling they should be able to cope, and a lack of knowledge or understanding of treatment options) which may need to be addressed. The explicit suggestion was made that gamblers who cannot resolve their issues on their own, may need to reach some threshold of severity or impact before they seek help, and this is consistent with what is evident in help-seeking data and related investigations (e.g., Evans & DeFabbro, 2005; Pulford et al., 2009a; 2009b).

For many gamblers the process may be much less deliberate, less planned, and less conscious. Lifestyle changes may make gambling less desirable/interesting/rewarding or more difficult, and the habit may gradually or swiftly be abandoned. Individuals might get married, start a family, begin a new job, become more involved in religion or their community, stop drinking, or simply move residences, all of which can potentially change the relative importance or role of gambling in their life. Suurvali et al., (2010) noted in these less deliberate cases, it is likely the individual had been informally considering their gambling but never make a conscious decision to stop. The ability of these gamblers to reduce or stop gambling suggests perhaps gambling is not entrenched in their life, or at least gambling occurs in the context of other issues in their life and its place can change as a result of other (related and unrelated) events. An important next step for ongoing research, for the design of social marketing campaigns and for public health efforts is developing a better understanding of the role(s) gambling plays in peoples' lives and how this is related to ways in which changes in gambling behaviour are/can be made. It is reasonable to suggest there will be community, ethnic and gambling mode differences that will be key in the effectiveness of efforts to promote change. Gambling can potentially define one's identity and social network, provide an escape from difficulties, be purely recreational, and perhaps provide additional intangible benefits not obvious to the casual observer.

Hodgins and Peden (2005) reported a study in which they followed the natural course of gambling problems in a group of active pathological gamblers over 3.5 years (40 gamblers completed). They used the Stages of Change Model (e.g., DiClemente et al., 1991; Prochaska & DiClemente, 1984) as a theoretical basis for their study. The model has been used extensively in a range of health psychology issues to describe the processes people go through in changing their behaviour,

specifically their current actions and future intentions. Briefly, the model outlines five stages of change. Progression through the stages does not have to be linear, and relapse is possible. The five stages are:

1. Precontemplation – individuals are not actively considering a change, they may not have thought of changing, or may have decided against it
2. Contemplation – individuals are aware there is a problem, and are seriously considering making a change, but have not made any commitment to change
3. Preparation – individuals are ready to make a change, and plan to pursue a behavioural goal within the next few weeks
4. Action – this stage can span a long period where individuals are actively changing a behaviour
5. Maintenance – a successful behavioural change has been made, and individuals work to maintain the change

The model provides a useful framework for classifying individuals and can be informative in terms of what types of efforts might be successful in supporting change. Clearly, problem gamblers in treatment services will be in one of Stages 3, 4, or 5. Perhaps the key issue is how to contact people in the contemplation stage, and facilitate some movement from the precontemplation to contemplation stages.

Returning to Hodgins and Peden's (2005) study, at initial interview 93.5% described themselves as in the preparation stage of planning to quit gambling. The remainder were contemplators or precontemplators equally. Despite the majority being in the preparation stage at the initial assessment, at follow-up the majority (33) were still gambling, although 5 participants claimed they no longer had a gambling problem. A substantial proportion of the current gamblers (29%) had had treatment, and half reported a depressive episode. Most had reported attempts to stop or control gambling, and most described this as a deliberate and conscious attempt. Financial problems, emotional problems, hitting rock bottom, and their spouse were most commonly cited as motivating the attempts to change their behaviour. However, most relapsed at some stage and cited reasons such as "escaping from thoughts or feelings", "wanting to win", "didn't care anymore" and "felt bored". At follow-up, the majority (79%) remained in the preparation stage. This parallels research in smoking and some other addictive behaviours (e.g., DiClemente et al., 1991; Prochaska, DiClemente, & Norcross, 1992).

In the same study, a small group reported continued non-problematic gambling. It was evident that for these participants gambling was not a major focus of their leisure time, and they had less severe

problems initially. On this basis, Hodgins and Peden (2005) argued non-abstinence might be a realistic goal for those with less serious problems, as it seems to be with alcohol. In contrast, the successfully abstinent group had higher initial SOGS scores, but had not necessarily become abstinent due to the treatment programme. A number reported quitting drinking and smoking concurrently with gambling. Thus, Hodgins and Peden suggested that for more serious gambling problems, abstinence might be the more appropriate goal.

The other issue that may have important implications in terms of motivating change, and ultimately outcomes, is the high prevalence of co-morbid disorders evident in Hodgins and Peden's (2005) sample and in the population studies discussed earlier in this report. While Hodgins and Peden's participants began the study in the preparation stage and generally ended it there, it was clear they moved across a range of stages during the study. The ultimately poor outcomes could have been due to the initial severity of problems, the high level of co-morbid issues, or simply because of the small self-selected sample used. It remains that understanding the dynamic nature of the course of gambling problems should be a priority. At present, the evidence suggests a substantial proportion of problem gamblers are likely to be in the preparation stage and, as such, may well be receptive to appropriate support.

In general, the literature addressing these issues of motivation to change is limited by retrospective accounts, small samples and other methodological issues inherent in the complexity of these issues. However, the consensus is financial concerns and hardship seem to be a primary motivator for making a change and/or seeking help. There are a range of other issues which compliment this, and these seem consistent across many groups, for example, psychological issues/stress, relationship issues, impacts on health. Developing a better understanding of the role of gambling in an individual's life and as a member of their community would seem to be important. The suggestion has been made that for some problem gamblers there might be a threshold of harm that needs to be reached before a decision to make change and/or seek help is made. However, this does not mean that efforts to shift perceived threshold at a population or community level would not be effective. In New Zealand, some smaller qualitative research projects have considered similar issues in some at-risk groups (e.g., Li, 2007; Perese, 2009). This research suggests ethnic groups such as Samoan and Chinese New Zealanders are motivated to change by many of the same issues evident in the international and national research, but the relative importance of some issues - notably family and community relationships - might differ, at least when reported retrospectively. The issue around the

accuracy of retrospective reports highlights the need for well-designed longitudinal studies to clarify at the time that changes are made what seem to be the key drivers.

How can an individual's personal networks make a difference?

Studies have repeatedly shown that an individual's personal networks – friends, family, workmates, and teachers – have a significant impact on both prevention from developing, and recovery from, gambling problems. As mentioned in an earlier section, relationships have an influence on the development and maintenance of gambling problems. This section will expand on how social networks can make a difference.

Drawing from the literature on alcohol dependence, it has been observed that women reporting more close relationships (six or more) at one year after seeking treatment were over 50% more likely to be abstinent at the time of follow up than those who reported having two or less close relationships (Macdonald, 1987). Research by Zywiak, Longabaugh and Wirtz (2002) showed better treatment outcomes were also observed in participants that reported having larger social networks at the start of treatment. In addition, they also found participants whose social groups contained more alcohol abstainers and other recovering alcohol dependant individuals were more likely to have better treatment outcomes at 4- and 9-month follow-ups.

However, studies examining the size of one's social networks have also shown the converse to be true. Manuel et al., (2007) found alcohol dependent women who had recently completed an out-patient treatment programme were more likely to report a higher number of drinking days following treatment if they had larger social networks (11-14 members). Those with social groups that consisted of six or fewer members reported drinking less frequently. Due to the differing classifications of 'large' and 'small' social groupings – Macdonald (1987) classifying six or more as large and two or fewer as small, and Manuel et al., (2007) classifying 11-14 as large and six or fewer as small, it is difficult to tell what an optimal social group size could be to best support those in recovery. It also seems that, as well as the size of the social network having an influence on recovery, the frequency of contact and the quality of the friendships have an influence as well, complicating the analyses (Zywiak et al., 2002).

Literature on alcohol addiction also shows social networks can be harmful to those in recovery (e.g. Manuel, McCrady, Epstein, Cook & Tonigan, 2007). Longabaugh, Wirtz, Zweben and Stout (1998) found at 1-year post-treatment, participants who had a higher percentage of friends or family members at baseline who were supportive of drinking, had fewer non-drinking days and drank more in each drinking session than participants whose social networks were supportive of abstinence

(Longabaugh et al., 1998). Gambling-specific research also shows those whose close social contacts supported gambling were more likely to be problem gamblers (Volberg, Reitzes & Boles, 1997).

In terms of gender differences in the influence of social networks on gambling behaviour, social networks of women have been found to be significantly different to those of men and, therefore, have differing effects. Research into alcoholism shows women who drink heavily are more often in relationships with men who also drink heavily, than vice versa (Gomberg, 1997). This has also been found in gambling-specific studies (Ladd & Petry, 2002). In addition, Rice and Longabaugh (1996) found women are less likely to receive support from their male partner when choosing to seek treatment. This apparent lack of support for women from their intimate partners may be offset by support from other sectors of their social networks. For example, alcohol-dependent women also report more social support and are more likely to confide in someone about their alcohol problems than alcohol-dependent men are (Umberson, Chen, House, Hopkins & Slaten, 1996). However, in a study looking at recovered alcoholics, one of the most commonly reported factors in maintaining their problem-free status was spousal support, indicating that women may have a more challenging pathway to recovery than men (Sobell, Sobell & Toneatto, 1992).

Another interesting finding which points to women and men having different social experiences in relation to gambling, is on intimate partner violence. In a sample of 103 adult pathological gambling treatment outpatients in Spain (61 women, 52 men), 68% of female gamblers reported being victims of intimate partner violence - a rate quoted by the authors as "ten times higher than that registered in Spain for women over 18 years" (Echeburúa, González-Ortega, de Corral, & Polo-López, 2010, p.10). Women in this study were more likely to report loneliness and isolation as reasons for gambling yet also reported stronger familial and social support than men. Scannell, Quirk, Smith, Maddern and Dickerson (2000) support this view that intimate partner violence can increase the likelihood of engaging in problematic gambling, adding that relationship difficulties can be seen as 'stressful life events' that have been shown to trigger heavy gambling. Additionally, Burge, Pietrzak, and Petry (2006), found early-onset gamblers to be less likely to access their partners for emotional support.

Trevorrow and Moore's (1998) study also found the most common motivator for gambling amongst women classified as being problem gamblers was loneliness or feelings of alienation. Brown and Coventry's (1997) study of a sample of women callers to a gambling helpline came to similar conclusions. These findings support the idea that an individual's perception of the support their personal networks can play, is a crucial part in preventing gambling harm. The importance of perception is echoed by Hardoon, Gupta, and Derevensky (2004), who found having an emotionally

unsupportive family (as measured through self-report) was correlated with more frequent gambling in a sample of youths. Similarly, Burge, Pietrzak, and Petry (2006) found problem gamblers who reported not relying on their partners for emotional support were more likely to have started gambling earlier in life.

In terms of problem-based social support systems, studies show those who receive support specifically focussed around their addiction fare better in terms of time spent abstinent than those who received general social support (Beattie & Longabaugh, 1999). For example, the frequency of attendance to GA meetings is a predictor of successful problem gambling recovery (e.g. Petry, 2003; Petry & Mallya, 2004; Russo, Taber, McCormick, & Ramirez, 1984; Taber, McCormick, Russo, Adkins, & Ramirez, 1987). However, more recent studies have questioned this conclusion commenting that it is too simplistic considering the complex nature of recovery (e.g. Oei & Gordon, 2008). Research into Alcoholics Anonymous' (AA's) role in recovery from alcohol dependence illustrates a more complex view of the relationship between this popular support group and factors influencing recovery. Snow, Prochaska and Rossi (1994) suggest "the composite measure of attendance, perceived importance to recovery, degree of involvement in AA activities, and number of friends who were active in AA, contributed to more behavioural change processes, including abstinence, than did mere frequency of meeting attendance" (Oei & Gordon, 2008, p. 94)

To conclude, an individual's personal networks have a significant impact on prevention and recovery from problem gambling. Studies show family, peers and addiction-specific support groups may be extremely important in the field of gambling. As Oei and Gordon (2008, p. 101) comment "treatment for pathological gambling would benefit by including the identification of a support network, and the involvement of that network in the gamblers recovery process."

SUMMARY: Preventing harm and supporting positive change.

Problem gamblers tend to have predominating, co-occurring disorders such as an alcohol use disorder, a drug use disorder, nicotine dependence, a mood disorder, an anxiety disorder and a personality disorder (Petry et al., 2005). These disorders are a likely driver and consequence of pathological gambling. This is also echoed by data from the US National Comorbidity Survey Replication (NCS-R), used by Kessler et al. (2008). Onset and persistence of pathological gambling was found to be predicted by a variety of prior anxiety, mood, impulse control and substance use disorders. Pathological gambling also predicted the subsequent onset of anxiety disorders, post traumatic stress and substance dependence. Importantly, in regards to clinical approaches, although none of the respondents with pathological gambling reported ever receiving treatment for gambling problems, 49% had been treated at some time for other mental disorders (Kessler et al.,

2008). Public health approaches therefore, need to take into account the high levels of co morbidity: messaging needs to engage with initiatives in other areas like AOD or youth development. Most public health initiatives aiming to reduce problem gambling prevalence lack a theoretical basis and have failed to show any significant behavioural changes in the target audience (programmes need to be designed with clear measurable goals in order to assess efficacy).

The American Psychological Association (APA) (DSM 5) is considering adapting the “addiction syndrome”. This is because pathological gamblers have showed shared psychological and social risk factors with substance use disorders in many studies (Shaffer & Korn, 2002). There has also been a non-specific response to treatment among patients with substance dependence and disorders of excessive behaviour (Shaffer et al., 2004; Westphal & Abbott, 2006). Therefore, the APA is considering an “Addiction and Related Disorders” category which would include both substance related disorders and gambling, in addition to potentially other addiction-like behavioural disorders (e.g. “Internet addiction”)

The current evidence base for gambling treatment efficacy supports both Cognitive Behavioural Therapy (CBT) as a whole and naltrexone, a pharmaceutical drug. Examples of Cognitive Behavioural Interventions (CBT) include cognitive therapy, motivational interviewing and imaginal desensitisation. However, gambling treatment has significant attrition and response to attention (i.e. “placebo effect”). Recent reviews have questioned whether there is an effect of specific problem gambling treatment beyond the effect of paying attention to the problem (Westphal, 2010; Westphal & Abbott, 2006). Pathological gamblers have shown an average response rate of 42% to placebo treatments in pharmacological clinical trials (Westphal, 2008). This response is defined as the “non-specific response to treatment”, equivalent to just paying attention to and observing the problem or behaviour.

Although CBT and naltrexone are considered to be effective treatments, there remains a dearth of knowledge about which groups of people respond best to which form or mix of interventions. Initially long-term and intense interventions for problem gamblers were seen to be more effective, however, there is growing evidence that short-term and less intense (‘minimal’ or ‘brief’) interventions might be just as effective. The amount of harm one is experiencing from gambling may lead to different treatment approaches, such as formal help seeking vs. self-help. Meta-analyses comparing self-help workbooks and no treatment controls or therapist-directed interventions indicate that workbooks are more effective than no treatment controls and as effective as the same programmes administered by therapists (Gould & Clum, 1993). While it appears workbooks are generally effective, it remains unclear which particular types of intervention are most beneficial to

which type of individual (Babor, 1994). In the alcohol field, however, there are indications that brief interventions are particularly effective, and highly cost effective, for people with less serious forms of disorder (Bertholet et al., 2005). Therefore, understanding the role gambling plays in an individual's life is imperative in order to design effective interventions and public health promotions.

Social networks are suggested to have a role in treatment. It has been found an individual's personal networks have a significant impact on both prevention of and recovery from problem gambling. Gambling-specific research also shows those whose close social contacts supported gambling were more likely to be problem gamblers (Volberg, Reitzes & Boles, 1997). In terms of gender differences in the influence of social networks on gambling behaviour, social networks of women have been found to be significantly different to those of men and, therefore, have differing effects. Trevorrow and Moore's (1998) study found the most common motivator for gambling amongst women classified as being problem gamblers was loneliness or feelings of alienation. Brown and Coventry's (1997) study of a sample of women callers to a gambling helpline came to similar conclusions. These findings support the idea that an individual's perception of the support their personal networks can play, is a crucial part in preventing gambling harm. The importance of perception is echoed by Hardoon, Gupta, and Derevensky (2004), who found having an emotionally unsupportive family (as measured through self-report) was correlated with more frequent gambling in a sample of youths. Similarly, Burge, Pietrzak, and Petry (2006) found problem gamblers who reported not relying on their partners for emotional support were more likely to have started gambling earlier in life.

When reviewing the reasons for seeking help, financial issues are arguably the most important reason for seeking help. Two Australian studies (Evans & DelFabbro, 2005; McMillen, Marshall, Murphy, Lorenzen & Waugh, 2004) investigated the reasons for help seeking, and both found financial reasons were the main driver, and that help seeking was largely crisis driven. More recently in New Zealand, Pulford et al., (2009a; 2009b) reported two studies examining the motivations and barriers to seeking help in Gambling Helpline clients, and a sample of gamblers in the general population. Pulford et al., (2009a) found financial concerns were the main motivation to seek help – this was true for both of those in treatment (35%) and those not seeking help. Both groups, however, believed help seeking was driven by multiple factors. The other common factors were psychological distress, preventing gambling from becoming a major problem (Helpline clients), relationship issues, physical health, and rational decision making.

However protective factors, at the individual level, against problem gambling have been identified. These factors include social and ethnic group characteristics (majority group membership with 'bimodal' patterns of participation in minority groups e.g. Pacific Peoples), the perception that current family/relationship networks are supportive, as well as higher levels of education and awareness around gambling issues.

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