



**NEW ZEALAND 2012 NATIONAL GAMBLING STUDY:
GAMBLING HARM AND PROBLEM GAMBLING**

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EXECUTIVE SUMMARY

This report presents and discusses the gambling-related harm and problem gambling findings from the first phase (baseline survey) of the New Zealand National Gambling Prevalence and 12 Month Incidence Study (NGS). This includes consideration of changes over time. It is the second of three reports on the baseline survey. The first report (Abbott et al., 2014a) provides an overview of this phase of the study including a detailed account of the methodology, sample and statistical analyses. It includes review and discussion of relevant international and national literature that informed the design of the study. It also presents and discusses the gambling participation findings. The present report also examines some of the background literature, particularly that related to gambling-related harm. It gives a summary of the study design and sample. It does not repeat the more detailed information included in the first report. The third report outlines and examines survey findings regarding attitudes towards gambling.

A randomly selected national sample of 6,251 people aged 18 years and older living in private households was interviewed face-to-face from March to October 2012. The response rate was 64% and the sample was weighted to enable generalisation of the survey findings to the general adult population.

The survey instrument for the 2012 National Gambling Survey was extensive and covered the following areas:

1. Leisure activities and gambling participation
2. Past gambling and recent gambling behaviour change
3. Problem gambling
 - Problem Gambling Severity Index (PGSI)
 - South Oaks Gambling Screen (SOGS-R)
 - Help-seeking behaviours (including readiness to change)
 - Gambling in households
4. Life events and on-going hassles
5. Gambling in New Zealand
6. Mental health
 - General psychological distress
 - Quality of life
7. Alcohol use/misuse
8. Substance use/misuse
 - Tobacco
 - Other drugs
9. Health conditions
10. Social connectedness
11. New Zealand Deprivation Index
12. Demographics

Problem gambling

- During the past 12 months it is estimated that 3.6% of New Zealand adults (including the 20% who did not gamble) indicated loss of control in relation to gambling, 3.1% felt guilty about their gambling, 2.5% chased losses, 1.8% reported being criticised because of their gambling, 1.8% felt they might have a problem with gambling, 1.4% said gambling had a negative effect on their health, 1.3% said they needed to gamble more to get the same level of excitement and 1.1% said gambling had caused financial problems.

- Based on the PGSI, it is estimated that 0.7% of adults (23,504 people) are current (past 12 months) problem gamblers experiencing significant problems, and that a further 1.8% (60,440) are moderate-risk gamblers, experiencing some gambling-related harms and at risk for the development of more serious problems.
- A further five percent (167,888) are estimated to be low-risk gamblers, mostly experiencing a few gambling-related harms and at somewhat greater risk to move into the moderate-risk and problem gambling categories.
- Around 1 in 40 adults is either a current problem or moderate-risk gambler and a further 1 in 20 is a low-risk gambler.
- While problem gamblers experience more severe problems than moderate-risk and low-risk gamblers, because there are many more people in the latter categories, in total they may generate more social harm. For example, while proportionately many more current problem gamblers said they at least sometimes bet more than they could really afford, over 80% of adults who said this were not problem gamblers.
- The above estimates are similar to those from recent surveys in South Australia and Queensland, Australia and slightly earlier studies in Sweden and Victoria, Australia.
- From examination of the findings of other surveys, taking account of methodological differences and their likely impact, it is concluded that there has probably been no change in the prevalence of current problem and moderate-risk gambling since 2006.
- Based on the SOGS-R, it is estimated that 2.1% of New Zealand adults are lifetime probable pathological gamblers (a category similar to the PGSI problem gambling category) and that a further 2.4% are problem gamblers (similar to the PGSI moderate-risk group).
- Again adjusting for the likely impact of methodological differences, it is concluded that the prevalence of lifetime probable pathological and problem gambling have probably not changed since the last time a lifetime assessment was made in New Zealand (1999).
- From examination of previous New Zealand prevalence studies it is considered likely that the prevalence of problematic gambling, both current and lifetime, within the range assessed as pathological, problem and moderate-risk, reduced significantly during the 1990s and has since stayed at about the same level.
- The above conclusion is consistent with the findings of a recent meta-analysis of prevalence studies conducted world-wide since the late 1980s; in all major world regions examined prevalence increased in association with increased gambling availability, especially casino gambling and EGMs, then levelled out and declined.

Co-morbidities

- As in previous studies, problem gamblers and, to varying degrees, moderate-risk and low-risk gamblers, have high rates of hazardous drinking, tobacco use, other drug use, self-rated fair or poor health, psychological distress and low quality of life.
- Of problem gamblers who consumed alcohol during the past 12 months, 60% were hazardous drinkers compared to 39% of all adults who consumed alcohol during this period. Seventy-one percent of problem gamblers smoked weekly (compared to 40% of all adults), 47% reported other recreational drug use in the past 12 months (16% of all adults), 33% said they were in fair or poor health (15% of all adults), 46% were assessed as having a high or very high probability of experiencing clinically significant psychological distress (7% of all adults) and 77% scored below the median for quality of life (42% of all adults).
- It is unknown to what extent these co-morbidities are risk factors for, or consequences of, problematic gambling or whether or not they are a consequence of some shared,

underlying attribute; the longitudinal extension of the study will assist in clarifying the nature of these relationships.

Risk factors for problem, moderate-risk and low-risk gambling

Gambling-related

- Gambling-related risk factors for current problem gambling include being a regular continuous gambler (13% are problem or moderate-risk gamblers), monthly or more frequent participation in a number of specific forms of continuous gambling, past year overseas internet gambling, a preference for non-casino EGMs and casino gambling and some other continuous forms, participation in multiple gambling activities and high monthly gambling expenditure.
- The foregoing factors are highly inter-related; multivariate analyses identified preferences for non-casino EGMs, casino gambling and betting with friends and workmates, past year overseas internet gambling and at least monthly participation in card games and pub EGMs as the strongest independent risk factors.
- A number of other factors were examined in relation to problem, moderate-risk and low-risk gambling. Relative to non-problem gamblers, problem gamblers, and sometimes moderate-risk and/or low-risk gamblers, more often said they lost and won large sums of money gambling, that the amount they gambled made them nervous, that they usually had long EGM sessions, that there was a lot of gambling in the family they grew up in and in their current household, and that they know people in their social network who have or had a problem with gambling. About a third of problem gamblers believe their spouse or partner has or had a gambling problem compared to two percent of non-problem gamblers, four percent of low-risk gamblers, and 12% of moderate-risk gamblers.
- A multivariate analysis identified the largest amount of money lost in a day gambling, having felt nervous about the amount gambled and believing a spouse or sister to have a gambling problem as the most important predictors of problem gambling after the effects of all the factors in the analysis had been taken into account.
- The foregoing factors, apart from believing a sister had a gambling problem, also emerged in a multivariate analysis of predictors of combined problem and moderate-risk gambling. Additional risk factors in this analysis are spending three or more hours playing pub or casino EGMs in an average day and more often being with one other person when taking part in a most preferred gambling activity. In both the problem gambling and combined problem and moderate-risk analyses the relationship with long pub EGM sessions was particularly strong.

Demographic

- Ethnic differences, as in previous New Zealand studies, remain substantial, with very high prevalence rates for Māori and Pacific Islanders. For Māori, 6.2% are current problem or moderate-risk gamblers compared to eight percent of Pacific Islanders, three percent of Asians and 1.8% of European/Other.
- Males have a marginally higher current problem gambling prevalence rate than females but there are no gender differences in the prevalence of moderate-risk and combined problem and moderate-risk gambling.

- European/Other males have a higher prevalence of current problem gambling than European/ Other females, and Pacific males have a higher rate of moderate-risk gambling than Pacific females.
- Approximately 1 in 8 Pacific males and 1 in 16 Māori males are current problem or moderate-risk gamblers compared to 1 in 48 European/Other males and 1 in 22 Asian males.
- Approximately 1 in 20 Pacific females, 1 in 15 Māori females, 1 in 71 European/Other females and 1 in 67 Asian females are current problem or moderate-risk gamblers.
- Current problem gambling prevalence does not differ significantly by age although younger males have a higher rate of moderate-risk gambling than some of the older groups.
- Compared to some other groups in their categories (e.g. religion, household size) the following have either higher problem and/or moderate-risk prevalence rates: unemployed people, Other Christians, Other religions, people without formal qualifications, low income and large household size.
- Most of the socio-demographic risk factors are inter-related, for example Māori and Pacific Island ethnicity, young age, low income, lack of formal qualifications and large household.
- Multivariate analyses, excluding people who did not gamble during the past year, identified Māori and Pacific Island ethnicity as the major independent risk factors for current problem gambling, followed by male gender.
- Membership of these ethnic groups and male gender were also found to be independent risk factors in similar analyses conducted with regard to combined problem and moderate-risk gambling; additional risk factors for problem/moderate-risk gambling are younger age, lack of formal qualifications, unemployment and residence in the most deprived deprivation quintile. Anglicans were at low-risk and Other Christians and Other religions were at somewhat higher risk.
- In the case of lifetime probable pathological gambling there is no gender difference. However, males have a higher prevalence of lifetime problem gambling.
- Māori and Pacific Island adults have higher rates of probable pathological gambling than European/Others and Asians. Māori and Pacific Island adults also have higher rates of problem gambling than European/Others.
- People in the age categories between 25 and 64 years have higher rates of probable pathological gambling than those aged 65 years and older. The rate for younger adults (18-24 years) did not differ significantly from adults in the other age categories. There were no age differences in problem gambling prevalence.
- Compared to some other groups in their categories, the following have either higher probable pathological and/or problem gambling rates: people with no formal education, unemployed people, people with no religion, Other Christians, Other religions, Catholics and Presbyterians, and people living in households of two or more.
- Multivariate analyses found that male gender, Māori ethnicity and residence in the most deprived quintile are the major independent risk factors for lifetime probable pathological gambling.
- Membership of these groups are also independent risk factors for combined probable pathological and problem gambling; additional risk factors are lacking formal qualifications and living in a household of two or more persons. Anglicans, relative to some other religious groups, are at lower risk.

Reasons for gambling

- Reasons given for gambling vary considerably for different gambling activities. Winning money or prizes is mentioned most often with excitement and challenge, entertainment and to support a worthy cause mentioned by over a half of participants in one or more activities. To be with people or to get out of the house, because it is an interest or hobby, curiosity and as a gift were additional reasons mentioned by moderate proportions of participants in some activities (refer to Abbott, Bellringer, Garrett & Mundy-McPherson, 2014a).
- Reasons given for taking part in most gambling activities do not differ greatly between problem gamblers, moderate-risk gamblers, low-risk gamblers and non-problem gamblers.
- With regard to EGM participation in pubs, problem gamblers more often than non-problem gamblers took part because it was an interest or hobby. In clubs, problem gamblers more often than non-problem and low-risk gamblers took part for excitement or because it was a challenge. In this setting, problem gamblers also more often than low-risk gamblers said their participation was because it was an interest or hobby.
- Problem and moderate-risk gamblers more often than non-problem gamblers said they purchased Instant Kiwi tickets because it was an interest or hobby, whereas non-problem gamblers more often said they bought tickets as a gift for another person.
- Very few moderate-risk gamblers relative to non-problem and low-risk gamblers said they played casino table games to be with people or to get out of the house.

Beliefs about gambling activities

Perceptions of winning or losing

- For the majority of gambling activities, more participants believed that during the past 12 months they lost rather than made money.
- Relative to non-problem gamblers, and in some cases low-risk gamblers, more problem gamblers considered that they lost money overall playing cards for money and participating in pub and club EGMs.
- Problem gamblers rarely, relative to non-problem gamblers, said they lost money overall playing poker with friends or family in a private residence.

Use of systems or special skills

- There were no differences between problem, moderate-risk, low-risk and non-problem gamblers with respect to the reported use of systems or special skills to improve their chances of winning when taking part in gambling activities.

Methods used to moderate gambling participation

- Just under a third of adults who took part in one or more gambling activities during the past year used a method to stop themselves from spending too much money and/or time gambling (refer to Abbott et al., 2014a).
- Substantially more problem gamblers (78%), moderate-risk gamblers (64%) and low-risk gamblers (54%) than non-problem gamblers (27%) used one or more of these methods.

- Problem (18%), moderate-risk (25%) and low-risk gamblers (12%) more often used two methods than non-problem gamblers (5%). Moderate-risk (7%) and low-risk (4%) gamblers also somewhat more often used three methods than non-problem gamblers (1%).
- Setting a money limit in advance was mentioned most often by problem, moderate-risk, low-risk and non-problem gamblers (range 61%-69%). Separating money for betting from other money was also mentioned quite often by participants in the four groups (range 13%-28%). Other methods mentioned are getting a trusted person to manage gambling money, leaving ATM and credit cards at home, setting a time limit and avoiding places that have betting or gambling as an attraction.
- Problem (29%) and moderate-risk (16%) gamblers more often than non-problem gamblers (6%) said they avoided places that have gambling or betting.
- Moderate-risk gamblers more often than non-problem gamblers separated money for betting from other money (28% vs 13%), left ATM and credit cards at home (19% vs 3%) and set a time limit (19% vs 5%).
- Low-risk gamblers more often than non-problem gamblers also left ATM and credit cards at home (14%) and set a time limit (12%).

Efficacy of methods used to moderate gambling participation

- All methods were considered to be effective by the majority of problem, moderate-risk, low-risk and non-problem gamblers.
- While over half of problem and moderate-risk gamblers believed that setting a dollar figure or limit was effective, more problem gamblers (37%) and moderate-risk gamblers (14%) than non-problem gamblers (2%) considered this method to be ineffective.
- More problem gamblers (19%) than non-problem gamblers (1%) considered separating money for betting and stopping when is used up to be ineffective.
- More problem gamblers (45%) than non-problem gamblers (5%) considered setting a time limit to be neither effective nor ineffective.

Recent gambling behaviour change

- Participants were asked to think about all the gambling activities they had taken part in and to indicate whether, during the past 12 months, their overall gambling involvement had increased a lot, increased, stayed much the same, decreased or decreased a lot.
- The non-problem and low-risk groups are most stable with 77% and 59% respectively saying their participation stayed much the same. The problem gambling and moderate-risk groups are least stable with 28% and 38% respectively saying their participation stayed much the same.
- In all four groups, decreased involvement (range 18%-58%) was more common than increased involvement (5%-23%).
- Proportionately more problem gamblers (58%), moderate-risk (40%) and low-risk (29%) gamblers than non-problem gamblers (18%) believed their involvement had decreased during the past year.
- Proportionately more problem gamblers (14%), moderate-risk (23%) and low-risk (13%) gamblers than non-problem gamblers (5%) also believed that their involvement had increased during this period.

Reasons for recent gambling behaviour change

- Participants who believed their gambling had increased during the past year were asked why it had increased and those who believed it had decreased were also asked why this had happened.
- Problem gamblers (69%) more often than non-problem gamblers (22%) said their gambling increased because they had more money to spend.
- Moderate-risk gamblers (24%) more often than low-risk (2%) and non-problem (6.5%) gamblers said they gambled more because they had more time available. Moderate-risk gamblers (35%) more often than low-risk gamblers (3.5%) said they gambled more because they wanted to or felt like it.
- The most frequently mentioned reasons for decreased participation are priorities having changed (range 34%-66%), to save money or to spend money on other things (range 34%-54%), and having less money to spend (range 25%-46%).
- Around two-thirds (66%) of problem gamblers compared with 34% of non-problem gamblers gave priorities having changed as a reason for decreased gambling involvement.
- Moderate-risk (33%), low-risk (28.5%) and non-problem (24%) gamblers more often than problem gamblers (4%) said their gambling had reduced because of a loss of interest in activities previously engaged in.

Readiness to change

- Problem, moderate-risk and low-risk gambling participants were administered a group of questions designed to assess readiness to change their gambling behaviour.
- Readiness to change scores are low for low-risk gamblers, higher for moderate-risk gamblers and highest for problem gamblers.

Life events

- For the adult population as a whole, around three-quarters (74%) experienced one or more major life events during the past 12 months.
- Problem gamblers (93%) more often experienced life events during the past 12 months than non-problem gamblers (74%).
- Problem gamblers (27%), relative to the total adult population and the non-problem and at-risk groups (range 9%-11%) more often experienced five or more life events and, on average, they experienced 3.6 events compared to 1.8 to 2.3 for the other groups.
- Relative to the general population and to non-problem gamblers, problem gamblers much more often experienced the following life events: major change in financial situation, increase in the number of arguments with someone close, major injury or illness, legal difficulties, marriage or finding a relationship or partner, becoming a student.
- Relative to the general population and non-problem gamblers, moderate-risk and low-risk gamblers also experienced some life events more frequently including major change in financial situation, increase in arguments with someone close and troubles with work, boss or superiors.
- Relative to non-problem and low-risk groups, problem gamblers less often experienced an earthquake or natural disaster.

Influence of life events on recent gambling behaviour changes

- Participants were asked, for each event experienced, whether that particular event had triggered an increase or decrease in their gambling during the past 12 months.
- For the general adult population, a major change in financial situation (25%) was mentioned most often as leading to increased gambling, followed by troubles with work, boss or superiors (16%), death of someone close (12%), a major illness to self or someone close (10%), an increase in arguments with someone close (9%), an earthquake or other natural disaster (7%) and moving to a new town or city (5%). A number of these events are also associated with decreased gambling involvement.
- For the general adult population the following life events were mentioned in relation to decreased gambling participation: major change in financial situation (23%); pregnancy or new family additions (12%); a major change in living or work conditions (10%); the death of someone close (9%); a major injury or illness to self or someone close (9%); taking on a mortgage, loan or making a big purchase (8%); an earthquake or natural disaster (7%); moving house (6%) and moving to a new town or city (5.5%).
- While there may be some differences between the problem gambling and other gambling groups with regard to the impacts of particular life events, sample sizes are low and the confidence intervals are correspondingly large. Apparent differences may not be real.

Deprivation

- Ninety-five percent of problem gamblers reported experiencing at least one deprivation listed in the New Zealand Deprivation Index during the past 12 months compared to 44% of adults overall. Moderate-risk (72%) and low-risk (61%) gamblers also more often experienced deprivations.
- Average overall deprivation scores increased with risk severity, with non-problem gamblers scoring 0.8, low-risk gamblers 1.3, moderate-risk gamblers 1.8 and problem gamblers 2.6.
- Nearly three-quarters (72%) of problem gamblers said they had been forced to buy cheaper food in the past 12 months compared to 26% of adults generally. Higher percentages of problem gamblers had been out of paid work for more than a month (57% compared to 20%), 32% had received income from a benefit (32% vs 12%), continued to wear shoes with holes (28.5% vs 6%), went without fresh fruit and vegetables (28% vs 6%), put up with feeling cold to save heating costs (23% vs 15%), made use of special food grants or food banks (19% vs 5%) and received help from a community organisation (7% vs 2%).
- Moderate-risk and low-risk gamblers also more often experienced a number of these deprivations than did adults generally and non-problem gamblers.
- With both life events and deprivation, the cross-sectional nature of the survey means that it is unclear what the associations with gambling, problem gambling and at-risk gambling mean. Events and deprivations may contribute to the development of problem gambling and changes to gambling involvement. They may be a consequence of problem gambling and increased participation. They may also be associated because of common underlying influences. The longitudinal extension of the study will assist understanding of these relationships.

Help-seeking

- Over a half (52%) of problem gamblers and a quarter (28%) of moderate-risk gamblers said they wanted help to stop or reduce gambling at some time. These rates are much higher than for adults generally (2%), non-problem (1%) and low-risk (5%) gamblers.
- One in a hundred adults said they had tried to get help to stop or reduce gambling at some time and 42% of these people had tried to do so in the past 12 months.
- As sample size is typically low, caution is required when considering possible demographic differences in help-seeking. There do not appear to be gender differences with respect to ever wanting to get help or trying to get help. However, more males said they sought help in the past 12 months. Relative to European/Other, Māori, Pacific Island and, to a lesser extent, Asian adults more often reported ever wanting to get help and trying to get help. Proportionately more Māori who sought help said they did so in the past 12 months. These proportions are relative to ethnic representation in the adult population, not relative to problem gambling prevalence.
- Adults aged 65 years and older, less often than people in other age groups, wanted or sought help.
- People with no qualifications or school level qualifications, unemployed people, Catholics, Other Christians, Other religions, large household size and low personal incomes more often wanted, and tried to get, help.
- A third (34%) of problem gamblers said they had tried to get help to stop or reduce gambling and a quarter (26%) of this group who tried to get help did so for the first time in the past 12 months.
- Nearly a fifth (17%) of moderate-risk gamblers also said they had tried to get help at some time and 30% tried for the first time in the past 12 months.
- For adults overall, seeking help from friends was mentioned most often (25%) followed by family (18%), helpline/Gambling Helpline (17%), community support groups (14%), a counsellor or doctor (10%), Gamblers Anonymous (9.5%), a church or the Salvation Army (9%) and the Problem Gambling Foundation (2.5%). The pattern of help-seeking appears to be fairly similar across the non-problem, problem and at-risk groups although small sample size compromises assessment of potential differences.
- Around two-thirds (63%) of people who tried to get help said it was mainly themselves who were involved in seeking or being referred to help. About a fifth (21%) said their family, spouse or partner was mainly involved. Friends (11%), support groups or hotline (9%), and counsellors and doctors (7%) were mentioned less often.
- Twenty-nine percent of adults who had tried to get help said they had tried more than once and more problem (52%), moderate-risk (32%) and low-risk (35.5%) gamblers mentioned this than non-problem gamblers (2%). Of those who tried to get help more than once, around a third did so seven or more times.
- Of those who received help, a third (31%) mentioned counselling, followed by talking, discussions and meetings (25.5%), support, encouragement and assurance (25%) and receiving advice (23%). Around a fifth (18%) of problem gamblers mentioned receiving gambling booklets, brochures and information packs and a further fifth (18.5%) said they had been barred from casino or other EGM venues or avoided gambling (18.5%).
- Most adults (86%) who had received help considered that it was helpful and about two-thirds reported one type of help was particularly helpful. Support, encouragement and assurance were mentioned most often (43%) as being particularly helpful

followed by counselling (24%) and having money limited in some way, such as having a cash card taken or someone taking control of their budget (22%).

Other peoples' gambling

Family of origin

- Most people (86%) said there was little or no gambling in the household they were mainly brought up in. Forty-four percent said there was none at all, 10% a moderate amount and 4.5% a lot.
- There are no gender differences in regard to gambling in households brought up in but there is variation by age and ethnicity.
- The older adult groups and the youngest group more often said there was no gambling in the household they were brought up in. These groups, somewhat less than one or more of the other adult groups, said there was a lot of gambling.
- Around two-thirds of Asian (68%) and a half (52%) of Pacific Island adults said there was no gambling in their family of origin compared to 41% of European/Other and 32% of Māori. More European/Other and Māori than Asian and Pacific Island adults said there had been a little gambling. Very few Asian adults reported moderate (4%) or a lot of (2%) gambling. Māori reported much higher levels of moderate (15%) and a lot of (12%) gambling. Although a large majority of Pacific Islanders reported little or no gambling, significant minorities said there was a moderate amount (11%) and a lot (7%). The corresponding European/Other estimates are 10% and 4%.
- Migrants, Other Christians and Other religions also have high proportions of non-gambling households (50% or more).

Current household

- Most people reported no (44.5%) or little (44%) gambling in their current household; four percent considered that there was a moderate amount and one percent a lot. These estimates relate to people living in the household other than the person who was interviewed.
- As with gambling in family of origin, Asian (66%) and Pacific Island adults (57%) more often reported no gambling participation than European/Other (41.5%) and Māori (43%). The two latter groups more often than the former mentioned a little gambling. Māori (8%) and Pacific Islanders (7%) somewhat more often reported a moderate amount or a lot of gambling than was the case for European/Other (4%) and Asian (3%) adults.
- Over 50% of migrants, Other Christians, people of Other religions and people living in households earning \$20,000 or less per annum reported no gambling.
- Problem gamblers (26%) more often said there was a lot of gambling in the household they mainly grew up in than did moderate-risk (10%), low-risk (8%) and non-problem (4.5%) gamblers.
- Problem gamblers (27%) also more often reported a lot or moderate amount of gambling in their current household than did moderate-risk (17%), low-risk (15%) and non-problem (4%) gamblers.

People who participants think have a problem with gambling

- A third of adults said they know at least one person that they think currently has, or had, a problem with gambling.
- There was no gender difference in this regard and little or no differences in relation to age other than adults aged 65 years and older being less likely than those in other age groups to not know anyone in this category.
- A half of Māori adults said they know one or more people who have or had a problem, compared to a third of European/Others and Pacific Islanders and around a quarter of Asians.
- New Zealand born adults, more often than migrants, especially recent migrants, mentioned knowing someone they thought has or had a problem with gambling. Unemployed and employed adults compared with students, homemakers and retired adults also more often said that they knew one or more people in this situation. In contrast, somewhat lower proportions of people of a religion other than Christian and people in the highest and lowest income categories responded this way relative to some of the other religious and income groups.
- For adults generally, two percent considered their spouse or partner to have or have had a problem. Corresponding estimates are fathers (4%), mothers (2%), brothers (3%), sisters (1%), sons or daughters (1%), workmates (5%), another close family member (9%), an additional close family member (1%), a friend or someone in the respondent's life (14%) and a second person in this category (2%).
- Gender differences are fairly minor other than more females mentioning a spouse or partner and more males mentioning workmates. Adults aged 65 years and older less often mentioned a range of people than participants in the other age groups. Younger adults also mentioned some people less often including spouse/partner, sister and son/daughter.
- Some ethnic differences appear to be substantial. Māori reported high rates for spouse/partner, father, mother, brother, sister, other close family members and friends.
- Given small sample size caution is required in interpreting the preceding and other possible demographic differences.

Impacts of other people's gambling

- Participants were asked, for each person they said they thought currently or previously had a problem with their gambling, how their relationship with that person was mainly affected. Around eight percent of adults (23% of the third of adults who considered that they knew someone in this category, about 258,500 adults) reported that it affected them personally.
- Females more often mentioned being affected than males and Māori less often mentioned being affected than adults in other ethnic groups.
- For adults who said they knew someone with a problem, adverse financial impacts (21%) were mentioned most often, followed by loss of relationships (9.5%), stress to family (8%), loss or lack of trust (7%), felt anger, frustration or resentment (6.5%). Other effects mentioned by smaller proportions included loss of time together, fights and family violence, and family break-ups or splits. Some people (6%) said they felt sorry for the person with a problem and/or that they had tried to help.
- Females more often than males mentioned adverse financial impacts, loss of relationship, stress to the family, loss or lack of trust, anger, frustration and resentment and family breakup or split.

- Māori, relative to Asians, more often said they felt sorry or concern for the person with problems and that they lost time together with them.
- Most of the age categories more often than adults aged 18-24 years reported negative financial consequences.
- Impacts may vary by some other demographic variables too but in most cases small sample size reduces the certainty that apparent differences are real.

Arguments and going without things needed for the family or household because of gambling

- All participants were asked if there had ever been an argument in their household about gambling and if this had been in the past 12 months. Around one in ten (11.5%, about 386,000 adults) said there had been an argument of this type and just over a quarter of these people said there had been an argument in the past 12 months. Most (88%) said it was mainly about someone else's gambling rather than their gambling (8%).
- All participants were asked if, in their wider family or household, they had to go without something they needed or bills weren't paid because too much was spent on gambling. About one in twelve adults (8%, about 430,000 adults) said this had happened at some time. A third of these people said it had happened in the past 12 months. Most (92%) said it was mainly about someone else's gambling rather than theirs (5%).
- Females somewhat more often than males reported arguments of this type and going without things and not paying bills.
- Māori and Pacific Island adults more often mentioned both experiences than European/Other and Asians.
- Adults in the middle age groupings somewhat more often reported arguments than those aged 18-24 years and 65 years or older reported these experiences.
- New Zealand-born, unemployed people and people in large households also more often reported gambling-related arguments and going without things or bills not being paid.
- Frequency of reporting both arguments and going without things or not paying bills is strongly associated with gambling category. Nearly three-quarters (73%) of problem gamblers said there had been gambling-related arguments in their households and around two-thirds (62%) said people had gone without things or bills had not been paid. Corresponding estimates for moderate-risk gamblers are 44% and 24%; low-risk gamblers 23% and 13% and non-problem gamblers 11% and 8%.
- Problem, moderate- and low-risk gamblers, especially adults in the two former groups, more often than non-problem gamblers said that it was their gambling that led to arguments. Problem and moderate-risk gamblers also more often than non-problem gamblers said it was because of their gambling or their gambling and someone else's that people had gone without things or bills had not been paid.

Conclusions

Problem gambling and other gambling-related harms constitute a significant public health issue with a high burden of harm. This harm, manifest in people personally experiencing problems with gambling and others affected by them, falls disproportionately on Māori and Pacific Islanders. A number of other groups are also disproportionately affected including those residing in socio-economically deprived neighbourhoods, males, younger adults, people who lack formal education, unemployed people and people of Other Christian or non-Christian religions. Gambling problems are associated with a variety of financial, health and social problems and it is highly likely that they increase existing social and health inequalities. Problem gambling and related harms probably reduced significantly during the 1990s but have

since remained at about the same level despite reductions in non-casino EGM numbers and the expansion of regulatory, public health and treatment measures. Given that gambling availability expanded markedly since 1987 and official expenditure continued to increase until 2004, these findings are consistent with the adaptation hypothesis. This hypothesis proposes that while gambling problems increase when high risk forms of gambling are first introduced and made widely available, over time individual and environmental adaptations occur that lead to problem reduction. The hypothesis also proposes that regulatory and public health measures can contribute to adaptation. Although gambling-related harms very likely decreased during the 1990s and have remained stable since, ethnic and other disparities in the burden of harm have persisted since the time the first gambling survey was conducted in 1991. The challenge for future research is to more clearly identify barriers to further reductions in gambling-related harms including wide inequalities between major ethnic and some other groups. The challenge for policy and practice is to draw on this and other information to reduce these overall harms and related health inequalities.

1. INTRODUCTION

Introduction

This report presents and discusses the gambling-related harm and problem gambling findings from the first phase (baseline survey) of the New Zealand National Gambling Prevalence and 12 Month Incidence Study (NGS). This includes consideration of changes over time. It is the second of three reports on the baseline survey. The first report (Abbott et al., 2014a) provides an overview of this phase of the study including a detailed account of the methodology, sample and statistical analyses. It includes review and discussion of relevant international and national literature that informed the design of the study. It also presents and discusses the gambling participation findings. The present report also examines some of the background literature, particularly that related to gambling-related harm. It gives a summary of the study design and sample. It does not repeat the more detailed information included in the first report. The third report covers findings regarding attitudes towards gambling.

Study objectives

The primary aims of the first phase of the NGS are to:

- Inform on detailed changes in gambling participation in New Zealand
- Provide epidemiological information on problem gambling
- Inform on risk and resiliency factors for problem gambling
- Act as a sampling frame for a longitudinal study.

Gambling and gambling-related harm

While gambling has a long pedigree, dating back to the earliest civilisations, until relatively recently some societies had limited or no experience of it. This was the case for a number of pre-European contact cultures including New Zealand Māori and other Polynesian societies (Binde, 2005; Grant, 1994). Reflecting this, these Pacific peoples did not have words in their languages that correspond to the concept of gambling as it is currently understood. Many other societies have experienced cycles of gambling expansion and restriction, the latter often in response to rising public and official concern about gambling eroding morals and the public order (Rose, 2003; Miers, 2004).

As outlined in Abbott et al. (2014a), during the past 25 years there has been unprecedented growth in commercial gambling globally. Often this growth commenced with the introduction or expansion of state lotteries and other lottery products such as scratch cards and bingo. It has been particularly strong in jurisdictions including New Zealand where urban casinos and electronic gaming machines (EGMs) have been widely introduced. As in previous historical periods of gambling expansion, there has been growing public and official concern about gambling-associated harm and potential social costs and measures that can be taken to mitigate them. In many parts of the world, surveys have been conducted to assess gambling participation and problem gambling. The first national study, internationally, to include a validated measure of problem gambling was conducted in New Zealand in 1991 (Abbott & Volberg, 1991; 1992; 1996). Early studies of this type often played an important part in securing support and resources to develop services to assist problem gamblers and people affected by their behaviour. In New Zealand a national helpline was established in 1993, followed in subsequent years by the development of face-to-face counselling services throughout the country.

In some parts of the world, despite further increases in availability and the introduction of new gambling products, official gambling expenditure levelled out or declined (Abbott et al., 2014a; Productivity Commission, 2010). In New Zealand, total expenditure reached a peak in 2003 and has remained at around the same level of \$2 billion per annum since. In inflation-adjusted terms it has fallen by 19%. Although gambling expenditure has not increased during the past decade, with regard to average expenditure per adult, New Zealand remains among the top-ranked countries (The House Wins, The Economist, 2014). On this index it is fourth, behind Finland and closely followed by the United States of America, Italy, Ireland and Norway. Australia is ranked first, spending approximately twice as much per adult than is the case in New Zealand.

Gambling exposure is the extent to which populations or sectors of populations come into contact with gambling advertising, promotion and activities (Abbott, 2007). Exposure is strongly influenced by availability; the type, number, distribution and accessibility of gambling venues and activities. In the present study (Abbott et al., 2014a), as in many previous New Zealand and other surveys, gambling participation was measured by participant self-reported involvement in gambling activities, including frequency, duration and expenditure. Gambling activities vary considerably in their potency or potential to lead to harm (Abbott, Romild & Volberg, 2013; Binde, 2011; Thege & Hodgins, 2014). Lotteries and raffles, both non-continuous forms of gambling, are generally relatively benign. EGMs, card and casino table games and horse and dog race betting and sports betting, on the other hand, often lead to harm if engaged in frequently. These forms of gambling are continuous¹ in nature and involve an element of skill or perceived skill (Abbott, Volberg, Bellringer & Reith, 2004; Binde, 2011; Raylu & Oei, 2002).

Gambling becomes problematic when participants and/or other people within their social networks or wider society experience harm as a consequence of participation. Although the first reference to problem gambling in the professional mental health literature did not occur until early last century (France, 1902), there are numerous historical accounts of gambling-related personal and social costs as well as graphic depictions in early fiction of people whose lives were ruined by gambling (Abbott & Volberg, 1999; Wildman, 1998). It was not until 1980 that serious problem gambling, referred to as pathological gambling, was officially defined as a mental disorder. It was initially classified as a disorder of impulse control in the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-III), along with pyromania and kleptomania. It retained this classification until the most recent edition of the DSM, the DSM-5, where problem gambling, now termed disordered gambling, is included alongside addictions to alcohol and other substances (American Psychiatric Association, 2013).

Gambling availability and adaptation

It is widely believed that greater availability of gambling and associated changes in attitudes towards gambling have led to both increased participation and increased gambling-related problems and harm. The report on the first New Zealand national prevalence study stated:

“It appears that regular involvement in certain forms of gambling activity, especially betting on horses and dogs, the recently introduced gaming machines and perhaps Instant Kiwi, increase the risk of being a problem or pathological gambler. Longitudinal studies are required to clarify whether or not these associations are causal. Given that casinos will shortly be

¹ Continuous gambling activities are characterised by providing the opportunity for a continuous, repeated cycle of placing a stake, playing, determination of a win or loss, and the ability to collect and reuse winnings.

established, and considering the findings of the survey generally in relation to social and economic trends, the researchers anticipate that the prevalence of excessive gambling will increase in the foreseeable future and that the various associated health, social and financial costs will similarly grow steadily.” (Abbott & Volberg, 1991, p.63).

Earlier reviews (e.g. Abbott & Volberg, 1999; Shaffer, Hall & Vander Bilt, 1997; Wildman, 1998), with varying degrees of qualification, concluded that increased availability generally leads to more gambling and problem gambling. Official national review bodies in the United States of America (National Research Council, 1999), Australia (Productivity Commission, 1999) and the United Kingdom (Gambling Review Body, 2001) reached the same conclusion. However, Abbott, Williams & Volberg (1999) suggested that this relationship may only apply, or mainly apply, to the early phases of expansion of gambling markets and that numerous other factors play a role in determining linkages between availability, participation and harm. They were of the view that as people and societies gain increased experience of new forms of gambling, adaptations would be made that enable problems to be more readily countered or contained. They considered it likely that increased public awareness of problem gambling and its early warning signs, the development of informal social controls and the expansion of treatment and self-help may play a role. They proposed that in particular circumstances the relationship between rising exposure and increasing problems will attenuate or reverse. Shaffer, Hall and Vander Bilt (1997) also articulated this ‘adaptation hypothesis’ but thought that it would be slow, “perhaps after decades of social learning.” More recent reviews (Abbott, 2006; 2007; Abbott et al., 2004; Productivity Commission, 2010; Shaffer, LaBrie & LaPlante, 2004) include studies supporting the view that relationships between availability and problems are complex and that consideration needs to be given to the duration of exposure as well as to the individual and wider environmental factors that moderate exposure effects.

Abbott (2006), formally stated hypotheses that include both availability/exposure and adaptation. Namely that:

1. During exposure to new forms of gambling, particularly EGMs and other continuous forms, previously unexposed individuals, population sectors and societies are at high risk for the development of gambling problems
2. Over time, years rather than decades, adaptation (‘host’ immunity and protective environmental changes) typically occurs and problem levels reduce, even in the face of increasing exposure
3. Adaptation can be accelerated by regulatory and public health measures
4. While strongly associated with problem development (albeit comparable to some other continuous forms when exposure is held constant) EGMs give rise to more transient problems.

Many studies using official data sources have found strong relationships between gambling availability and per capita gambling expenditure. EGMs, especially when distributed in clubs and pubs or other convenient locations, and casinos typically dominate markets within a few years of their introduction. This was the case in New Zealand during the late 1980s and 1990s. Where EGMs are widely distributed, co-variation is usually found between EGM numbers and expenditure. Strong associations have been found between EGM densities and expenditure at local and regional levels (Abbott, 2006; Marshall, 2005; Productivity Commission, 1999; 2010). However, in some cases EGM expenditure continued to rise for a number of years after machine numbers were capped (Productivity Commission, 1999).

Numerous studies have examined differences in self-reported gambling participation between regions and population sectors, including associations between gambling availability and participation (Vasiliadis et al., 2013). The findings of most of these studies are consistent with the availability hypothesis, namely that increased availability of gambling opportunities is associated with an increase in the percentage of the population that participates. However, in a number of jurisdictions, initial increases in participation were followed by decreases, even when availability continued to increase (Abbott et al., 2014a). Williams, Volberg & Stevens (2011) reviewed 190 jurisdiction-wide gambling and problem gambling surveys conducted world-wide during the past three decades. From this review, it appears that in many parts of the world gambling participation increased from the 1980s, levelled off in subsequent years, and started to decline during the 2000s.

Gambling and gambling participation in New Zealand

New Zealand national surveys (see Abbott et al., 2014a) from 1985 indicate that adult past year participation in one or more gambling activities increased from 85% in 1985 to 90% in 1990, a period when the national lottery, Lotto, was introduced, along with Instant Kiwi (a scratch lottery) and EGMs in pubs and clubs and when total official expenditure more than doubled. During the 1990s casinos were established, free-to-air national television coverage of horse and dog races was introduced with facilities for telephone betting, sports betting was legalised and new lottery products provided. Non-casino EGM venues and numbers increased substantially. Official expenditure again more than doubled, albeit increasing at a lower rate than from 1985 to 1990 (Abbott & Volberg, 2000). As for total overall gambling expenditure, non-casino EGM numbers also peaked (at 25,221) in 2003. At that time half of total expenditure was on EGMs. Although availability and expenditure increased, participation remained at 90% in 1995, reduced to 87% in 2000 and 80% in 2005. Since then it has stayed much the same at 81% in 2010 and 80% in the present study. These surveys all used similar questions and methodologies and their findings are consistent with those of other studies conducted during this period that used somewhat different methodologies.

Past year participation in almost all gambling activities peaked during the few years after their introduction and declined steadily in subsequent years. Past year participation in non-casino EGMs, horse and dog race betting, betting with friends and workmates, 'casino' fundraising evenings, Instant Kiwi, overseas raffles and lotteries, sports betting, card games, Keno, housie, 0900 and dice games all reduced by a half or more from previous high points. Participation in casino EGMs and table games, Lotto, raffles and sports betting reduced somewhat less (Abbott et al., 2014a).

More substantial changes have taken place with respect to frequent gambling participation - taking part in one or more activities weekly or more often. In 1991, nearly a half (48%) of adults gambled weekly or more often. This decreased to 40% in 1999 and 22% in the present study. These reductions were greater for continuous than for non-continuous² gambling activities. Frequent weekly participation in continuous forms such as EGMs, horse and dog race betting and casino table games fell from 18% in 1991 to 10% in 1999 and to six percent in the present study. Reductions were particularly marked for Instant Kiwi (from 13% to 3%), non-casino EGMs (5% to 1%) and horse and dog race betting (4% to 1%). Frequent continuous gamblers have very high self-reported gambling expenditure and more often take part in multiple gambling activities. They also have a much higher probability of being problem and at-

² Non-continuous gambling forms contrast with continuous forms in that there is a delay of many hours or days between placing a stake or buying a ticket and the determination of a win or loss.

risk gamblers than people who participate less frequently in these gambling forms or who participate regularly in non-continuous forms (Abbott et al., 2004).

Similar reductions in gambling participation have been found in a number of other jurisdictions during the past decade, following earlier rises associated with the introduction of new forms of gambling and increased availability of these and other forms (Abbott, Romild & Volberg, 2013; Department of Justice and Attorney-General, 2012; Productivity Commission, 2010; Williams, Volberg & Stevens, 2011). The decrease appears to have occurred earlier in New Zealand than in most other places.

In New Zealand, participation in multiple gambling activities has also decreased over time, despite many more forms of gambling being readily available, both in physical venues as well as via telephone, television and the internet. During the 1990s, around 40% of adults took part in four or more different activities during the past year. This reduced to 28% in 2005 and 22% in the current study. Self-reported overall gambling expenditure also appears to have decreased since it was first assessed in 1990, but perhaps stabilised more recently. While the number of people taking part in multiple activities has decreased, since 2000 people in this category have, on average, greatly increased their overall gambling expenditure.

The New Zealand official expenditure and participation findings are consistent with both exposure and adaptation hypotheses, with involvement and expenditure initially increasing and then decreasing, probably in part a consequence of the novelty of participation in new forms of gambling wearing off. Over time there has been a steady increase in the proportion of adults that does not take part in any gambling activity. Thus, while the range of gambling activities has continued to increase and become more widely available, including via on-line and mobile technology, a growing number of people have chosen to avoid or stop participating. In recent years this decline has plateaued.

It is of particular interest that the most marked change was a reduction in frequent participation in high risk, continuous forms of gambling and, to a somewhat lesser extent, involvement in multiple activities. This may in part be a consequence of greater public awareness of harm associated with regular participation in EGMs and other continuous gambling activities. These reductions suggest that over time a smaller proportion of adults is likely to develop or have gambling problems. However, there are indications that a small number of people, especially those who favour EGMs and some other continuous forms and take part regularly in multiple activities, have very high levels of involvement and expenditure. Overall the participation data suggest that problem gambling and gambling-related harm more generally may have decreased. This is one of the main issues addressed in the present report.

In the present study, as in previous New Zealand surveys, there is considerable variation in participation across different population sectors. One of the most notable changes during the global gambling expansion during the past 25 or so years has been the increase in gambling among women (Holdsworth, Hing & Breen, 2012; Svensson et al., 2011; Volberg, 2003). This is particularly the case in countries like New Zealand where EGMs and casinos have been widely introduced. In the present study men and women have similar levels of overall involvement. However, men more often took part in some of the continuous forms of gambling and women more often purchased raffle and lottery tickets, Instant Kiwi and played housie. Men, on average, also reported spending more on gambling than women. A number of studies in other Western societies have obtained similar results, with women preferring chance games and men tending to take part more often in sports and horse and dog race betting and other games where skill plays, or is perceived to play, a role (Potenza, Maciejewski & Mazure, 2006).

Over time, in New Zealand, younger adults have decreased their gambling participation, with an increase in numbers who do not gamble or gamble infrequently. This has also been found in Sweden and Australia (Abbott, Romild & Volberg, 2013; Productivity Commission, 2010). However, in New Zealand there are minimal age differences in frequent participation in continuous forms.

As in some previous New Zealand studies, relative to Māori and European/Other, significantly more Asians and Pacific Islanders do not gamble. Many of those who do, however, have high levels of involvement and expenditure. This 'bimodal' pattern, with relatively large numbers of non-gamblers and high involvement by many of those who do take part, is also evident among recent migrants and some religious groups (Other Christians and Other religions) and, to a lesser extent, the youngest and oldest age groups and people outside the paid workforce other than unemployed people. Many people in these categories come from families and/or have migrated from countries with low levels of exposure or involvement with gambling of the type available in New Zealand. According to the availability/exposure hypothesis, they are expected to be at high risk for the development of gambling-related problems and harm. People in most of the foregoing groups are also more likely to live in neighbourhoods with high concentrations of EGM venues and Totalisator Agency Boards (TABs). Pearce et al. (2008) found that adults living in the quartile of neighbourhoods with higher concentrations of EGMs and TABs were significantly more likely to gamble and to experience gambling-related problems. They concluded that access increased the probability of participation and developing problems. Given that these neighbourhoods were also characterised by low socioeconomic status and had relatively large numbers of people in most of the 'bimodal' groups, it is likely that both increased vulnerability and high exposure contributed to the elevated rate of problem gambling in neighbourhoods with higher densities of EGMs and TABs.

In summary, gambling participation increased in New Zealand during the late 1980s and 1990s in association with the introduction of Lotto, Instant Kiwi, EGMs and casinos. Official expenditure increased markedly from 1988 to 2004. Since then it has reduced by about a fifth in inflation-adjusted terms. This is predominantly due to reduced non-casino EGM expenditure. Although new gambling activities and ways of accessing them have been introduced, non-casino EGM venues and numbers have reduced since 2003. Initially, some groups had higher levels of involvement including males, young adults, Māori and unemployed people. These groups also had higher rates of problem gambling in the 1991 national survey (Abbott & Volberg, 1991). Since 1991 overall participation has reduced markedly, especially regular participation in a number of continuous gambling activities. Participation has also reduced in some groups and increased relatively in others as new forms of gambling were introduced and became more available and acceptable. While substantial participation differences remain between some groups, for others including males and females, differences have diminished. In the current study, Māori, Pacific Islanders, adults aged 65 years and older, people who lack formal qualifications and unemployed people have high rates of participation in continuous forms of gambling.

Problem gambling and other gambling-related harm in New Zealand

The 1991 national survey, using the South Oaks Gambling Screen-Revised (SOGS-R), found that 1.2% of adults were past six months probable pathological gamblers and a further 2.1% were less serious problem gamblers (Abbott & Volberg, 1991; 1992; 1996). More than twice as many, respectively 2.7% and 4.3%, were assessed as having been a probable pathological or problem gambler at some time during their lives (during the past six months or prior to that). The SOGS-R was developed for this study from the original South Oaks

Gambling Screen (Lesieur & Blume, 1987), the then most widely used measure of problem gambling. It had been developed using DSM-III criteria for pathological gambling and, consistent with the DSM conceptualisation of pathological gambling, only provided a lifetime measure (Abbott & Volberg, 2006). This was because, in contrast to most other psychiatric diagnoses, the signs and symptoms for pathological gambling were not required to occur within a specified timeframe and there was also no provision for an ‘in remission’ diagnosis. This reflected the view, current at that time, that pathological gambling was a chronic, lifelong disorder (Abbott & Volberg, 1999; 2000).

Subsequently, the SOGS-R was widely used in general population studies and it was found that lifetime rates were typically about double current rates, suggesting that substantial numbers of problem gamblers overcame their problems. Most studies adopted a 12 rather than six month timeframe for current probable pathological and problem gambling. Abbott, Williams and Volberg (1999) re-interviewed probable pathological and problem gamblers seven years after their initial interview in 1991. It was found that a number of people who were identified as lifetime probable pathological and problem gamblers in 1991 did not report that they had ever experienced problems when re-interviewed in 1998. This suggested that lifetime estimates derived from cross-sectional surveys are conservative and that problem reduction and recovery are greater than is implied from these studies. Subsequent prospective research has generally confirmed that problems are time-limited for many problem gamblers, albeit that people with very serious problems and co-morbidities tend to have more persistent problems and are more prone to relapse (Abbott & Clarke, 2007; Slutske, 2006).

As mentioned earlier, official gambling expenditure approximately doubled from 1990 to 2000, primarily a consequence of a substantial increase in non-casino EGMs and the establishment of casinos in Christchurch (in 1994) and Auckland (in 1996). In 1990, the large majority of expenditure was on horse and dog race betting and lotteries. By 2000, well over half was on non-casino EGMs and casino gambling. During this period a number of other forms of gambling were also introduced. This included daily horse and dog racing on a track-side free-to-air national television channel with facilities for telephone betting, hotel and club TABs, Daily Keno, TeleBingo, sports betting and 0900 telephone ‘competitions’. Numbers of people seeking help from the national problem gambling helpline and from specialist gambling counselling services increased significantly from the time of their establishment in 1993 and 1994 respectively. Given the significant increase in gambling availability and expenditure, as well as formal help-seeking for problem gambling, it was expected that gambling participation and gambling-related problems would be greater when the second national survey was undertaken in 1999. Previously, Abbott and Volberg (1992, p.12), referring to the 1991 study, stated:

“Given the latency period between starting gambling on a regular basis and the development of problems, it is likely that the present study was conducted too soon to capture the full impact of increased gambling participation on the prevalence of problem and pathological gambling within the community. It is expected that there are large numbers of people still in the ‘pipeline’ who will progress from regular or problem gambling to pathological gambling during the next few years. The introduction of casinos and other new forms of gambling, as well as the more aggressive marketing of gambling activities, will also contribute to increased participation and very probably to increased prevalence rates.”

Subsequently, consideration was given to the alternative possibility that “many young problem gamblers will ‘grow out’ of their problems” and, as indicated above, that as people and society more generally have increased experience with new forms of gambling adaptations will be made

that enable problems to be more readily countered or contained (Abbott, Williams & Volberg, 1999). However, on balance, it was considered that adaptation would probably take more time and that the 1999 survey would find an increase.

In the 1999 survey, overall participation findings were similar to those of the subsequent 2000 Department of Internal Affairs (DIA) survey. In 1999, 14% of adults had not participated in any form of gambling during the past six months, compared to 13% in 2000 who had not gambled in any form during the past 12 months. In both surveys, non-participation rates were higher than in the previous 1990 survey. As mentioned above, there was no change from 1991 to 1999 in the proportion of people who participated weekly or more often in non-continuous forms (30% in both studies). The most notable change was the reduction in the proportion of people who took part this often in continuous forms (reduced from 18% to 10%).

In 1999, contrary to expectation, but consistent with the reduction in frequent involvement with continuous gambling activities, there were significant reductions in the prevalence of both current and lifetime probable pathological and problem gambling (Abbott & Volberg, 2000). These findings are in keeping with the adaptation hypothesis. However, extreme caution is required when interpreting change over time from just two data points. As discussed in Abbott & Volberg (2000) there were also some methodological differences that may have had an impact on the prevalence estimates. Nevertheless, it is of interest that an unpublished survey undertaken by North Health in 1996, using the same questionnaire and very similar methodology to that used in the 1991 study (see Abbott & Volberg, 1999; 2000), obtained a current probable pathological prevalence rate of 0.4%. This estimate is not significantly different from the corresponding 1999 estimate of 0.5%. The authors of the 1999 survey cautiously stated that “the findings of the present study and comparisons of the 1991 and 1999 prevalence estimates are not consistent with the hypothesis that the prevalence of problem and probable pathological gambling have increased since 1991.” They did not conclude that they had very probably decreased. The findings from the 1996 survey and subsequent research in New Zealand and elsewhere challenge this caution and suggest that it is more likely that gambling-related problems have reduced in New Zealand since the original 1991 study.

The three New Zealand prevalence studies just discussed used the SOGS-R, with a six month frame to assess current probable pathological and problem gambling. All used telephone interviews and were presented to potential participants as gambling studies. More recently, gambling participation and problem gambling measures have been included in New Zealand Health Surveys (NZHSs), conducted during 2002/03, 2006/07 and 2011/12. The first of these surveys used a non-standard group of problem gambling questions which means that the problem gambling findings cannot be compared with those of other studies. The subsequent surveys included the Problem Gambling Severity Index (PGSI) which provides a past 12 month assessment of problem, moderate risk and low risk gambling (Ferris & Wynne, 2001). These studies involved face-to-face household recruitment and interviewing, and were presented as health surveys. The use of different problem gambling measures and different methodologies mean that direct comparison of the prevalence estimates from these two groupings of studies is not possible. The PGSI was developed in 2001 and has since been increasingly used in general population studies, largely displacing the SOGS-R.

The 2010 Health and Lifestyle Survey also included the PGSI and involved face-to-face household recruitment and interviews (Gray, 2011). Although presented as a health and lifestyle study, potential participants were advised that the interview involved being asked questions about gambling. Comparison of the 2006/07 and preliminary 2011/12 NZHS findings indicate that although point prevalence estimates for problem, moderate and low risk gambling were lower in the more recent survey, other than for low-risk gambling the confidence intervals

overlap indicating no significant change over time. In the case of low risk gambling there was a significant decrease in prevalence. There was also a substantial increase in the number of non-gamblers. The 2010 survey problem and moderate risk prevalence estimates were not significantly different from the earlier 2006/07 survey estimates. However, comparison of the 2011/12 and 2010 estimates indicates that while there was no significant change in problem gambling prevalence, there was a reduction both in moderate and low risk gambling. Overall, these findings are more consistent with adaptation than exposure, suggesting little or no change over time in problem gambling and a reduction in less severe problem and risky gambling, in addition to further decline in overall gambling participation.

Availability and adaptation evaluated

Shaffer, Hall and Vander Bilt (1997) conducted a meta-analysis of 120 problem gambling prevalence studies carried out in the United States of America and Canada during the preceding decade. During this period, gambling availability had increased significantly in a number of states and provinces. The availability hypothesis was considered by examining prevalence rates by time. Although a statistically significant increase was found over time, the total variability explained was relatively modest (20%) and the authors noted that it had yet to be determined what other factors influence the changing rates. This methodology, using time as a proxy for gambling availability or exposure, has a number of shortcomings and, although there were considerable variations in gambling availability and expenditure between different jurisdictions in North America, Shaffer, Hall and Vander Bilt (1997) did not find significant regional variations in problem gambling rates. In contrast, a subsequent national United States survey did find some regional variation, with higher prevalence rates in the West. However, contrary to the availability hypothesis, this region had lower expenditure than New England states (Welte et al., 2002). Relative to these Eastern states the West had more recently been exposed to commercial gambling. Consequently, it is possible that the United States findings are consistent with both exposure and adaptation hypotheses.

Abbott (2006) examined more recent prevalence findings from jurisdictions where one or more surveys had been conducted. Some showed apparent increases over time, others showed no change, and others showed reductions. Interpretation was compromised by a variety of factors including the use of different problem gambling measures, varying methodologies, small samples and variation in time intervals between re-assessments. No clear conclusions could be reached.

The Productivity Commission (1999) conducted a problem gambling prevalence study across Australian states and territories and examined relationships between a number of measures of gambling exposure and consumption including number of EGMs per adult and average adult EGM expenditure. Consistent with exposure theory, there was a very strong relationship between the number of EGMs per capita and per capita expenditure. The notable exception was Victoria which had introduced a state-wide cap on the total number of machines. In that state average expenditure per machine was much higher than elsewhere. The Commission report presented a number of regression analyses that generally show a linear relationship between availability, consumption and problem gambling. However, others challenged some of the Commission's findings and interpretations.

Abbott (2001; 2006; 2007) questioned the Productivity Commission claim that there was a linear relationship between both EGM density and expenditure and problem gambling prevalence. He noted that confidence intervals and *p* values were not presented and that visual inspection of the data suggest that while jurisdictions with the lowest EGM densities and expenditure had lower

prevalence rates than those with high densities and expenditure (consistent with the exposure hypothesis), beyond particular density and expenditure levels further increases did not appear to be associated with increased problems. This suggested a non-linear relationship; a pattern that could be explained by exposure followed by adaptation. Dollery and Storer (2007) re-analysed the Commission's data and found that the claimed linear relationship was not statistically significant. They also examined a range of possible non-linear relationships and did not find any of these to be significant either. This lack of significance was predominantly a consequence of the small survey sample size and lack of statistical power to meaningfully examine potential differences between the Australian jurisdictions.

Storer, Abbott & Stubbs (2009) subsequently examined both availability and exposure hypotheses by conducting a meta-analysis of 34 problem gambling surveys conducted in Australia and New Zealand since 1991. Adjustments were made to problem gambling prevalence estimates to take account of different measures of problem gambling (SOGS-R and PGSI) that had been used. Adjustments were not attempted for other methodological differences between studies or for variation in social indicators across jurisdictions. In this analysis, density of EGMs at the time each study was conducted and time per se were examined together in relation to problem gambling prevalence. This contrasts with the approach taken by Shaffer, Hall and Vander Bilt (1997) that just examined time in relation to problems, with time assumed to be an indicator of increased gambling availability. It also contrasts with the Productivity Commission study that had examined availability and expenditure, at the same point in time, in relation to problem gambling and some other measures of gambling harm.

In the meta-analysis of the Australasian studies, EGM density and the time that surveys were conducted both had a very strong relationship with problem gambling, together explaining 72% of the variance in problem gambling. The findings indicated that problem gambling prevalence increased with increasing density of EGMs at a rate of around 0.8 problem gamblers for each additional EGM. They also indicated that problem gambling decreased with time, with an average annual decrease in problem gambling prevalence of 0.09% expected where there is no change in EGM density. Thus, the findings are consistent with both availability and adaptation hypotheses. The findings did not, however, support the prediction that prevalence will reach a limit or decrease, even in the face of increasing access to EGMs (plateauing). The authors concluded that policies favouring capped or reduced EGM numbers combined with a range of regulatory and public health measures to promote adaptation was most likely to reduce gambling-related harm.

As discussed in Abbott et al. (2014a) the wide variation in measures and methodologies used in gambling surveys internationally is a significant problem in the interpretation of findings. A recent review (Sassen, Kraus & Buhringer, 2011) indicates that little progress has been made since these issues were considered over a decade before (Abbott & Volberg, 1999; Productivity Commission, 1999). Williams and Volberg (2010) also reviewed the relevant literature and conducted a study to assess the impact of some of these factors on prevalence rates. They found rates were influenced by how the study was presented (a gambling study or recreation study) and administration format (face-to-face or telephone). They extended this work by examining 190 jurisdiction-wide adult prevalence studies conducted world-wide and identified the impact of major methodological features that influence rates, namely problem gambling measure, timeframe to assess problems, how the survey is described to potential participants, how the survey is administered and the criterion that determines when problem gambling questions are asked (Williams, Volberg & Stevens, 2011). They quantified these impacts and developed weights that allowed adjusted rates to be calculated to facilitate more valid comparisons across studies. They then applied these weights to the 190 studies, including the New Zealand surveys, to assess differences across jurisdictions and changes over time. As with Shaffer, Hall and

Vander Bilt (1999), time when studies were conducted was used as a proxy for gambling availability.

When adjusted past year prevalence rates were used, considerable cross-jurisdictional variation remained, with the lowest rates in Denmark, the Netherlands and Germany. Lower than average rates were found in New Zealand, Norway, Great Britain, Hungary, Iceland and South Korea. Average rates were found in Sweden, Finland, Canada, the United States of America, Switzerland, Estonia and Italy. Above average rates were found in Australia, Belgium and Northern Ireland. Singapore, Macau, Hong Kong and South Africa had the highest rates. Sufficient numbers of surveys had been undertaken in the United States of America, Canada and Australia to allow meaningful analysis of changes in prevalence over time. When rates were averaged for five year periods in all three countries, there was a clear pattern of initial increases in prevalence followed subsequently by reductions. Reductions began in the late 1990s in Canada and early 2000s in the United States of America and Australia. Williams, Volberg and Stevens (2011) concluded that given that gambling availability has steadily increased in these jurisdictions over the past 30 years, their findings are consistent with the contention that increased availability is related to increased problem gambling, as well as to the contention that populations adapt over time. Suggested mechanisms for adaptation included: (a) decreased overall gambling participation (a result of novelty wearing off), (b) increased awareness of potential harms of gambling, (c) people being removed from the population pool of problem gamblers due to severe adverse consequences (e.g. imprisonment, suicide), (d) increased industry and government efforts to provide gambling more safely, and (e) increasing age of the population.

Socio-demographic risk factors for gambling-related harm

Although gambling participation and problem gambling prevalence rates vary across jurisdictions, several socio-demographic factors have consistently been associated with problem gambling. Other factors, while found in a number of studies, are less consistent - both across jurisdictions and in the same jurisdiction over time (Abbott et al., 2004; Johansson et al., 2009). Early general population studies found that male gender, younger age, low income and single marital status were almost universally risk factors. Less formal education, low occupational status, and non-Caucasian ethnicity were additional risk factors in a number of studies, and residence in large cities was in some. Self-reported first gambling at an early age and preferences for and/or participation in continuous forms of gambling were additional risk factors, as were believing that one or more family members had a problem with gambling (Lorains, Cowlishaw & Thomas, 2011). As these studies are cross-sectional, it is not known whether many of these latter factors precede or follow the development of problem gambling or develop at the same time as a consequence of one or more common, underlying, causes.

Some of the more recent surveys have been national in scope and have used large samples, allowing more fine-grained examination of risk factors. Given that most risk factors are inter-related, at least to some degree, it is difficult to understand the nature of their relationship to problem gambling by considering them separately. Multivariate analyses have been used increasingly to help identify the most important factors as well as those that are secondary or spurious. Although the findings from a number of these more recent surveys are similar to those from earlier studies, others differ in some respects, in part reflecting changes in levels of gambling participation in particular social groups including women and younger adults.

In New Zealand in 1991, males, younger adults, unemployed people, Māori and Pacific Islanders had high rates of lifetime and past six months probable pathological and problem

gambling (Abbott & Volberg, 1991, 1996; Volberg & Abbott, 1994). Non-married status, living in a large household, lower occupational and educational status and Auckland residence were additional but less important risk factors. These findings are broadly congruent with those found in earlier studies throughout the world. In 1999, Māori and Pacific Islanders remained at high risk; however, gender, age and employment differences between problem and non-problem gamblers diminished to varying degrees (Abbott & Volberg, 2000). In both surveys, 44% of current probable pathological and problem gamblers were Māori or Pacific Islanders. In addition to Māori and Pacific Island ethnicity, Auckland residence remained a risk factor in 1999. In 1991, people aged 18-24 years had the highest lifetime and current prevalence rates, followed closely by people aged 25-29 years. In 1999, people aged 18-24 years had low rates relative to those in other age groups, other than people aged 65 years and older, who had low rates in both studies. In 1999, people aged 25-34 years had the highest rates. In 1999, males no longer had higher rates of probable pathological gambling than females. They continued, however, to have higher problem gambling rates. Probable pathological and problem gambling rates were markedly lower for unemployed people in 1999 than in 1991. In 1999, non-married status and lower educational and occupational status were no longer risk factors whereas having a vocational or trade qualification and being employed were. Summing up these changes Abbott and Volberg (2000) said that during the 1990s “problem gambling had aged somewhat, feminised and gone a bit ‘up market’”.

Many of the socio-demographic risk factors identified in the 1991 and 1999 studies were inter-related. For example, Pacific Islanders were more likely to be younger, have lower levels of education and income and live in larger households. Overlapping group membership complicates the interpretation of prevalence rates within specific groups and comparison of rates for the same groups over time. For example, if mortality rates for a condition that predominantly affects older people is being compared in two populations and one population has proportionately more older people, the comparison would be misleading if age differences were not taken into account. Similarly, if this comparison is being made in the same jurisdiction over time and the age structure has changed appreciably it would also be important to take account of this change.

In epidemiology and demography, overlapping membership and changes in the composition of groups over time is often addressed by calculating standardised rates (Abbott & Volberg, 2000). When one or two variables are being adjusted for, standardisation is relatively straightforward. However, it becomes highly complex when many variables are being considered in this way. Where possible, it is desirable to adjust for a small number of variables that have the strongest association with the condition or state that is being investigated. Standardisation requires that the major risk factors are known and that their relationship to the attribute being studied does not change substantially over time. In the case of probable pathological and problem gambling there were strong indications that some risk factors, including age and employment status, changed appreciably from 1991 to 1999. For these reasons, multivariate analyses (logistic regression and correspondence analysis) were conducted to identify which of the individual factors had the strongest, independent relationships with probable pathological and problem gambling. The logistic regression analyses particularly can be regarded as a more sophisticated approach than standardisation for taking account of the potential confounding effects of other variables. Multiple logistic regression allows adjustments to be made for multiple variables, simultaneously.

In 1999, in the case of past six months probable pathological and problem gambling, Māori and Pacific Island ethnicity were, as in 1991, dominant risk factors when analysed alongside other variables in a logistic regression analysis (Abbott & Volberg, 2000). Vocational or trade qualifications and Auckland residence were also significant. Christchurch residence and

household income of \$40,001-\$50,000 emerged as additional risk factors. Male gender and Catholicism also emerged as marginally significant factors. Logistic regression analysis conducted with respect to 1999 lifetime probable pathological and problem gambling also identified Māori and Pacific ethnicity, Christchurch residence, Catholicism and male gender as risk factors. In addition, adults aged 25-34 years and people without formal qualifications were also at higher risk. People with household incomes of \$30,001-\$40,000 and those born in New Zealand, Australia, Europe or America were at lower risk. While there is consistency between the current and lifetime findings, the latter, in some respects, show more resemblance to findings from the earlier 1991 study. For example, having lower educational qualifications was a risk factor in 1991 but not 1999. In the 1999 study, unemployment emerged as a major risk factor. These slight differences are not unexpected given that the lifetime measure, while probably predominantly assessing problem gambling currently and during more recent years, also assesses problems that were experienced, or initially experienced, around the time of the 1991 study or earlier.

The 2006/07 New Zealand National Health Survey (Ministry of Health, 2009) included the PGSI. This problem gambling measure was developed in 2001 and includes items from the SOGS-R and the DSM-IV (Ferris & Wynne, 2001). It uses a past 12 months frame and, in contrast to the SOGS and SOGS-R (as initially developed and validated), does not include a lifetime measure. Unlike the SOGS, which was developed for clinical screening purposes, the PGSI was designed for use in general population surveys and claimed by its developers to assess a broader concept of problem gambling as well as lower severity risk categories. While it is claimed to measure a broader concept than pathological gambling there is actually a high degree of overlap between the PGSI, SOGS-R and DSM-IV. This is not unexpected given the way it was developed (Abbott & Volberg, 2006). In the original validation, the PGSI was found to correlate 0.83 with both the SOGS-R and DSM-IV.

In 2006/07, as in 1999, Māori and Pacific Islanders had high rates of problem gambling (the PGSI category of problem gambling is similar to the SOGS-R probable pathological gambling category). After adjusting for age, Māori and Pacific rates were four times higher than adults generally. Asians and Europeans/Other were significantly lower than adults generally. Prevalence was highest for people aged 35-44 years, at least three times higher than for people in other age groups. This contrasts with the findings of the earlier New Zealand surveys. In 1991, 18-24 year-olds had the highest rate and in 1999 people aged 25-34 years were in this category. Male and female problem gambling prevalence rates did not differ in 2006/07. Males, however, had significantly higher rates of less serious, moderate-risk gambling. This is similar to what was found in 1999. Adults living in the highest deprivation quintile, especially males, had very high rates of problem gambling. A half of problem gamblers lived in the 20% most socio-economically deprived areas.

Logistic regression analysis, adjusting for all other socio-demographic factors in the model, confirmed Māori and Pacific ethnicity, being aged 35-44 years and living in more deprived areas as major risk factors for problem gambling. People with lower education (no post-secondary school qualifications) were also at higher risk. Other factors, when the effects of other variables were taken into account, were not significant. This included employment status, urban/rural residence and household size.

Other risk factors

In the 1991 and 1999 New Zealand national gambling studies, a number of additional risk factors for probable pathological and problem gambling were identified. In both studies, regular

(weekly or more often) participation in continuous forms of gambling and higher levels of self-reported overall gambling expenditure were strongly associated with current probable pathological and problem gambling. Although approximately 1.3% of adults were probable pathological or problem gamblers in 1999, they were responsible for approximately 19% of total self-reported gambling expenditure. As EGM expenditure is significantly under-estimated and reported the percentage of actual expenditure accounted for by this group will be larger. In the 1999 survey, around a quarter of adults who regularly played non-casino EGMs and a fifth of those who regularly bet on horse or dog races were probable pathological or problem gamblers. Similar results were found in the earlier, 1991, survey. In 1999, regular participation in casino EGMs, other casino games and TeleBingo was also associated with probable pathological and problem gambling. These activities were not available in 1991.

In the 1999 survey, probable pathological and problem gamblers also more often reported having a most preferred gambling activity and, consistent with participation and expenditure findings, were much more likely than non-problem gamblers to prefer playing non-casino EGMs and horse and dog race betting. They also more often said that they gamble because it is a hobby or habit, usually gamble alone and have someone in their life with a gambling problem. They much less often than non-problem gamblers said they usually gamble with friends or co-workers or usually gamble for less than an hour. First gambling before the age of 13 years, or at 25 years or older, was associated with lifetime probable pathological and problem gambling but not with current problematic gambling. Gambling for excitement or challenge, usually gambling with other family members, reporting first gambling in a casino or on EGMs, and first playing cards for money were additional risk factors for lifetime probable pathological and problem gambling, as were reporting having, or nearly having, a 'big win' (Abbott, 2001). Turner, Zangeneh & Littman-Sharp (2006), in a study in Ontario, Canada, also found a non-linear relationship with problem gamblers more often reporting first gambling before the age of 18 years or after the age of 23 years. Non-problem gamblers more often began to gamble between the ages of 18 and 23 years. Many studies have found first gambling during childhood or early adolescence to be associated with subsequent gambling problems (Abbott et al., 2004).

Both Abbott & Volberg (2000) and Turner et al. (2012) noted that they had not expected people who first started gambling later in their adult lives to be at higher risk. Abbott and Volberg (2000) suggested that given that first gambling in a casino or EGM participation were also risk factors, and given that both EGMs and casinos had age restrictions, it is probable that the older group developed their problems through involvement in these (then) relatively recently introduced forms of gambling. Turner et al. (2012) was also of the view that the relatively recent introduction of casinos and EGMs at race tracks accounted for higher prevalence among people who did not report taking part in gambling activities until they were adults. These findings also raise the possibility that gambling during the mid to late teens and early adult years is protective and that people who first encounter high risk gambling activities such as EGMs and casino table games without prior experience of gambling are more likely to experience difficulties. This possibility, consistent with the adaptation hypothesis, requires examination through prospective research.

While current Instant Kiwi participation was not strongly associated with current probable pathological and problem gambling in the 1999 national study, reporting first purchasing Instant Kiwi tickets was a relatively strong predictor of current problematic gambling. It was not known from the study at what ages the first purchases and regular purchases were first made. However, it is possible that while not linked to current problem gambling, past Instant Kiwi participation may have served as a 'gateway' into other gambling activities that are strongly linked to current problem gambling.

Problem gambling and health

The 1991 and 1999 New Zealand national studies examined relationships between problem gambling, health and wellbeing. The health and wellbeing findings were published in reports on both studies that presented information from in-depth face-to-face interviews conducted with sub-samples of problem gamblers and others drawn from the larger national samples (Abbott, 2001; Abbott & Volberg, 1992). The 1991 findings indicated that probable pathological and problem gamblers had high rates of GHQ-12 defined mental disorder, depression and hazardous or harmful alcohol use. In 1999 probable pathological and problem gamblers were found to have substantially higher rates of alcohol misuse and tobacco, cannabis and other forms of illicit drug use. Similar findings have emerged from subsequent New Zealand national health surveys (Ministry of Health, 2006; 2009). These surveys also found that problem gamblers have worse self-rated health in a number of physical health domains. A recent meta-analysis demonstrates considerable consistency across studies with respect of problem gambling co-morbidities (Lorains, Cowlshaw & Thomas, 2011). From both clinical and general population studies, it is evident that the strongest associations are with mood, anxiety and substance misuse disorders. Further research is required to clarify the nature of these relationships, including both temporal sequence and the extent to which there are shared, underlying vulnerabilities (Abbott et al., 2013a).

Help-seeking

Problem recognition and help-seeking was examined in the 1991 and 1999 New Zealand national studies. In 1991, under a third of lifetime probable pathological and problem gamblers personally considered that they had experienced gambling problems. In 1999, approximately a half did. This suggests that there may have been some increase in awareness and self-recognition of problem gambling during the 1990s. In 1991, less than one in ten people who at some time felt they had a problem said they had ever sought help (Abbott & Volberg, 1992). Only friends, family and non-professional sources were mentioned. In 1999, over a quarter of lifetime probable pathological and problem gamblers said they had wanted help for their gambling at some time and over a third said they subsequently tried to obtain it. These findings, when compared to findings from the 1991 study, suggest that there was a substantial increase in help-seeking from 1991 to 1999. Official records from specialist gambling helpline and counselling services indicate rapidly increasing uptake from 1993 to 1999 (Abbott & Volberg, 2000). Māori and Pacific Island problem gamblers were greatly under-represented during the first few years following service establishment. Māori representation increased somewhat during the 1990s but less change was evident for Pacific Islanders. Asian numbers were also low. The 2006/07 NZHS (Ministry of Health, 2009) found that problem gamblers significantly more often than non-problem gamblers visited a general practitioner during the past 12 months. They also much more often visited a psychologist, counsellor or social worker (17% vs. 3%).

Problems due to someone else's gambling

The 2006/07 health survey included questions concerning problems experienced due to someone's gambling during the past 12 months. This wording did not rule out participants including problems due to their own gambling as well to other people's gambling. Approximately three percent of people aged 15 years and older reported problems due to someone's gambling. Most considered that these problems were due to EGMs (53% non-casino; 33% casino). As with problem gambling, Māori and Pacific Island people, and those resident in the most deprived areas were disproportionately affected.

The National Gambling Study (NGS)

As mentioned earlier, and discussed in Abbott et al. (2014a), a major purpose of the present study is to assess changes since the previous national gambling and problem gambling surveys were conducted. There is particular interest in comparison with the findings from the 1999 national study which was the last study to provide detailed information on both gambling participation and problem gambling. Additionally, the last two national health surveys and the 2010 Health Sponsorship Council survey provided some gambling participation and problem gambling information and comparison with these studies is also of interest. As indicated, the present report focuses on the problem gambling and wider gambling-related harm aspects of the present study and comparisons with these earlier studies. Comparison with gambling participation and attitude findings from the five yearly 1985 to 2005 DIA survey series is also important. The participation findings and comparisons are provided in Abbott et al. (2014a); the attitude findings and comparisons in Abbott et al. (2014b).

The agreement between the Ministry of Health and the University required sufficiently large samples of Māori, Pacific and Asian adults to provide relevant information on these groups and enable robust ethnic comparisons. Māori (15%), Pacific Island (10%) and Asian (7%) people together make up approximately a third of the total population (Ministry of Social Development, 2010). As indicated, Māori and Pacific people are significantly over-represented with respect to problem gambling and experience disproportionate levels of gambling-related harm.

The agreement with the Ministry also required that, where possible, methods and measures would be used that facilitated comparisons with relevant national and international data sets. As mentioned in greater detail in Abbott et al. (2014a) these varied requirements were major considerations in the design and content of the study. It was decided to use face-to-face household recruitment and interviewing to ensure that a high response rate was achieved, with good representation of younger people, Māori, Pacific Islanders and Asians. This would also assist in comparing the present findings with those from the DIA surveys as well as those from the post 2000 surveys that included problem gambling measures. All of these surveys were conducted face-to-face. The PGSI was also included to allow more direct comparisons of problem gambling findings from post-2000 studies conducted in New Zealand and internationally. The lifetime SOGS was included to enable some problem gambling comparisons to be made with findings from the 1991 and 1999 national surveys.

The Ministry of Health (2009) noted that the PGSI had not been validated in the New Zealand population and, among other things, that it might perform differently across ethnic groups. Given the major ethnic differences in the prevalence both of problem gambling and problems due to someone's gambling in the 2006/07 health survey this is an important matter. However, similar differences were also found in earlier New Zealand surveys that used the SOGS-R and other measures. The PGSI was extensively validated in Canada as part of its development. Abbott and Volberg (2006), from their review of literature on problem gambling measures, concluded that the PGSI was the population gambling screen of choice. Subsequently, its psychometrics and construct validation have been examined in further general population studies in Canada (Brooker, Clara & Cox, 2009; Holtgraves, 2009), Australia (McMillen & Wenzel, 2006), China (Loo, Oei & Raylu, 2010), Singapore (Arthur et al., 2008) and South Africa (Sharp et al., 2012). From these studies it is evident that the PGSI has high internal consistency across diverse settings and demonstrated discriminant and construct validity. Two of the studies, Loo et al. (2010) and Sharp et al. (2012) are of particular note in that individual PGSI items functioned similarly across different language and cultural groups. In South Africa, this included translations into the four most common spoken languages in urban South Africa (Sharp et al., 2012). This latter study also provided support for the PGSI both as a general population

screening measure for more severe problem gambling and as a measure of a gradation of risk and problem severity.

A recent study by Devlin and Walton (2012) is of particular relevance. Drawing on data from both the 2006/07 New Zealand Health Survey and the 2010 Health and Lifestyle Survey they found that in both surveys the PGSI had strong internal reliability and cohered to a single factor. Significantly, this was the case for the overall adult population, as well as separately for men, women, Māori, Pacific and Asian adults. While there was some relatively minor variability across some groups on one or more items, the authors concluded that there was strong support for the measures criterion and construct validity and that it works well in measuring problem gambling in all of these groups.

In summary, the NGS is a national survey of adults aged 18 years and older. It uses face-to-face household recruitment and interviewing. Māori, Pacific and Asian adults were over-sampled. Interviewing for the first phase took place during 2012. The major gambling-related harm and problem gambling findings are reported and discussed in this report. A range of measures was included in the study. In addition to gambling participation and problem measures, leisure activities, major life events, mental health and quality of life, substance use and misuse, health conditions, social connectedness, the New Zealand Deprivation Index and demographic information including cultural identity were included (see Abbott et al., 2014a).



2. RESEARCH METHODS

Research methods are fully described in Report Number 1 of the National Gambling Study (Abbott et al., 2014a). A brief summary of the research methods is presented here.

2.1 Survey instrument

The survey instrument for the 2012 National Gambling Survey was extensive and covered the following areas:

1. Leisure activities and gambling participation
2. Past gambling and recent gambling behaviour change
3. Problem gambling, help-seeking behaviours and readiness to change, and gambling in households
4. Life events and on-going hassles
5. Gambling in New Zealand
6. Mental health including general psychological distress and quality of life
7. Alcohol use/misuse
8. Substance use/misuse (tobacco and other drugs)
9. Health conditions
10. Social connectedness
11. New Zealand Deprivation Index
12. Demographics.

2.2 Overview of the survey methodology

Key aspects of the survey methodology were as follows:

- The survey sampling was at three levels: first meshblocks (small areas) were selected, then dwellings were selected within each meshblock, and finally an eligible respondent was selected for an interview within each dwelling.
- Random selection procedures were used at all three of these sampling levels in order to minimise sampling bias. These procedures were used to ensure known, non-zero probabilities of selection for all final respondents.
- Interviews were conducted face-to-face with respondents in their homes (dwellings).
- Interviews were conducted using Computer-Assisted Personal Interviewing (CAPI) software; that is, interviewers used laptop computers to administer the interview.
- The survey had nationwide coverage.
- All adults were eligible; that is, gamblers and non-gamblers. The survey was representative of the New Zealand adult population. 'Adults' for the National Gambling Survey was defined as people aged 18 years or older.
- The interview length varied depending on the respondent's level of involvement with gambling activities.
- The household call pattern, call backs to households, and the interviewers' approach was designed to achieve an expected response rate of 65%. Up to seven calls were made to a household to contact the eligible respondent. Household calls were made on different days (week days and weekend days) and at different times of the day, in order to maximise the chance of contacting people.
- There was no inducement or coercion of respondents. To this end, a consent form was signed or approved by respondents before the interview began. Koha was given to

participants at the follow-up interview after 12 months, as reciprocity in recognition for respondents' time.

- There were 'core' (non-screened) and 'screened' households within each meshblock. Interviews conducted in screened households boosted the number of interviews conducted with Māori, Asian and Pacific respondents.
- Interviewers were trained on the specifics of the National Gambling Survey.

2.3 Weightings

To ensure that the findings from the survey are representative of the New Zealand population, each of the 6,251 interviewed participants was assigned a survey weight. Selection weights (inverse of the probability of selecting a person) were modified for non-response and then post-stratified to a population table, gender (male or female) by age group (18-39 years, 40-59 years, 60+ years) by 'prioritised' ethnic group (Māori, Pacific, Asian, European/Other).

2.4 Data analysis

2.4.1 Variance estimation

The sample design for the 2012 National Gambling Survey was a stratified three stage cluster design, with the strata being the District Health Board regions (21), the primary sampling units (PSUs) being Census 2006 meshblocks (1,000), the secondary sampling units (SSUs) being occupied private dwellings, and the tertiary sampling unit (TSUs) being a person aged 18 years or above in the dwelling.

The Jackknife method of producing replicated estimates was used to estimate sample errors³ (Rust, 1985). For each replicate, a PSU respondent's weights were set to zero and the other respondents' weights in the same stratum as the PSU were multiplied by $m/(m-1)$, where m is the number of sampled PSUs in the stratum. These weights were then calibrated to the three-way population table mentioned in section 2.3. In all, 987 replicate weights were produced corresponding to the PSUs which had respondents. These weights were produced using the survey package written by Thomas Lumley in R (R Core Team, 2013).

2.4.2 Confidence intervals

Proportions

As many of the subpopulation estimates of proportions (e.g. preferred gambling activity by problem gambling status) either had small sample sizes or small estimates, the method of constructing confidence intervals using the normal approximation leads to intervals whose coverage is not close to the nominal level, for example a 95% confidence interval may have an actual coverage of 90%. So, as in earlier New Zealand gambling surveys, the method proposed by Korn and Graubard, and assessed in the New Zealand context by Gray, Haslett and Kuzmich (2004), was used with two modifications.

³ Specifically the JKN method since the sample was stratified.

The first modification was to use a different exact method, the equal-tailed Jeffreys prior interval because it has better coverage properties than the Clopper-Pearson interval (Brown, Cai, & DasGupta, 2001). The second modification was to dispense with the t-value adjustment since both n and M-L were generally over 30, at which point a t-value is very close to a z-value and hence the ratio is very close to 1.

Counts

Where the estimate was a count or continuous variable (e.g. average number of gambling activities, or average amount of money lost gambling) the usual normal approximation was used.

2.4.3 Standardised estimates

In order to make comparison with estimates from surveys conducted in other countries, some estimates (e.g. problem gambling status by gender and ethnicity) were standardised to the World Health Organisation (WHO) World Standard Population Distribution (%), based on world average population between 2000 and 2025 which appears as Table 4 in the report Age Standardization of rates: A new WHO standard (Ahmad, Boschi-Pinto, Lopez, Murray, Lozano, & Inoue, 2001).

The table is presented in five-year age groups (e.g. 15-19 years), so to get the standardised percentage of 18 and 19 year olds; 40% of the percentage was used, which amounts to assuming the age distribution of 15-19 year olds is uniform, which is not quite the case.

2.4.4 Logistic regression

In order to identify risk factors for problem gambling, logistic regression was carried out using outcome variables of PGSI problem gambling (Yes/No), PGSI moderate-risk plus problem gambling (Yes/No), SOGS probable pathological gamblers (Yes/No), and SOGS problem plus probable pathological gamblers (Yes/No). The use of two reference groups in analyses using the SOGS-R and PGSI was to facilitate comparison of the findings with previous studies. The combined groups (probable pathological and problem gamblers, and problem and moderate-risk gamblers) also provided additional statistical power to examine relationships of interest. Bivariate analyses were first carried out to examine associations between the individual factors and outcome measures, and the best subset of the individual factors was identified for the multivariate analyses.



3. RESULTS

3.1 Problem gambling

3.1.1 *Current and lifetime problem gambling prevalence*

As indicated earlier, two measures of problem gambling were used in the survey, the Problem Gambling Severity Index (PGSI) and the South Oaks Gambling Screen-Revised (SOGS-R). Both include questions about problems that people might experience as a consequence of their gambling behaviour. The PGSI provides a measure of current (past 12 months) problems. Depending on their scores, participants are classified as:

- Non-gamblers (not gambled in the past 12 months)
- Non-problem gamblers (score 0)
- Low-risk gamblers (score 1-2)
- Moderate-risk gamblers (score 3-7)
- Problem gamblers (score 8+).

The SOGS-R, as administered in this study, provides a measure of lifetime problems. Again depending on their scores, participants are classified as:

- Non-problem gamblers (score 0-2)
- Problem gamblers (score 3-4)
- Probable pathological gamblers (score 5+).

With regard to SOGS-R, non-problem gamblers are all people who do not meet the criteria for problem or probable pathological gambling, including people who report not having ever gambled in their lives.

Based on the PGSI, 0.7% of New Zealanders aged 18 years and older are classified as current problem gamblers (Table 1). This equates to an estimated 23,504 people experiencing significant gambling problems. A further 1.8% are moderate-risk gamblers, estimated to be an additional 60,440 people. People in this category may, or may not, be experiencing gambling-related harms already. They are considered to be at moderate to high risk of developing problems in future.

In total, around one in 40 adults (2.5%) is either a problem gambler or moderate-risk gambler, approximately 83,944 people. In addition, approximately one in 20 adults (5.0%) is a low-risk gambler. People in this category are probably gambling at levels associated with relatively few negative consequences but are potentially at risk in future. This equates to around an additional 167,888 people.

Considering just adults who gambled on one or more activities during the past year, 0.8% are problem gamblers, 2.2% are moderate risk and 6.2% are low risk. Thus, almost one in ten are problem gamblers or in one of the two risk groups.

Table 1: Prevalence of past year problem gambling by Problem Gambling Severity Index

Problem gambling level	Prevalence % (95% CI)				Estimated number (95% CI)	
	Total adults	Past year gamblers		Total adults (18+ years)		
Non-gambler	19.6	(18.4 - 20.9)	-	-	658,121	(617,828 - 701,772)
Non-problem gambler	73.0	(71.6 - 74.4)	90.8	(87.9 - 91.9)	2,451,165	(2,404,156 - 2,498,173)
Low-risk gambler	5.0	(4.3 - 5.7)	6.2	(5.3 - 7.1)	167,888	(144,384 - 191,392)
Moderate-risk gambler	1.8	(1.4 - 2.2)	2.2	(1.7 - 2.7)	60,440	(47,009 - 73,871)
Problem gambler	0.7	(0.5 - 0.9)	0.8	(0.6 - 1.1)	23,504	(16,789 - 30,220)
Combined problem and moderate-risk gambler	2.5	(2.0 - 2.9)	3.0	(2.5 - 3.6)	83,944	(67,155 - 97,375)

Table 2 provides lifetime estimates for probable pathological gambling and problem gambling as assessed using the SOGS-R. We see that 2.1% of adults are lifetime probable pathological gamblers and that a further 2.4% are lifetime problem gamblers. Probable pathological gamblers are people who are highly likely to be experiencing significant gambling-related harms and would be considered to be a pathological gambler if assessed by a suitably experienced clinician. Problem gamblers experience lower levels of harm and are at risk for developing more serious problems.

About one in 48 adults is a lifetime probable pathological gambler and one in 42 is a lifetime problem gambler. In total approximately one in 22 adults is in one of these categories.

Table 2: Prevalence of lifetime pathological and problem gambling by South Oaks Gambling Screen-Revised

Problem gambling level	Prevalence % (95% CI)		Estimated number (95% CI)	
	Total adults	Total adults (18+ years)		
Lifetime gambler	86.3	(85.2 - 87.5)	2,900,645	2,863,673 - 2,940,978
Non-problem gambler	95.5	(94.8 - 96.1)	3,209,877	3,186,340 - 3,230,034
Problem gambler	2.4	(2.0 - 2.9)	80,667	67,222 - 97,472
Probable pathological gambler	2.1	(1.7 - 2.6)	70,583	57,139 - 87,389

In Table 3, the classifications provided by the two problem gambling measures are compared. The large majority of people who scored as a current problem gambler on the PGSI were classified, according to their performance on the SOGS-R, as lifetime probable pathological (81.4%) or problem gamblers (11.7%). Only seven percent were classified as lifetime non-problem gamblers. It is apparent that current moderate-risk gamblers are more evenly distributed across the lifetime non-problem, problem and probable pathological gambler groups.

The great majority of current non-gamblers (people who did not gamble during the past 12 months) (98.3%) and PGSI defined non-problem gamblers scored as non-problem gamblers on the SOGS-R. Around only one percent in each group are classified as lifetime pathological or problem gamblers according to the SOGS-R. The majority of low-risk gamblers (84.6%) are also assessed by the SOGS-R to be lifetime non-problem gamblers. Some (12.7%) are classified as problem gamblers and a few (2.7%) as probable pathological gamblers.

These findings are broadly as expected. While having a moderately high degree of overlap in content the two instruments assess somewhat different aspects of the problem gambling construct. They also differ in the number of items included and categories used. Furthermore, in the present instance the lifetime version of the SOGS-R was used whereas the PGSI is a current (past 12 months) measure. For many people gambling problems are transient, albeit that people with more serious problems are prone to relapse. It is expected if the same measures were being used in both current and lifetime formats, that all people detected as having problems currently would, by definition, also be detected as having had problems at some time in their lives. However, people assessed as having had problems at some time during their lives quite frequently do not have problems currently.

Table 3: Lifetime risk for problem gambling (SOGS-R) by past 12 month problem gambling level (PGSI)

Problem gambling level (PGSI)	Lifetime risk for problem gambling (SOGS-R) % (95% CI)					
	Non-problem gambler		Problem gambler		Probable pathological gambler	
Total	95.5	(94.8 - 96.1)	2.4	(2.0 - 2.9)	2.1	(1.7 - 2.6)
Non-gambler in past 12 months	98.3	(97.3 - 99.0)	0.4	(0.1 - 0.8)	1.4	(0.8 - 2.3)
Non-problem gambler	97.8	(97.3 - 98.3)	1.3	(0.9 - 1.7)	0.9	(0.6 - 1.3)
Low risk gambler	84.6	(79.6 - 88.8)	12.7	(9.0 - 17.3)	2.7	(1.1 - 5.6)
Moderate risk gambler	28.6	(19.0 - 40.0)	41.1	(30.3 - 52.5)	30.3	(21.6 - 40.1)
Problem gambler	7.0	(1.5 - 20.6)	11.7	(3.8 - 26.3)	81.4	(64.9 - 92.1)

Table 4 and Table 5 provide information regarding the individual PGSI items and types of harm and aspects of problem gambling experienced during the past year.

Table 4 provides prevalence estimates for all adults and for people who reported taking part in any form of gambling during the past year. Most frequently mentioned are loss of control, feelings of guilt and chasing losses. Borrowing and financial problems are mentioned least often.

Table 4: Responses to individual PGSI items - prevalence for all adults and adults who gambled in the past year

Area	Indicator	Prevalence % (95% CI)			
		All adults		Past year gamblers	
Impairment of control	Betting more than could afford	3.6	(3.0 - 4.2)	4.4	(3.8 - 5.2)
Feelings of guilt	Feeling guilty about gambling	3.1	(2.6 - 3.6)	3.9	(3.3 - 4.5)
Chasing	Return later to win back losses	2.5	(2.0 - 3.1)	3.1	(2.5 - 3.8)
Problem recognition	Feeling might have a problem with gambling	1.8	(1.5 - 2.3)	2.3	(1.8 - 2.8)
Criticism	Other people criticising gambling	1.8	(1.4 - 2.2)	2.2	(1.8 - 2.7)
Negative effects on health	Gambling causing health problems including stress or anxiety	1.4	(1.1 - 1.8)	1.8	(1.4 - 2.3)
Motivation	Needing to gamble with more money to get same feeling of excitement	1.3	(1.0 - 1.7)	1.6	(1.2 - 2.1)
Financial problems	Gambling causing financial problems for oneself or household	1.1	(0.8 - 1.5)	1.3	(1.0 - 1.7)
Borrowing	Borrowing money or selling items to get money to gamble	0.8	(0.5 - 1.2)	1.0	(0.6 - 1.5)

Data are a 'Yes' response, calculated from participants where 'Yes' = Sometimes + Most of the time + Almost always

Data regarding prevalence estimates by individual PGSI and SOGS-R items by gender, ethnicity and age are presented in Appendices 1 and 2, respectively.

Table 5 compares responses given by PGSI problem gamblers, moderate-risk gamblers and low-risk gamblers. It gives an indication of the nature and extent of problems and types of harm experienced by people in these groups. By definition, problems and harm occur much more frequently in the problem gambling group than in the two risk groups. The moderate-risk group falls between the low-risk and problem gambling groups.

Table 5: Percentage of respondents for each PGSI item by PGSI category

Gambling behaviour in the past 12 months	Problem gambling level % (95% CI)					
	Low-risk gambler		Moderate-risk gambler		Problem gambler	
Bet more than could really afford to lose						
Never	65.6	(58.5 - 72.3)	28.0	(19.1 - 38.3)	9.2	(2.8 - 22.0)
Sometimes	34.1	(27.5 - 41.3)	62.8	(51.9 - 72.8)	44.1	(28 - 61.1)
Most of the time	0.2	(0.0 - 0.8)	5.2	(2.0 - 11.2)	18.8	(8.4 - 34.4)
Almost always	-	-	4.1	(1.6 - 8.6)	27.9	(13.8 - 46.5)
Needed to gamble with larger amounts of money to get the same feeling of excitement						
Never	90.3	(85.3 - 94.0)	77.3	(66.6 - 85.9)	38.5	(23.1 - 55.9)
Sometimes	9.7	(6.0 - 14.7)	21.6	(13.1 - 32.4)	41.9	(26.1 - 59.1)
Most of the time	-	-	1.1	(0.3 - 3.0)	15.0	(5.4 - 31.6)
Almost always	-	-	0.0	-	4.5	(1.1 - 12.7)
Went back another day to try to win back money lost gambling						
Never	75.8	(68.8 - 81.9)	53.2	(42.2 - 64.0)	25.9	(12.4 - 44.3)
Sometimes	24.0	(17.9 - 31.0)	42.8	(32.3 - 53.9)	46.1	(29.6 - 63.4)
Most of the time	0.2	(0.0 - 0.8)	1.5	(0.2 - 6.8)	21.7	(10.8 - 36.9)
Almost always	-	-	2.4	(0.6 - 6.7)	6.2	(1.5 - 17.3)
Borrowed money or sold something to get money to gamble						
Never	95.5	(88.9 - 98.6)	85.0	(75.2 - 91.9)	49.2	(32.5 - 66.0)
Sometimes	4.5	(1.4 - 11.1)	15.0	(8.1 - 24.8)	45.5	(28.8 - 63.0)
Most of the time	-	-	-	-	2.8	(0.5 - 9.3)
Almost always	-	-	-	-	2.5	(0.5 - 8.0)
Felt might have a problem with gambling						
Never	92.3	(87.5 - 95.6)	51.4	(40.5 - 62.1)	11.2	(3.1 - 27.5)
Sometimes	7.7	(4.4 - 12.5)	41.9	(31.5 - 52.9)	44.4	(28.0 - 61.8)
Most of the time	-	-	1.7	(0.5 - 4.5)	20.4	(9.1 - 37.1)
Almost always	-	-	5.0	(1.4 - 13.2)	24.0	(12.3 - 39.8)
Gambling caused health problems, including stress or anxiety						
Never	95.2	(91.7 - 97.5)	62.9	(52.0 - 73)	14.7	(6.1 - 28.6)
Sometimes	4.2	(2.1 - 7.7)	33.4	(23.8 - 44.2)	42.7	(26.3 - 60.4)
Most of the time	0.5	(0.1 - 1.4)	0.7	(0.1 - 2.2)	9.0	(3.6 - 18.4)
Almost always	-	-	3.0	(0.5 - 10.1)	33.6	(18.9 - 51.2)
Been criticised for betting or told have a gambling problem, regardless of whether it was true						
Never	87.7	(82.8 - 91.5)	64.6	(53.6 - 74.5)	16.2	(6.0 - 33.2)
Sometimes	12.1	(8.3 - 17.0)	32.7	(23.2 - 43.4)	49.4	(32.7 - 66.3)
Most of the time	0.2	(0.0 - 1.0)	2.7	(0.6 - 8.0)	22.6	(10.1 - 40.7)
Almost always	-	-	-	-	11.8	(5.0 - 22.9)
Gambling has caused financial problems personally or for household						
Never	98.2	(95.8 - 99.4)	73.6	(63.3 - 82.2)	21.9	(10.2 - 38.7)
Sometimes	1.8	(0.6 - 4.2)	24.9	(16.5 - 35.1)	34.9	(19.8 - 52.9)
Most of the time	-	-	-	-	20.7	(9.8 - 36.4)
Almost always	-	-	1.6	(0.3 - 5.0)	22.5	(10.4 - 39.6)
Felt guilt about gambling or what happens when gambling						
Never	76.4	(70.2 - 81.8)	26.9	(18.3 - 37.0)	-	-
Sometimes	22.2	(17.0 - 28.2)	62.8	(52.1 - 72.6)	36.7	(20.9 - 55.1)
Most of the time	1.4	(0.6 - 2.9)	5.8	(2.5 - 11.6)	26.0	(14.5 - 40.7)
Almost always	-	-	4.5	(1.6 - 9.9)	37.3	(21.5 - 55.5)

Nearly two-thirds (63.3%) of problem gamblers said they almost always or most of the time felt guilt about gambling or what happens when gambling. Over a third (36.7%) said they sometimes did. No respondents in this category said they never felt guilt. Over 40% of problem gamblers also said they almost always or most of the time:

- Bet more than they could really afford to lose
- Felt they might have a problem with gambling
- Experienced financial problems personally or in the household
- Had health problems including stress or anxiety caused by gambling.

Being criticised for betting or being told they have a gambling problem and needing to gamble with large amounts to get the same level of excitement were mentioned somewhat less often. Always or often borrowing money or selling something to get money to gamble was mentioned infrequently; however, 45.5% said that they did this sometimes. While 44.4% of people in this category indicated that they mostly or often considered that they might have a problem with gambling, a further 44.4% said they sometimes thought this.

It is apparent that the majority of low-risk gamblers do not report experiencing any of the problems and harms listed. However, over a third sometimes bet more than they can afford and around a quarter indicated that they at least sometimes went back another day to try and win back money lost. A similar percentage said they felt guilty about gambling or what happens when gambling. Eight percent said they sometimes felt they might have a problem with gambling.

The majority of moderate-risk gamblers do not report experiencing most of the problems and harms outlined. Exceptions are betting more than they could really afford to lose and feeling guilt about gambling and what happens when gambling. Over two-thirds indicated that they at least sometimes bet more or felt guilt. Around two-fifths also mentioned that they at least sometimes went back another day to try to win back money lost gambling and felt they might have a problem with gambling.

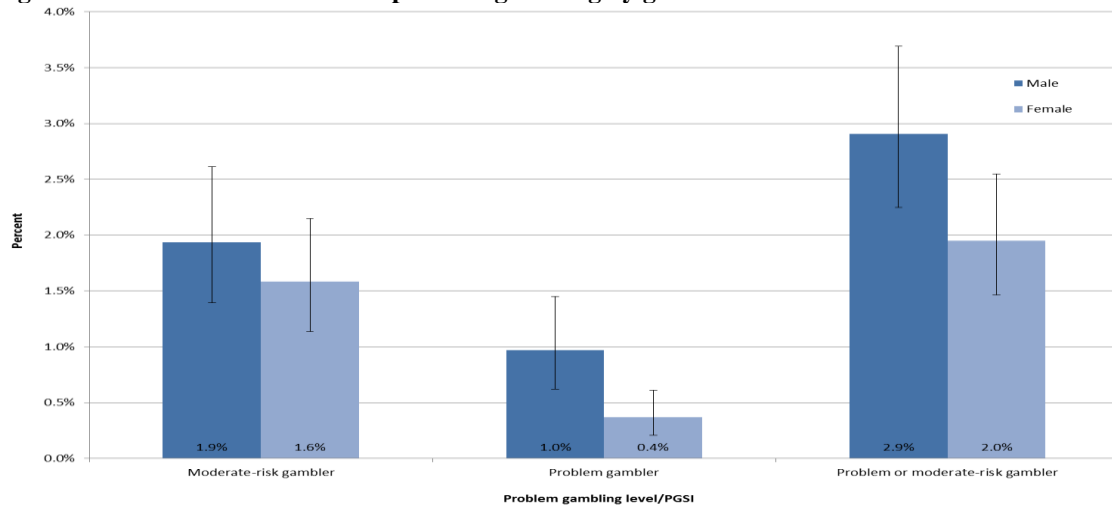
3.1.2 Profile of people who experience gambling problems

This section examines similarities and differences between major population groups with regard to problem and at-risk gambling. In some situations groups are combined, for example, PGSI problem and moderate-risk gamblers. In large part, this is to increase statistical power to enable a larger number of potential relationships to be meaningfully investigated and to enable comparisons with the results of other surveys conducted in New Zealand and elsewhere. In some cases, comparisons between particular population groups have been conducted using age-standardized rates to control for the different age structures of the groups.

Gender

Males (1.0%) have a higher prevalence of PGSI past year problem gambling than females (0.4%); however, the confidence intervals touch so the apparent difference may not be statistically significant. As the confidence intervals overlap there are unlikely to be gender differences for moderate-risk or combined problem and moderate risk gambling (Figure 1).

Figure 1: PGSI moderate-risk and problem gambling by gender



Age

With respect to problem gambling there are unlikely to be significant differences between the age groups shown in group (0.6%).

Figure 2. Younger adults, however, may have a higher prevalence of moderate-risk gambling than do some of the older adult groups. For combined problem and moderate-risk gamblers, those in the three younger age categories (18-24 years, 25-34 years and 35-44 years) have higher prevalence rates (respectively 4.2%, 3.6% and 2.8%) than those in the oldest age group (0.6%).

Figure 2: PGSI moderate-risk and problem gambling by age

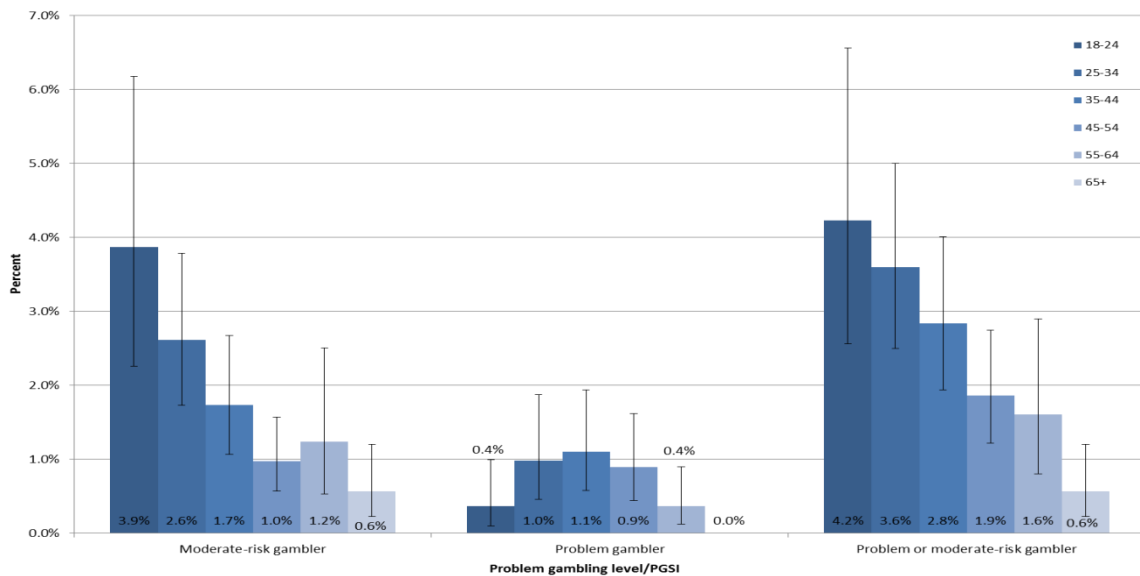
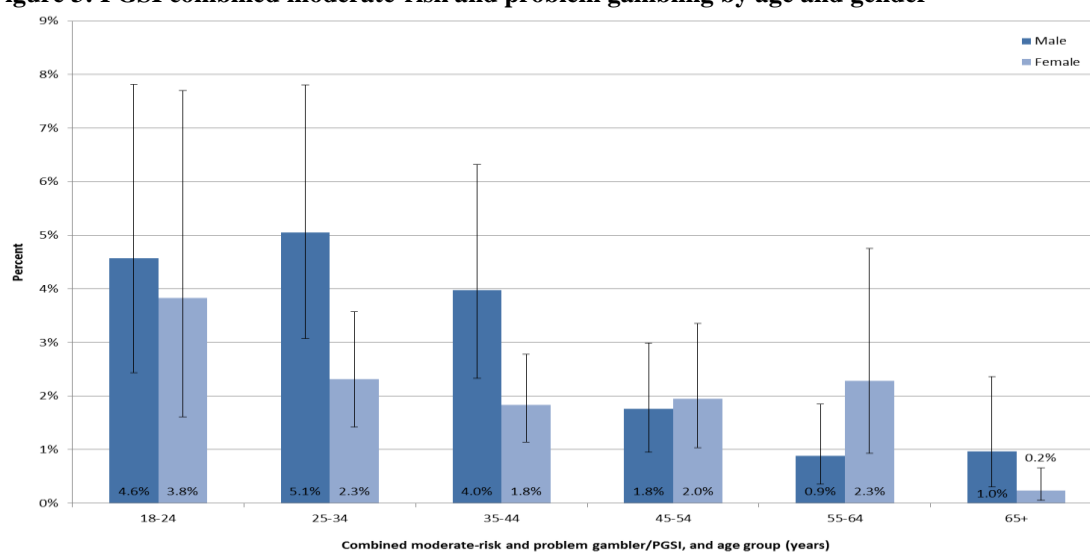


Figure 3 shows that when the combined problem and moderate-risk gamblers are considered by both age and gender, it is evident that there are unlikely to be significant differences between males and females in the various age groups. For males, people in the three younger age categories (respectively 4.6%, 5.1% and 4.0%) may have higher rates than males in the two oldest age groups (55-64 years, 0.9% and 65+ years, 1.0%). For females, all of the five groups aged between 18 and 65 years have higher rates than the 65 years and older group (0.2%).

Figure 3: PGSI combined moderate-risk and problem gambling by age and gender



Ethnicity

Table 6 examines problem, moderate- and low-risk gambling by ethnicity and gender. It gives an indication of the distribution of problem gambling and gambling harms more generally in the major ethnic groups. Overall, Māori and Pacific Island adults have substantially higher problem gambling and moderate-risk gambling prevalence than European/Other.

European/Other males have a higher problem gambling prevalence rate (0.7%) than do females (0.2%) in this ethnic category. The rates probably do not differ significantly for moderate-risk or for combined problem and moderate-risk gambling. Problem, moderate-risk and combined rates do not differ between Māori males and females or between Asian males and females. While there are unlikely to be significant problem gambling or combined problem gambling and moderate-risk gender differences for Pacific adults, Pacific males have a higher rate (9.2%) of moderate-risk gambling than Pacific females (3.7%).

With regard to problem gambling, Māori males (2.6%) have a higher prevalence than European/Other males (0.7%). Pacific males (9.2%) have a higher rate of moderate-risk gambling than European/Other males (1.3%). Other apparent differences are probably not significant.

For combined problem and moderate-risk gambling, Pacific males (11.3%) and Māori males (6.0%) probably have significantly higher rates than European/Other males (2.1%). They probably do not differ significantly from the corresponding Asian rate (4.5%). The Māori (6.5%) and Pacific (4.9%) female rates also differ from the European/Other female rate (1.4%). The Māori rate, but not the Pacific or European/Other rates, is also higher than the Asian female (1.5%) rate.

Overall, approximately one in 16 Māori males and one in eight Pacific males are problem or moderate-risk gamblers. This compares with approximately one in 48 European/Other males and one in 22 Asian males. The corresponding figures for females are one in 15, one in 20, one in 71 and one in 67.

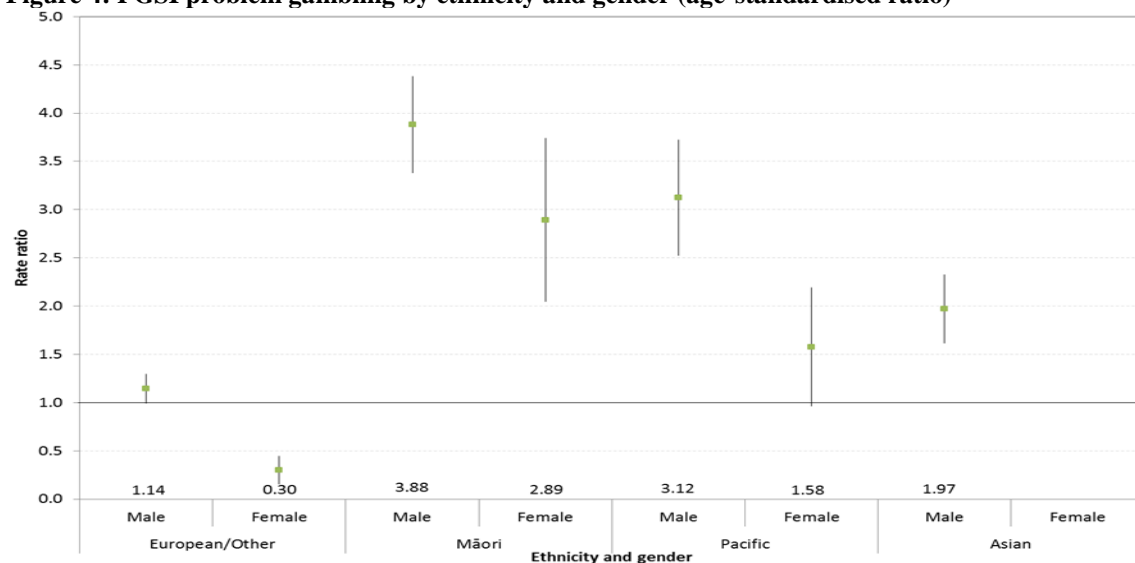
Table 6: PGSI problem gambling by ethnicity and gender

Ethnic group and gender	Prevalence % (95 % CI)					
	Moderate-risk gambler		Problem gambler		Combined problem and moderate-risk gambler	
European/Other						
Males	1.3	(0.8 - 2.0)	0.7	(0.7 - 1.9)	2.1	(1.4 - 2.9)
Females	1.2	(0.7 - 1.9)	0.2	(0.1 - 0.5)	1.4	(0.9 - 2.1)
Total	1.3	(0.9 - 1.7)	0.5	(0.3 - 0.8)	1.7	(1.3 - 2.3)
Māori						
Males	3.4	(1.8 - 5.8)	2.6	(3.0 - 6.3)	6.0	(3.8 - 9.0)
Females	4.4	(1.2 - 4.9)	2.1	(1.1 - 3.4)	6.5	(4.7 - 8.6)
Total	3.9	(2.8 - 5.3)	2.3	(1.4 - 3.5)	6.2	(4.8 - 8.0)
Pacific						
Males	9.2	(5.3 - 14.8)	2.0	(1.8 - 6.6)	11.3	(6.9 - 17.1)
Females	3.7	(0.8 - 4.2)	1.3	(0.6 - 2.4)	4.9	(2.8 - 8.0)
Total	6.4	(4.1 - 9.5)	1.6	(0.9 - 2.8)	8.0	(5.5 - 11.2)
Asian						
Males	3.1	(1.2 - 6.6)	1.4	(0.6 - 3.3)	4.5	(2.2 - 8.0)
Females	1.5	(0.5 - 3.3)	-	-	1.5	(0.6 - 3.3)
Total	2.3	(1.2 - 4.0)	0.7	(0.2 - 1.5)	2.9	(1.6 - 4.8)

Ethnicity and age

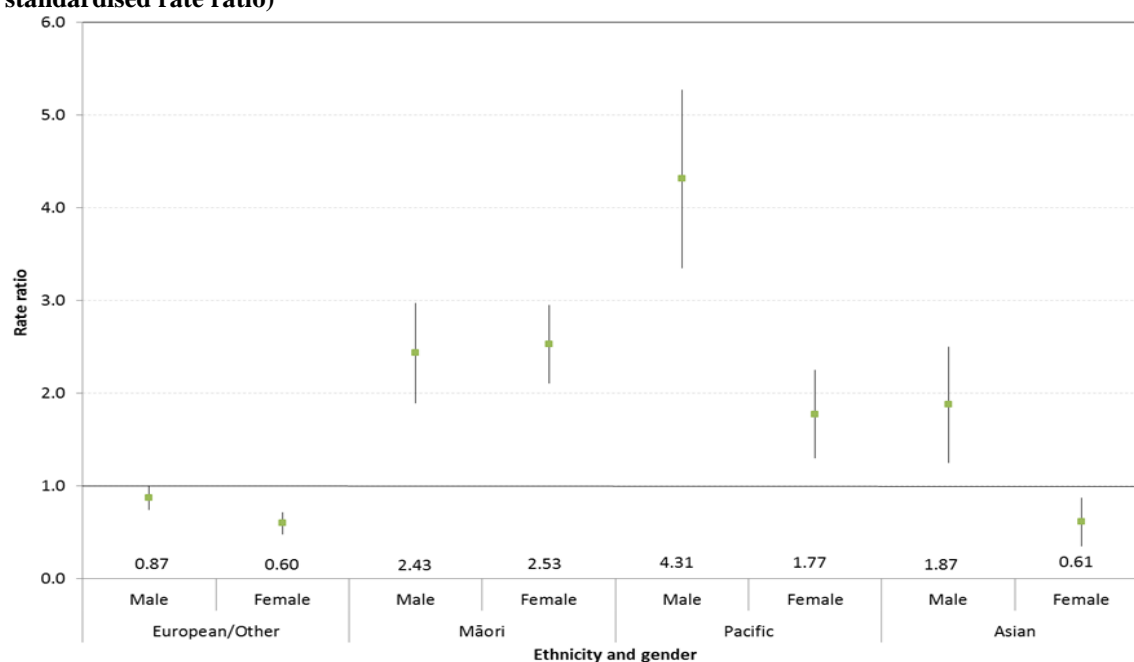
The age structures of the major ethnic groups in New Zealand vary considerably and age is related to problem gambling. After adjusting for age, Māori males are approximately four times more likely to be problem gamblers than adult males in the total population (Figure 4). The corresponding rates are approximately three for Pacific males and Māori females, two for Asian males, 1.5 for Pacific females and just over one for European/Other males. European/Other females are less likely to be problem gamblers than females in the total population.

Figure 4: PGSI problem gambling by ethnicity and gender (age-standardised ratio)



When the combined problem gambling and moderate-risk groups are compared (Figure 5) we see that Pacific males, after adjusting for age, are over four times more likely to be problem or moderate-risk gamblers than are males in the total population. They are more likely to be in this category than any other group, including Pacific females. Māori males and females, Pacific females and Asian males are also more likely to be problem or moderate-risk gamblers. There are no differences in prevalence between European/Other males and males in the total population after adjusting for age. European/Other females and Asian females are less likely to be problem or moderate-risk gamblers compared to females generally.

Figure 5: PGSI problem gambling and moderate-risk combined by ethnicity and gender (age-standardised rate ratio)



Other demographic variables

Further information regarding the socio-demographic characteristics of people in the various current PGSI categories is provided in Table 7.

Gender, age and ethnicity have already been considered in some detail in relation to problem and moderate-risk gambling. Apart from gender, age and ethnicity there are only three other instances where proportions of problem gamblers vary within socio-demographic groupings. Unemployed people (1.8%) are over-represented relative to those in paid employment (0.6%). Anglicans less often have problems (0.2%) than Other Christians (1.1%) and Other religions (1.3%). People in households with five or more people resident (1.3%) more often have problems than people living in single person households (0.3%).

Unemployed people (4.8%) are also over-represented in the moderate-risk category relative to employed people (1.4%) and students, people looking after children at home and retired people (1.7%). People lacking formal qualifications (3.5%) are over-represented in comparison to those with trade or vocational qualifications (1.4%) or a degree (1.2%). Anglicans (0.5%) have lower moderate-risk prevalence than Other Christians (2.6%), Other religions (2.6%) and people with no religion (1.9%). Large household size was also associated with moderate risk. People in households of five or more (3.1%) had higher rates than those in one (1.0%) and two person (1.1%) households. The two lowest personal income groups have higher prevalence than the \$80,001-\$100,000 group.

Māori (7.7%) and Pacific (9.0%) adults also had higher rates of low-risk gambling relative to European/Other (4.4%). The 25-34 year age group (8.1%) had a higher prevalence than all of the older age groups (range 3.3% to 4.3%), and unemployed people (7.8%) were again over-represented in comparison to employed people (4.9%) and people in the student, caring for children at home and retired group (4.0%).

The prevalence rates are also provided for people who gambled without falling into one of the risk groups or being a problem gambler (non-problem gamblers). European/Other people (76.3%) are over-represented in this group relative to Māori (71.0%), Pacific (57.5%) and Asian (52.6%). The four older age groupings (range 73.4% to 78.6%) are all more likely to be non-problem gamblers than the youngest age group (63.1%). Two of the older age groups also have higher prevalence than does the second youngest age group (69.1%).

More New Zealand-born people (76.0%) than migrants (64.9%) are non-problem gamblers, and longer term migrants (68.0%) have a higher prevalence of non-problem gambling than recent migrants (50.5%). People with trade or vocational qualifications (75.9%) have a higher prevalence than people with school qualifications only (69.7%), as do employed people (75.8%) relative to those in the unemployed (64.8%) and student, caring for children at home and retired group (68.6%). Anglicans (80.7%), people of no religion (76.3%), Presbyterians (77.1%) and Catholics (75.8%) all have higher rates of non-problem gambling than Other Christians (59.6%) and people of Other religions (57.2%). People living in the household categories of less than five people (range 72.1% to 76.9%) were over-represented in comparison with those in households of five or more people (64.6%). People earning over \$100,000 (85.3%) had higher prevalence than their counterparts in the three lowest income groups (range 65.6% to 77.5%). Those in all of the five higher income groups (range 73.2% to 85.3%) had higher prevalence rates than those in the lowest group (65.6%). A similar pattern applied to household income.

The socio-demographic characteristics of non-gamblers have been described earlier. However, it is instructive to consider them again in the context of gambling problems and harm. Some groups have particularly high proportions of non-gamblers, especially recent migrants (41.9%), Asians (38.8%), people of Other religions (33.9%) and Other Christians (32.5%). Migrants generally (28.1%), people aged 18-24 years (26.0%) and people with low personal (26.3%) or household (27.1%) incomes also include relatively high proportions and some of the other groups also differ from at least one or more others in their respective categories. Some of the low participation groups (groups that contain higher percentages of non-gamblers) also have relatively high rates of problem and at-risk gamblers. Pacific people stand out in this regard.

A quarter of Pacific people are non-gamblers, eight percent are problem or moderate-risk gamblers and a further nine percent are low-risk gamblers. This means that Pacific people who participate in gambling activities are at very high risk. Almost a fifth (17%) are in the risk and problem groups. While the problem and combined risk rates are not as high for Asians (8.8%) as they are for Pacific people, there are proportionately more non-gamblers in the former group. Consequently problem and risk rates are high (14%) for those who gamble. The corresponding estimates for Māori and European/Other are 16% and 8% respectively.

Other groups that have both higher non-participation and combined problem-risk rates include younger adults, Other Christians, Other religions and the two lowest personal and household income groups. Migrants versus non-migrants and recent versus longer term migrants have similar combined problem-risk rates. However, more migrants and recent migrants do not gamble. This means that in these groups, the proportions in the problem and risk groups are much higher for people who gamble than they are for the total populations of gamblers and non-gamblers.

Table 7: PGSI categories by demographics

Demographic variables	Problem gambling level % (95% CI)				
	Non-gambler	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Total	19.6 (18.4 - 20.9)	73.0 (71.6 - 74.4)	5.0 (4.3 - 5.7)	1.8 (1.4 - 2.2)	0.7 (0.5 - 0.9)
Gender					
Male	19.6 (17.7 - 21.6)	71.9 (69.6 - 74.1)	5.6 (4.5 - 6.8)	1.9 (1.4 - 2.6)	1.0 (0.6 - 1.5)
Female	19.7 (18.2 - 21.3)	74.0 (72.3 - 75.7)	4.4 (3.6 - 5.3)	1.6 (1.1 - 2.1)	0.4 (0.2 - 0.6)
Ethnic group					
European/Other	17.6 (16.2 - 19.0)	76.3 (74.7 - 77.8)	4.4 (3.7 - 5.3)	1.3 (0.9 - 1.7)	0.5 (0.3 - 0.8)
Māori	15.0 (12.6 - 17.6)	71.0 (67.8 - 74.1)	7.7 (6.1 - 9.7)	3.9 (2.8 - 5.3)	2.3 (1.4 - 3.5)
Pacific	25.5 (21.8 - 29.5)	57.5 (53.0 - 62.0)	9.0 (6.7 - 11.7)	6.4 (4.1 - 9.5)	1.6 (0.9 - 2.8)
Asian	38.8 (34.8 - 42.8)	52.6 (48.2 - 56.8)	5.8 (4.0 - 7.9)	2.3 (1.2 - 4.0)	0.7 (0.2 - 1.5)
Age group					
18 - 24 years	26.0 (21.6 - 30.9)	63.1 (57.7 - 68.3)	6.6 (4.1 - 10.1)	3.9 (2.3 - 6.2)	0.4 (0.1 - 1.0)
25 - 34 years	19.2 (16.5 - 22.2)	69.1 (65.5 - 72.5)	8.1 (6.1 - 10.5)	2.6 (1.7 - 3.8)	1.0 (0.5 - 1.9)
35 - 44 years	18.0 (15.4 - 20.8)	75.3 (72.3 - 78.1)	3.8 (2.8 - 5.1)	1.7 (1.1 - 2.7)	1.1 (0.6 - 1.9)
45 - 54 years	17.5 (15.2 - 20.1)	76.3 (73.4 - 79.0)	4.3 (3.1 - 5.8)	1.0 (0.6 - 1.6)	0.9 (0.4 - 1.6)
55 - 64 years	15.9 (13.3 - 18.8)	78.6 (75.4 - 81.6)	3.9 (2.7 - 5.4)	1.2 (0.5 - 2.5)	0.4 (0.1 - 0.9)
65+ years	22.7 (20.3 - 25.3)	73.4 (70.6 - 76.1)	3.3 (2.2 - 4.7)	0.6 (0.2 - 1.2)	- -
Country of birth					
NZ	16.5 (15.1 - 17.9)	76.0 (74.4 - 77.6)	5.2 (4.3 - 6.1)	1.6 (1.2 - 2.1)	0.8 (0.5 - 1.1)
Elsewhere	28.1 (25.6 - 30.7)	64.9 (62.2 - 67.6)	4.4 (3.5 - 5.5)	2.2 (1.4 - 3.2)	0.4 (0.2 - 0.7)
Arrival in NZ					
2008 or later	41.9 (34.6 - 49.5)	50.5 (43.0 - 58.0)	4.7 (2.6 - 7.8)	2.3 (0.8 - 5.5)	0.5 (0.1 - 1.8)
Before 2008	25.1 (22.7 - 27.7)	68.0 (65.2 - 70.7)	4.4 (3.4 - 5.6)	2.1 (1.3 - 3.2)	0.4 (0.2 - 0.7)
Highest qualification					
No formal qual.	17.3 (14.9 - 19.9)	72.6 (69.4 - 75.5)	5.6 (4.2 - 7.3)	3.5 (2.3 - 5.0)	1.1 (0.6 - 1.9)
School qual.	21.7 (19.0 - 24.6)	69.7 (66.6 - 72.7)	6.1 (4.5 - 8.1)	2.0 (1.3 - 2.8)	0.5 (0.2 - 0.9)
Trade/voc. qual.	16.2 (13.9 - 18.7)	75.9 (73.0 - 78.6)	5.7 (4.3 - 7.4)	1.4 (0.9 - 2.2)	0.7 (0.3 - 1.4)
Degree/higher	21.2 (19.3 - 23.3)	73.5 (71.3 - 75.6)	3.5 (2.7 - 4.5)	1.2 (0.7 - 1.9)	0.6 (0.3 - 1.0)
Labour force status					
Employed	17.3 (15.8 - 18.9)	75.8 (74.0 - 77.5)	4.9 (4.1 - 5.8)	1.4 (1.0 - 1.9)	0.6 (0.4 - 0.9)
Unemployed	20.8 (17.2 - 24.7)	64.8 (60.0 - 69.4)	7.8 (5.6 - 10.7)	4.8 (2.9 - 7.4)	1.8 (0.9 - 3.2)
Student/Home/Retired	25.4 (23.1 - 27.8)	68.6 (66.0 - 71.1)	4.0 (2.8 - 5.5)	1.7 (1.1 - 2.5)	0.4 (0.1 - 1.0)
Religion					
No religion	15.8 (13.9 - 17.8)	76.3 (74.1 - 78.4)	5.4 (4.3 - 6.7)	1.9 (1.2 - 2.7)	0.7 (0.4 - 1.2)

Demographic variables	Problem gambling level % (95% CI)				
	Non-gambler	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Anglican	14.6 (12.0 - 17.5)	80.7 (77.3 - 83.7)	4.1 (2.4 - 6.5)	0.5 (0.2 - 1.2)	0.2 (0.0 - 0.5)
Presbyterian	17.8 (14.1 - 22.0)	77.1 (72.7 - 81.1)	2.7 (1.5 - 4.6)	1.2 (0.6 - 2.4)	1.1 (0.4 - 2.8)
Catholic	14.6 (11.9 - 17.5)	75.8 (72.1 - 79.3)	7.5 (5.6 - 9.9)	1.7 (0.9 - 3.0)	0.4 (0.1 - 1.0)
Other Christian	32.5 (29.2 - 36.0)	59.6 (56.0 - 63.1)	4.1 (2.9 - 5.6)	2.6 (1.7 - 3.9)	1.1 (0.6 - 1.9)
Other religion	33.9 (28.6 - 39.4)	57.2 (51.7 - 62.6)	5.0 (3.0 - 7.7)	2.6 (1.3 - 4.8)	1.3 (0.5 - 2.7)
Household size					
1	22.6 (20.0 - 25.4)	72.1 (69.0 - 75.0)	4.0 (2.8 - 5.4)	1.0 (0.6 - 1.8)	0.3 (0.1 - 0.6)
2	17.4 (15.5 - 19.4)	76.9 (74.7 - 78.9)	4.1 (3.2 - 5.1)	1.1 (0.7 - 1.6)	0.6 (0.3 - 1.0)
3	20.6 (17.8 - 23.7)	72.2 (68.8 - 75.4)	4.0 (2.7 - 5.8)	2.4 (1.4 - 3.7)	0.7 (0.2 - 1.6)
4	17.2 (14.6 - 20.1)	75.1 (71.9 - 78.1)	5.9 (4.3 - 7.8)	1.4 (0.8 - 2.4)	0.3 (0.1 - 0.7)
5+	24.2 (20.6 - 28.0)	64.6 (60.6 - 68.4)	6.9 (4.9 - 9.4)	3.1 (2.0 - 4.6)	1.3 (0.7 - 2.3)
Personal Income (\$)					
Up to 20,000	26.3 (23.9 - 28.8)	65.6 (62.9 - 68.3)	5.1 (3.9 - 6.6)	2.3 (1.6 - 3.2)	0.7 (0.4 - 1.1)
20,001 - 40,000	18.9 (16.7 - 21.2)	73.2 (70.6 - 75.8)	4.7 (3.5 - 6.0)	2.4 (1.6 - 3.5)	0.8 (0.4 - 1.5)
40,001 - 60,000	14.1 (11.8 - 16.7)	77.5 (74.3 - 80.5)	6.2 (4.6 - 8.2)	1.4 (0.9 - 2.2)	0.8 (0.3 - 1.6)
60,001 - 80,000	15.6 (12.5 - 19.2)	78.8 (74.8 - 82.4)	3.6 (2.2 - 5.7)	1.5 (0.6 - 3.0)	0.5 (0.2 - 1.3)
80,001 - \$100,000	16.6 (11.3 - 23.1)	78.9 (72.0 - 84.7)	3.8 (1.8 - 7.1)	0.3 (0.1 - 1.1)	0.4 (0.1 - 1.3)
Over 100,000	11.5 (8.3 - 15.4)	85.3 (80.7 - 89.1)	3.1 (1.4 - 6.2)	- -	0.1 (0.0 - 0.5)
Household Income (\$)					
Up to 20,000	27.1 (22.6 - 32.0)	63.2 (58.1 - 68.0)	7.0 (4.6 - 10.2)	1.9 (1.1 - 3.1)	0.8 (0.4 - 1.5)
20,001 - 40,000	22.8 (20.3 - 25.5)	68.5 (65.7 - 71.2)	5.8 (4.5 - 7.4)	1.9 (1.2 - 2.9)	1.0 (0.4 - 1.8)
40,001 - 60,000	23.2 (20.1 - 26.5)	70.5 (66.9 - 73.8)	3.7 (2.6 - 5.2)	2.3 (1.5 - 3.4)	0.3 (0.1 - 0.9)
60,001 - 80,000	19.0 (15.8 - 22.6)	71.3 (67.2 - 75.2)	6.6 (4.3 - 9.5)	2.6 (1.5 - 4.1)	0.6 (0.2 - 1.2)
80,001 - 100,000	16.7 (13.6 - 20.2)	76.4 (72.5 - 80.1)	4.8 (3.1 - 7.2)	1.1 (0.5 - 2.2)	0.9 (0.3 - 2.0)
Over 100,000	14.6 (12.4 - 17.0)	80.1 (77.5 - 82.6)	3.7 (2.6 - 5.0)	1.1 (0.5 - 2.0)	0.5 (0.2 - 1.1)

The socio-demographic characteristics of lifetime non-problem, problem and probable pathological gamblers are provided in Table 8. It will be recalled that in this context, non-problem gamblers include people who indicated that they had gambled at some time during their lives and not experienced problems as well as people who said they had never gambled.

Table 8: SOGS-R categories by demographics

Demographic variables	Lifetime gambling status % (95% CI)					
	Non-problem gamblers		Problem gamblers		Probable pathological gamblers	
Total	95.5	(94.8 - 96.1)	2.4	(2.0 - 2.9)	2.1	(1.7 - 2.6)
Gender						
Male	94.3	(93.1 - 95.3)	3.1	(2.4 - 4.0)	2.6	(2.0 - 3.3)
Female	96.6	(95.9 - 97.2)	1.7	(1.3 - 2.2)	1.6	(1.2 - 2.2)
Ethnic group						
European/Other	96.2	(95.5 - 96.9)	2.0	(1.5 - 2.5)	1.8	(1.4 - 2.3)
Māori	89.8	(87.7 - 91.6)	4.5	(3.2 - 6.1)	5.8	(4.5 - 7.3)
Pacific	90.8	(87.9 - 93.3)	5.4	(3.6 - 7.8)	3.8	(2.5 - 5.6)
Asian	94.9	(92.8 - 96.5)	3.4	(2.0 - 5.4)	1.7	(0.9 - 2.9)
Age group						
18 - 24 years	94.9	(92.8 - 96.6)	3.7	(2.3 - 5.7)	1.3	(0.7 - 2.4)
25 - 34 years	95.3	(93.7 - 96.6)	2.4	(1.5 - 3.7)	2.3	(1.5 - 3.5)
35 - 44 years	94.3	(92.6 - 95.7)	2.7	(1.7 - 4.1)	2.9	(2.0 - 4.1)
45 - 54 years	95.6	(94.0 - 96.8)	1.9	(1.2 - 2.7)	2.6	(1.6 - 3.9)
55 - 64 years	94.9	(92.9 - 96.5)	2.5	(1.5 - 4.0)	2.5	(1.5 - 4.1)
65+ years	97.8	(96.6 - 98.6)	1.6	(0.9 - 2.7)	0.6	(0.2 - 1.3)
Country of birth						
NZ	95.3	(94.5 - 96.0)	2.4	(1.9 - 3.0)	2.2	(1.8 - 2.8)
Elsewhere	95.9	(94.8 - 96.8)	2.4	(1.7 - 3.2)	1.8	(1.2 - 2.5)
Arrival in NZ						
2008 or later	95.4	(91.9 - 97.7)	3.0	(1.2 - 6.3)	1.5	(0.5 - 3.7)
Before 2008	96.0	(94.8 - 96.9)	2.2	(1.6 - 3.1)	1.8	(1.2 - 2.7)
Highest qualification						
No formal qual.	92.6	(90.7 - 94.3)	4.4	(3.1 - 6.1)	3.0	(2.1 - 4.0)
School qual.	94.9	(93.5 - 96.1)	2.8	(2.0 - 3.9)	2.3	(1.5 - 3.3)
Trade/voc. qual.	96.3	(95.0 - 97.4)	1.7	(1.1 - 2.6)	2.0	(1.2 - 3.1)
Degree/higher	96.4	(95.4 - 97.3)	1.8	(1.2 - 2.6)	1.7	(1.2 - 2.5)
Labour force status						
Employed	95.7	(94.9 - 96.4)	2.2	(1.7 - 2.8)	2.1	(1.6 - 2.7)
Unemployed	90.7	(87.7 - 93.1)	5.1	(3.1 - 7.9)	4.3	(2.9 - 6.0)
Student/Home/Retired	96.4	(95.3 - 97.3)	2.1	(1.5 - 3.0)	1.4	(0.9 - 2.2)
Religion						
No religion	95.4	(94.4 - 96.3)	2.2	(1.6 - 3.0)	2.4	(1.8 - 3.2)
Anglican	98.3	(97.2 - 99.0)	0.8	(0.3 - 1.7)	0.9	(0.4 - 1.7)
Presbyterian	95.4	(93.1 - 97.1)	3.0	(1.7 - 4.8)	1.6	(0.6 - 3.4)
Catholic	93.2	(90.8 - 95.2)	4.5	(3.0 - 6.5)	2.3	(1.2 - 3.9)
Other Christian	94.8	(93.2 - 96.1)	2.4	(1.5 - 3.6)	2.8	(2.0 - 3.9)
Other religion	94.2	(91.4 - 96.3)	2.7	(1.3 - 4.9)	3.1	(1.8 - 5.1)
Household size						
1	97.7	(96.7 - 98.5)	1.7	(1.0 - 2.6)	0.6	(0.3 - 1.1)
2	96.0	(95.0 - 96.8)	1.7	(1.2 - 2.3)	2.3	(1.7 - 3.1)
3	94.0	(92.0 - 95.7)	3.5	(2.3 - 5.2)	2.5	(1.5 - 3.8)
4	95.9	(94.4 - 97.1)	2.4	(1.5 - 3.6)	1.7	(1.0 - 2.8)
5+	94.4	(92.7 - 95.7)	3.1	(2.1 - 4.3)	2.5	(1.7 - 3.7)
Personal Income (\$)						
Up to 20,000	94.9	(93.7 - 95.9)	3.2	(2.4 - 4.3)	1.9	(1.4 - 2.6)
20,001 - 40,000	94.9	(93.6 - 96.1)	2.6	(1.8 - 3.6)	2.5	(1.7 - 3.5)
40,001 - 60,000	96.0	(94.3 - 97.3)	1.6	(0.9 - 2.5)	2.4	(1.4 - 3.9)
60,001 - 80,000	95.9	(93.6 - 97.5)	2.9	(1.6 - 4.8)	1.2	(0.5 - 2.5)
80,001 - 100,000	97.1	(94.7 - 98.5)	0.9	(0.2 - 2.7)	2.1	(0.9 - 4.0)
Over 100,000	96.4	(93.3 - 98.3)	1.5	(0.5 - 3.7)	2.0	(0.7 - 4.8)
Household Income (\$)						
Up to 20,000	95.4	(93.6 - 96.8)	2.3	(1.4 - 3.7)	2.2	(1.4 - 3.5)
20,001 - 40,000	94.4	(92.8 - 95.7)	3.0	(2.0 - 4.3)	2.6	(1.8 - 3.7)
40,001 - 60,000	95.0	(93.1 - 96.4)	3.2	(2.0 - 4.7)	1.9	(1.1 - 3.1)
60,001 - 80,000	95.0	(93.0 - 96.5)	3.1	(1.9 - 4.8)	1.9	(1.0 - 3.1)
80,001 - 100,000	96.4	(94.6 - 97.7)	1.6	(0.9 - 2.8)	2.0	(1.1 - 3.5)
Over 100,000	96.5	(95.3 - 97.5)	1.6	(1.0 - 2.4)	1.9	(1.2 - 2.9)

While the apparent difference between the male and female probable pathological gambling prevalence rates are not significant, the problem gambling rate is higher for males (3.1%) than females (1.7%). The Māori (5.8%) and Pacific (3.8%) probable pathological rates are also higher than the rates for European/Other (1.8%) and Asian (1.7%). Problem gambling rates are also higher for Māori and Pacific people. People in the four categories between the ages of 25 to 64 years (range 2.3% to 2.9%) had higher probable pathological gambling rates than those aged 65 years and older (0.6%). There were no significant age differences for problem gambling.

As with PGSI defined current problem and moderate-risk gambling, lifetime probable pathological and problem gambling rates did not differ between migrants and non-migrants or recent and longer term migrants. While there was no relationship between education and probable pathological gambling, people with no educational qualifications (4.4%) had a higher problem gambling rate than those in the other three groups (range 1.7% to 2.8%). Unemployed people had higher probable pathological (4.3%) and problem gambling (5.1%) rates than people in the other labour force groups.

People with no religion (2.4%), Other Christians (2.8%) and people with a religion other than Christian (3.1%) had higher probable pathological gambling rates than did Anglicans (0.9%). In the case of problem gambling, Catholics (4.5%) had higher rates than Anglicans (0.8%) and people of no religion (2.2%). Presbyterians (3.0%) also had a higher rate than Anglicans.

In regard to probable pathological gambling, people living in households of two or more people (range 1.7% to 2.5%) had a higher prevalence than those residing in single person households (0.6%). Household size was not, however, related to problem gambling. Personal and household income was unrelated to either problem or probable pathological gambling.

3.1.3 Socio-demographic risk factors for problem gambling and probable pathological gambling

In this section, selected socio-demographic factors are assessed using logistic regression to determine their association with problem and probable pathological gambling. Both univariate and multivariate analyses were conducted. The latter take account of relationships between factors and enable the strongest, independent, risk factors to be identified.

Risk factors for current problem gambling and combined problem and moderate-risk gambling

Table 9 presents the results of logistic regression analyses conducted to identify socio-demographic risk factors for current problem gambling and combined problem and moderate-risk gambling. The variables included in the analyses were chosen based on the findings of previous New Zealand and international studies. These analyses were conducted using information from people who reported gambling during the past 12 months.

The risk factors for problem gambling and combined problem and moderate-risk gambling are:

- Gender (males at greater risk)
- Ethnicity (Māori and Pacific people at greater risk, and Asian in the case of combined problem and moderate-risk gambling)
- Age (the three middle groups at higher risk for problem gambling; the three youngest groups for combined problem and moderate-risk gambling)

- Education (people without formal qualifications at greatest risk for combined problem and moderate-risk gambling)
- Labour force status (unemployed people at greatest risk)
- Religion (Other Christians and people of Other religions at greater risk for combined problem and moderate-risk gambling; Anglicans at *lower* risk for combined problem and moderate-risk gambling)
- Household size (people living in households of five or more at greatest risk)
- Personal income (people in highest two income groups at *lower* risk for combined problem and moderate-risk gambling)
- Location (people living in Christchurch at *lower* risk for problem gambling)
- Area deprivation (more deprived quintile at greater risk for combined problem and moderate-risk gambling).

Table 9: Socio-demographic risk factors for past 12 month problem and combined problem-moderate risk gamblers (odds ratios and 95% confidence intervals)

Demographic variables	Current problem gambling for past year gamblers only						
	Problem gambler				Combined problem/moderate-risk gambler		
	Prev. %	Odds ratio (95% CI)	p-value	Prev. %	Odds ratio (95% CI)	p-value	
Gender							
Male	1.2	2.66 (1.33 - 5.30)	0.01	3.6	1.51 (1.03 - 2.20)	0.03	
Female	0.5	1.00		2.4	1.00		
Ethnic group (prioritised)							
NZ European/Other	0.5	1.00		1.9	1.00		
Māori	2.7	5.90 (2.71 - 12.83)		7.4	4.09 (2.68 - 6.23)		
Pacific	2.1	4.53 (1.92 - 10.68)		10.2	5.84 (3.57 - 9.54)		
Asian	1.1	2.35 (0.72 - 7.65)	<0.0001	4.7	2.55 (1.40 - 4.66)	<0.0001	
Ethnic group							
European/Other							
Yes	0.6	0.25 (0.13 - 0.49)	<0.0001	2.1	0.26 (0.18 - 0.37)	<0.0001	
No	2.2	1.00		7.8	1.00		
Māori							
Yes	2.7	4.66 (2.43 - 8.93)	<0.0001	7.4	3.08 (2.14 - 4.43)	<0.0001	
No	0.6	1.00		2.5	1.00		
Pacific							
Yes	2.2	2.92 (1.51 - 5.66)	0.002	10.7	4.42 (2.94 - 6.67)	<0.0001	
No	0.8	1.00		2.7	1.00		
Asian							
Yes	1.1	1.31 (0.46 - 3.79)	0.61	4.8	1.66 (0.97 - 2.83)	0.06	
No	0.8	1.00		2.9	1.00		
Age group							
18 - 24 years	0.5	2.33 (0.52 - 10.41)		5.7	4.61 (2.33 - 9.12)		
25 - 34 years	1.2	5.87 (1.83 - 18.83)		4.5	3.54 (1.94 - 6.46)		
35 - 44 years	1.4	6.50 (2.16 - 19.60)		3.5	2.73 (1.49 - 5.01)		
45 - 54 years	1.1	5.19 (1.68 - 16.07)		2.3	1.76 (0.93 - 3.33)		
55+ years	0.2	1.00	0.009	1.3	1.00	<0.0001	
Country of birth							
NZ	0.9	1.00		2.8	1.00		
Elsewhere	0.6	0.63 (0.31 - 1.27)	0.20	3.6	1.28 (0.84 - 1.94)	0.25	
Arrival in NZ							
NZ born	0.9	1.00		2.8	1.00		
2008 or later	0.9	1.05 (0.24 - 4.55)		5.0	1.80 (0.81 - 4.00)	0.30	
Before 2008	0.5	0.56 (0.26 - 1.18)	0.30	3.3	1.19 (0.76 - 1.88)		
Highest qualification							
No formal qual.	1.4	1.00		5.5	1.00		
School qual.	0.6	0.16 (1.09 - 1.09)		3.1	0.54 (0.33 - 0.89)		
Trade/voc. qual.	0.9	0.26 (1.62 - 1.24)		2.6	0.45 (0.27 - 0.76)		
Degree/higher	0.7	0.22 (1.24 - 1.62)	0.27	2.2	0.38 (0.23 - 0.65)	0.001	
Labour force status							
Employed	0.8	1.00		2.5	1.00		
Unemployed	2.2	3.02 (1.38 - 6.59)		8.3	3.57 (2.20 - 5.80)		
Student/Home/Retired	0.5	0.68 (0.20 - 2.28)		2.8	1.12 (0.69 - 1.80)		
Other	0.7	0.93 (0.12 - 7.28)	0.03	0.7	0.28 (0.04 - 2.12)	<0.0001	

Demographic variables	Current problem gambling for past year gamblers only					
	Problem gambler			Combined problem/moderate-risk gambler		
	Prev. %	Odds ratio (95% CI)	p-value	Prev. %	Odds ratio (95% CI)	p-value
Religion[#]						
No religion	0.8	1.00		3.0	1.00	
Anglican	0.2	0.21 (0.05 - 1.00)		0.8	0.26 (0.11 - 0.59)	
Presbyterian	0.9	1.03 (0.23 - 4.69)		2.3	0.75 (0.35 - 1.58)	
Catholic	0.4	0.50 (0.14 - 1.84)		2.3	0.76 (0.41 - 1.42)	
Other Christian	1.0	1.16 (0.54 - 2.50)		5.1	1.70 (1.05 - 2.76)	
Other religion	1.3	1.59 (0.57 - 4.45)	0.21	5.5	1.86 (1.02 - 3.39)	<0.0001
Household size						
1	0.4	1.00		1.7	1.00	
2	0.7	2.03 (0.66 - 6.25)		2.1	1.21 (0.65 - 2.25)	
3	0.9	2.50 (0.64 - 9.71)		3.9	2.33 (1.19 - 4.57)	
4	0.4	1.15 (0.32 - 4.19)		2.1	1.24 (0.61 - 2.53)	
5+	1.7	4.87 (1.55 - 15.25)	0.02	5.8	3.52 (1.88 - 6.60)	<0.0001
Personal Income (\$)						
Up to 20,000	0.9	1.00		4.0	1.00	
20,001 - 40,000	1.0	1.08 (0.45 - 2.61)		4.0	1.00 (0.63 - 1.59)	
40,001 - 60,000	0.9	1.00 (0.37 - 2.69)		2.6	0.64 (0.38 - 1.07)	
60,001 - 80,000	0.6	0.68 (0.20 - 2.34)		2.3	0.58 (0.28 - 1.21)	
80,001 - 100,000	0.5	0.55 (0.12 - 2.46)		0.9	0.21 (0.07 - 0.62)	
Over 100,000	0.1	0.14 (0.02 - 1.06)		0.1	0.03 (0.00 - 0.22)	
Not reported	1.1	1.19 (0.28 - 5.11)	0.56	1.7	0.43 (0.15 - 1.24)	0.0005
Household Income (\$)						
Up to 20,000	1.1	1.00		3.7	1.00	
20,001 - 40,000	1.2	1.09 (0.42 - 2.88)		3.7	1.00 (0.56 - 1.78)	
40,001 - 60,000	0.5	0.40 (0.11 - 1.39)		3.4	0.90 (0.50 - 1.64)	
60,001 - 80,000	0.7	0.61 (0.20 - 1.86)		3.9	1.04 (0.56 - 1.93)	
80,001 - 100,000	1.0	0.92 (0.29 - 2.91)		2.4	0.63 (0.31 - 1.32)	
Over 100,000	0.6	0.54 (0.19 - 1.53)		1.9	0.49 (0.25 - 0.99)	
Not reported	0.9	0.81 (0.17 - 3.84)	0.64	3.9	1.04 (0.42 - 2.57)	0.31
Location						
Auckland	1.0	1.00		3.8	1.00	
Wellington	2.1	2.06 (0.80 - 5.28)		3.7	0.97 (0.51 - 1.83)	
Christchurch	0.1	0.06 (0.01 - 0.47)		2.6	0.68 (0.68 - 1.49)	
Rest of NZ	0.6	0.54 (0.26 - 1.11)	0.002	2.5	0.65 (0.42 - 0.98)	0.18
NZ Dep. Index Quintile						
Quintile 1 (least deprived)	0.70	1.00		2.25	1.00	
Quintile 2	0.72	1.02 (0.29 - 3.63)		1.94	0.86 (0.39 - 1.88)	
Quintile 3	0.18	0.25 (0.06 - 1.09)		1.66	0.74 (0.32 - 1.70)	
Quintile 4	1.30	1.87 (0.65 - 5.42)		2.44	1.09 (0.53 - 2.25)	
Quintile 5 (most deprived)	1.28	1.84 (0.70 - 4.82)	0.03	7.54	3.55 (1.85 - 6.76)	<0.0001

[#] 55 participants who reported multiple religions were excluded

Many of the socio-demographic variables are related to each other and consideration of them individually in relation to problem gambling can be misleading. For this reason a form of multivariate analysis (multiple logistic regression analysis) was conducted.

Table 10 provides the results of multiple logistic regression analyses that examine socio-demographic risk factors for current problem gambling and combined problem and moderate-risk gambling. When the effects of other variables are controlled statistically, male gender and Māori and Pacific ethnicity are identified as the main independent predictors of problem gambling. Membership of these three groups is also a risk factor for combined problem and moderate-risk gambling. Additional independent risk factors for combined problem and moderate-risk gambling are younger age, lack of formal qualifications, unemployment, and residence in the most deprived deprivation quintile. Religion (being Anglican) was associated with *lower* risk for combined problem and moderate-risk gambling.

Table 10: Socio-demographic risk factors for past 12 month problem and combined problem and moderate-risk gambling - Multiple logistic regression results

Demographic variables	Current problem gambling for past year gamblers only					
	Problem gambler			Combined problem/moderate-risk gambler		
	Prev. %	Odds ratio (95% CI)	p-value	Prev. %	Odds ratio (95% CI)	p-value
Gender						
Male	1.2	2.69 (1.35 - 5.37)	0.005	3.6	1.59 (1.01 - 2.50)	0.04
Female	0.5	1.00		2.4	1.00	
Ethnic group (prioritised)						
European/Other	0.5	1.00		1.9	1.00	
Māori	2.7	6.01 (2.76 - 13.07)		7.4	2.34 (1.44 - 3.81)	
Pacific	2.1	4.43 (1.87 - 10.49)		10.2	2.98 (1.57 - 5.65)	
Asian	1.1	2.30 (0.71 - 7.48)	<0.0001	4.7	1.71 (0.81 - 3.63)	0.002
Age group						
18 - 24 years				5.7	1.00	
25 - 34 years				4.5	0.81 (0.41 - 1.57)	
35 - 44 years				3.5	0.60 (0.29 - 1.22)	
45 - 54 years				2.3	0.45 (0.21 - 0.96)	
55+ years				1.3	0.24 (0.10 - 0.54)	0.006
Highest qualification						
No formal qual.				5.5	1.00	
School qual.				3.1	0.43 (0.24 - 0.78)	
Trade/voc. qual.				2.6	0.48 (0.26 - 0.87)	
Degree/higher				2.2	0.50 (0.27 - 0.92)	0.02
Labour force status						
Employed				2.5	1.00	
Unemployed				8.3	1.56 (1.02 - 3.34)	
Student/Home/Retired				2.8	1.56 (0.80 - 3.05)	
Other				0.7	0.13 (0.01 - 1.14)	0.03
Religion						
No religion				3.0	1.00	
Anglican				0.8	0.38 (0.16 - 0.90)	
Presbyterian				2.3	1.25 (0.51 - 3.07)	
Catholic				2.3	0.77 (0.39 - 1.52)	
Other Christian				5.1	1.39 (0.81 - 2.39)	
Other religion				5.5	1.56 (0.77 - 3.16)	0.04
NZ Dep. Index Quintile						
Quintile 1 (least deprived)				2.3	1.00	
Quintile 2				1.9	0.87 (0.39 - 1.97)	
Quintile 3				1.7	0.68 (0.29 - 1.60)	
Quintile 4				2.4	0.74 (0.33 - 1.64)	
Quintile 5 (most deprived)				7.5	1.85 (0.86 - 3.95)	0.005

Risk factors for lifetime probable pathological and problem gambling

Table 11 gives the results of logistic regression analyses conducted to identify socio-demographic risk factors for lifetime probable pathological and problem gambling.

The risk factors are:

- Gender (males at greater risk)
- Ethnicity (Māori and Pacific at greater risk)
- Age (people aged 35-44 years at greatest risk)
- Education (people with no formal education at greatest risk for combined probable pathological and problem gambling)
- Labour force status (unemployed at greater risk)
- Religion (Anglican at *lower* risk for combined probable pathological and problem gambling)
- Household size (people living in households of two or more at higher risk)
- Area deprivation (most deprived quintile at greatest risk).

Table 11: Socio-demographic risk factors for lifetime probable pathological and combined probable pathological and problem gamblers (odds ratios and 95% confidence intervals)

Demographic variables	Lifetime problem gambling						
	Probable pathological gambler				Combined probable pathological/ problem gambler		
	Prev. %	Odds ratio (95% CI)	p-value	Prev. %	Odds ratio (95% CI)	p-value	
Gender							
Male	2.6	1.59 (1.08 - 2.35)	0.02	5.7	1.74 (1.33 - 2.28)	<0.0001	
Female	1.7	1.00		3.4	1.00		
Ethnic group (prioritised)							
European/Other	1.6	1.00		3.5	1.00		
Māori	5.8	3.71 (2.49 - 5.51)		10.2	3.11 (2.31 - 4.18)		
Pacific	3.2	2.00 (1.17 - 3.42)		8.4	2.51 (1.77 - 3.58)		
Asian	1.7	1.04 (0.54 - 2.02)	<0.0001	5.0	1.45 (0.95 - 2.20)	<0.0001	
Ethnic group							
European/Other							
Yes	1.8	0.49 (0.34 - 0.70)	0.0001	3.8	0.44 (0.34 - 0.57)	<0.0001	
No	3.6	1.00		8.2	1.00		
Māori							
Yes	5.8	3.51 (2.44 - 5.04)	<0.0001	10.2	2.78 (2.12 - 3.65)	<0.0001	
No	1.7	1.00		3.9	1.00		
Pacific							
Yes	3.8	1.89 (1.20 - 2.96)	0.006	9.2	2.23 (1.63 - 3.04)	<0.0001	
No	2.0	1.00		4.3	1.00		
Asian							
Yes	1.7	0.78 (0.43 - 1.44)	0.43	5.1	1.14 (0.78 - 1.67)	0.51	
No	2.2	1.00		4.5	1.00		
Age group							
18 - 24 years	1.3	0.89 (0.41, 1.93)		5.1	1.45 (0.90, 2.34)		
25 - 34 years	2.3	1.57 (0.85, 2.90)		4.7	1.34 (0.87, 2.06)		
35 - 44 years	3.0	2.01 (1.14, 3.55)		5.7	1.64 (1.11, 2.42)		
45 - 54 years	2.6	1.74 (0.95, 3.19)		4.4	1.26 (0.84, 1.90)		
55+ years	1.5	1.00	0.07	3.5	1.00	0.17	
Country of birth							
NZ	2.2	1.00		4.7	1.00		
Elsewhere	1.8	0.78 (0.50 - 1.23)	0.28	4.1	0.88 (0.65 - 1.18)	0.40	
Arrival in NZ							
2008 or later	1.5	0.67 (0.23 - 1.92)	0.54	4.6	0.98 (0.52 - 1.82)	0.64	
Before 2008	1.8	0.8 (0.50 - 1.30)		4.0	0.86 (0.63 - 1.18)		
Highest qualification							
No formal qual.	3.0	1.00		7.4	1.00		
School qual.	2.3	0.77 (0.46 - 1.28)		5.1	0.68 (0.46 - 0.98)		
Trade/voc. qual.	2.0	0.67 (0.39 - 1.15)		3.7	0.48 (0.33 - 0.72)		
Degree/higher	1.7	0.58 (0.35 - 0.96)	0.17	3.6	0.47 (0.32 - 0.67)	0.0001	
Labour force status							
Employed	2.1	1.00		4.3	1.00		
Unemployed	4.3	2.06 (1.31 - 3.25)		9.4	2.29 (1.57 - 3.32)		
Student/Home/Retired	1.4	0.68 (0.40 - 1.17)		3.6	0.83 (0.58 - 1.17)		
Other	0.6	0.29 (0.04 - 2.20)	0.001	0.6	0.14 (0.02 - 1.04)	<0.0001	
Religion[#]							
No religion	2.4	1.00		4.6	1.00		
Anglican	0.9	0.37 (0.17 - 0.82)		1.7	0.37 (0.20 - 0.66)		
Presbyterian	1.2	0.49 (0.17 - 1.44)		4.2	0.90 (0.54 - 1.52)		
Catholic	2.2	0.94 (0.48 - 1.86)		6.7	1.49 (0.98 - 2.27)		
Other Christian	2.3	0.97 (0.60 - 1.56)		4.7	1.03 (0.72 - 1.47)		
Other religion	2.6	1.1 (0.57 - 2.13)	0.16	5.1	1.13 (0.69 - 1.84)	0.002	
Household size							
1	0.6	1.00		2.3	1.00		
2	2.3	3.69 (1.86 - 7.33)		4.0	1.76 (1.11 - 2.81)		
3	2.5	3.92 (1.81 - 8.50)		6.0	2.67 (1.59 - 4.49)		
4	1.7	2.76 (1.25 - 6.11)		4.1	1.81 (1.07 - 3.07)		
5+	2.5	4.05 (1.95 - 8.40)	0.002	5.6	2.52 (1.55 - 4.11)	0.001	
Personal Income (\$)							
Up to 20,000	1.9	1.00		5.2	1.00		
20,001 - 40,000	2.5	1.29 (0.79 - 2.11)		5.1	0.98 (0.70 - 1.38)		
40,001 - 60,000	2.4	1.26 (0.70 - 2.25)		4.0	0.76 (0.50 - 1.17)		
60,001 - 80,000	1.2	0.64 (0.28 - 1.47)		4.1	0.79 (0.47 - 1.33)		
80,001 - 100,000	2.1	1.08 (0.48 - 2.41)		2.9	0.56 (0.28 - 1.12)		
Over 100,000	2.0	1.06 (0.37 - 3.03)		3.6	0.68 (0.32 - 1.45)		
Not reported	2.1	1.1 (0.43 - 2.79)	0.77	3.3	0.63 (0.32 - 1.25)	0.42	

Demographic variables	Lifetime problem gambling					
	Probable pathological gambler			Combined probable pathological/ problem gambler		
	Prev. %	Odds ratio (95% CI)	p-value	Prev. %	Odds ratio (95% CI)	p-value
Household Income (\$)						
Up to 20,000	2.3	1.00		4.6	1.00	
20,001 - 40,000	2.7	1.18 (0.65 - 2.17)		5.6	1.25 (0.80 - 1.95)	
40,001 - 60,000	1.9	0.84 (0.42 - 1.69)		5.1	1.11 (0.68 - 1.82)	
60,001 - 80,000	1.9	0.83 (0.39 - 1.76)		5.0	1.10 (0.66 - 1.84)	
80,001 - 100,000	2.0	0.89 (0.41 - 1.94)		3.6	0.79 (0.45 - 1.39)	
Over 100,000	1.9	0.85 (0.44 - 1.63)		3.5	0.75 (0.47 - 1.22)	
Not reported	2.5	1.11 (0.47 - 2.63)	0.89	5.3	1.18 (0.61 - 2.27)	0.27
Location						
Auckland	1.8	1.00		4.6	1.00	
Wellington	2.4	1.34 (0.66 - 2.73)		4.4	0.96 (0.58 - 1.57)	
Christchurch	3.1	1.70 (0.78 - 3.71)		6.4	1.42 (0.84 - 2.38)	
Rest of NZ	2.1	1.14 (0.73 - 1.78)	0.56	4.3	0.92 (0.68 - 1.26)	0.41
NZ Deprivation Index Quintile						
Quintile 1 (least deprived)	1.19	1.00		3.50	1.00	
Quintile 2	2.27	1.93 (0.64 - 1.79)		3.75	1.07 (0.90 - 4.14)	
Quintile 3	1.21	1.02 (0.61 - 1.70)		3.57	1.02 (0.45 - 2.30)	
Quintile 4	2.28	1.94 (0.78 - 2.00)		4.34	1.25 (0.95 - 3.96)	
Quintile 5 (most deprived)	3.92	3.40 (1.60 - 3.78)	0.0002	8.20	2.46 (1.74 - 6.64)	<0.0001

55 participants who reported multiple religions were excluded

The results of multiple regression analyses of risk factors for lifetime probable pathological and problem gambling are presented in Table 12.

When the effects of other variables are controlled, male gender, Māori ethnicity and being in the most deprived deprivation quintile emerge as the main independent risk factors for lifetime probable pathological gambling. These variables also emerged as significant risk factors in the combined probable pathological and problem gambling analysis. Additional independent risk factors identified in this analysis were lacking formal qualifications and living in a household of two or more persons. Religion (being Anglican) was associated with *lower* risk for combined probable pathological and problem gambling.

Table 12: Socio-demographic risk factors for lifetime probable pathological and combined probable pathological and problem gamblers - Multiple logistic regression results

Demographic variables	Lifetime risk for problem gambling					
	Probable pathological			Combined probable pathological/ problem gambling		
	Prev. %	Odds ratio (95% CI)	p-value	Prev. %	Odds ratio (95% CI)	p-value
Gender						
Male	2.6	1.60 (1.08 - 2.37)	0.02	5.7	1.81 (1.35 - 2.43)	<0.0001
Female	1.7	1.00		3.4	1.00	
Ethnic group						
European/Other	1.6	1.00		3.5	1.00	
Māori	5.8	3.09 (2.02 - 4.71)		10.2	2.37 (1.69 - 3.31)	
Pacific	3.2	1.52 (0.85 - 2.72)		8.4	1.51 (0.97 - 2.34)	
Asian	1.7	0.98 (0.51 - 1.89)	<0.0001	5.0	1.19 (0.71 - 1.99)	<0.0001
Highest qualification						
No formal qual.				7.4	1.00	
School qual.				5.1	0.69 (0.46 - 1.04)	
Trade/voc. qual.				3.7	0.48 (0.31 - 0.75)	
Degree/higher				3.6	0.59 (0.39 - 0.91)	0.009
Religion[#]						
No religion				4.6	1.00	
Anglican				1.7	0.41 (0.23 - 0.75)	
Presbyterian				4.2	1.16 (0.67 - 2.00)	
Catholic				6.7	1.57 (0.99 - 2.49)	
Other Christian				4.7	0.95 (0.65 - 1.39)	
Other religion				5.1	1.10 (0.63 - 1.92)	0.008

Demographic variables	Lifetime risk for problem gambling					
	Probable pathological			Combined probable pathological/ problem gambling		
	Prev. %	Odds ratio (95% CI)	p-value	Prev. %	Odds ratio (95% CI)	p-value
Household size						
1				2.3	1.00	
2				4.0	1.93 (1.19 - 3.14)	
3				6.0	2.77 (1.57 - 4.89)	
4				4.1	1.92 (1.08 - 3.41)	
5+				5.6	2.10 (1.22 - 3.61)	0.01
NZ Deprivation Index Quintile						
Quintile 1 (least deprived)	1.2	1.00		3.5	1.00	
Quintile 2	2.3	1.83 (0.85 - 3.94)		3.8	1.07 (0.63 - 1.80)	
Quintile 3	1.2	0.93 (0.41 - 2.11)		3.6	1.01 (0.60 - 1.71)	
Quintile 4	2.3	1.60 (0.78 - 3.28)		4.3	1.02 (0.61 - 1.68)	
Quintile 5 (most deprived)	3.9	2.34 (1.15 - 4.76)	0.04	8.2	1.71 (1.04 - 2.79)	0.04

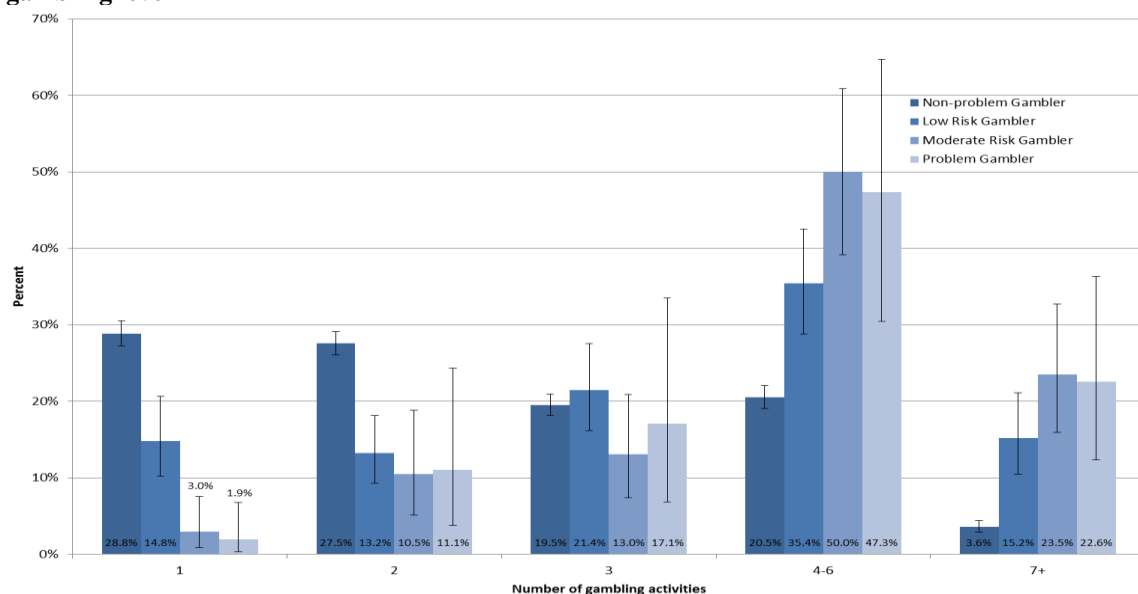
55 participants were excluded who reported multiple religions

3.1.4 Prevalence, gambling participation and participation risk factors

The number of gambling activities participated in during the past 12 months was examined by PGSI current problem gambling level in Figure 6.

Problem, moderate-risk and low-risk gamblers are more likely to participate in four to six or seven or more gambling activities than non-problem gamblers. Conversely, proportionately more non-problem gamblers participated in only one or two gambling activities than did people in the low-risk, moderate-risk and problem gambler groups. Low-risk gamblers were also more likely to take part in only one activity than were problem and moderate-risk gamblers. There was no difference between the groups with respect to participation in three activities.

Figure 6: Number of gambling activities participated in during the past 12 months by problem gambling level



In Table 13 participation in gambling activities during the past 12 months is considered in relation to PGSI current problem gambling level. Table 14 examines past month participation in this regard.

Low-risk, moderate-risk and problem gamblers are more likely to participate in most of the activities listed in Tables 13 and 14 than are non-problem gamblers. Lotto is the most notable exception with no difference in participation between the four groups, both with regard to past year and past month participation. There are substantial between-group differences in participation in a number of the continuous forms of gambling.

Non-problem gamblers are much more likely than people in the at-risk and problem groups to participate only in Lotto and/or raffles or only Lotto.

With regard to past 12 months participation, moderate-risk gamblers had higher rates than non-problem and low-risk gamblers in the following activities:

- Casino table games or EGMs
- Casino EGMs
- Non-casino EGMs
- Any EGM.

Moderate-risk gamblers had higher past month participation rates than non-problem and low-risk gamblers in non-casino EGMs and any EGMs.

Over three-quarters (76.3%) of moderate-risk gamblers had gambled on an EGM, either in a casino, club or pub, during the past year and nearly a half (46.8%) had done so in the past month. In contrast, a half (50.4%) of low-risk gamblers and a fifth (19.1%) of non-problem gamblers had gambled on an EGM during the past year. The corresponding past month participation estimates are 20.2% and 3.6%.

There are no differences between problem gamblers and moderate-risk gamblers in any of the gambling activities listed in Table 13 and Table 14. However, in contrast to moderate-risk gamblers, problem gamblers do not have higher past year participation than low-risk gamblers in casino table games or EGMs, non-casino EGMs and any EGMs. However, they do have higher past month non-casino EGM and any EGM participation. Problem gamblers have higher past year involvement in overseas internet gambling (11.7%) than do low-risk gamblers (1.7%) and non-problem gamblers (0.7%).

Table 13: Past 12 months participation in specific gambling activities by problem gambling level

Gambling activity	Past year participation % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
Lotto and/or raffles/lotteries only (NZ)	34.7	(36.3 - 38.0)	13.4	(9.0 - 17.9)	4.5	(0.3 - 8.6)	6.4	(0.0 - 14.9)
Lotto only (NZ)	14.7	(13.4 - 15.9)	8.9	(4.9 - 12.8)	2.0	(0.0 - 4.8)	1.4	(0.0 - 4.1)
Card games	4.2	(3.4 - 5.0)	17.6	(12.3 - 24.0)	22.4	(14.4 - 32.4)	31.6	(16.8 - 50.1)
Text game or competition	3.1	(2.4 - 3.9)	7.7	(3.9 - 13.4)	11.2	(6.0 - 19.0)	7.6	(2.3 - 18.3)
Lotto	77.0	(75.4 - 78.5)	84.6	(78.3 - 89.7)	74.1	(61.9 - 84.0)	87.2	(70.8 - 96.0)
Keno	3.0	(2.5 - 3.6)	6.7	(3.9 - 10.6)	10.3	(6.1 - 16.2)	10.7	(4.8 - 20.0)
Instant Kiwi tickets or other scratch tickets	39.4	(37.6 - 41.2)	57.1	(50.1 - 64.0)	70.6	(60.5 - 79.3)	64.6	(47.3 - 79.3)
Housie or bingo	1.5	(1.2 - 1.9)	5.3	(3.4 - 8.0)	13.2	(7.2 - 21.8)	5.5	(2.2 - 11.4)
Horse/dog race betting	13.9	(12.6 - 15.2)	26.6	(20.1 - 34.1)	30.0	(20.5 - 41.0)	14.7	(6.3 - 28.0)
Sports betting	5.3	(4.4 - 6.3)	12.2	(7.5 - 18.4)	22.7	(13.4 - 34.8)	9.3	(4.1 - 18.1)
Casino table games or EGMs (NZ and overseas)	12.6	(11.4 - 14.0)	30.1	(23.7 - 37.1)	48.2	(37.4 - 59.2)	34.3	(20.4 - 50.6)
Casino table games (NZ)	4.0	(3.3 - 4.9)	13.6	(8.7 - 20.0)	14.6	(7.1 - 25.6)	10.2	(3.8 - 21.6)
Casino EGMs (NZ)	8.5	(7.5 - 9.7)	24.7	(18.9 - 31.3)	43.9	(32.7 - 55.6)	32.7	(19.1 - 48.9)
Non-casino EGMs	14.8	(13.5 - 16.2)	38.8	(31.4 - 46.6)	71.8	(61.7 - 80.5)	58.3	(41.4 - 73.9)
Any EGM	19.1	(17.6 - 20.6)	50.4	(43 - 57.9)	76.3	(66.5 - 84.3)	72.2	(55.3 - 85.4)
Overseas internet gambling for money	0.7	(0.4 - 1.1)	1.4	(0.5 - 3.0)	1.7	(0.4 - 4.9)	11.7	(3.0 - 29.7)

Table 14: Past month participation in specific gambling activities by problem gambling level

Gambling activity	Past month participation % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
Lotto and/or raffles/lotteries only (NZ)	27.4	(24.5 - 30.3)	8.4	(2.8 - 13.9)	4.2	(0.0 - 9.3)	-	-
Lotto only (NZ)	13.7	(11.4 - 15.9)	7.8	(2.3 - 13.3)	1.1	(0.0 - 3.4)	-	-
Card games	1.0	(0.6 - 1.4)	6.2	(3.4 - 10.3)	13.9	(7.6 - 22.9)	15.4	(5.2 - 33.3)
Text game or competition	0.6	(0.4 - 1.0)	3.0	(0.9 - 7.3)	2.9	(0.7 - 8.1)	3.1	(0.8 - 8.6)
Lotto	42.1	(40.4 - 43.9)	52.7	(45.5 - 59.8)	50.3	(39.4 - 61.2)	54.6	(37.0 - 71.4)
Keno	1.5	(1.1 - 2.0)	2.1	(1.0 - 3.9)	5.4	(2.7 - 9.4)	7.7	(3.0 - 16.2)
Instant Kiwi tickets or other scratch tickets	13.6	(12.4 - 14.9)	27.4	(21.4 - 34.1)	36.6	(26.4 - 47.8)	35.2	(20.2 - 52.9)
Housie or bingo	0.4	(0.2 - 0.5)	2.5	(1.4 - 4.3)	6.5	(2.3 - 14.7)	0.6	(0.1 - 2.7)
Horse/dog race betting	2.6	(2.0 - 3.2)	10.8	(6.8 - 16.1)	14.0	(8.1 - 22.0)	6.3	(2.4 - 13.3)
Sports betting	1.4	(0.9 - 1.9)	5.5	(3.1 - 8.9)	7.0	(3.0 - 14.0)	5.9	(2.0 - 13.5)
Casino table games or EGMs (NZ and overseas)	0.6	(0.4 - 0.9)	5.6	(2.6 - 10.6)	10.9	(4.9 - 20.6)	8.2	(3.0 - 18.0)
Casino table games (NZ)	0.1	(0.0 - 0.1)	2.5	(0.5 - 7.9)	1.7	(0.2 - 7.7)	2.6	(0.5 - 8.7)
Casino EGMs (NZ)	0.5	(0.3 - 0.8)	5.3	(2.4 - 10.4)	10.3	(4.4 - 20.0)	7.4	(2.4 - 17.0)
Non-casino EGMs	3.3	(2.6 - 4.0)	16.0	(11.7 - 21.1)	45.3	(34.8 - 56.2)	43.5	(27.3 - 60.9)
Any EGM	3.6	(2.9 - 4.4)	20.2	(15.1 - 26.3)	46.8	(36.1 - 57.6)	48.6	(31.8 - 65.6)
Overseas internet gambling for money/prizes	0.3	(0.1 - 0.6)	0.8	(0.2 - 2.2)	1.1	(0.2 - 3.8)	2.9	(0.6 - 8.9)

Table 15 and Table 16 present the prevalence of problem and moderate-risk gambling by past year and past month participation in different gambling activities. Among past year Lotto

players, 0.9% were problem gamblers and a further 2.1% were moderate-risk gamblers. These percentages are similar to those for all people who gambled on any form of gambling activity in the past year. In total, one in 33 people (3.0%) who participated once a year or more in Lotto were either problem or moderate-risk gamblers. The prevalence rates for problem gambling (1.0%), moderate-risk gambling (2.5%) and combined problem and moderate-risk gambling (3.6%), did not change with more regular (monthly) Lotto participation.

Among people who had participated in overseas internet gambling during the past year, 11.5% were problem gamblers and a further 4.6% were moderate-risk gamblers, totalling 16.0% overall. This is one in six participants. As with Lotto, the corresponding rates for past month internet gambling were not different. With regard to past year non-casino EGM participants, 2.7% were problem gamblers and 8.7% were moderate-risk gamblers. Consequently, one in 11 is either a problem or moderate-risk gambler. In contrast to the Lotto and internet findings, regular (monthly) non-casino EGM participation is associated with higher prevalence. The problem and moderate-risk gambling rates are respectively 6.7% and 18.7%. Thus, a quarter of more regular participants are either problem or moderate-risk gamblers. Almost identical findings apply to past year and past month casino EGM and table games participants. The combined problem and moderate-risk rates for past year participants in these activities are respectively 11.6% and 8.2%. The combined rates for past month participants are 27.1% and 22.5%. While past year horse and dog race betting gamblers had a lower combined rate (5.2%) than people who participated this frequently on a number of other activities, those who gambled in the past month have a higher prevalence (10.7%).

Past year participants in housie or bingo, Keno and sports betting also have a high prevalence of problem and moderate-risk gambling (combined rates respectively 16.2%, 9.0% and 9.4%). As with Lotto and internet gambling, prevalence did not increase significantly among people who participated in the past month on these activities (respectively 23.3%, 10.7% and 11.3%). This was also the case for Instant Kiwi and other scratch ticket participants (past year 5.0%; past month 7.2%).

Table 15: Prevalence of problem gambling by past year participation in specific gambling activities

Gambling activity	Prevalence of problem gambling by past year participation % (95% CI)					
	Moderate-risk gambler		Problem gambler		Combined problem and moderate-risk gambler	
Past year gamblers (any gambling)	2.2	(1.7 - 2.7)	0.8	(0.6 - 1.1)	3.0	(2.5 - 3.6)
Past year Lotto gamblers	2.1	(1.6 - 2.6)	0.9	(0.6 - 1.3)	3.0	(2.5 - 3.6)
Past year Keno gamblers	6.5	(3.9 - 10.1)	2.5	(1.2 - 4.7)	9.0	(5.9 - 13.1)
Past year Instant Kiwi ticket or other scratch ticket gamblers	3.7	(2.8 - 4.8)	1.3	(0.8 - 1.9)	5.0	(4.0 - 6.2)
Past year Housie or bingo gamblers	14.0	(7.7 - 22.9)	2.2	(0.9 - 4.5)	16.2	(9.5 - 25.3)
Past year horse/dog race betting gamblers	4.4	(2.9 - 6.3)	0.8	(0.3 - 1.6)	5.2	(3.6 - 7.2)
Past year sports betting gamblers	8.1	(4.5 - 13.3)	1.2	(0.6 - 2.4)	9.4	(5.6 - 14.5)
Past year casino table games (NZ) gamblers	6.5	(3.0 - 12.1)	1.7	(0.6 - 3.7)	8.2	(4.4 - 13.9)
Past year casino EGMs (NZ) gamblers	9.1	(6.1 - 12.9)	2.5	(1.5 - 4.1)	11.6	(8.4 - 15.6)
Past year non-casino EGMs gamblers	8.7	(6.6 - 11.3)	2.7	(1.6 - 4.1)	11.4	(9.0 - 14.2)
Past year overseas internet gamblers	4.6	(1.1 - 12.9)	11.5	(2.9 - 29.8)	16.0	(5.6 - 34.0)

Table 16: Prevalence of problem gambling by past month participation in specific gambling activities

Gambling activity	Prevalence of problem gambling by past month participation % (95% CI)					
	Moderate-risk gambler		Problem gambler		Combined Problem and moderate-risk gambler	
Past month gamblers (any gambling)	3.4	(2.7 - 4.3)	1.4	(1.0 - 1.9)	4.8	(3.9 - 5.8)
Past month Lotto gamblers	2.5	(1.9 - 3.4)	1.0	(0.7 - 1.6)	3.6	(2.8 - 4.5)
Past month Keno gamblers	7.0	(3.6 - 12.1)	3.8	(1.5 - 8.0)	10.7	(6.3 - 17)
Past month Instant Kiwi ticket or other scratch ticket gamblers	5.3	(3.5 - 7.6)	1.9	(1.0 - 3.2)	7.2	(5.1 - 9.7)
Past month housie or bingo gamblers	22.5	(8.3 - 44.6)	0.8	(0.1 - 3.5)	23.3	(8.9 - 45.1)
Past month horse/dog race betting gamblers	9.1	(5.2 - 14.6)	1.5	(0.6 - 3.3)	10.7	(6.5 - 16.2)
Past month sports betting gamblers	8.9	(3.5 - 17.3)	2.7	(0.9 - 6.3)	11.3	(5.5 - 20.3)
Past month casino table games (NZ) gamblers	14.2	(0.9 - 60.6)	8.3	(0.8 - 33.9)	22.5	(2.3 - 69.1)
Past month casino EGMs (NZ) gamblers	21.4	(9.0 - 39.8)	5.7	(1.8 - 13.6)	27.1	(13.4 - 45.3)
Past month non-casino EGMs gamblers	18.7	(13.6 - 24.6)	6.7	(3.9 - 10.8)	25.4	(19.6 - 31.9)
Past month overseas internet gamblers	6.7	(0.9 - 24.9)	7.0	(1.2 - 23.2)	13.8	(3.1 - 36.6)

Table 17 shows problem gambling, moderate-risk gambling and combined problem and moderate-risk gambling prevalence rates for people in the regular (weekly or more often) non-continuous and continuous gambling categories. In this study, Lotto, other lotteries, raffles and making bets with friends or workmates were classified as non-continuous. All other activities were classified as continuous. Regular continuous gamblers were defined as people who took part in one or more continuous activities during the past week. They could also have taken part in non-continuous forms this or less often. Regular non-continuous gamblers were defined as people who took part weekly or more often in one or more non-continuous forms of gambling and who did not participate this often in any continuous form. They were not, however, excluded if they participated less often than weekly. In all three categories, the rate for regular continuous gamblers is approximately five times that for regular non-continuous gamblers.

Table 17: Prevalence of moderate-risk and problem gambling by regular gambling participation

Regular gambling	Prevalence of problem gambling % (95% CI)					
	Moderate-risk gambler		Problem gambler		Combined moderate-risk and problem gambler	
Non-continuous	1.8	(1.1 - 2.6)	0.8	(0.3 - 1.7)	2.6	(1.7 - 3.7)
Continuous	9.2	(6.3 - 12.8)	3.8	(2.2 - 6.0)	13.0	(9.7 - 16.9)

In Table 18, problem gambling and moderate-risk gambling are examined by participants' most preferred gambling activity.

Almost a third of problem gamblers (31.0%) said they most preferred non-casino EGMs. Casino gambling was also preferred by a moderate number of problem gamblers (in NZ and overseas 19.8%, in NZ 15.0%) as was making bets with friends and workmates (11.6%). People who preferred internet gambling or Lotto also had quite high rates (8.8% and 8.7% respectively). When considering Table 18 it needs to be noted that in a number of cases relatively small proportions of people indicated that they most preferred some activities and the confidence intervals for these estimates are wide. Generally however, across the three categories,

prevalence rates are very low for people who preferred text games or competitions, short-term speculative investments, Keno, raffles or other lotteries and other activities. They are highest for non-casino EGMs and casino gambling, followed by Lotto, playing cards for money, and betting on horse or dog racing.

Table 18: Prevalence of most enjoyed gambling activity by problem gambling level

Most preferred gambling activity	Prevalence of most preferred gambling activity % (95% CI)				Combined moderate-risk and problem gambler	
	Moderate-risk gambler		Problem gambler			
Cards for money (not in a casino)	10.2	(4.7 - 18.9)	6.2	(1.4 - 18.0)	9.1	(4.6 - 15.9)
Bets with friends/workmates	2.3	(0.7 - 5.5)	11.6	(3.4 - 27.6)	4.8	(2.0 - 9.6)
Text game or competition	0.3	(0.0 - 1.4)	-	-	0.2	(0.0 - 1.0)
Raffle/lottery (NZ and overseas)	1.1	(0.1 - 5.1)	0.6	(0.1 - 2.8)	1.0	(0.1 - 3.7)
Lotto	11.6	(6.3 - 19.1)	8.7	(2.6 - 20.8)	10.8	(6.4 - 16.9)
Keno	0.3	(0.0 - 1.6)	0.9	(0.1 - 4.1)	0.5	(0.1 - 1.6)
Bullseye	3.0	(0.7 - 8.6)	-	-	2.2	(0.5 - 6.3)
Instant Kiwi tickets or other scratch tickets	9.0	(3.1 - 20.0)	-	-	6.5	(2.2 - 14.8)
Housie or bingo	1.4	(0.5 - 3.5)	2.4	(0.6 - 6.8)	1.7	(0.7 - 3.4)
Horse/dog race betting	10.5	(4.8 - 19.6)	3.9	(1.2 - 9.6)	8.7	(4.3 - 15.5)
Sports betting	5.3	(1.4 - 13.9)	2.9	(0.6 - 9.4)	4.7	(1.6 - 10.9)
Casino table games or EGMs (NZ and overseas)	15.4	(8.6 - 24.8)	19.8	(9.7 - 34.0)	16.6	(10.6 - 24.2)
Casino tables games or EGMs (NZ)	14.0	(7.5 - 23.4)	15.0	(6.7 - 27.6)	14.3	(8.7 - 21.6)
Non-casino EGMs	17.6	(10.9 - 26.3)	31.0	(16.2 - 49.7)	21.3	(14.6 - 29.3)
Short-term speculative investments	-	-	0.6	(0.1 - 2.6)	0.2	(0.0 - 0.7)
Overseas internet gambling	-	-	8.8	(1.5 - 27.8)	2.4	(0.4 - 8.1)
Other activities	0.7	(0.1 - 2.3)	-	-	0.5	(0.1 - 1.6)
No preference/enjoy all equally	6.7	(3.0 - 12.8)	1.0	(0.1 - 4.6)	5.2	(2.4 - 9.6)
No/none	4.6	(2.0 - 8.9)	1.7	(0.2 - 7.7)	3.8	(1.8 - 7.1)

Table 19 considers problem and moderate-risk gambling in relation to gambling expenditure. Problem and moderate-risk prevalence rates start to increase when typical monthly expenditure exceeds \$50. Over one in five people who gamble \$500 or more are problem or moderate-risk gamblers.

Table 20 presents the results of univariate logistic regression analyses conducted to identify significant gambling participation risk factors for current problem and moderate-risk gambling.

As mentioned previously, there is a strong relationship between involvement in multiple forms of gambling and problem and combined problem and moderate-risk gambling. The probability of being in these categories increases with increased participation, with very high probabilities for people involved in over three gambling activities.

People who most prefer non-casino EGMs, casino gambling, card games or sports betting are at particularly high risk both for problem and combined problem and moderate-risk gambling. People who make bets with friends or workmates are also at high risk for problem gambling. People who most prefer raffles or lotteries are at very low risk. Neither these people nor those who prefer Lotto or horse or dog race betting are significantly more likely to be problem gamblers than people with no preferences or who enjoy all forms they engage in equally. Lotto and raffles and lottery preferences are also not risk factors for combined problem and at-risk gambling. A preference for betting on horse and dog races is, however, a risk factor for this category.

Table 19: Prevalence of problem gambling by average typical monthly gambling expenditure

Average typical monthly gambling expenditure	Problem gambling level (95% CI)					
	Moderate-risk gambler		Problem gambler		Combined moderate-risk and problem gambler	
Including short-term speculative investments						
\$1 - \$10	0.1	(0.0 - 0.5)	0.2	(0.0 - 0.9)	0.3	(0.0 - 0.9)
\$11 - \$20	0.8	(0.3 - 1.5)	0.1	(0.0 - 0.5)	0.8	(0.4 - 1.6)
\$21 - \$30	0.5	(0.1 - 1.4)	0.2	(0.0 - 0.9)	0.6	(0.1 - 1.6)
\$31 - \$50	0.9	(0.3 - 2.0)	0.0	(0.0 - 0.6)	0.9	(0.3 - 2.0)
\$51 - \$100	2.3	(1.1 - 4.3)	1.1	(0.3 - 2.5)	3.3	(1.8 - 5.6)
\$101 - \$500	8.5	(6.3 - 11.2)	2.5	(1.3 - 4.2)	11.0	(8.4 - 13.9)
\$501+	11.3	(5.5 - 19.9)	9.2	(5.0 - 15.4)	20.6	(13.3 - 29.6)
Not elsewhere included	-	-	1.3	(0.0 - 21.7)	1.3	(0.0 - 21.7)
Excluding short-term speculative investments						
\$1 - \$10	0.1	(0.0 - 0.5)	0.2	(0.0 - 0.9)	0.3	(0.0 - 0.9)
\$11 - \$20	0.8	(0.3 - 1.5)	0.1	(0.0 - 0.5)	0.8	(0.4 - 1.6)
\$21 - \$30	0.4	(0.1 - 1.3)	0.1	(0.0 - 0.9)	0.6	(0.1 - 1.6)
\$31 - \$50	0.9	(0.3 - 2.0)	0.0	(0.0 - 0.6)	0.9	(0.3 - 2.0)
\$51 - \$100	2.3	(1.1 - 4.3)	1.1	(0.3 - 2.5)	3.3	(1.8 - 5.5)
\$101 - \$500	8.5	(6.3 - 11.1)	2.4	(1.3 - 4.2)	10.9	(8.4 - 13.9)
\$501+	16.0	(7.9 - 27.4)	13.1	(7.2 - 21.2)	29.1	(19.1 - 40.8)
Not elsewhere included	-	-	0.9	(0.0 - 17.0)	0.9	(0.0 - 17.0)

Annual participation versus non-participation and monthly or more frequent versus no or less frequent participation in the various gambling activities is also considered in Table 20.

Past 12 month participation in overseas internet gambling; card games; pub, casino and club EGMs; Keno; Instant Kiwi and other scratch tickets; housie or bingo and bets with friends and workmates are all significant risk factors for problem gambling. Participation in other activities is not. Past year involvement in each of the previously listed forms is also a risk factor for combined problem and moderate-risk gambling. Participation in text games or competitions, betting on horse or dog races, sports betting and casino table games are additional risk factors for combined problem and moderate-risk gambling. Overseas internet gambling (OR 17.7) is a particularly strong risk factor for problem gambling but somewhat less so (OR 6.4) for combined problem and moderate-risk gambling. Pub EGM involvement (OR 11.7) is the strongest participation risk factor for combined problem and moderate-risk gambling, followed by housie or bingo (OR 6.9), casino EGMs (OR 6.5) and card games (OR 6.3).

Monthly or more frequent participation in card games (OR 19.3) and pub EGMs (OR 18.0) are major risk factors for problem gambling, followed by casino table games (OR 11.2), overseas internet gambling (OR 9.4), casino EGMs (OR 7.9) and bets with friends and workmates (OR 6.25). Additional significant risk factors are Keno, text games or competitions, sports betting, Instant Kiwi or other scratch tickets and club EGMs. Monthly participation in other gambling activities was not a risk factor for problem gambling. Monthly participation in the gambling activities listed above was also a significant risk factor for combined problem and moderate-risk gambling. Pub EGMs (OR 22.3), card games (OR 14.65), casino EGMs (OR 13.2), casino table games (OR 9.6) and club EGMs (OR 6.1) had the highest odds ratios.

In contrast to the situation with problem gambling, monthly or more frequent participation in a number of other forms was also significantly associated with combined problem and moderate-risk gambling. These activities are housie or bingo, with a high odds ratio of 10.3, betting on horse or dog racing and raffles or lotteries. Lotto and short-term speculative investments are the only two activities that do not have a significant association with problem or combined problem and moderate-risk gambling in any of the analyses.

Table 20: Gambling participation risk factors for problem and combined problem and moderate risk gambling - Univariate logistic regression results

Activities	Problem gambler				Combined moderate-risk and problem gambler			
	Prev %	Odds ratio	(95% CI)	p-value	Prev %	Odds ratio	(95% CI)	p-value
Number of activities								
1	0.06	1.00			0.3	1.00		
2	0.4	5.92	(0.99 - 35.41)		1.2	4.15	(1.41 - 12.22)	
3	0.7	12.36	(2.18 - 70.24)		2.2	7.49	(2.67 - 21.03)	
4 - 7	1.7	30.16	(6.04 - 150.47)		6.6	23.83	(9.06 - 62.70)	
7 - 9	4.0	70.45	(13.81 - 359.55)		12.5	48.06	(17.52 - 131.82)	
10+	2.4	41.28	(4.90 - 347.74)	<0.0001	26.2	119.00	(31.68 - 447.02)	<0.0001
Most preferred activity								
Card games (not in a casino)	1.9	21.96	(3.13 - 153.89)		10.3	10.26	(4.40 - 23.91)	
Bets with friends/ workmates	1.6	18.00	(2.97 - 109.27)		2.4	2.2	(0.85 - 5.75)	
Raffle/lottery (NZ or overseas)	0.04	0.48	(0.04 - 5.45)		0.3	0.23	(0.04 - 1.29)	
Lotto	0.3	3.72	(0.63 - 22.15)		1.5	1.38	(0.68 - 2.80)	
Horse/dog race betting	0.4	4.92	(0.85 - 28.59)		3.5	3.29	(1.42 - 7.63)	
Sports betting	1.5	17.11	(2.25 - 130.23)		8.7	8.58	(2.69 - 27.37)	
Casino gambling (NZ and overseas)	3.1	36.13	(7.42 - 175.84)		9.6	9.49	(4.75 - 18.99)	
Non-casino EGMs	5.6	66.80	(13.58 - 328.58)		14.1	14.71	(7.57 - 28.59)	
Other activities	0.7	8.07	(1.34 - 48.50)		2.9	2.70	(1.26 - 5.78)	
No/None/Enjoy all equally	0.1	1.00		<0.0001	1.1	1.00		<0.0001
Annual Participation								
Card games								
No	0.6	1.00			2.4	1.00		
Yes	4.6	8.11	(3.68 - 17.88)	<0.0001	13.3	6.30	(3.96 - 10.04)	<0.0001
Bets with friends/workmates								
No	0.6	1.00			2.6	1.00		
Yes	1.6	2.45	(1.16 - 5.19)	0.02	4.9	1.98	(1.33 - 2.96)	0.0008
Text game or competition								
No	0.8	1.00			2.8	1.00		
Yes	1.7	2.24	(0.75 - 6.70)	0.15	8.6	3.27	(1.78 - 5.99)	0.0001
Raffle/lottery (NZ)								
No	0.7	1.00			2.6	1.00		
Yes	0.9	1.42	(0.69 - 2.92)	0.34	3.3	1.28	(0.86 - 1.90)	0.23
Lotto								
No	0.5	1.00			3.0	1.00		
Yes	0.9	1.99	(0.67 - 5.95)	0.22	3.0	1.01	(0.60 - 1.70)	0.96
Keno								
No	0.8	1.00			2.8	1.00		
Yes	2.5	3.39	(1.53 - 7.53)	0.003	9.0	3.47	(2.15 - 5.60)	<0.0001
Instant Kiwi or other scratch tickets								
No	0.5	1.00			1.6	1.00		
Yes	1.3	2.61	(1.29 - 5.27)	0.008	5.0	3.27	(2.21 - 4.83)	<0.0001
Housie or bingo								
No	0.8	1.00			2.7	1.00		
Yes	2.2	2.83	(1.17 - 6.86)	0.02	16.3	6.94	(3.83 - 12.58)	<0.0001
Horse/dog race betting								
No	0.8	1.00			2.6	1.00		
Yes	0.8	0.97	(0.41 - 2.31)	0.95	5.2	2.02	(1.32 - 3.11)	0.001
Sports betting								
No	0.8	1.00			2.6	1.00		
Yes	1.3	1.59	(0.70 - 3.64)	0.27	9.4	3.89	(2.23 - 6.80)	<0.0001
Casino table games (NZ)								
No	0.8	1.00			2.7	1.00		
Yes	1.7	2.23	(0.84 - 5.88)	0.11	8.2	3.18	(1.66 - 6.10)	0.0005
Casino EGMs (NZ)								
No	0.6	1.00			2.0	1.00		
Yes	2.5	4.21	(2.13 - 8.32)	<0.0001	11.6	6.52	(4.33 - 9.81)	<0.0001
Pub EGMs								
No	0.4	1.00			1.2	1.00		
Yes	3.1	7.51	(3.78 - 14.91)	<0.0001	12.8	11.72	(7.97 - 17.24)	<0.0001
Club EGMs								
No	0.7	1.00			2.4	1.00		
Yes	2.5	3.64	(1.60 - 8.32)	0.002	10.3	4.60	(2.92 - 7.25)	<0.0001

Activities	Problem gambler				Combined moderate-risk and problem gambler			
	Prev %	Odds ratio	(95% CI)	p-value	Prev %	Odds ratio	(95% CI)	p-value
Short-term speculative investments								
	No	0.8	1.00		3.0	1.00		
	Yes	0.4	0.49	(0.07 - 3.64)	0.48	0.4	0.13	(0.02 - 0.94) 0.04
Overseas internet gambling								
	No	0.7	1.00		2.9	1.00		
	Yes	11.5	17.65	(4.68 - 66.50)	<0.0001	16.1	6.44	(2.25 - 18.43) 0.0005
At least monthly participation								
Card games								
	No	0.6	1.00		2.5	1.00		
	Yes	10.9	19.33	(7.56 - 49.42)	<0.0001	27.6	14.65	(7.95 - 27.00) <0.0001
Bets with friends/ workmates								
	No	0.7	1.00		2.8	1.00		
	Yes	4.5	6.25	(2.16 - 18.13)	0.0007	13.0	5.21	(2.64 - 10.28) <0.0001
Text game or competition								
	No	0.8	1.00		2.9	1.00		
	Yes	3.1	4.00	(1.26 - 12.72)	0.02	10.8	4.01	(1.38 - 11.60) 0.01
Raffle/lottery (NZ)								
	No	0.8	1.00		2.7	1.00		
	Yes	1.1	1.49	(0.65 - 3.43)	0.35	4.9	1.84	(1.13 - 2.99) 0.01
Lotto								
	No	0.7	1.00		2.6	1.00		
	Yes	1.0	1.60	(0.80 - 3.21)	0.19	3.6	1.42	(0.97 - 2.07) 0.07
Keno								
	No	0.8	1.00		2.9	1.00		
	Yes	3.8	5.07	(1.98 - 12.97)	0.0007	10.8	4.08	(2.27 - 7.35) <0.0001
Instant Kiwi or other scratch tickets								
	No	0.6	1.00		2.6	1.00		
	Yes	1.9	3.09	(1.50 - 6.36)	0.002	7.2	3.35	(2.23 - 5.05) <0.0001
Housie or bingo								
	No	0.8	1.00		2.9	1.00		
	Yes	0.8	0.92	(0.12 - 6.91)	0.93	23.3	10.28	(3.76 - 28.10) <0.0001
Horse/dog race betting								
	No	0.8	1.00		2.7	1.00		
	Yes	1.5	1.88	(0.74 - 4.79)	0.19	12.0	4.98	(2.86 - 8.68) <0.0001
Sports betting								
	No	0.8	1.00		2.9	1.00		
	Yes	2.7	3.55	(1.25 - 10.09)	0.02	11.4	4.37	(2.07 - 9.24) 0.0001
Casino table games (NZ)								
	No	0.8	1.00		3.0	1.00		
	Yes	8.3	11.22	(1.86 - 67.68)	0.008	22.5	9.57	(1.64 - 55.91) 0.01
Casino EGMs (NZ)								
	No	0.8	1.00		2.7	1.00		
	Yes	5.7	7.87	(2.60 - 23.80)	0.0003	27.1	13.19	(5.82 - 29.88) <0.0001
Pub EGMs								
	No	0.5	1.00		1.8	1.00		
	Yes	8.0	18.01	(8.85 - 36.64)	<0.0001	29.0	22.27	(14.63 - 33.91) <0.0001
Club EGMs								
	No	0.8	1.00		2.8	1.00		
	Yes	2.4	3.06	(1.07 - 8.75)	0.04	14.8	6.07	(3.13 - 11.80) <0.0001
Short-term speculative investments								
	No	0.8	1.00		3.0	1.00		
	Yes	1.2	1.49	(0.19 - 11.67)	0.70	1.2	0.40	(0.05 - 3.03) 0.37
Overseas internet gambling								
	No	0.8	1.00		3.0	1.00		
	Yes	7.0	9.39	(1.96 - 44.88)	0.005	13.8	5.23	(1.41 - 19.37) 0.01

Table 21 reports the results of multiple logistic regression analyses designed to assess the relative and independent capacity of the various gambling measures (gambling preferences and number and type of activities participated in) to predict problem gambling status. In the first analysis (results shown on the left of the table) number of activities participated in during the past 12 months, most preferred activity and annual participation in the different forms of gambling were examined together. Number of activities engaged in did not emerge as a significant risk factor in this analysis. The strongest risk factors are a preference for non-casino EGMs (OR 56.4), casino gambling (OR 31.5) and bets with friends or workmates (OR 18.3) and

participation in internet gambling during the past 12 months (OR 13.6). Preferences for sports betting (OR 11.0), other gambling activities (OR 5.9) and past 12 months participation in card games (OR 7.6) were also statistically significant.

In the second analysis (results shown in the middle of the table) number of activities participated in during the past 12 months, most preferred activity and monthly or more frequent participation in the different activities are considered. In the case of preferred activity, the pattern of results is essentially the same as in the preceding analysis. Participation in card games (in this case in the past month rather than past year) is again significant (OR 10.8). The results differ most in that monthly or more frequent pub EGM participation (OR 4.9) emerges as a significant risk factor. Entry of this factor into the equation may account for the reduction in size of the non-casino EGM preference odds ratio (56.4 in the first analysis, 23.4 in the second). It is highly likely that there is considerable overlap in preference for non-casino EGM and pub EGM participation.

The third analysis includes all of the variables that were considered in the two previous analyses, including both past 12 months and past month gambling participation. Again, the preference results are virtually the same as in the previous analyses. Monthly or more frequent pub EGM and card game participation are significant risk factors, as they were in the second analysis. They were not included in the first analysis. Past year internet participation is also significant as it was in the first analysis. It was not included in the second analysis. Past year card game participation is not significant in the third analysis, presumably because past month involvement was included in this analysis and had a stronger association with current problem gambling than past year involvement.

Table 21: Gambling participation risk factors for problem gambling - Multiple logistic regression results

Activities	Problem gambler annual participation			Problem gambler monthly participation			Problem gambler annual and monthly participation		
	Odds ratio	95% CI	p-value	Odds ratio	95% CI	p-value	Odds ratio	95% CI	p-value
Most preferred activity									
Card games (not in a casino)	2.80	(0.34 - 23.41)		3.04	(0.33 - 28.24)		3.43	(0.38 - 30.91)	
Bets with friends/workmates	18.31	(2.91 - 115.16)		18.45	(2.97 - 114.40)		21.49	(3.27 - 141.03)	
Raffle/lottery (NZ or overseas)	0.37	(0.03 - 4.63)		0.50	(0.04 - 5.76)		0.55	(0.05 - 6.55)	
Lotto	4.39	(0.72 - 26.61)		4.07	(0.67 - 24.62)		4.62	(0.72 - 29.60)	
Horse/dog race betting	4.11	(0.69 - 24.58)		4.61	(0.78 - 27.08)		5.08	(0.82 - 31.51)	
Sports betting	10.99	(1.36 - 88.83)		11.10	(1.32 - 93.13)		11.50	(1.27 - 104.17)	
Casino gambling (NZ and overseas)	31.47	(6.28 - 157.66)		25.01	(4.69 - 133.20)		26.88	(4.96 - 145.80)	
Non-casino EGMs	56.36	(11.25 - 282.34)		23.37	(4.00 - 136.58)		29.49	(5.10 - 170.46)	
Other activities	5.93	(1.21 - 29.16)		7.24	(1.33 - 39.36)		5.48	(1.09 - 27.56)	
No/None/Enjoy all equally	1.00		<0.0001	1.00		0.0002	1.00		<0.0001
Annual participation									
Card games (not in a casino)	No	1.00							
	Yes	7.64	(3.31 - 17.62)	<0.0001					
Internet	No	1.00					1.00		
	Yes	13.57	(4.19 - 43.93)	<0.0001			11.86	(4.00 - 35.21)	<0.0001
At least monthly participation									
Card games (not in a casino)	No			1.00		<0.0001	1.00		
	Yes			10.81	(3.28 - 35.61)		8.64	(3.19 - 23.44)	<0.0001
EGM in Pubs	No			1.00		0.0005	1.00		
	Yes			4.93	(2.01 - 12.11)		4.45	(1.92 - 10.30)	0.0005

Table 22 presents the findings of analyses that included the same risk factors that were referred to in relation to Table 21. In this case, the dependent variable is the combined problem gambling and moderate-risk group rather than problem gamblers.

The first analysis (left of the table) included annual gambling participation and excluded past month participation. Only three of the most preferred forms of gambling were significant risk factors, namely sports betting, casino gambling and non-casino EGMs. Annual participation in card games, housie or bingo, casino EGMs and pub EGMs were also significant. While significant, all of the risk factors had relatively low odds ratios.

The second analysis (centre) included past month participation and excluded past year involvement. Number of activities participated in during the past year emerged as an important risk factor with risk increasing progressively with involvement in more activities. The odds ratios for most preferred activities remained similar to those described for the first analysis, although preference for sports betting was no longer significant. Monthly or more frequent participation in card games, housie or bingo, casino EGMs and pub EGMs were significant, as past 12 months participation in these activities was in the preceding analysis.

As with the previous set of analyses, both past month and past year participation are included together in the third analysis. As in the second analysis, number of activities participated in during the past year remain significant although the odds ratios are somewhat lower, especially in the case of people who engage in four or more activities. For people who engage in 10 or more activities, the odds ratio fails to be statistically significant. In this analysis, none of the most preferred activities enter into the equation. Annual participation in three of the four activities that were significant in the first analysis reappear, namely housie or bingo, casino EGMs and pub EGMs. Participation in card games is no longer significant and an additional activity, text games, emerges as a significant risk factor. While lifetime participation in card games is not significant in this analysis, monthly or more frequent involvement in this activity is. Presumably the link between more regular participation and combined problem and moderate-risk gambling is stronger than less frequent involvement and the latter measure dropped out of the equation because of its overlap with the former. The reverse appears to be the case for housie or bingo. Past year participation remains significant as in the first analysis, but past month involvement drops out of the equation. Monthly or more frequent involvement with pub and casino EGMs is also significant, meaning that both more and less regular participation in these forms are risk factors, when the effects of other variables included in the model are taken into account.

Table 23 presents the results of univariate and multivariate regression analyses undertaken to identify further gambling participation risk factors for current problem and combined problem and moderate-risk gambling. In the univariate analyses, regular continuous gambling and expenditure in excess of \$100 per month are significant risk factors for problem gambling. In the multivariate analysis, gambling type ceases to be significant when considered together with expenditure. Expenditure over \$50 per month is a significant risk factor for combined problem and moderate-risk gambling. In contrast to the situation with problem gambling, pattern of participation remains significant in the multivariate analysis. In all analyses, people in the highest expenditure category are at extraordinary high risk of being a problem or moderate risk gambler.

Table 22: Gambling participation risk factors for combined problem and moderate-risk gambling - Multiple logistic regression results

Activities	Combined moderate-risk and problem - annual participation			Combined moderate-risk and problem - monthly participation			Combined moderate-risk and problem - annual and monthly participation		
	Odds ratio	95% CI	p-value	Odds ratio	95% CI	p-value	Odds ratio	95% CI	p-value
Number of activities									
1				1.00			1.00		
2				3.51	(1.22 - 10.07)		3.57	(1.25 - 10.15)	
3				4.79	(1.67 - 13.76)		4.49	(1.55 - 12.96)	
4 - 7				8.69	(3.12 - 24.23)		5.78	(2.06 - 16.25)	
7 - 9				9.14	(2.92 - 28.64)		3.48	(1.06 - 11.45)	
10+				11.83	(2.98 - 46.97)	0.0006	2.20	(0.50 - 9.69)	0.007
Most preferred activity									
Card games (not in a casino)	1.65	(0.59 - 4.66)		1.50	(0.51 - 4.42)				
Bets with friends/workmates	1.93	(0.67 - 5.52)		1.46	(0.51 - 4.21)				
Raffle/lottery (NZ or overseas)	0.25	(0.04 - 1.51)		0.24	(0.04 - 1.45)				
Lotto	1.51	(0.71 - 3.24)		1.48	(0.68 - 3.23)				
Horse/dog race betting	1.84	(0.75 - 4.48)		1.51	(0.56 - 4.06)				
Sports betting	3.90	(1.25 - 12.20)		2.48	(0.74 - 8.36)				
Casino gambling (NZ and overseas)	3.48	(1.57 - 7.72)		3.24	(1.40 - 7.47)				
Non-casino EGMs	3.22	(1.47 - 7.08)		2.75	(1.19 - 6.36)				
Other activities	1.60	(0.69 - 3.74)		1.50	(0.63 - 3.58)				
No/None/Enjoy all equally	1.00		0.02	1.00		0.04			
Annual participation									
Card games (not in a casino)	No	1.00							
	Yes	3.77	(1.98 - 7.19)	<0.0001					
Text game or competition	No						1.00		
	Yes						2.26	(1.13 - 4.52)	0.02
Housie or bingo	No	1.00					1.00		
	Yes	3.24	(1.65 - 6.36)	0.0006			3.27	(1.76 - 6.09)	0.0002
Casino EGMs	No	1.00					1.00		
	Yes	3.76	(1.70 - 8.32)	0.001			3.40	(1.69 - 6.85)	0.0006
Pub EGMs	No	1.00					1.00		
	Yes	1.95	(1.19 - 3.21)	0.009			1.78	(1.01 - 3.13)	0.05
At least monthly participation									
Card games (not in a casino)	No			1.00			1.00		
	Yes			4.98	(2.29 - 10.86)	<0.0001	5.39	(2.85 - 10.21)	<0.0001
Housie or bingo	No			1.00					
	Yes			3.86	(1.06 - 14.01)	0.04			
Casino EGMs	No			1.00			1.00		
	Yes			2.97	(1.26 - 6.99)	0.01	3.00	(1.10 - 8.17)	0.03
Pub EGMs	No			1.00			1.00		
	Yes			6.41	(3.84 - 10.68)	<0.0001	4.49	(2.42 - 8.31)	<0.0001

Table 23: Pattern of participation and expenditure risk factors for problem and combined problem and moderate-risk gambling - Multiple logistic regression results

Gambling and total monthly expenditure	Prevalence %	Problem gambler					
		Univariate odds ratios			Multivariate odds ratios		
		Odds ratio	(95% CI)	p-value	Odds ratio	(95% CI)	p-value
Pattern of participation							
Infrequent gambler [#]	0.5	1.00					
Regular non-continuous	0.8	1.55	(0.57 - 4.22)				
Regular continuous	3.8	7.68	(3.64 - 16.17)	<0.0001			
Expenditure (excluding short-term investments)							
\$1 - \$10	0.2	1.00			1.00		
\$11 - \$20	0.1	0.34	(0.02 - 5.43)		0.34	(0.02 - 5.43)	
\$21 - \$30	0.1	0.86	(0.09 - 8.50)		0.86	(0.09 - 8.50)	
\$31 - \$50	0.0	0.22	(0.01 - 3.54)		0.22	(0.01 - 3.54)	
\$51 - \$100	1.1	6.31	(0.72 - 55.03)		6.31	(0.72 - 55.03)	
\$101 - \$500	2.4	14.96	(1.94 - 115.21)		14.96	(1.94 - 115.21)	
\$501+	13.1	89.72	(11.64 - 691.31)		89.72	(11.64 - 691.31)	
Not elsewhere included	0.9	5.33	(0.32 - 89.90)	<0.0001	5.33	(0.32 - 89.90)	<0.0001
Combined moderate-risk and problem gambler							
Gambling and total monthly expenditure	Prevalence %	Combined moderate-risk and problem gambler					
		Univariate odds ratios			Multivariate odds ratios		
		Odds ratio	(95% CI)	p-value	Odds ratio	(95% CI)	p-value
Pattern of participation							
Infrequent gambler [#]	2.1	1.00			1.00		
Regular non-continuous	2.6	1.25	(0.77 - 2.03)		0.48	(0.28 - 0.82)	
Regular continuous	13.0	7.11	(4.62 - 10.95)	<0.0001	1.37	(0.84 - 2.23)	0.0004
Expenditure (excluding short-term investments)							
\$1 - \$10	0.3	1.00			1.00		
\$11 - \$20	0.8	3.22	(0.69 - 14.98)		3.25	(0.70 - 15.13)	
\$21 - \$30	0.6	2.35	(0.44 - 12.46)		2.46	(0.46 - 13.06)	
\$31 - \$50	0.9	3.57	(0.70 - 18.26)		3.88	(0.76 - 19.90)	
\$51 - \$100	3.3	13.67	(3.08 - 60.72)		16.31	(3.60 - 73.93)	
\$101 - \$500	10.9	48.72	(11.81 - 200.98)		52.76	(12.47 - 223.23)	
\$501+	29.1	162.70	(37.08 - 713.90)		145.89	(32.16 - 661.73)	
Not elsewhere included	0.9	3.55	(0.30 - 41.61)	<0.0001	3.67	(0.31 - 43.79)	<0.0001

[#] Infrequent gamblers are defined as people who participate less than weekly in any particular gambling activity.

3.1.5 Prevalence and other gambling-related characteristics and risk factors

In Table 24, other gambling-related characteristics of problem, at-risk gamblers and non-problem gamblers are examined.

The age participants reported that they first gambled is not related to problem, moderate- or low-risk gambling. However, non-problem gamblers (40.3%) more often than moderate-risk gamblers (16.7%) and low-risk (28.0%) gamblers indicated that they mainly gambled alone when they first started gambling. They were less likely to say they gambled with a friend (who did not live with them) than people in these two groups.

The majority of problem gamblers (83.8%) reported that they had lost over \$100 in one day of gambling and a similar percentage (81.9%) said they had won more than \$100 in one day. The corresponding percentages for non-problem gamblers are 6.2% and 39.6%. With regard to both losing and winning, the non-problem and problem groups differed most and the moderate- and low-risk groups fell between.

The problem and risk groups all differed from non-problem gamblers with respect to their higher levels of preference for non-casino EGMs and casino gambling. Nearly a third of

problem gamblers (31.0%) most preferred non-casino EGMS, compared with 17.6% of moderate-risk gamblers, 9.2% of low-risk gamblers and 3.7% of non-problem gamblers. The difference between problem and low-risk gamblers may be significant. The corresponding percentages for casino gambling (New Zealand and overseas) are 19.8%, 15.4%, 9.7% and 4.5%. The reverse pattern applies to Lotto and raffles and other lotteries. Nearly a quarter of non-problem gamblers (22.4%) most prefer Lotto, compared with low-risk gamblers (15.7%), moderate-risk gamblers (11.6%) and problem gamblers (8.7%). A quarter of non-problem gamblers (25.8%) also said they had no most preferred activity or that they enjoyed all activities the same. This compares with 13.3% of low-risk gamblers, 11.3% of moderate-risk gamblers and 2.7% of problem gamblers. There are a few other minor differences between some groups, for example low- and moderate-risk gamblers most prefer cards more often than non-problem gamblers.

Problem gamblers and moderate-risk gamblers somewhat more often than non-problem and low-risk gamblers said that they usually gambled with one person when they took part in their most preferred gambling activity.

The great majority (92.7%) of problem gamblers said that the amount they gambled had made them nervous at some time. The percentages for moderate-risk, low-risk and non-problem gamblers are 59.5%, 22.7% and 6.6% respectively. Problem gamblers (26.4%) also more often said there was a lot of gambling in the family they grew up in than did low-risk (8.2%) and non-problem (4.5%) gamblers. Moderate-risk gamblers (19.9%) and low-risk gamblers (16.0%) more often than non-problem gamblers (9.9%) reported a moderate amount of gambling in their family of origin. Problem gamblers (13.8%) did not differ from any of the three preceding groups in this regard.

Problem gamblers (9.3%) and moderate-risk gamblers (6.6%) more often said there was a lot of gambling in their current household (excluding themselves) than did non-problem (0.7%) and low-risk gamblers (1.7%). Problem gamblers (17.3%) also indicated more frequently than non-problem gamblers (3.4%) that there was a moderate amount of gambling in their current household. There was no difference between the groups regarding non-gambling on the part of the participant. Non-problem gamblers somewhat more often than low-risk gamblers said there was a little bit of gambling in their household.

Participants were asked if they knew of people in their social networks whom they thought may have or had a problem with gambling. The majority of problem gamblers (86.4%) indicated one or more people in this category. Two-thirds of moderate-risk, just under half of low-risk (45.8%) and a third of non-problem gamblers indicated like-wise. From inspection of Table 24, it is evident that similar patterns apply to a number of categories of people, with much higher rates for problem gamblers than non-problem gamblers and the risk groups falling between. For example, about a third (32.2%) of problem gamblers believed that their spouse or partner either has or had a problem with gambling. The corresponding figures for moderate-risk, low-risk and non-problem gamblers are 12.2%, 4.4% and 1.8%.

Length of time spent playing casino, pub and club EGMS on an average day is also different, with problem gamblers much more frequently reporting long session of play and non-problem gamblers reporting short sessions, with the risk groups between.

Table 24: Other gambling-related characteristics of problem and at-risk gamblers

Variables	Problem gambling level % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
Age when first gambled								
Less than 10 years old	3.1	(2.5 - 3.8)	2.8	(1.3 - 5.5)	3.1	(1.2 - 6.8)	4.6	(1.5 - 10.7)
10 - 14 years	10.9	(9.7 - 12.2)	17.6	(11.9 - 24.6)	17.7	(10.0 - 28.1)	18.4	(6.8 - 37.2)
15 - 19 years	38.8	(37.1 - 40.6)	43.6	(36.7 - 50.6)	39.7	(29.2 - 51.0)	37.4	(21.5 - 55.8)
20 years or older	45.8	(44.2 - 47.6)	35.6	(29.5 - 42.2)	37.9	(27.9 - 48.7)	39.6	(24.5 - 56.4)
Refused	0.1	(0.0 - 0.3)	-	-	-	-	-	-
Don't know	1.2	(0.8 - 1.5)	0.4	(0.0 - 1.8)	1.6	(0.3 - 5.8)	-	-
Who mainly gambling with when first started								
Alone	40.3	(38.4 - 42.1)	28.0	(22.1 - 34.6)	16.7	(10.3 - 24.9)	30.8	(17.0 - 47.9)
With a friend - who didn't live with you	24.9	(23.3 - 26.5)	33.6	(26.5 - 41.4)	44.7	(33.5 - 56.3)	31.1	(16.8 - 48.9)
With a friend - who was a flatmate	4.0	(3.3 - 4.8)	3.1	(1.4 - 6.1)	2.0	(0.5 - 5.3)	4.0	(0.8 - 12.6)
With a male relative	14.1	(12.8 - 15.4)	15.8	(11.4 - 21.1)	15.3	(8.3 - 25.3)	14.0	(4.7 - 30.6)
With a female relative	10.5	(9.4 - 11.7)	14.7	(10.2 - 20.1)	15.7	(9.7 - 23.5)	10.4	(4.7 - 19.4)
Partner/spouse	1.1	(0.8 - 1.5)	0.8	(0.2 - 2.4)	-	-	1.3	(0.1 - 6.1)
Workmates/work syndicate/company sweepstake/office staff	2.2	(1.8 - 2.8)	2.4	(1.1 - 4.7)	-	-	6.2	(0.6 - 26.7)
Family/family members	1.1	(0.8 - 1.5)	0.8	(0.2 - 2.0)	5.6	(1.4 - 15.3)	2.2	(0.4 - 7.8)
Parents	0.5	(0.3 - 0.8)	-	-	-	-	-	-
With someone else	0.8	(0.5 - 1.1)	0.8	(0.1 - 3.1)	-	-	-	-
Refused	-	-	-	-	-	-	-	-
Don't know	0.5	(0.3 - 0.8)	-	-	-	-	-	-
Largest amount of money ever lost in one day of gambling (\$)								
None	0.9	(0.5 - 1.3)	-	-	-	(0.1 - 5.1)	-	-
5 or less	11.1	(10.1 - 12.3)	8.4	(4.6 - 14.0)	0.6	(0.1 - 2.7)	-	-
6 - 10	14.1	(12.9 - 15.3)	3.6	(2.0 - 6.1)	1.7	(0.4 - 4.7)	0.8	(0.1 - 3.7)
11 - 15	14.8	(13.6 - 16.2)	4.7	(1.6 - 10.7)	2.7	(0.7 - 7.6)	0.5	(0.0 - 2.2)
16 - 20	25.2	(23.6 - 26.8)	17.6	(13.0 - 23.0)	9.3	(4.7 - 16.3)	4.2	(0.4 - 18.7)
21 - 30	8.3	(7.4 - 9.3)	9.2	(5.8 - 13.9)	3.5	(1.3 - 7.8)	-	-
31 - 50	10.4	(9.3 - 11.5)	12.1	(7.9 - 17.5)	7.9	(3.5 - 15.1)	5.0	(0.7 - 18.5)
51 - 100	8.6	(7.6 - 9.7)	15.5	(11.2 - 20.8)	17.9	(9.6 - 29.4)	4.0	(1.1 - 10.1)
More than 100	6.2	(5.4 - 7.0)	28.8	(22 - 35.4)	55.3	(43.6 - 66.5)	83.8	(68.8 - 93.3)
Refused	0.0	-	-	(0.0 - 2.2)	-	-	-	-
Don't know	0.4	(0.3 - 0.7)	0.1	(0.0 - 0.3)	-	-	1.7	(0.2 - 7.9)
Largest amount of money ever won in one day of gambling (\$)								
None	10.0	(8.9 - 11.1)	2.7	(1.2 - 5.3)	2.5	(0.8 - 6.2)	4.2	(0.4 - 18.7)
20 or less	15.6	(14.3 - 17.0)	14.5	(9.2 - 21.4)	4.4	(1.6 - 9.9)	0.8	(0.1 - 3.7)
21 - 50	15.7	(14.4 - 17.1)	6.7	(4.0 - 10.5)	4.3	(1.4 - 10.2)	0.5	(0.1 - 2.5)
51 - 100	18.3	(17.0 - 19.7)	14.8	(10.5 - 19.9)	6.9	(2.4 - 15.5)	10.9	(2.3 - 30.6)
101 - 500	17.9	(16.4 - 19.4)	20.5	(14.9 - 27.2)	25.4	(15.7 - 37.3)	10.3	(3.0 - 25.0)
500 - 1000	14.0	(12.8 - 15.2)	23.8	(18.0 - 30.5)	26.3	(18.2 - 35.9)	26.2	(14.1 - 41.9)
More than 1000	7.7	(6.8 - 8.7)	17.0	(12.6 - 22.2)	30.0	(21.4 - 39.9)	45.4	(29.0 - 62.6)
Don't know	0.8	(0.6 - 1.2)	0.1	(0.0 - 0.3)	-	-	1.7	(0.2 - 7.9)
Gambling activity most preferred								
Card games, not in a casino	2.2	(1.7 - 2.9)	6.7	(3.9 - 10.7)	10.2	(4.7 - 18.9)	6.2	(1.4 - 18.0)
Bets with friends/workmates	6.3	(5.4 - 7.2)	3.6	(1.8 - 6.3)	2.3	(0.7 - 5.5)	11.6	(3.4 - 27.6)
Text game or competition	0.3	(0.2 - 0.6)	0.4	(0.0 - 1.8)	0.3	(0.0 - 1.4)	-	-

Variables	Problem gambling level % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
Raffle/lottery (NZ and overseas)	12.4	(11.3 - 13.6)	4.8	(2.6 - 7.9)	1.1	(0.1 - 5.1)	0.6	(0.1 - 2.8)
Lotto	22.4	(21.0 - 23.9)	15.7	(11.4 - 20.8)	11.6	(6.3 - 19.1)	8.7	(2.6 - 20.8)
Keno	0.3	(0.2 - 0.5)	0.6	(0.2 - 1.6)	0.3	(0.0 - 1.6)	0.9	(0.1 - 4.1)
Bullseye	0.2	(0.1 - 0.4)	-	-	3.0	(0.7 - 8.6)	-	-
Instant Kiwi tickets or other scratch tickets	11.3	(10.2 - 12.6)	17.3	(12.1 - 23.6)	9.0	(3.1 - 20.0)	-	-
Housie or bingo	0.8	(0.6 - 1.1)	1.3	(0.5 - 2.7)	1.4	(0.5 - 3.5)	2.4	(0.6 - 6.8)
Horse/dog race betting	7.0	(6.1 - 8.0)	13.5	(8.2 - 20.7)	10.5	(4.8 - 19.6)	3.9	(1.2 - 9.6)
Sports betting	1.5	(1.0 - 2.1)	2.3	(1.0 - 4.7)	5.3	(1.4 - 13.9)	2.9	(0.6 - 9.4)
Casino tables games or EGMs (NZ and overseas)	4.5	(3.7 - 5.5)	9.7	(6.0 - 14.8)	15.4	(8.6 - 24.8)	19.8	(9.7 - 34.0)
Casino table games or EGMs (NZ)	3.4	(2.7 - 4.2)	8.4	(5.0 - 13.2)	14.0	(7.5 - 23.4)	15.0	(6.7 - 27.6)
Non-casino gaming machines	3.7	(3.0 - 4.5)	9.2	(5.7 - 13.8)	17.6	(10.9 - 26.3)	31.0	(16.2 - 49.7)
Short-term speculative investments	0.5	(0.2 - 0.8)	1.3	(0.3 - 3.8)	-	-	0.6	(0.1 - 2.6)
Overseas internet gambling for money/prizes	0.0	(0.0 - 0.1)	0.2	(0.0 - 1.1)	-	-	8.8	(1.5 - 27.8)
Other activities	0.8	(0.5 - 1.1)	0.1	(0.0 - 0.4)	0.7	(0.1 - 2.3)	-	-
No preference/enjoy all equally	8.1	(7.1 - 9.2)	5.3	(2.2 - 11.0)	6.7	(3.0 - 12.8)	1.0	(0.1 - 4.6)
No/none	17.7	(16.3 - 19.1)	8.0	(5.0 - 12.0)	4.6	(2.0 - 8.9)	1.7	(0.2 - 7.7)
Refused/Don't know	-	-	0.1	(0.0 - 0.3)	-	-	-	-
People with when participating in gambling activity most preferred								
Alone	49.9	(47.7 - 52.2)	47.5	(39.4 - 55.8)	36.7	(26.2 - 48.1)	36.7	(37.5 - 72.7)
With one person	23.3	(21.5 - 25.2)	21.9	(15.9 - 28.9)	38.4	(26.6 - 51.4)	38.4	(5.6 - 37.3)
With several/with a group	26.8	(24.8 - 28.8)	30.6	(23.1 - 39.0)	24.9	(15.8 - 36.2)	24.9	(13.9 - 44.6)
Any time when the amount gambled caused nervousness								
Yes	6.6	(5.7 - 7.5)	22.7	(17.4 - 28.6)	59.5	(48.6 - 69.7)	92.7	(79.8 - 98.3)
No	93.4	(92.5 - 94.3)	77.3	(71.4 - 82.6)	40.5	(30.3 - 51.4)	7.3	(1.7 - 20.2)
The amount of gambling in the family bought up in								
Not at all	39.6	(37.9 - 41.4)	29.5	(23.5 - 36.0)	32.6	(22.9 - 43.6)	31.0	(16.8 - 48.7)
A little	45.8	(44.0 - 47.7)	46.3	(39.5 - 53.3)	37.5	(26.9 - 49.1)	28.8	(15.0 - 46.6)
A moderate amount	9.9	(8.8 - 11.0)	16.0	(11.1 - 22.0)	19.9	(11.9 - 30.4)	13.8	(5.8 - 27.0)
A lot	4.5	(3.9 - 5.2)	8.2	(5.3 - 12.0)	10.0	(5.6 - 16.1)	26.4	(13.6 - 43.2)
Don't know	0.1	(0.1 - 0.3)	-	-	-	-	-	-
How much people in current household (excl. participant) gamble								
Not at all	38.6	(36.7 - 40.5)	36.8	(30.2 - 43.9)	32.5	(23.4 - 42.8)	37.9	(23.1 - 54.7)
A little	50.1	(48.1 - 52.0)	39.4	(32.6 - 46.6)	43.4	(32.6 - 54.6)	32.6	(17.5 - 51.1)
A moderate amount	3.4	(2.8 - 4.1)	13.5	(7.9 - 21.1)	10.1	(4.7 - 18.6)	17.3	(6.9 - 33.8)
A lot	0.7	(0.3 - 1.2)	1.7	(0.3 - 5.3)	6.6	(2.4 - 14.3)	9.3	(1.9 - 27.1)
Not applicable/live alone	7.0	(6.3 - 7.8)	7.4	(5.0 - 10.4)	5.8	(2.9 - 10.1)	2.9	(1.1 - 6.2)
Refused	0.0	(0.0 - 0.1)	-	-	-	-	-	-
Don't know	0.2	(0.1 - 0.6)	1.3	(0.2 - 4.6)	1.7	(0.3 - 6.2)	-	-
People participants think may have or have had a problem with gambling (in social network)								
Spouse/partner	1.8	(1.4 - 2.2)	4.4	(2.2 - 7.8)	12.2	(6.7 - 20.0)	32.2	(17.0 - 51.1)
Father	3.4	(2.8 - 4.1)	8.2	(5.1 - 12.3)	9.1	(4.7 - 15.5)	17.2	(6.3 - 35.0)
Mother	2.1	(1.7 - 2.6)	6.6	(3.7 - 10.9)	7.7	(3.7 - 14.2)	12.5	(5.0 - 25.0)
Brother	2.6	(2.1 - 3.1)	3.7	(2.0 - 6.3)	4.7	(2.2 - 8.8)	10.0	(4.4 - 18.9)

Variables	Problem gambling level % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
Sister	1.3	(1.0 - 1.7)	3.4	(1.7 - 6.0)	3.0	(1.3 - 6.2)	12.8	(5.5 - 24.6)
Son/daughter	1.3	(0.9 - 1.7)	-	-	1.0	(0.3 - 2.7)	4.9	(1.5 - 11.9)
Workmate	5.3	(4.5 - 6.2)	7.3	(4.4 - 11.3)	15.2	(8.8 - 23.9)	25.5	(12.4 - 43.4)
Boarder	0.4	(0.2 - 0.6)	0.4	(0.1 - 1.4)	1.9	(0.3 - 6.4)	-	-
Another close family member (1st mentioned)	8.7	(7.7 - 9.7)	10.7	(7.1 - 15.3)	19.5	(12.3 - 28.8)	30.5	(16.8 - 47.6)
Another close family member (2nd mentioned)	1.2	(0.9 - 1.6)	2.4	(1.2 - 4.5)	5.1	(1.8 - 11.7)	3.9	(2.2 - 14.5)
A friend or someone else in participant's life (1st mentioned)	13.8	(12.6 - 15.1)	21.1	(16.1 - 26.9)	25.9	(17.4 - 36.0)	45.4	(28.6 - 63)
A friend or someone else in participant's life (2nd mentioned)	1.5	(1.2 - 2.0)	2.5	(1.3 - 4.3)	4.4	(1.8 - 9.2)	15.3	(4.6 - 27.0)
None	66.8	(65.0 - 68.6)	54.0	(47.0 - 60.8)	33.5	(23.1 - 45.3)	13.6	(5.4 - 27.1)
Refused	0.1	(0.0 - 0.3)	0.2	(0.0 - 1.1)	-	-	-	-
Don't know	-	-	-	-	0.7	(0.1 - 3.4)	-	-
Length of time spent playing casino EGMs on an average day								
Up to 15 minutes	28.4	(22.1 - 35.3)	8.4	(3.0 - 18.3)	17.9	(4.8 - 42.4)	10.5	(1.0 - 42.0)
16 - 30 minutes	24.5	(18.5 - 31.4)	29.2	(15.2 - 47.1)	12.0	(3.4 - 29.2)	-	-
31 - 60 minutes	21.4	(16.5 - 26.9)	27.1	(15.5 - 41.6)	19.3	(7.3 - 38.3)	8.7	(2.5 - 21.5)
1 - 2 hours	16.3	(12.4 - 20.9)	10.0	(4.8 - 18.0)	29.7	(15.8 - 47.3)	20.9	(6.9 - 44.0)
2 - 3 hours	4.0	(2.1 - 7.0)	12.5	(5.8 - 23.0)	4.7	(1.4 - 12.0)	7.0	(1.1 - 23.8)
3+ hours	4.3	(2.5 - 7.0)	11.9	(5.6 - 21.7)	16.4	(6.0 - 33.7)	52.9	(28.7 - 76.0)
Don't know	1.0	(0.1 - 4.6)	0.9	(0.1 - 4.4)	-	-	-	-
Length of time spent playing pub EGMs on an average day								
Up to 15 minutes	41.3	(35.8 - 46.9)	24.1	(12.9 - 39)	22.9	(11.3 - 39.1)	20.9	(5.2 - 49.8)
16 - 30 minutes	32.0	(26.6 - 37.9)	23.9	(13.2 - 37.9)	18.6	(9.8 - 30.8)	20.9	(4.9 - 50.9)
31 - 60 minutes	17.5	(14.1 - 21.5)	33.5	(22.7 - 45.8)	21.3	(11.9 - 33.9)	16.1	(3.6 - 41.9)
1 - 2 hours	6.9	(4.5 - 9.9)	12.3	(6.9 - 20.0)	27.6	(17 - 40.6)	14.6	(5.5 - 29.9)
2 - 3 hours	1.2	(0.4 - 2.7)	5.4	(2.0 - 12.0)	6.9	(2.1 - 16.8)	12.8	(3.5 - 31.3)
3+ hours	0.4	(0.2 - 1.0)	-	-	2.6	(0.4 - 9.2)	14.7	(5.7 - 29.8)
Don't know	0.7	(0.1 - 3.2)	0.7	(0.1 - 3.1)	-	-	-	-
Length of time spent playing club EGMs on an average day								
Up to 15 minutes	30.0	(23 - 37.7)	7.8	(2.7 - 17.3)	27.9	(11.4 - 51.1)	6.5	(0.8 - 24.9)
16 - 30 minutes	36.7	(30.0 - 43.8)	35.5	(20.0 - 53.8)	28.9	(12.9 - 50.6)	16.7	(3.4 - 45.3)
31 - 60 minutes	24.5	(18.5 - 31.3)	36.1	(21.7 - 52.6)	8.1	(2.4 - 19.6)	36.3	(6.0 - 80.6)
1 - 2 hours	5.1	(2.9 - 8.3)	17.3	(8.1 - 3.0)	27.7	(10.0 - 53.7)	-	-
2 - 3 hours	2.2	(0.9 - 4.5)	1.7	(0.3 - 5.9)	7.3	(1.4 - 23.0)	25.5	(4.3 - 65.3)
3+ hours	0.2	(0.0 - 1.0)	-	-	-	-	15.0	(2.4 - 45.2)
Don't know	1.4	(0.2 - 6.6)	1.5	(0.2 - 7.2)	-	-	-	-

Table 25 and Table 26 respectively provide the results of univariate and multivariate logistic regression analyses undertaken to identify other gambling-related risk factors for current problem gambling and combined problem and moderate-risk gambling.

Age first gambled is not a significant predictor in either of the relevant univariate analyses. Most of the other variables considered in the univariate analyses were significant in relation to problem gambling and/or combined problem and moderate-risk gambling. Of note are the very high odds ratios for the largest amount ever lost in a day of gambling, having felt nervous about the amount gambled and long sessions of EGM participation in an average day, particularly in pubs. Over one in four people (43.9%) who reported typically playing pub

EGMs for more than three hours was a problem gambler and over two-thirds (69.1%) were a problem or moderate-risk gambler.

These risk factors also emerged in the multivariate analyses. For problem gambling, the largest amount lost in a day gambling, having felt nervous about the amount gambled, and spouse and sister believed to have or had a problem with gambling remained significant predictors after the effects of all variables in the analysis had been taken into account. For combined problem and moderate-risk gambling, largest amount lost, having felt nervous and believing a spouse or partner has or had a problem also emerged. Believing a sister was or had been in this situation did not. Additional risk factors identified in this analysis were participating in most preferred activity with one person, believing one or more persons in one's network to have or had a problem, and reporting longer sessions of EGM participation in a casino or pub on an average day. As in the univariate analyses, the odds ratio for long pub EGM sessions was particularly high.

Table 25: Other gambling-related risk factors for problem and combined problem and moderate-risk groups - Univariate odds ratios

Variables	Problem gambling level - Univariate odds ratios					
	Problem gambler			Combined problem/moderate-risk gambler		
	Preval %	Odds ratio (95% CI)	p-value	Preval %	Odds ratio (95% CI)	p-value
Age when first gambled						
Less than 10 years old	1.2	1.00		3.4	1.00	
10 - 14 years	1.3	1.09		4.7	1.40	(0.60 - 3.25)
15 to 19 years	0.8	0.65		3.0	0.88	(0.41 - 1.89)
20 years or older	0.7	0.60	0.59	2.6	0.75	(0.36 - 1.57)
Who mainly gambling with when first started						
Alone	0.7	1.00		1.6	1.00	
With a friend - who didn't live with you	1.0	1.52	(0.63 - 3.66)	4.7	3.10	(1.92 - 5.02)
With a friend - who was a flatmate	0.8	1.29	(0.28 - 6.00)	1.9	1.23	(0.48 - 3.17)
With a male relative	0.8	1.25	(0.39 - 3.98)	3.2	2.03	(1.09 - 3.79)
With a female relative	0.8	1.20	(0.49 - 2.95)	3.9	2.54	(1.47 - 4.38)
Spouse/partner	1.0	1.61	(0.20 - 12.79)	1.0	0.65	(0.09 - 4.91)
Workmates/work syndicate/company sweepstake/office staff	2.3	3.60	(0.46 - 28.36)	2.3	1.46	(0.20 - 10.87)
Family/family members	1.1	1.67	(0.31 - 9.11)	0.94	8.5	5.78 (1.79 - 18.69)
Largest amount of money ever lost in one day of gambling (\$)						
Less than 10 [#]	0.03	1.00		0.3	1.00	
11 - 20	0.1	3.86	(0.27 - 54.35)	0.8	2.43	(0.86 - 6.85)
21 - 50	0.2	8.43	(0.64 - 111.31)	1.6	4.86	(1.72 - 13.74)
51 - 100	0.4	13.44	(1.43 - 126.29)	4.6	14.62	(5.07 - 42.13)
More than 100	7.4	305.03	(41.24 - >999.00)	<0.0001	20.4	78.27 (31.32 - 195.62)
Largest amount of money ever won in one day of gambling (\$)						
0	0.4	1.00		1.0	1.00	
1 - 20	0.04	0.11	(0.01 - 1.82)	0.7	0.70	(0.19 - 2.64)
21 - 50	0.03	0.08	(0.01 - 1.24)	0.7	0.69	(0.17 - 2.73)
51 - 100	0.5	1.35	(0.12 - 14.71)	1.4	1.40	(0.39 - 4.95)
101 - 500	0.5	1.25	(0.13 - 11.95)	3.5	3.73	(1.23 - 11.25)
501 - 1,000	1.4	3.91	(0.50 - 30.40)	5.3	5.70	(2.01 - 16.16)
More than 1,000	4.1	11.44	(1.51 - 86.93)	<0.0001	11.3	13.02 (4.61 - 36.81)

Variables	Problem gambling level - Univariate odds ratios						
	Problem gambler			Combined problem/moderate-risk gambler			
	Preval %	Odds ratio (95% CI)	p-value	Preval %	Odds ratio (95% CI)	p-value	
People with when participating in gambling activity most preferred							
Alone	0.8	1.00		2.3	1.00		
With one person	0.8	1.03	(0.34 - 3.15)	5.0	2.23	(1.37 - 3.61)	
With several/with a group	1.1	1.42	(0.65 - 3.10)	0.68	3.5	1.51 (0.97 - 2.36)	0.003
Any time when the amount gambled caused nervousness							
No	0.1	1.00		1.0	1.00		
Yes	8.1	133.10	(36.24 - 488.89)	<0.0001	21.8	26.56 (17.71 - 39.84)	<0.0001
The amount of gambling in the family bought up in							
Not at all	0.7	1.00		2.5	1.00		
A little	0.5	0.79	(0.32 - 1.99)	2.3	0.93	(0.58 - 1.48)	
A moderate amount	1.1	1.66	(0.61 - 4.47)	5.2	2.16	(1.24 - 3.75)	
A lot	4.3	6.77	(2.72 - 16.84)	<0.0001	8.6	3.68 (2.15 - 6.28)	<0.0001
How much people in current household (excluding the participant) gamble							
Not at all	0.8	1.00		2.7	1.00		
A little	0.5	0.67	(0.30 - 1.52)	2.5	0.93	(0.60 - 1.43)	
A moderate amount	3.3	4.21	(1.59 - 11.16)	8.5	3.40	(1.79 - 6.46)	
A lot	8.3	11.06	(2.40 - 50.94)	23.9	11.51	(4.31 - 30.75)	
Not applicable/live alone	0.3	0.41	(0.16 - 1.08)	<0.0001	2.1	0.80 (0.43 - 1.49)	<0.0001
People participants think may have or have had a problem with gambling (in social network)							
Spouse/partner							
No	0.6	1.00		2.5	1.00		
Yes	10.8	21.09	(9.38 - 47.38)	<0.0001	21.6	10.68 (6.25 - 18.26)	<0.0001
Father							
No	0.7	1.00		2.8	1.00		
Yes	3.6	5.22	(1.90 - 14.31)	0.001	8.6	3.33 (1.86 - 5.97)	<0.0001
Mother							
No	0.7	1.00		2.8	1.00		
Yes	3.9	5.50	(2.19 - 13.80)	0.0003	10.4	4.03 (2.22 - 7.32)	<0.0001
Brother							
No	0.8	1.00		2.9	1.00		
Yes	3.0	3.99	(1.74 - 9.12)	0.001	6.7	2.43 (1.38 - 4.26)	0.002
Sister							
No	0.7	1.00		2.9	1.00		
Yes	6.8	9.99	(4.18 - 23.88)	<0.0001	11.1	4.24 (2.25 - 8.00)	<0.0001
Son/daughter							
No	0.8	1.00		3.0	1.00		
Yes	3.3	4.29	(1.38 - 13.38)	0.01	5.1	1.75 (0.74 - 4.14)	0.2
Workmate							
No	0.7	1.00		2.6	1.00		
Yes	3.6	5.74	(2.51 - 13.13)	<0.0001	9.3	3.86 (2.34 - 6.36)	<0.0001
Boarder							
No	0.8	1.00		3.0	1.00		
Yes	-	-		-	10.5	3.83 (0.77 - 19.16)	0.1
Another close family member							
No	0.6	1.00		2.5	1.00		
Yes	2.7	4.42	(2.14 - 9.14)	<0.0001	7.3	3.03 (1.96 - 4.70)	<0.0001
A friend or someone else in your life							
No	0.5	1.00		2.4	1.00		
Yes	2.5	4.88	(2.44 - 9.78)	<0.0001	6.3	2.74 (1.84 - 4.09)	<0.0001

Variables	Problem gambling level - Univariate odds ratios						
	Problem gambler			Combined problem/moderate-risk gambler			
	Preval %	Odds ratio (95% CI)	p-value	Preval %	Odds ratio (95% CI)	p-value	
None							
	No	2.0	1.00		6.1	1.00	
	Yes	0.2	0.08 (0.03 - 0.20)	<0.0001	1.3	0.20 (0.13 - 0.31)	<0.0001
Length of time spent playing gaming machines in a casino on an average day							
None		0.6	1.00		2.0		
Up to 30 minutes [#]		0.6	0.92 (0.12 - 6.90)		6.3	3.33 (1.44 - 7.66)	
31 - 60 minutes		1.0	1.67 (0.54 - 5.17)		9.1	4.97 (2.12 - 11.65)	
1 - 2 hours		3.2	5.29 (1.70 - 16.47)		19.3	11.86 (6.29 - 22.33)	
2 - 3 hours		3.3	5.47 (1.03 - 29.17)		11.2	6.26 (2.25 - 17.38)	
3+ hours		17.3	33.82 (13.41 - 85.32)	<0.0001	36.5	28.42 (13.53 - 59.70)	<0.0001
Length of time spent playing gaming machines in a pub on an average day							
None		0.4	1.00		1.2	1.00	
Up to 15 minutes		1.8	4.26 (1.12 - 16.18)		7.9	6.84 (3.37 - 13.89)	
16 - 30 minutes		2.2	5.33 (1.33 - 21.36)		8.4	7.31 (3.74 - 14.25)	
31 - 60 minutes		2.4	5.97 (1.52 - 23.50)		12.8	11.71 (6.29 - 21.78)	
1 - 2 hours		4.5	11.23 (4.25 - 29.67)		31.7	37.10 (20.48 - 67.23)	
2 - 3 hours		14.5	40.60 (10.80 - 152.70)		39.6	52.33 (17.91 - 152.92)	
3+ hours		43.9	187.21 (53.86 - 650.65)	<0.0001	69.1	178.50 (53.32 - 597.54)	<0.0001
Length of time spent playing gaming machines in a club on an average day							
None		0.7	1.00		2.4	1.00	
Up to 15 minutes		0.6	0.89 (0.16 - 4.81)		8.9	3.92 (1.65 - 9.33)	
16 - 30 minutes		1.2	1.70 (0.47 - 6.11)		7.6	3.28 (1.57 - 6.85)	
31 - 60 minutes		3.6	5.35 (1.12 - 25.66)		6.1	2.61 (0.93 - 7.33)	
More than one hour, and up to more than three hours [†]		8.4	13.15 (4.23 - 40.92)	0.0001	31.4	18.32 (8.33 - 40.31)	<0.0001

[#] Collapsed category (necessary for logistic regression)

[†] Collapsed data for 'more than two hours and up to three hours', and 'more than three hours'

Table 26: Other gambling-related risk factors for problem and combined problem and moderate-risk groups - Multiple logistic regression results

Variables	Problem gambling level - Multivariate odds ratios				
	Problem gambler		Combined problem/moderate-risk gambler		
	Odds ratio (95% CI)	p-value	Odds ratio (95% CI)	p-value	
Largest amount of money ever lost in one day of gambling (\$)					
Less than 10 [#]		1.00		1.00	
11 - 20		2.68 (0.15 - 47.39)		2.16 (0.75 - 6.25)	
21 - 50		3.06 (0.22 - 42.56)		2.24 (0.75 - 6.65)	
51 - 100		3.03 (0.29 - 31.95)		3.80 (1.20 - 12.03)	
More than 100		26.20 (3.06 - 224.57)	<0.0001	10.15 (3.59 - 28.68)	<0.0001
People with when participating in gambling activity most preferred					
Alone				1.00	
With one person				1.89 (1.11 - 3.22)	
With several/with a group				0.72 (0.41 - 1.26)	0.01
Any time when the amount gambled caused nervousness					
No		1.00		1.00	
Yes		41.22 (9.81 - 173.22)	<0.0001	9.13 (5.30 - 15.73)	<0.0001
People participants think may have or have had a problem with gambling (in social network)					
Spouse/partner	No	1.00		1.00	
	Yes	5.52 (2.45 - 12.44)	<0.0001	2.87 (1.43 - 5.74)	0.003
Sister	No	1.00			
	Yes	4.37 (1.36 - 14.06)	<0.0001		
None	No			1.00	
	Yes			0.52 (0.32 - 0.85)	0.009

Variables	Problem gambling level - Multivariate odds ratios			
	Problem gambler		Combined problem/moderate-risk gambler	
	Odds ratio (95% CI)	p-value	Odds ratio (95% CI)	p-value
Length of time spent playing gaming machines in a casino on an average day				
None			1.00	
Up to 30 minutes [#]			2.49	(1.14 - 5.40)
31 - 60 minutes			1.52	(0.68 - 3.38)
1 - 2 hours			1.96	(0.87 - 4.45)
2 - 3 hours			1.21	(0.29 - 5.10)
3+ hours			3.84	(1.63 - 9.07)
				0.02
Length of time spent playing gaming machines in a pub on an average day				
None			1.00	
Up to 15 minutes			3.73	(1.95 - 7.14)
16 - 30 minutes			3.05	(1.44 - 6.46)
31 - 60 minutes			3.90	(1.93 - 7.89)
1 - 2 hours			10.77	(4.96 - 23.39)
2 - 3 hours			4.79	(1.66 - 13.78)
3+ hours			28.05	(5.94 - 132.42)
				<0.0001

[#] Collapsed category (necessary for logistic regression)

3.1.6 Prevalence and reasons for gambling, beliefs about gambling and methods used to moderate gambling

Reasons for gambling

Reasons given for taking part in different gambling activities were considered for problem gamblers, moderate-risk gamblers, low-risk gamblers and non-problem gamblers (data not shown).

With regard to EGM participation, irrespective of their location (casino, pub and club), the majority of participants in all categories (problem, moderate-risk, low-risk and non-problem) said their main reason was to win money, followed by as entertainment and excitement or challenge. These and other reasons given for EGM participation did not vary across the settings. There were, however, some differences between groups within particular venue types.

In pubs, low-risk gamblers (82.7%, 71.8-90.6) more often said they played EGMs to win prizes or money than non-problem gamblers (64.0%, 58.3-69.5). In this setting, problem gamblers (23.5%, 9.7-43.8) more often than non-problem gamblers (2.6%, 1.2-5.0) said they participated because it was an interest or hobby. In clubs, the majority of problem gamblers (88.8%, 66.0-97.5) said they took part for excitement or because it was a challenge, more than was the case for non-problem (33.7%, 26.9-41.0) and low-risk (33.2%, 19.3-49.7) gamblers. Over a third of problem gamblers (36.7%, 8.9-74.7) reported club EGM participation was an interest or hobby compared to low-risk gamblers (1.8%, 0.2-8.3).

There were relatively few differences between problem, moderate-risk, low-risk and non-problem gamblers with respect to reasons for participation in other gambling activities. Moderate-risk gamblers (35.9%, 11.7-67.8) more often said they took part in text games or competitions than non-problem (1.6%, 0.5-3.9) or low-risk (1.9%, 0.2-9.1) gamblers because it was an interest or hobby. Moderate-risk gamblers (10.2%, 2.4-27.7) also more often said they participated in this activity than non-problem gamblers (0.3%, 0.0-1.6) to be with people or get out of the house.

Problem (15.3%, 5.4-32.2) and moderate-risk (9.0%, 3.3-19.1) gamblers reported that they purchased Instant Kiwi or other scratch tickets because it was an interest or hobby, compared

to only 1.8% (1.2-2.6) of non-problem gamblers. Over a fifth (21.3%, 18.9-23.8) of non-problem gamblers said they bought scratch tickets as a gift for another person, more than was the case for moderate-risk gamblers (9.3%, 4.4-16.9).

For casino table games, only 2.0% (0.2-9.8) of moderate-risk gamblers said they participated mainly to be with people or get out of the house, compared to 23.3% (14.1-35.0) of non-problem and 34.6% (13.8-61.5) or low-risk gamblers.

Perceptions of winning or losing

Non-problem, low-risk, moderate-risk and problem gamblers were asked, for each gambling activity, whether they considered that they won money overall, broke even or lost overall. Problem gamblers (69.1%, 36.8-91.0) more often than low-risk gamblers (16.7%, 8.1-29.5) indicated that they lost money overall when they played cards for money. Problem gamblers (91.0%, 75.8-97.8) also more often reported losing money on casino EGMs than non-problem (63.8%, 56.9-70.3) and low-risk (51.5% (36.5-66.3) gamblers. They also reported losing more often than non-problem gamblers when they played pub EGMs (77.8%, 58.1-90.9 and 49.8%, 44.1-55.6 respectively) and less often winning overall (4.7%, 0.8-15.6) when they made bets with friends or workmates than did moderate-risk gamblers (39.2%, 22.6-58.0). In contrast, when problem gamblers played poker with friends or family in a private residence, only 5.4% (0.8-19.8) said they lost money overall compared to 44.9% (33.1-57.2) of non-problem gamblers.

Use of special systems or skills to improve chances of winning

Participants in each of the four gambling categories were asked whether or not they used special systems or skills to improve their chances of winning when participating in each gambling activity. There were no differences between problem, moderate-risk, low-risk and non-problem gamblers in this regard (see Appendix 3).

Methods used to stop gambling too much

Participants in each category were also asked about the particular methods they used to stop gambling too much (Table 27). They were asked about these methods in relation to their gambling overall, not with regard to each specific activity. Problem (29.4%) and moderate-risk (15.7%) gamblers more often than non-problem gamblers (6.2%) said they avoided places that have betting or gambling as an attraction. Moderate-risk gamblers also reported using three other methods more often than was the case for non-problem gamblers. Low-risk gamblers used two of these methods more often than non-problem gamblers. The three methods used more frequently by moderate-risk gamblers included separating money for betting and stopping when it is used up (27.6%), leaving ATM and credit cards at home (19.4%) and setting a time limit (19.2%). The corresponding percentages for non-problem gamblers are 13.2%, 2.8% and 4.7%. Low-risk gamblers more often used the last two methods (left ATM and credit cards at home (14.1%) and set a time limit (12.4%)).

Table 27: Use of methods to stop gambling too much by problem gambling level

Methods used to stop gambling too much	Problem gambling level % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
Setting a dollar figure before leaving home/set a limit	69.4	(66.2 - 72.6)	68.4	(59.8 - 76.1)	69.2	(56.1 - 80.2)	60.7	(41.2 - 77.9)
Getting someone you trust to manage the money	1.7	(0.9 - 2.9)	5.2	(2.5 - 9.5)	4.7	(1.7 - 10.5)	7.0	(2.3 - 16.3)
Separating money for betting from other money, and stopping when it is used up	13.2	(10.9 - 15.8)	21.3	(14.8 - 29.1)	27.6	(16.8 - 41.0)	20.0	(8.7 - 36.7)
Leaving ATM and credit cards at home	2.8	(1.9 - 4.1)	14.1	(7.6 - 23.2)	19.4	(11.0 - 30.6)	9.8	(3.6 - 20.9)
Setting a time limit	4.7	(3.3 - 6.4)	12.4	(7.3 - 19.5)	19.2	(8.3 - 35.5)	8.6	(3.4 - 17.8)
Avoiding places that have betting or gambling as an attraction	6.2	(4.8 - 8.0)	11.0	(6.8 - 16.8)	15.7	(8.5 - 25.7)	29.4	(13.9 - 49.8)
Don't do it/don't gamble/against gambling/religious reasons/waste of time	4.9	(3.6 - 6.5)	2.0	(0.8 - 4.1)	1.2	(0.2 - 4.1)	-	-
Self-control/self-discipline/common sense/ check bank account/ know when to stop/know when to walk away	4.1	(2.8 - 5.8)	3.1	(1.2 - 7.0)	4.6	(1.4 - 11.3)	7.7	(1.3 - 25.4)
Waste of money/too mean, miserly to waste money	2.8	(1.8 - 4.1)	0.9	(0.1 - 4.2)	-	-	-	-
Do other things/busy doing other things	1.5	(0.8 - 2.7)	2.3	(0.6 - 6.5)	4.1	(0.8 - 13.1)	2.4	(0.4 - 8.4)
Only buy if the prize is big	0.8	(0.3 - 2.0)	2.1	(0.7 - 5.0)	-	-	-	-
Can't afford it/don't buy if I don't have the money/only if I can afford it	5.5	(3.9 - 7.4)	3.1	(1.2 - 6.5)	0.9	(0.1 - 4.0)	0.3	(0.0 - 1.3)
Knowing I'll lose/chances of winning are low	2.2	(1.4 - 3.4)	2.2	(0.6 - 5.8)	-	-	-	-
Aware of gambling addiction/problems	1.3	(0.7 - 2.2)	-	-	-	-	0.7	(0.1 - 3.5)
Buy to support charity/good cause	0.4	(0.1 - 1.0)	0.3	(0.0 - 1.2)	-	-	-	-
Prioritise my spending/household budgeting/rather spend on other things/think of family	3.6	(2.5 - 4.9)	1.5	(0.4 - 4.0)	5.0	(1.6 - 12.1)	5.8	(0.6 - 25)
Others	1.9	(1.2 - 3.0)	1.2	(0.3 - 3.3)	4.9	(1.2 - 13.7)	1.7	(0.2 - 7.8)

The number of different methods used to stop gambling by problem, moderate-risk, low-risk and non-problem gamblers is outlined in Table 28. Non-problem gamblers are more likely (73.2%) than people in the other three groups (respectively 22.2%, 36.2% and 46.3%) to report using none of the methods to stop gambling too much. Low-risk gamblers (46.3%) also more often said that they used none of these methods than problem gamblers (22.2%).

Problem (52.0%) gamblers and low-risk gamblers (35.6%) reported using one method more often than was the case for non-problem gamblers (21.0%). Problem (17.9%), moderate-risk (25.0%) and low-risk (11.9%) gamblers said they use two methods more than non-problem gamblers (4.6%). Moderate-risk (7.4%) and low-risk (4.3%) gamblers also used three methods more frequently than was the case for non-problem gamblers (1.0%). Only small percentages of problem gamblers used four (2.8%) or five (1.7%) methods. A small

percentage of moderate-risk gamblers (2.2%) also used four methods. However, these percentages are higher than is the case for non-problem gamblers (0.1%, 0%).

Table 28: Number of methods used to stop gambling too much by problem gambling level

Number of methods used	Problem gambling level % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
None	73.2	(71.7 - 75.2)	46.3	(39.2 - 53.5)	36.2	(25.8 - 47.7)	22.2	(11.1 - 37.4)
One	21.0	(19.2 - 22.4)	35.6	(28.9 - 42.8)	28.7	(20.1 - 38.8)	52.0	(34.8 - 68.9)
Two	4.6	(3.8 - 5.3)	11.9	(7.6 - 17.6)	25.0	(15.5 - 36.7)	17.9	(6.7 - 36.1)
Three	1.0	(0.6 - 1.5)	4.3	(2.5 - 7.1)	7.4	(3.5 - 13.4)	2.6	(0.7 - 7.3)
Four	0.1	(0.1 - 0.3)	1.0	(0.3 - 2.4)	2.2	(0.4 - 7.3)	2.8	(0.4 - 10.5)
Five	0.0	(0.0 - 0.2)	0.7	(0.1 - 2.3)	-	-	1.7	(0.3 - 5.6)
Six	0.0	(0.0 - 0.2)	0.2	(0.0 - 1.1)	0.5	(0.1 - 2.3)	0.7	(0.1 - 3.3)

Efficacy of methods used to stop gambling too much

Participant self-ratings of the efficacy of the most frequently used methods to stop gambling too much are provided in Table 29.

Table 29: Self-ratings of efficacy of methods used to stop gambling too much by problem gambling level

Self-ratings of efficacy of method used to stop gambling too much	Problem gambling level % (95% CI)							
	Non-problem gamblers		Low-risk gamblers		Moderate-risk gamblers		Problem gamblers	
Setting a dollar figure before leaving home/set a limit								
Effective	96.4	(93.6 - 98.2)	96.5	(91.8 - 98.9)	77.1	(62.9 - 87.7)	50.3	(23.2 - 77.3)
Neither effective or ineffective	1.6	(0.8 - 2.8)	3.5	(1.1 - 8.2)	9.2	(3.8 - 18.3)	13.1	(3.0 - 35.1)
Ineffective	2.0	(0.6 - 4.9)	-	-	13.7	(5.7 - 26.7)	36.6	(12.6 - 67.5)
Getting someone you trust to manage the money								
Effective	92.9	(80.3 - 98.3)	93.9	(73.2 - 99.4)	75.9	(24.7 - 98.0)	71.0	(24.3 - 96.3)
Neither effective or ineffective	4.8	(0.9 - 15.9)	6.1	(0.6 - 26.8)	24.1	(2.0 - 75.3)	16.2	(1.2 - 62.4)
Ineffective	2.3	(0.2 - 10.8)	-	-	-	-	12.8	(1.0 - 53.0)
Separating money for betting from other money, and stopping when it is used up								
Effective	95.0	(86.2 - 98.8)	95.0	(86.1 - 98.8)	89.3	(66.1 - 98.2)	69.9	(35.7 - 92.1)
Neither effective or ineffective	4.4	(0.9 - 13.6)	5.0	(1.2 - 13.9)	3.0	(0.3 - 13.8)	10.9	(2.1 - 32.0)
Ineffective	0.6	(0.1 - 2.2)	-	-	7.7	(0.7 - 32.5)	19.2	(2.6 - 57.8)
Leaving ATM and credit cards at home								
Effective	96.2	(87.5 - 99.3)	97.0	(86.1 - 99.7)	84.6	(53.9 - 97.5)	60.5	(20.4 - 91.3)
Neither effective or ineffective	3.8	(0.7 - 12.5)	-	-	4.1	(0.4 - 18.5)	22.7	(3.6 - 61.6)
Ineffective	-	-	3.0	(0.3 - 13.9)	11.2	(1.1 - 44.5)	16.8	(2.6 - 50.4)
Setting a time limit								
Effective	95.4	(87.5 - 98.8)	84.1	(68.2 - 93.9)	70.8	(32.3 - 94.0)	55.2	(18.2 - 87.9)
Neither effective or ineffective	1.9	(0.2 - 8.7)	12.1	(4.1 - 26.6)	-	-	44.8	(12.1 - 81.8)
Ineffective	2.7	(0.5 - 9.1)	3.8	(0.7 - 12.9)	29.2	(6.0 - 67.7)	-	-
Avoiding places that have betting or gambling as an attraction								
Effective	94.9	(88.7 - 98.2)	77.9	(52.5 - 93.1)	87.3	(62.5 - 97.7)	65.2	(19.3 - 94.9)
Neither effective or ineffective	3.1	(0.8 - 8.4)	22.1	(6.9 - 47.5)	-	-	29.7	(3.0 - 80.3)
Ineffective	2.0	(0.4 - 6.7)	-	-	12.7	(2.3 - 37.5)	5.1	(0.8 - 18.2)

While over half of problem gamblers and three-quarters of moderate-risk gamblers indicated that setting a dollar figure or limit before leaving home was an effective measure, more problem gamblers (36.6%) and moderate-risk gamblers (13.7%) than non-problem gamblers (2.0%) said it was ineffective. More problem gamblers (19.2%) than non-problem gamblers (0.6%) also reported that separating money for betting and stopping when it is used up was ineffective. Somewhat less than half of problem gamblers (44.8%) said setting a time limit

was neither effective nor ineffective, more than was the case for non-problem gamblers (1.9%).

3.1.7 Prevalence and recent gambling behaviour change

Changes in gambling behaviour

Participants were asked if their gambling behaviour had changed during the past 12 months. Data for the four gambling groups are provided in Table 30.

The non-problem and low-risk groups are the most stable, with 77.3% of people in the former group and 58.6% in the latter saying that overall their gambling had stayed much the same. The corresponding figures for moderate-risk and problem gamblers are 38.0% and 28.3% respectively. In all groups, decreases (range 18.1%-57.9%) outnumbered increases (range 4.6%-22.7%). For problem gamblers, over half (57.9%) reported that their gambling had decreased during the past 12 months. Over a third (39.9%) of moderate-risk gamblers also reported decreased participation.

Larger proportions of problem (13.8%), moderate-risk (22.7%) and low-risk (12.7%) gamblers than non-problem gamblers (4.6%) indicated that their gambling had increased.

Table 30: Gambling behaviour change during the past 12 months by problem gambling level

Gambling behaviour change	Problem gambling level % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
Increased	4.6	(3.8 - 5.5)	12.7	(8.1 - 18.6)	22.7	(14.9 - 32.2)	13.8	(6.2 - 25.9)
Stayed much the same	77.3	(75.6 - 78.9)	58.6	(51.8 - 65.1)	38.0	(27.3 - 49.7)	28.3	(15.4 - 44.6)
Decreased	18.1	(16.6 - 19.6)	28.7	(23.1 - 34.9)	39.9	(28.9 - 50.4)	57.9	(40.8 - 73.6)
Don't know	0.0	(0.0 - 0.2)	-	-	-	-	-	-

Reasons for changes in gambling behaviour

Participants who were of the view that their gambling had increased during the past year were asked why that was the case. Similarly, those who considered that their gambling had decreased were asked why. Lists of possible reasons were presented and participants were also invited to provide any additional reasons. In both instances more than one reason could be given.

More problem gamblers (69.3%, 33.0-92.7) than non-problem gamblers (22.4%, 15.9-30.1) said they increased their gambling because they had more money to spend now. The corresponding figures for moderate-risk and low-risk gamblers are 37.9% (19.6-59.3) and 43.4% (21.3-67.9) respectively. These percentages do not differ from those of the two previously mentioned groups. Nearly a quarter of moderate-risk gamblers (23.7%, 10.7-42.0) said they gambled more because they had more time available. The corresponding figures for problem, low-risk and non-problem gamblers are 12.2% (1.8-39.9), 1.7% (0.2-7.9) and 6.5% (3.6-10.6). Thus, more moderate-risk than non-problem or low-risk gamblers gave this reason. Over a third (34.6%, 17.5-55.5) of moderate-risk gamblers reported gambling more because they wanted to or felt like it, compared to 27.9% (6.0-64.9) of problem gamblers, 3.5% (0.9-9.6) of low-risk gamblers and 18.2% (11.6-26.5) of non-problem gamblers.

The most frequently mentioned reasons for decreased participation were priorities having changed (range 34.2%-65.7%), to save money or to spend money on other things (range

33.9%-54.1%) and having less money to spend (range 25.4%-45.9%). Nearly two-thirds (65.7%, 39.8-85.8) of problem gamblers said their priorities had changed, more than was the case for non-problem gamblers (34.2%, 29.9-37.7). There were no differences between the groups with respect to the two other most frequently mentioned reasons for reduced participation. The only other differences concerned having lost interest in activities previously engaged in. More moderate-risk (33.4%, 19.5-49.9), low-risk (28.5%, 18.0-41.2%) and non-problem (24.0%, 20.7-28.3) gamblers than problem gamblers (4.4%, 0.8-14.9) gave this reason.

3.1.8 Readiness to change

Table 31 provides mean readiness to change scores for low-risk gamblers, moderate-risk gamblers and problem gamblers. Readiness to change scores are low for low-risk gamblers and increase as risk status increases. They are highest for problem gamblers.

Table 31: Readiness to change by problem gambling level

Gambling Readiness to Change Scores [#]	Problem gambling level % (95% CI)					
	Low-risk gambler		Moderate-risk gambler		Problem gambler	
Mean	1.0	(0.6 - 1.4)	3.6	(2.8 - 4.5)	6.1	(4.8 - 7.4)
SD	2.9		3.4		3.4	

[#]Scores ranged from -7 to 13

3.1.9 Life events

Participants were shown a list of major life events and asked which of them they had experienced during the past 12 months. They could also add further events that were not listed. In Table 32 major life events are considered in relation to problem gambling level.

For the population as a whole, about a quarter (26.4%) of people reported that they had not experienced a major life event during the past 12 months. In contrast, only 6.7% of problem gamblers had not experienced a major life event. Relative to the population as a whole (9.0%) and the non-problem and at-risk groups (range 9.3%-11.4%), problem gamblers (27.0%) more often indicated that they had experienced five or more events. On average, problem gamblers reported experiencing 3.6 events compared with 1.8 for the population as a whole and 1.8 to 2.3 for the other three groups.

Relative to the general population and non-problem gamblers, problem gamblers more often reported a major change to their financial situation (57.1%), an increase in the number of arguments with someone close (38.1%), major injury or illness (28.5%), legal difficulties (22.4%), marriage or finding a relationship or partner (17.5%) and becoming a student or starting university (6.2%). Corresponding percentages for non-problem gamblers are 15.3%, 4.1%, 23.6%, 5.2%, 6.0% and 0.1%. The moderate-risk and low-risk groups also reported a few life events more often than non-problem gamblers including troubles with work, boss or superiors; major change in financial situation and increase in arguments with someone close. Relative to people in the non-problem (11.6%) and low-risk (14.1%) groups, problem gamblers (1.9%) less often reported experiencing an earthquake or natural disaster.

Table 32: Life events experienced in the past 12 months for the total population and by problem gambling level

Life events experienced	Total population % (95% CI)	Problem gambling level % (95% CI)			
		Non-problem gambler	Low-risk gambler	Moderate- risk gambler	Problem gambler
Total number of life events					
None	26.4 (25.1 - 27.7)	26.2 (24.7 - 27.8)	20.4 (15.1 - 26.7)	20.5 (13.1 - 29.7)	6.7 (1.6 - 18.8)
1	26.0 (24.7 - 27.4)	26.2 (24.6 - 27.8)	19.3 (14.3 - 25.2)	21.8 (13.9 - 31.5)	17.0 (7.2 - 32.5)
2	18.5 (17.4 - 19.7)	18.6 (17.2 - 19.9)	18.5 (13.4 - 24.7)	19.4 (11.9 - 29.1)	20.9 (8.7 - 39.4)
3	12.0 (11.0 - 13.0)	12.1 (10.9 - 13.4)	12.4 (8.5 - 17.4)	19.9 (11.1 - 31.8)	12.3 (5.3 - 23.8)
4	8.0 (7.2 - 8.9)	7.5 (6.6 - 8.5)	17.9 (11.9 - 25.4)	8.5 (3.8 - 16.2)	16.0 (6.2 - 32.3)
5+	9.6 (8.6 - 10.7)	9.3 (8.3 - 10.4)	11.5 (7.3 - 15.7)	10.0 (4.9 - 15.1)	27.0 (11.6 - 42.4)
Refused	0.0 (0.0 - 0.1)	0.0 (0 - 0.1)	- -	- -	- -
<i>Mean</i>	<i>1.8</i> (1.8 - 1.9)	<i>1.8</i> (1.8 - 1.9)	<i>2.3</i> (2.1 - 2.6)	<i>2.2</i> (1.9 - 2.6)	<i>3.6</i> (2.6 - 4.6)
Type of life event					
Death of someone close	30.7 (29.3 - 32.2)	30.9 (29.2 - 32.6)	36.9 (30.3 - 43.9)	30.0 (20.4 - 41.3)	44.0 (27.8 - 61.1)
Divorce/separation	3.1 (2.6 - 3.7)	2.9 (2.4 - 3.6)	4.3 (1.9 - 8.3)	3.8 (1.5 - 8.1)	6.5 (2.4 - 13.9)
Legal difficulties	5.4 (4.7 - 6.1)	5.2 (4.4 - 6.0)	7.9 (4.9 - 11.8)	10.3 (4.9 - 18.6)	22.4 (10.5 - 39.2)
Major injury or illness (themselves or someone close)	22.7 (21.5 - 24.0)	23.6 (22.1 - 25.1)	20.9 (15.3 - 27.4)	22.1 (14.4 - 31.7)	28.5 (15.7 - 44.7)
Marriage or finding a relationship or partner	6.4 (5.7 - 7.3)	6.0 (5.2 - 6.9)	8.7 (5.1 - 13.6)	6.7 (3.1 - 12.5)	17.5 (7.4 - 33.2)
Troubles with work, boss or superiors	10.1 (9.1 - 11.0)	10.2 (9.1 - 11.3)	19.4 (14.0 - 25.8)	22.3 (13.2 - 34.0)	20.3 (8.5 - 38.3)
Retirement	2.2 (1.9 - 2.6)	2.5 (2.0 - 3.0)	0.7 (0.2 - 1.7)	0.5 (0.1 - 2.2)	2.6 (0.3 - 12.0)
Pregnancy or new family additions	13.3 (12.3 - 14.3)	13.1 (11.9 - 14.3)	14.6 (10.3 - 19.8)	17.0 (10.4 - 25.7)	22.5 (10.9 - 38.7)
Major change to financial situation	15.7 (14.6 - 16.9)	15.3 (14.0 - 16.6)	21.4 (16.2 - 27.4)	28.5 (19.6 - 38.9)	57.1 (39.6 - 73.3)
Taking on a mortgage, loan or making a big purchase	11.0 (10.0 - 12.0)	11.8 (10.6 - 13.1)	12.8 (7.9 - 19.4)	5.8 (2.9 - 10.3)	21.1 (9.3 - 38.4)
Increase in number of arguments with someone close	4.7 (4.1 - 5.3)	4.1 (3.4 - 4.8)	10.5 (6.8 - 15.3)	12.6 (7.1 - 20.2)	38.1 (22.2 - 56.3)
Moving house	20.8 (19.5 - 22.1)	20.4 (18.9 - 22.0)	30.1 (23.2 - 37.7)	25.8 (17.3 - 36.0)	27.6 (13.0 - 47.2)
Moving to a new town/city	7.4 (6.6 - 8.4)	7.0 (6.0 - 8.1)	10.9 (6.1 - 17.7)	6.7 (2.7 - 13.8)	7.6 (1.1 - 27.2)
Major change in living or work conditions	17.7 (16.5 - 19.0)	18.0 (16.6 - 19.5)	18.1 (13.2 - 23.8)	17.3 (9.3 - 28.4)	28.7 (14.9 - 46.5)
Earthquake or natural disaster	11.3 (10.4 - 12.3)	11.6 (10.5 - 12.7)	14.1 (8.6 - 21.4)	10.0 (5.3 - 16.9)	1.9 (0.3 - 6.6)
Children/family moving away/ children leaving home	0.4 (0.2 - 0.7)	0.4 (0.2 - 0.9)	0.7 (0.1 - 2.5)	- -	0.6 (0.1 - 2.8)
Becoming a student/starting university/studying	0.2 (0.1 - 0.4)	0.1 (0.0 - 0.3)	1.4 (0.4 - 4.0)	- -	6.2 (0.6 - 26.7)
Other significant life events	1.1 (0.8 - 1.5)	1.2 (0.8 - 1.7)	1.3 (0.4 - 3.0)	3.2 (0.6 - 10.2)	4.3 (1.3 - 10.4)

For each major life event reported, participants were asked if that particular event had triggered an increase in gambling during the past 12 months. Responses to this question are categorised in Table 33 by problem gambling level. Estimates are also provided for the whole population.

For the general adult population, a major change in financial situation (24.6%) was mentioned most often, followed by troubles with work, boss or superiors (15.8%), the death of someone close (12.1%), a major injury or illness to self or someone close (10.2%), an increase in the number of arguments with someone close (8.8%), an earthquake or other natural disaster (7.4%), and moving to a new town or city (5.4%). Other events were mentioned by fewer than five percent of people. While larger percentages of problem gamblers and people in some of the risk groups appear to report some of these triggering events, the number of respondents is low and the confidence intervals are wide.

Table 33: Life events which triggered an increase in gambling during the past 12 months for the total population and by problem gambling level

Life event triggering increased gambling	Total population % (95% CI)	Problem gambling level % (95% CI)			
		Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Death of someone close	12.1 (6.1 - 21.1)	8.2 (2.0 - 22.3)	6.0 (0.9 - 21.1)	27.8 (8.1 - 58.4)	16.9 (3.7 - 44.4)
Divorce/separation	0.9 (0.1 - 4.0)	-	-	5.4 (0.5 - 24.0)	-
Legal difficulties	0.4 (0.0 - 2.0)	-	-	-	3.1 (0.3 - 14.9)
Major injury or illness to either themselves or someone close	10.2 (3.8 - 21.3)	17.2 (6.1 - 36.1)	3.8 (0.3 - 18.2)	1.2 (0.1 - 5.5)	-
Marriage or finding a relationship partner	3.2 (0.6 - 10.4)	2.1 (0.2 - 9.7)	12.4 (1.1 - 49.7)	-	-
Troubles with work, boss or superiors	15.8 (6.9 - 29.6)	14.9 (4.0 - 36.0)	12.1 (1.9 - 38.3)	32.6 (5.8 - 75.0)	4.1 (0.4 - 18.8)
Retirement	-	-	-	-	-
Pregnancy or new family additions	1.2 (0.3 - 3.4)	1.0 (0.1 - 4.5)	-	-	5.4 (0.9 - 18.0)
Major change to financial situation	24.6 (14.3 - 37.7)	22.5 (10.8 - 38.9)	32.7 (3.8 - 81.8)	14.8 (2.7 - 42.7)	34.5 (11.2 - 66.1)
Taking on a mortgage, loan or making a big purchase	1.2 (0.2 - 3.9)	1.1 (0.1 - 5.2)	3.6 (0.3 - 17.1)	-	-
Increase in the number of arguments with someone close	8.8 (2.9 - 20.0)	8.3 (2.0 - 22.5)	0.0 (-)	-	32.0 (4.7 - 77.4)
Moving house	1.9 (0.6 - 5.0)	0.3 (0.0 - 1.6)	7.4 (1.1 - 25.9)	-	3.9 (0.4 - 18.3)
Moving to a new town/city	5.4 (1.4 - 14.6)	8.0 (1.6 - 24.1)	-	7.0 (0.7 - 30.5)	-
Major change in living or work conditions	3.3 (0.9 - 8.8)	1.4 (0.1 - 6.5)	15.0 (2.4 - 45.4)	-	-
Earthquake/natural disaster	7.4 (3.1 - 14.6)	8.9 (2.7 - 21.1)	4.7 (0.4 - 21.8)	11.2 (2.0 - 34.0)	-
Children/family moving away/children leaving home	-	-	-	-	-
Becoming a student/starting university/studying	-	-	-	-	-
Other significant life events	3.7 (0.9 - 10.7)	6.1 (1.2 - 18.9)	2.3 (0.2 - 11.3)	-	-

Participants were also asked which of the life events they had experienced had triggered a decrease in gambling during the past two months. The results are provided in Table 34.

As for events that triggered an increase in gambling, a major change to financial situation (22.8%) was mentioned most often. This was followed by pregnancy or new family additions (11.7%), a major change in living or work conditions (9.7%), the death of someone close (8.8%), a major injury or illness to either self or someone close (8.8%), taking on a mortgage, loan or making a big purchase (7.7%), earthquake or other natural disaster (6.7%), moving house (6.4%), and moving to a new town or city (5.5%). For the most part, these triggering events also appear to apply to people in the gambling groups with broadly similar frequencies. As with the information provided in Table 33, the few apparent differences should be treated with caution given the small number of participants involved and the wide confidence intervals.

Table 34: Life events which triggered a decrease in gambling during the past 12 months for the total population and by problem gambling level

Life event triggering decreased gambling	Total population % (95% CI)	Problem gambling level % (95% CI)			
		Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Death of someone close	8.8 (5.3 - 13.5)	6.8 (3.3 - 12.4)	12.3 (4.9 - 24.6)	22.6 (6.2 - 50.9)	4.5 (0.8 - 14.5)
Divorce/separation	1.0 (0.3 - 2.5)	1.1 (0.2 - 3.1)	-	1.6 (0.2 - 7.7)	1.6 (0.2 - 7.3)
Legal difficulties	1.4 (0.4 - 3.7)	1.0 (0.2 - 3.2)	-	-	12.2 (1.4 - 43.6)
Major injury or illness to either themselves or someone close	8.8 (5.9 - 12.6)	9.8 (6.1 - 14.7)	9.1 (4.2 - 16.9)	2.4 (0.4 - 9.1)	5.9 (0.6 - 25.6)
Marriage or finding a relationship partner	0.9 (0.4 - 1.9)	0.6 (0.2 - 1.6)	-	-	9.2 (2.5 - 23.5)
Troubles with work, boss or superiors	4.0 (1.9 - 7.5)	5.2 (2.4 - 10.0)	-	0.9 (0.1 - 4.2)	1.7 (0.2 - 8.0)
Retirement	0.5 (0.2 - 1.2)	0.7 (0.3 - 1.7)	-	0.0 -	-
Pregnancy or new family additions	11.7 (8.6 - 15.4)	12.9 (9.2 - 17.4)	5.4 (1.6 - 13.4)	13.5 (4.2 - 30.8)	7.4 (0.8 - 29.4)
Major change to financial situation	22.8 (18.3 - 27.8)	21.6 (16.6 - 27.4)	30.4 (18.1 - 45.3)	20.6 (7.2 - 42.5)	24.9 (9.1 - 49.0)
Taking on a mortgage, loan or making a big purchase	7.7 (5.0 - 11.4)	10.2 (6.5 - 15.1)	2.1 (0.4 - 7.6)	-	-
Increase in the number of arguments with someone close	1.6 (0.6 - 3.4)	1.1 (0.2 - 3.2)	4.2 (0.7 - 15.1)	2.1 (0.2 - 9.7)	1.5 (0.2 - 7.1)
Moving house	6.4 (4.0 - 9.7)	5.7 (3.2 - 9.4)	4.3 (0.9 - 13.0)	10.6 (3.7 - 23.3)	13.4 (1.5 - 48.1)
Moving to a new town/city	5.5 (2.9 - 9.3)	5.0 (2.2 - 9.9)	5.6 (1.8 - 13.2)	12.4 (2.8 - 33.0)	-
Major change in living or work conditions	9.7 (6.5 - 13.8)	10.4 (6.6 - 15.5)	9.4 (2.6 - 23.7)	9.0 (2.0 - 25.2)	1.2 (0.1 - 5.8)
Earthquake/natural disaster	6.7 (4.2 - 10.1)	6.0 (3.2 - 10.5)	15.5 (7.0 - 28.4)	4.2 (0.6 - 16.0)	-
Children/family moving away/children leaving home	-	-	-	-	-
Becoming a student/starting university/studying	-	-	-	-	-
Other significant life events	2.3 (1.1 - 4.5)	1.7 (0.7 - 3.6)	1.7 (0.2 - 7.6)	-	16.4 (2.8 - 47.7)
Don't know	0.1 (0.0 - 0.3)	0.1 (0.0 - 0.4)	-	-	-

3.1.10 Problem gambling and health

Tobacco use

Participants were asked a number of questions about their tobacco use. Table 35 provides information about various aspects of smoking, for the population as a whole and by problem gambling level.

Two-thirds of adults reported having ever smoked cigarettes or tobacco at some time and around two-thirds of these people said they had ever smoked a total of more than 100 cigarettes in their whole life. The large majority (93.4%) of people who said they had ever smoked cigarettes indicated that they had, at some time, smoked daily for a period of time. Over a half (56.8%) of people who reported having smoked over 100 cigarettes said they do not smoke now and somewhat more than a third (36.5%) said they smoke at least once a day.

Problem gamblers who said they had ever smoked, more often (93.9%) reported having smoked 100 or more cigarettes than did non-problem (67.1%) and low-risk (68.7%) gamblers. Whereas over a half of adults (56.8%) and a similar proportion of non-problem gamblers (59.2%) who had smoked more than 100 cigarettes did not smoke currently, only 28.7% of problem gamblers and 24.7% of moderate-risk gamblers said they no longer smoked. However, more problem gamblers (86.4%) than non-problem (47.3%) and low-risk gamblers (45.0%) indicated that they had ever tried to get help to stop smoking.

Table 35: Lifetime and current tobacco use for total population and by problem gambling level

Tobacco and cigarette smoking behaviour	Total population % (95% CI)	Problem gambling level % (95% CI)			
		Non-problem gambler	Low-risk gambler	Moderate risk gambler	Problem gambler
Ever smoked cigarettes or tobacco	66.7 (65.1 - 68.2)	69.4 (67.6 - 71.1)	73.6 (67.5 - 79.0)	78.3 (69.0 - 85.9)	72.1 (54.4 - 85.7)
Ever smoked more than 100 cigarettes in lifetime	67.2 (65.3 - 69.1)	67.1 (64.9 - 69.2)	68.7 (59 - 77.2)	79.0 (64.9 - 89.2)	93.9 (84.9 - 98.2)
Ever smoked daily for a period of time	93.4 (92.2 - 94.4)	93.5 (92.1 - 94.7)	93.9 (87.1 - 97.6)	93.3 (84.8 - 97.7)	96.2 (89.0 - 99.1)
How often smoke now					
Do not smoke now	56.8 (54.5 - 59.0)	59.2 (56.6 - 61.8)	45.9 (36.6 - 55.4)	24.7 (14.7 - 37.2)	28.7 (11.6 - 52.6)
At least once a day	36.5 (34.3 - 38.8)	34.0 (31.4 - 36.6)	44.1 (35 - 53.6)	70.5 (57.9 - 81.2)	57.7 (35.7 - 77.5)
At least once a week	3.3 (2.5 - 4.3)	2.9 (2.1 - 3.9)	6.4 (2.3 - 14.2)	2.9 (0.8 - 7.4)	13.0 (3.7 - 31.1)
At least once a month	1.2 (0.8 - 1.8)	1.5 (0.9 - 2.2)	-	0.9 (0.1 - 4.0)	0.6 (0.1 - 2.9)
Less often than once a month	2.2 (1.5 - 3.1)	2.4 (1.6 - 3.5)	3.6 (0.8 - 10.9)	1.1 (0.1 - 4.9)	-
Ever tried to get help to stop smoking (informally or formally)	49.0 (45.5 - 52.5)	47.3 (43.2 - 51.4)	45.0 (32.4 - 58.1)	59.6 (42.8 - 74.9)	86.4 (72.1 - 94.8)
Ever tried to get help to stop smoking (informally or formally) in the past 12 months	67.1 (62.2 - 71.7)	67.2 (61.3 - 72.7)	58.5 (38.3 - 76.7)	66.6 (43.0 - 85.0)	63.8 (35.7 - 85.9)

Other drug use

Participants were shown a list of drugs, other than alcohol and tobacco, and asked if they had used any of them for recreational purposes during the past 12 months. The results are

provided in Table 36. As for smoking, general population estimates are provided as well as estimates for the problem gambling levels.

The majority of adults (84.0%) said that they had not taken any of the listed substances during the past 12 months. Percentages are lower for low-risk (69.0%), moderate-risk (67.3%) and problem gamblers (52.8%). Around one in eight adults (13.3%), and similar numbers of non-gamblers and non-problem gamblers, reported using cannabis in some form during the past 12 months. Proportionately more problem gamblers (41.5%), moderate-risk (26.0%) and low-risk (28.8%) gamblers indicated that they used cannabis in the last 12 months. Problem gamblers and to some extent, moderate- and low-risk gamblers also reported higher use of other substances including ecstasy, amphetamines, party pills, stimulants and benzodiazepines.

Only a minority (11.6%) of adults who reported taking drugs, other than alcohol and tobacco, for recreational purposes said they have ever tried to get help to stop taking them. In contrast, nearly a half of problem gamblers (46.6%) who reported taking drugs in the past 12 months said that they had at some time tried to get help to stop and over two-fifths (43.6%) of these people said they had done so in the past 12 months. About a fifth of moderate-risk (22.5%) and low-risk (19.5%) gamblers said they had tried to stop and of these, 77.4% of moderate-risk and 56.9% of low-risk gamblers indicated that they had done this in the past 12 months.

Table 36: Other drug use in last 12 months for recreational purposes or to get high for total population and by problem gambling level

Drug use behaviours	Total population % (95% CI)	Problem gambling level % (95% CI)				
		Non-gambler	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Drugs used						
Cannabis (marijuana, hash, hash oil)	13.3 (12.2 - 14.4)	10.9 (8.4 - 13.9)	12.3 (11.0 - 13.6)	28.8 (22.1 - 36.3)	26.0 (16.8 - 37.1)	41.5 (25.4 - 59.2)
Ecstasy	3.8 (3.1 - 4.6)	2.7 (1.4 - 4.7)	3.4 (2.6 - 4.3)	11.8 (6.7 - 18.8)	9.8 (4.1 - 19.4)	11.6 (3.1 - 29.2)
Amphetamines (e.g. "P", ice, speed)	1.3 (0.9 - 1.8)	0.6 (0.2 - 1.4)	1.1 (0.7 - 1.7)	2.9 (1.1 - 6.3)	7.5 (2.6 - 16.6)	16.8 (5.2 - 37.6)
Legal party pills	3.0 (2.4 - 3.7)	2.2 (1.0 - 4.1)	2.6 (2 - 3.3)	8.7 (4.9 - 14.3)	8.5 (3.7 - 16.6)	15.2 (4.4 - 35.8)
Stimulants (e.g. Ritalin)	1.1 (0.8 - 1.7)	1.1 (0.4 - 2.3)	0.8 (0.4 - 1.4)	3.9 (1.3 - 9.2)	5.2 (1.6 - 13.0)	11.7 (3.1 - 29.2)
Painkillers (e.g. codeine, morphine)	1.8 (1.4 - 2.3)	1.6 (0.9 - 2.6)	1.6 (1.1 - 2.1)	4.6 (1.9 - 9.3)	5.7 (2.0 - 12.7)	6.0 (1.3 - 17.5)
Benzodiazepines (e.g. Valium)	0.5 (0.3 - 0.9)	0.2 (0.0 - 0.6)	0.4 (0.2 - 0.8)	1.5 (0.3 - 4.8)	4.0 (0.9 - 12.1)	7.6 (1.2 - 25.2)
Hallucinogens (e.g. LSD, ketamine)	1.5 (1.1 - 2.0)	0.8 (0.3 - 1.8)	1.4 (0.9 - 2.0)	4.9 (1.9 - 10.4)	3.8 (0.9 - 10.5)	6.0 (1.3 - 17.5)
Cocaine	0.6 (0.3 - 1.0)	0.1 (0.0 - 0.5)	0.6 (0.3 - 1.1)	1.8 (0.4 - 5.3)	2.1 (0.2 - 9.7)	- -
Heroin	- -	0.0 (0.0 - 0.1)	- -	- -	- -	- -
None of these	84.0 (82.8 - 85.2)	87.3 (84.2 - 89.9)	84.9 (83.4 - 86.2)	69.0 (61.5 - 75.8)	67.3 (55.7 - 77.5)	52.8 (35.3 - 69.8)
Ever tried to get help to stop taking drugs	11.6 (8.9 - 14.7)	7.5 (3.0 - 15.2)	9.9 (7.0 - 13.6)	19.5 (10.4 - 32.2)	22.5 (7.4 - 47.0)	46.6 (21.1 - 73.6)
Ever tried to get help to stop taking drugs in the past 12 months	57.9 (44.2 - 70.8)	63.3 (20.1 - 93.5)	56.9 (38.3 - 74.1)	56.7 (26.5 - 83.3)	77.4 (23.0 - 98.5)	43.6 (7.7 - 86.7)

Alcohol

The AUDIT-C was administered to assess hazardous alcohol consumption (Table 37). Over a third of adults (38.8%) who reported having a drink containing alcohol in the past year were classified as hazardous drinkers (Table 38). Of the problem gamblers who drank alcohol in the past year, 59.6% were hazardous drinkers, compared to 23.7% of non-gamblers, 41.4% of non-problem gamblers, 53.2% of low-risk gamblers and 50.2% of moderate-risk gamblers.

Table 37: Alcohol use (AUDIT-C) percentage of respondents responding to individual items

AUDIT-C item	%	(95% CI)
How often do you have a drink containing alcohol?		
Monthly or less	32.5	(30.9 - 34.1)
4 times or more per week	20.8	(19.4 - 22.1)
up to 4 times per month	23.5	(22.0 - 25.0)
up to 3 times per week	23.2	(21.7 - 24.7)
How many drinks containing alcohol do you have in a typical day when you are drinking?		
1 or 2	58.0	(56.3 - 59.7)
3 or 4	23.0	(21.5 - 24.4)
5 or 6	9.4	(8.4 - 10.5)
7 to 9	3.9	(3.1 - 4.6)
10 or more	5.7	(4.8 - 6.5)
How often do you have six or more drinks on one occasion?		
Never	47.3	(45.6 - 49.0)
Less than monthly	27.5	(25.9 - 29.1)
Monthly	13.7	(12.5 - 14.9)
Weekly	10.7	(9.6 - 11.9)
Daily or almost daily	0.8	(0.5 - 1.1)
Other alcohol items		
Have you ever tried to get help to stop drinking (formally or informally)?		
Yes	5.1	(4.3 - 5.8)
No	94.9	(94.2 - 95.7)
Have you done this in the last 12 months?		
Yes	48.9	(41.3 - 56.5)
No	51.1	(43.5 - 58.7)

Table 38: Alcohol use (AUDIT-C) for total population and by problem gambling level

AUDIT-C drinking status	Total population % (95% CI)	Problem gambling level % (95% CI)				
		Non-gambler	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Non-hazardous drinker	61.2 (59.7 - 62.7)	76.3 (73.0 - 79.3)	58.6 (56.8 - 60.5)	46.8 (39.6 - 54.1)	49.8 (38.5 - 61.2)	40.4 (24.8 - 57.6)
Hazardous drinker	38.8 (37.3 - 40.3)	23.7 (20.7 - 27.0)	41.4 (39.5 - 43.2)	53.2 (45.9 - 60.4)	50.2 (38.8 - 61.5)	59.6 (42.4 - 75.2)
Mean score	3.4 (3.3 - 3.4)	2.3 (2.2 - 2.5)	3.5 (3.5 - 3.6)	4.4 (3.9 - 4.9)	4.2 (3.5 - 4.9)	4.8 (3.6 - 5.9)

Health conditions

Over a half of non-gamblers (56.5%) and non-problem-gamblers (54.6%) considered their health in general to be excellent or very good, compared to 44.2% of low-risk gamblers, 36.4% of moderate-risk gamblers and 22.1% of problem gamblers. Problem gamblers (32.9%) more often rated their health as fair or poor (range of 14.2%-20.2% for the other groups).

Problem gamblers (53.3%) more often indicated that they had experienced a lot of trauma, hardship and problems in their life or upbringing than did non-gamblers (19.9%) and non-problem gamblers (22.9%). Low-risk (31.2%) and moderate-risk (35.3%) gamblers also reported more trauma and hardship than people in the two previously mentioned groups.

Problem gamblers reported higher rates of depression and anxiety (both 21.0%) relative to non-gamblers (5.7%, 5.3%) and non-problem gamblers (6.7%, 4.9%). Over a fifth of problem gamblers (21.0%) said they had lung conditions including asthma and 18.0% considered they were obese. While a quarter (24.5%) reported heart conditions, high blood pressure or high cholesterol, the gambling groups are similar in this regard, as they are with respect to other health conditions reported in Table 39.

Table 39: Health conditions for total population and by problem gambling level

Health status	Total population % (95% CI)	Problem gambling level % (95% CI)				
		Non-gambler	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Health in general over last 12 months						
Excellent	18.8 (17.6 - 20.1)	21.2 (18.4 - 24.2)	18.7 (17.3 - 20.1)	15.6 (10.6 - 21.8)	9.0 (4.3 - 16.4)	9.5 (2.5 - 24.3)
Very good	35.1 (33.6 - 36.6)	35.3 (31.9 - 38.8)	35.9 (34.1 - 37.7)	28.6 (21.9 - 36.0)	27.4 (17.7 - 39.2)	12.6 (6.1 - 22.5)
Good	31.2 (29.8 - 32.7)	29.0 (26.1 - 32.1)	31.1 (29.4 - 32.8)	35.7 (28.8 - 43.0)	43.9 (33.2 - 55.1)	45.0 (28.3 - 62.6)
Fair	11.8 (10.8 - 12.8)	10.5 (8.7 - 12.6)	11.6 (10.5 - 12.8)	15.5 (11.4 - 20.3)	15.5 (10.1 - 22.6)	24.8 (11.4 - 43.6)
Poor	3.1 (2.6 - 3.6)	3.9 (2.7 - 5.4)	2.6 (2.1 - 3.3)	4.7 (2.1 - 9.2)	4.1 (1.6 - 8.7)	8.1 (3.6 - 15.5)
In personal background, have had:						
No major problems, hardships or traumas	76.5 (75.1 - 77.8)	79.8 (76.8 - 82.6)	76.6 (75.1 - 78.2)	68.8 (62.3 - 74.8)	64.5 (54.0 - 74.0)	46.7 (30.0 - 64.1)
A lot of trauma, hardship/problems	23.2 (21.9 - 24.5)	19.9 (17.1 - 23.0)	22.9 (21.4 - 24.5)	31.2 (25.2 - 37.7)	35.3 (25.8 - 45.7)	53.3 (35.9 - 70.0)
Current health conditions						
Heart conditions, high blood pressure or high cholesterol	24.0 (22.9 - 25.2)	22.9 (20.4 - 25.6)	24.7 (23.3 - 26.2)	20.7 (15.5 - 26.7)	16.6 (9.8 - 25.8)	24.5 (12.5 - 40.5)
Diabetes	4.9 (4.4 - 5.5)	5.2 (4.0 - 6.5)	4.9 (4.3 - 5.6)	4.1 (2.4 - 6.5)	4.9 (2.2 - 9.6)	3.9 (0.9 - 11.0)
Cancer	2.0 (1.6 - 2.4)	2.0 (1.3 - 2.8)	1.9 (1.5 - 2.4)	2.2 (0.8 - 5.1)	1.3 (0.3 - 4.3)	3.6 (0.5 - 13.7)
Lung conditions including asthma	9.2 (8.3 - 10.0)	7.1 (5.6 - 8.9)	9.4 (8.5 - 10.5)	12.2 (8.3 - 17.0)	7.1 (3.6 - 12.3)	21.0 (9.6 - 37.5)
Depression	6.5 (5.8 - 7.3)	5.7 (4.3 - 7.4)	6.4 (5.5 - 7.3)	7.6 (4.6 - 11.6)	12.9 (7.0 - 21.4)	21.0 (11.2 - 34.5)
Anxiety disorders	5.5 (4.8 - 6.3)	5.3 (3.9 - 7.1)	4.9 (4.1 - 5.8)	11.7 (7.3 - 17.6)	11.4 (6.0 - 19.3)	20.6 (9.1 - 37.7)
Obesity	7.8 (7.0 - 8.6)	6.2 (4.8 - 7.9)	7.7 (6.8 - 8.6)	12.2 (7.7 - 18.2)	13.4 (7.7 - 21.3)	18.0 (7.4 - 34.5)
Other physical or mental health conditions	11.6 (10.7 - 12.6)	11.4 (9.4 - 13.6)	11.7 (10.6 - 12.9)	11.4 (7.6 - 16.3)	11.3 (5.6 - 19.8)	12.6 (4.9 - 25.7)
None	52.4 (50.9 - 54.0)	56.1 (52.9 - 59.3)	51.7 (49.8 - 53.5)	47.6 (40.3 - 55.0)	60.6 (49.7 - 70.8)	43.0 (26.6 - 60.7)
Have a disability affecting day to day life over the past 12 months	15.6 (14.6 - 16.7)	15.9 (13.5 - 18.5)	15.0 (13.9 - 16.2)	20.4 (15.5 - 26.2)	22.6 (14.4 - 33.0)	18.2 (9.1 - 31.2)

Psychological distress

The Kessler Scale (K-10) is used to assess populations for psychological distress and screen for mental disorders. The higher the score, the more likely it is that the person is displaying signs and symptoms that meet the criteria for diagnosis as a mental disorder, particularly a mood and anxiety disorder.

For the total adult population, the prevalence of psychological distress was 7.2% (combined very high and high probability groups). The prevalence is much higher for problem gamblers (45.8%) than for adults generally or for non-problem gamblers (6.0%). The low-risk (12.5%) and moderate-risk (21.7%) gamblers also have somewhat elevated prevalence (Table 40).

Table 40: Psychological distress for total population and by problem gambling level

Psychological distress (Kessler scores)	Total population % (95% CI)	Problem gambling level % (95% CI)			
		Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
No or low probability (0 - 5)	73.2 (71.8 - 74.6)	76.0 (74.3 - 77.5)	57.1 (49.9 - 64.0)	44.3 (33.3 - 55.8)	20.5 (8.9 - 37.8)
Moderate probability (6 - 11)	19.6 (18.4 - 20.9)	18.1 (16.6 - 19.6)	30.4 (23.7 - 37.7)	33.9 (24.5 - 44.4)	33.6 (18.2 - 52.3)
High probability (12 - 19)	5.5 (4.8 - 6.2)	4.6 (3.9 - 5.4)	9.8 (6.2 - 14.7)	15.3 (9.3 - 23.3)	24.1 (11.6 - 41.4)
Very high probability (20 - 40)	1.7 (1.3 - 2.1)	1.4 (1.0 - 1.9)	2.7 (1.2 - 5.2)	6.4 (2.9 - 12.1)	21.7 (11.7 - 35.2)
<i>Mean</i>	4.0 (3.9 - 4.2)	3.7 (3.6 - 3.9)	5.7 (5.0 - 6.4)	7.7 (6.4 - 9.1)	11.9 (9.5 - 14.3)

Quality of life

From Table 41, it is apparent that problem gambling is associated with lower overall quality of life. Over three-quarters of problem gamblers (76.8%) and two-thirds of moderate-risk gamblers (68.3%) were below the median score for the study sample.

Table 41: Quality of life for total population and by problem gambling level

WHOQOL-8 Scores	Total population % (95% CI)	Problem gambling level % (95% CI)				
		Non-gambler	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Below median score (0 - 24)	42.1	42.5	40.5	52.8	68.3	76.8
Median score (25)	10.4	10.2	10.6	10.7	7.1	5.6
Above median score (26 - 32)	47.4	47.2	48.9	36.5	24.6	17.6
<i>Mean</i>	24.9 (24.8 - 25.1)	25.0 (24.7 - 25.3)	25.1 (24.9 - 25.3)	23.6 (22.9 - 24.2)	21.8 (20.8 - 22.9)	19.4 (17.1 - 21.7)
<i>SD</i>	4.6	4.7	4.5	4.6	4.9	6.8

Deprivation

Deprivation, as measured by the New Zealand Deprivation index (NZDI), is examined in Table 42. Responses to each of the individual questions that make up the index are provided along with the score distribution and mean scores.

Over half of the adult population (55.6%) and somewhat similar proportions of non-gamblers (52.6%) and non-problem gamblers (58.7%) did not report experiencing any of the eight

deprivations listed. Their overall mean NZDI scores are similar (range 0.8%-1.0%). In contrast, only a small proportion of problem gamblers (4.7%) did not report experiencing any of the deprivations and their mean NZDI score was higher (2.6). The corresponding figures for moderate-risk and low-risk gamblers are respectively 28.1% (1.8) and 39.2% (1.3).

Around a quarter of adults reported having personally been forced to buy cheaper food during the past 12 months and a fifth said they had been out of paid work for more than a month. Smaller proportions said they had put up with feeling cold to save on heating costs (14.9%) and personally received money from a benefit other than general superannuation (11.8%). Some other deprivations, namely making use of food grants or banks, continually wearing shoes with holes and having gone without fresh fruit and vegetables, were mentioned less frequently (by 4.8%-5.9% each). Personally having received help in the form of clothes or money from a community organisation was mentioned by 1.7%.

From Table 42 it is apparent that proportionately more problem gamblers experienced some deprivations than people in most, if not all, of the other groups. For example, 71.6% said they had been forced to buy cheaper food, 56.7% said they had been out of paid work for more than a month and 30.2% had received support from a benefit. Moderate-risk and low-risk gamblers also more frequently experienced some of these deprivations than non-gamblers and non-problem gamblers. In relation to a few deprivations, somewhat more non-gamblers than non-problem gamblers experienced them.

Table 42: New Zealand Deprivation Index for total population and by problem gambling level

Indicators of deprivation in past 12 months	Total population % (95% CI)	Problem gambling level % (95% CI)				
		Non-gambler	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Personally been forced to buy cheaper food						
Yes	25.9 (24.5 - 27.2)	28.8 (25.8 - 32.0)	23.5 (22.0 - 25.0)	38.4 (31.5 - 45.8)	39.4 (29.1 - 50.6)	71.6 (54.6 - 84.9)
No	74.1 (72.8 - 75.5)	71.2 (68.0 - 74.2)	76.5 (75.0 - 78.0)	61.6 (54.2 - 68.5)	60.6 (49.4 - 70.9)	28.4 (15.1 - 45.4)
Been out of paid work at any time for more than one month						
Yes	20.0 (18.7 - 21.3)	19.2 (16.7 - 21.9)	19.0 (17.6 - 20.6)	26.6 (20.0 - 34.1)	35.0 (25.1 - 46.0)	56.7 (39.8 - 72.6)
No	80.0 (78.7 - 81.3)	80.7 (78.0 - 83.2)	81.0 (79.4 - 82.4)	73.4 (65.9 - 80.0)	65.0 (54.0 - 74.9)	43.3 (27.4 - 60.2)
Personally received income from a benefit						
Yes	11.8 (10.9 - 12.8)	14.9 (12.8 - 17.2)	10.1 (9.1 - 11.2)	16.3 (11.9 - 21.6)	28.0 (19.2 - 38.3)	30.2 (16.5 - 47.3)
No	88.2 (87.2 - 89.1)	85.0 (82.7 - 87.1)	89.9 (88.8 - 90.9)	83.7 (78.4 - 88.1)	72.0 (61.7 - 80.8)	69.8 (52.7 - 83.5)
Personally put up with feeling cold to save heating costs						
Yes	14.9 (13.8 - 16.2)	17.6 (15.0 - 20.5)	13.2 (12.0 - 14.6)	23.3 (17.9 - 29.4)	30.8 (20.9 - 42.2)	22.9 (12.3 - 37.1)
No	85.1 (83.8 - 86.2)	82.4 (79.5 - 85.0)	86.8 (85.4 - 88.0)	76.7 (70.6 - 82.1)	69.2 (57.8 - 79.1)	77.1 (62.9 - 87.7)
Personally made use of special food grants or food banks						
Yes	4.8 (4.3 - 5.5)	5.2 (3.9 - 6.7)	4.2 (3.6 - 4.9)	7.4 (4.5 - 11.4)	14.9 (8.8 - 23.3)	19.3 (8.9 - 34.6)
No	95.2 (94.5 - 95.7)	94.8 (93.3 - 96.1)	95.8 (95.1 - 96.4)	92.6 (88.6 - 95.5)	85.1 (76.7 - 91.2)	80.7 (65.4 - 91.1)
Personally continued wearing shoes with holes						
Yes	5.6 (4.9 - 6.4)	5.5 (4.1 - 7.2)	4.9 (4.2 - 5.7)	11.0 (6.9 - 16.4)	14.4 (8.6 - 22.2)	28.5 (14.4 - 46.8)
No	94.4 (93.6 - 95.1)	94.5 (92.8 - 95.9)	95.1 (94.3 - 95.8)	89.0 (83.6 - 93.1)	85.6 (77.8 - 91.4)	71.5 (53.2 - 85.6)
Personally gone without fresh fruit and vegetables, often						
Yes	5.9 (5.2 - 6.6)	6.7 (5.3 - 8.3)	5.1 (4.3 - 5.9)	9.4 (5.9 - 14.0)	13.0 (7.8 - 20.1)	28.0 (14.8 - 44.9)

Indicators of deprivation in past 12 months	Total population % (95% CI)	Problem gambling level % (95% CI)					
		Non-gambler	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler	
No	94.1 (93.4 - 94.8)	93.3 (91.7 - 94.7)	94.9 (94.1 - 95.7)	90.6 (86 - 94.1)	87.0 (79.9 - 92.2)	72.0 (55.1 - 85.2)	
Personally received help from a community organisation							
Yes	1.7 (1.4 - 2.1)	2.1 (1.3 - 3.2)	1.5 (1.1 - 1.9)	2.2 (1.1 - 3.9)	3.6 (1.5 - 7.3)	6.8 (1.4 - 20.1)	
No	98.3 (97.9 - 98.6)	97.9 (96.8 - 98.7)	98.5 (98.1 - 98.9)	97.8 (96.1 - 98.9)	96.4 (92.7 - 98.5)	93.2 (79.9 - 98.6)	
NZDI Score	0	55.6 (54 - 57.2)	52.6 (49.3 - 55.9)	58.7 (56.9 - 60.5)	39.2 (32.7 - 46.0)	28.1 (19.4 - 38.4)	4.7 (1.5 - 11.4)
	1	21.8 (20.5 - 23.2)	22.2 (19.4 - 25.2)	21.2 (19.7 - 22.7)	25.5 (19.0 - 32.9)	30.7 (20.3 - 42.8)	31.2 (16.8 - 49.2)
	2	11.4 (10.4 - 12.4)	12.6 (10.4 - 15.1)	10.5 (9.4 - 11.7)	16.5 (11.6 - 22.5)	13.8 (7.6 - 22.7)	21.2 (10 - 37.3)
	3	4.4 (3.8 - 5.1)	5.1 (3.8 - 6.7)	3.9 (3.2 - 4.6)	6.6 (4.3 - 9.5)	9.9 (4.7 - 17.9)	13.7 (4.6 - 30.0)
	4	3.3 (2.8 - 3.9)	3.3 (2.3 - 4.6)	2.8 (2.3 - 3.5)	8.3 (4.7 - 13.6)	7.3 (3.8 - 12.8)	8.7 (1.8 - 25.3)
	5	1.8 (1.4 - 2.2)	2.3 (1.5 - 3.4)	1.5 (1.2 - 2.0)	1.8 (0.6 - 4.5)	2.5 (0.8 - 6.1)	11.3 (3.9 - 24.9)
	6	1.0 (0.8 - 1.3)	1.0 (0.5 - 1.8)	0.9 (0.6 - 1.2)	0.8 (0.3 - 1.9)	4.8 (1.6 - 11.4)	6.1 (1.2 - 18.8)
	7	0.5 (0.3 - 0.7)	0.6 (0.3 - 1.1)	0.3 (0.2 - 0.5)	1.3 (0.5 - 3.1)	2.2 (0.7 - 5.1)	2.4 (0.8 - 5.7)
	8	0.2 (0.1 - 0.3)	0.3 (0.1 - 0.8)	0.1 (0.0 - 0.2)	- (0.5 - 3.1)	0.6 (0.1 - 3.0)	0.6 (0.1 - 2.7)
Mean	0.9 (0.9 - 0.9)	1.0 (0.9 - 1.1)	0.8 (0.8 - 0.9)	1.3 (1.1 - 1.6)	1.8 (1.4 - 2.2)	2.6 (2.1 - 3.2)	

3.1.11 Help-seeking

In Table 43, information regarding help-seeking for problem gambling is provided. Estimates are given for the total adult population as well as for current non-problem gamblers, low-risk gamblers, moderate-risk gamblers and problem gamblers. Given the small sample sizes and wide confidence interval estimates, all comparisons should be treated with caution.

Over a half (52.3%) of problem gamblers and a quarter of moderate-risk gamblers (27.6%) said that they had wanted help to stop or reduce gambling at some time. The rates are much lower for low-risk (5.2%) and non-problem gamblers (0.7%) and for all adults aged 18 years and older (1.9%). A third of problem gamblers (33.7%) said they had tried to get help to reduce or stop gambling and a quarter (26.3%) of these people indicated that they had sought help for the first time during the past 12 months. Nearly a fifth (17.3%) of moderate-risk gamblers also reported trying to get help at some time and 29.6% of these people said they had done so for the first time during the past 12 months. Corresponding figures for low-risk, non-problem gamblers and the total adult population are much lower.

For the population as a whole, seeking help from friends (25.4%) was mentioned most often followed by family (17.9%), helpline/Gambling Helpline (17.0%), community support groups (14.2%), a counsellor or doctor (10.2%), Gamblers Anonymous (9.5%), a church or the Salvation Army (9.1%) and the Problem Gambling Foundation (2.5%). A variety of other sources of help was mentioned by a further 9.9%. The pattern of help-seeking appears to be broadly similar across groups; however, sample sizes are generally low and it is not possible to draw definitive conclusions.

Around two-thirds of people who tried to get help said it was mainly themselves who were involved in seeking, or were referred to, help and this was the case for problem and moderate-risk gamblers as well as the population as a whole. Around a fifth of adults generally, and a fifth of problem gamblers, said their family, spouse or partner was mainly involved. Friends, support groups or a hotline, and counsellors and doctors were mentioned by somewhat smaller percentages.

Twenty-nine percent of adults said they had tried to get help to reduce or stop gambling more than once. More problem (51.6%), moderate-risk (32.2%) and low-risk (35.5%) gamblers indicated this than non-problem gamblers (1.6%).

Participants were asked about the type of help they received. Overall, about one-third (30.8%) mentioned counselling. Talking, discussions and meetings were mentioned quite often (25.5%) as were support, encouragement and assurance (25.2%), and receiving advice (22.6%). Around a fifth (18.4%) of problem gamblers mentioned gambling booklets, brochures or information packs and a further fifth (18.5%) referred to having been barred from casino or other EGM venues or avoiding gambling.

Most adults (85.8%) and problem gamblers (84.5%) were of the view that the help received was helpful. About two-thirds of adults and problem and moderate-risk gamblers said one type of help was particularly helpful. Support, encouragement and assurance (42.9%) was mentioned most often in this regard followed by counselling (24.2%) and having money limited in some way, such as having a cash flow card taken or someone taking control of a budget (22.1%).

Help-seeking by demographics is provided in Appendix 4. Sample size is typically very low and apparent differences may not be real.

Table 43: Help-seeking by problem gambling level

Help seeking	Total population % (95% CI)	Problem gambling level % (95% CI)			
		Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Ever wanted to get help to reduce or stop gambling					
Yes	1.9 (1.5 - 2.3)	0.7 (0.5 - 1.0)	5.2 (2.9 - 8.6)	27.6 (19.3 - 37.3)	52.3 (34.9 - 69.4)
No	98.1 (97.7 - 98.5)	99.3 (99.0 - 99.5)	94.8 (91.4 - 97.1)	72.4 (62.7 - 80.7)	47.7 (30.6 - 65.1)
Length of time ago when first thought wanted to get help to reduce or stop gambling					
Within the last month	9.6 (4.4 - 17.8)	9.9 (1.9 - 29.9)	11.3 (2.1 - 33.7)	11.4 (2.7 - 30.4)	5.6 (1.4 - 15.1)
1 - 6 months ago	10.4 (5.4 - 17.8)	7.7 (2.4 - 18.4)	18.8 (3.4 - 51.8)	9.2 (3.7 - 18.6)	10.4 (1.7 - 33.6)
6 - 12 months ago	10.2 (5.4 - 17.2)	7.4 (2.1 - 18.5)	-	17.8 (6.2 - 37.3)	12.0 (3.7 - 28.0)
1 - 2 years ago	12.0 (6.3 - 20.3)	2.9 (0.5 - 10.5)	8.0 (1.6 - 23.6)	25.8 (11.2 - 46.4)	10.6 (3.6 - 23.4)
2 - 5 years ago	14.8 (9.1 - 22.4)	13.4 (4.7 - 28.7)	13.1 (2.2 - 39.9)	13.6 (5.5 - 26.8)	18.2 (6.2 - 38.3)
Longer than 5 years ago	43.0 (33.0 - 53.5)	58.6 (40.0 - 75.5)	48.9 (21.4 - 76.8)	22.4 (8.5 - 43.6)	43.1 (23.6 - 64.5)
Ever tried to get help to reduce or stop gambling (informally or formally)					
Yes	1.0 (0.8 - 1.4)	0.3 (0.2 - 0.5)	2.5 (0.9 - 5.5)	17.3 (10.4 - 26.3)	33.7 (19.5 - 50.6)
No	99.0 (98.6 - 99.2)	99.7 (99.5 - 99.8)	97.5 (94.5 - 99.1)	82.7 (73.7 - 89.6)	66.3 (49.4 - 80.5)

Help seeking	Total population % (95% CI)	Problem gambling level % (95% CI)			
		Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
How long ago first tried to get help					
In the last 12 months	20.0 (10.8 - 32.5)	7.8 (1.4 - 25.0)	10.4 (0.8 - 44.8)	29.6 (10.9 - 56.1)	26.3 (8.1 - 54.9)
1 - 2 years ago	21.1 (11.5 - 34.1)	13.3 (3.4 - 33.6)	9.3 (0.8 - 41.0)	35.3 (14.3 - 62.0)	17.6 (3.4 - 48.0)
3 - 4 years ago	14.6 (6.7 - 26.7)	27.2 (8.4 - 56.2)	35.0 (4.8 - 81.8)	-	10.1 (2.4 - 26.9)
5 - 10 years ago	34.8 (21.7 - 49.8)	32.9 (12.8 - 59.6)	45.3 (6.3 - 90.3)	35.1 (13.2 - 63.6)	27.5 (8.4 - 56.9)
11 - 20 years ago	7.0 (2.6 - 15.1)	10.7 (1.3 - 38.0)	-	-	16.8 (5.6 - 36.4)
More than 20 years ago	2.5 (0.6 - 7.1)	8.1 (1.6 - 24.8)	-	-	1.6 (0.2 - 7.7)
Where went for help					
Friend	25.4 (15.1 - 38.4)	33.8 (12.2 - 62.7)	12.7 (1.5 - 44.8)	34.0 (14 - 59.8)	13.5 (4.0 - 31.7)
Family	17.9 (9.7 - 29.2)	18.4 (4.4 - 45.6)	41.3 (7.2 - 84.8)	10.2 (1.9 - 30.9)	14.1 (3.5 - 36.0)
Helpline/0800 Gambling Helpline	17.0 (9.0 - 28.2)	10.8 (2.6 - 28.6)	19.9 (1.5 - 70.3)	16.6 (6.3 - 33.6)	19.2 (3.6 - 51.7)
Gamblers Anonymous	9.5 (2.7 - 23.1)	10.9 (1.4 - 38.1)	-	17.2 (2.6 - 51.7)	3.2 (0.6 - 10.4)
Problem Gambling Foundation	2.5 (0.6 - 7.0)	-	-	-	9.9 (2.2 - 27.5)
Church/Salvation Army	9.1 (3.1 - 20.3)	13.0 (3.5 - 32.3)	-	7.6 (0.7 - 32.2)	12.5 (1.2 - 48.5)
Counsellor/Doctor	10.2 (0.0 - 21.0)	4.4 (0.4 - 19.5)	35.5 (2.6 - 89.4)	1.2 (0.1 - 5.4)	15.3 (0.0 - 37.4)
Community support groups	14.2 (6.2 - 26.9)	5.7 (1.0 - 18.8)	-	31.0 (10.5 - 60.1)	8.2 (2.0 - 21.8)
Others	9.9 (3.9 - 20.3)	19.8 (4.0 - 51.4)	-	3.8 (0.4 - 17.2)	14.1 (3.9 - 33.8)
Who mainly referred to help					
Myself	62.6 (48.3 - 76.9)	86.1 (72.5 - 99.7)	29.2 (0.0 - 80.8)	53.7 (25.9 - 81.6)	69.6 (40.9 - 89.7)
Family/spouse/partner	20.6 (10.5 - 34.5)	3.3 (0.3 - 15.1)	70.8 (23.7 - 96.4)	13.1 (3.1 - 34.2)	22.3 (6.6 - 48.5)
Friend(s)/mate	10.8 (3.9 - 23.1)	2.5 (0.3 - 11.5)	-	20.7 (5.7 - 47.3)	12.5 (1.2 - 48.5)
Radio/TV	2.0 (0.5 - 5.4)	-	-	1.4 (0.1 - 6.6)	2.9 (0.3 - 13.3)
Support groups/hotline	8.8 (2.5 - 21.9)	5.4 (0.9 - 18.3)	-	15.6 (1.9 - 51.4)	8.5 (1.8 - 25.1)
Counsellor/doctor	7.2 (1.8 - 19.6)	-	-	15.4 (2.2 - 48.1)	7.9 (1.5 - 24.6)
Police/probation officer/budget advisor	1.9 (0.5 - 5.4)	5.7 (1.0 - 18.8)	-	-	1.6 (0.2 - 7.7)
Others	1.1 (0.2 - 4.2)	0.8 (0.1 - 3.7)	-	-	3.6 (0.4 - 16.4)
Don't know	0.4 (0.0 - 1.8)	-	-	1.1 (0.1 - 5.2)	-
Type of help received					
Counselling/counselling group/one-on-one counselling	30.8 (16.4 - 45.3)	14.5 (0.0 - 29.2)	55.4 (12.5 - 92.1)	42.8 (18.2 - 70.7)	19.9 (2.5 - 37.3)
Talking/discussion/meetings/seminar	25.5 (14.2 - 36.8)	18.3 (6.9 - 36.7)	9.3 (0.0 - 34.3)	33.1 (8.8 - 57.4)	28.1 (9.3 - 56.2)
Advice/good advice	22.6 (12.3 - 36.4)	40.9 (17.1 - 68.7)	10.4 (0.8 - 44.8)	15.2 (3.0 - 42.2)	21.7 (6.1 - 48.7)

Help seeking	Total population % (95% CI)	Problem gambling level % (95% CI)			
		Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Gambling booklet/brochures/information pack	8.8 (3.2 - 19.0)	5.2 (0.5 - 22.9)	3.4 (0.3 - 16.9)	7.2 (1.7 - 20.1)	18.4 (3.0 - 52.7)
Support/encouragement/assurance	25.2 (12.5 - 37.9)	26.1 (8.6 - 53.1)	16.8 (2.2 - 53.4)	26.8 (0.3 - 52.3)	24.2 (6.5 - 54.1)
Keep busy with other activities/hobby/work	7.7 (2.3 - 18.8)	20.7 (4.4 - 52.2)	15.2 (1.2 - 59.4)	-	-
Barred from casino/gaming venues/computer programme removed/avoiding gambling	6.2 (2.6 - 12.4)	4.3 (0.4 - 19.1)	-	-	18.5 (6.3 - 39.2)
Took cash flow card off me/limited money/did a budget for me	2.3 (0.4 - 8.3)	1.9 (0.2 - 8.6)	-	-	7.2 (0.7 - 30.8)
I stopped/didn't enjoy it	2.5 (0.8 - 6.3)	3.1 (0.3 - 13.9)	6.4 (0.5 - 30.0)	2.5 (0.5 - 8.4)	-
Unhelpful advice/no help/still waiting	3.9 (0.9 - 11.7)	9.4 (0.9 - 38.1)	-	2.0 (0.2 - 9.2)	3.3 (0.3 - 15.1)
Others	7.7 (2.1 - 19.8)	-	-	15.2 (2.2 - 48.0)	10.2 (2.5 - 27.5)
Overall effectiveness of help					
Helpful	85.8 (74.5 - 93.3)	87.5 (60.7 - 98.0)	96.6 (83.1 - 99.7)	81.0 (58.3 - 94.1)	84.5 (56.9 - 97.0)
Neither helpful nor unhelpful	10.4 (4.2 - 21.0)	3.1 (0.3 - 14.2)	0.0 -	17.0 (4.7 - 39.8)	15.5 (3.0 - 43.1)
Unhelpful	3.8 (0.8 - 11.4)	9.4 (0.9 - 38.1)	3.4 (0.3 - 16.9)	2.0 (0.2 - 9.2)	-
Any one type of help that was particularly helpful					
Yes	64.1 (38.7 - 84.5)	48.2 (8.8 - 89.7)	100.0 (0.0 - 100.0)	64.8 (15.1 - 96.1)	69.9 (21.3 - 96.5)
No	35.9 (15.5 - 61.3)	51.8 (10.3 - 91.2)	-	35.2 (3.9 - 84.9)	30.1 (3.5 - 78.7)
Type of help that was particularly helpful					
Counselling/counselling group/one-on-one counselling	24.2 (3.9 - 64.0)	7.9 (0.2 - 57.1)	-	60.1 (8.1 - 96.9)	-
Talking/discussion/meetings/seminar	12.0 (2.8 - 32.1)	-	-	13.6 (0.8 - 60.9)	25.2 (3.8 - 67.1)
Gambling booklet/brochures/information pack	3.1 (0.3 - 14.3)	-	-	-	-
Support/encouragement/assurance	42.9 (18.1 - 70.8)	26.3 (0.6 - 94.5)	100.0 (0.0 - 100.0)	37.6 (3.0 - 90.4)	43.2 (10.4 - 82.1)
Barred from casino/gaming venues/computer programme removed/avoiding gambling	5.5 (0.9 - 18.3)	-	-	-	20.0 (3.1 - 56.8)
Took cash flow card off me/limited money/did a budget for me	22.1 (4.5 - 55.9)	73.7 (5.5 - 99.4)	-	-	25.9 (2.1 - 78.2)
Others	1.9 (0.2 - 8.8)	-	-	-	6.8 (0.6 - 29.8)
Whether tried to get help to reduce or stop gambling on other occasions since first time					
Yes	29.0 (16.4 - 44.8)	1.6 (0.2 - 7.3)	35.5 (2.6 - 89.4)	32.2 (10.5 - 62.7)	51.6 (25.8 - 76.8)
No	71.0 (55.2 - 83.6)	98.4 (92.7 - 99.8)	64.5 (10.6 - 97.4)	67.8 (37.3 - 89.5)	48.4 (23.2 - 74.2)
Number of times tried to get help to reduce or stop gambling on other occasions since the first time					
1	41.4 (14.3 - 73.6)	-	100.0 (0.0 - 100.0)	14.3 (1.3 - 54.1)	43.6 (11.0 - 81.6)
2	4.4 (1.0 - 12.7)	100.0 (0.0 - 100.0)	-	4.3 (0.3 - 23.5)	3.1 (0.3 - 14.7)
3	17.0 (3.0 - 48.4)	-	-	30.7 (1.7 - 88.8)	12.3 (1.9 - 39.1)

Help seeking	Total population % (95% CI)	Problem gambling level % (95% CI)			
		Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
4	3.1 (0.3 - 14.3)	-	-	8.2 (0.5 - 40.4)	-
7	6.1 (0.6 - 27.2)	-	-	-	13.9 (1.2 - 54.4)
10	28.0 (5.7 - 65.8)	-	-	42.4 (2.5 - 94.7)	27.1 (2.4 - 78.7)
Tried to get help to reduce or stop gambling in the past 12 months (informally or formally)					
Yes	41.6 (11.8 - 77.6)	-	-	17.3 (0.3 - 94.3)	74.5 (32.9 - 96.1)
No	58.4 (22.4 - 88.2)	100.0 (0.0 - 100.0)	100.0 (0.0 - 100.0)	82.7 (5.7 - 99.7)	25.5 (3.9 - 67.1)
How effective the help was overall					
Helpful	64.9 (14.7 - 96.3)	-	-	100.0 (0.0 - 100.0)	60.4 (9.4 - 96.5)
Neither helpful nor unhelpful	35.1 (3.7 - 85.3)	-	-	-	39.6 (3.5 - 90.6)
Unhelpful	-	-	-	-	-

3.1.12 Other people's gambling

Participants were asked how much gambling there was in the household that they were mainly brought up in and in their current household (excluding themselves). Responses to these questions are examined by gender, ethnicity and age in Table 44 and Table 45.

The great majority of people (85.8%) said there was little or no gambling in the family they mainly grew up in. Forty-four percent said there had been none at all. Only 4.5% said there was a lot and 9.6% said there was a moderate amount. No gender differences are evident with respect to gambling in families of origin. However, there are ethnic and age differences, particularly the former.

Around two-thirds of Asian (67.7%) and a half of Pacific Island (52.0%) people said there had been no gambling in the family they mainly grew up in. This compares to 41.0% for European/ Other and 32.4% for Māori. Similar proportions of European/Other (45.0%) and Māori (40.3%) said there had been a little gambling, higher than for Pacific Island (29.7%) and Asian (25.7%). Very low percentages of Asian people reported that there had been a moderate amount (4.2%) or a lot (2.5%) of gambling. Māori reported the highest percentages in these categories (14.6% and 12.6% respectively). Although the large majority of Pacific Island people said there was little or no gambling in their families of origin, 11.0% said there was a moderate amount and 7.3% that there was a lot. The corresponding European/Other figures are 9.8% and 4.1%.

The older adult groups and the youngest group had somewhat higher percentages of people who indicated that there had been no gambling in the families they mainly grew up in. It is highest for those aged 65 years and older (52.8%) and lowest for those aged 25-34 years (34.1%). Conversely more people in 25-34 year age group said there was a little (47.2%) or moderate (13.4%) amount of gambling and fewer aged 65 years and older said there was a little (36.8%) or a moderate (7.2%) amount. With regard to gambling a lot, the youngest and oldest age groups somewhat less reported that this was the case (both approximately 3%) than did the remaining middle age adult groups (range 4.0%-6.0%). However, these apparent differences are small and should be interpreted with caution.

Table 44: Gambling in family mainly brought up in for total population by gender, ethnicity and age

Demographic variables	Gambling in household that grew up in % (95% CI)				
	Not at all	A little	A moderate amount	A lot	Don't know
Total	43.6 (42.0 - 45.2)	42.2 (40.6 - 43.8)	9.6 (8.7 - 10.5)	4.5 (4.0 - 5.1)	0.1 (0.1 - 0.3)
Gender					
Male	43.7 (41.3 - 46.1)	42.5 (40.1 - 45.0)	9.9 (8.6 - 11.3)	3.8 (3.1 - 4.5)	0.1 (0.0 - 0.3)
Female	43.5 (41.5 - 45.5)	41.8 (39.8 - 43.9)	9.3 (8.1 - 10.5)	5.2 (4.4 - 6.1)	0.2 (0.1 - 0.4)
Ethnic group					
European/Other	41.0 (39.2 - 42.8)	45.0 (43.1 - 46.9)	9.8 (8.7 - 10.9)	4.1 (3.5 - 4.8)	0.1 (0.1 - 0.3)
Māori	32.4 (29.2 - 35.6)	40.3 (37.0 - 43.6)	14.6 (12.4 - 17.1)	12.6 (10.5 - 15.0)	0.2 (0.0 - 0.4)
Pacific	52.0 (47.7 - 56.3)	29.7 (26.1 - 33.5)	11.0 (8.2 - 14.4)	7.3 (5.4 - 9.6)	0.0 (0.0 - 0.2)
Asian	67.7 (64.1 - 71.1)	25.7 (22.4 - 29.1)	4.2 (2.8 - 6.0)	2.5 (1.5 - 3.8)	- -
Age group					
18 - 24 years	45.5 (40.3 - 50.8)	42.6 (37.1 - 48.2)	9.0 (6.2 - 12.5)	3.0 (1.8 - 4.6)	- -
25 - 34 years	34.1 (30.6 - 37.7)	47.2 (43.3 - 51.1)	13.4 (10.7 - 16.4)	5.1 (3.9 - 6.6)	0.2 (0.0 - 0.8)
35 - 44 years	39.3 (36.0 - 42.7)	44.8 (41.5 - 48.2)	9.8 (8.0 - 11.9)	6.0 (4.7 - 7.5)	- -
45 - 54 years	45.4 (42.0 - 48.8)	40.6 (37.3 - 44.0)	8.4 (6.8 - 10.3)	5.6 (4.2 - 7.2)	- -
55 - 64 years	46.4 (42.7 - 50.1)	40.3 (36.7 - 43.9)	9.3 (7.2 - 11.9)	4.0 (2.6 - 5.8)	0.0 (0.0 - 0.1)
65+ years	52.8 (49.7 - 56.0)	36.8 (33.8 - 39.9)	7.2 (5.7 - 9.0)	2.7 (1.9 - 3.8)	0.4 (0.2 - 1.0)

Further data by demographics is detailed in Appendix 5.

When asked about gambling in their current households, participants were asked to consider other people, not themselves. This means the results cannot be directly compared with those provided in Table 44. Furthermore, the question was not applicable to people who are living alone and this needs to be taken into account when interpreting the results reported in Table 45.

The great majority of people reported no (44.5%) or little (43.7%) gambling in their current household. Only 3.8% reported a moderate amount and 0.8% a lot. Seven percent said the question was not applicable. There are no gender differences and it is unlikely that the slight age differences would be statistically significant. As was the case with gambling in family of origin, Asian (66.1%) and Pacific Island (57.2%) people more often said there is no gambling participation. The corresponding figures for European/Other and Māori are 41.5% and 42.7%. The two latter groups (respectively 46.2% and 43.2%) more often report a little gambling than Asian (28.5%) and Pacific Island (33.5%) people. Māori (8.1%) and Pacific Island (7.3%) somewhat more often say a moderate amount or a lot than European/Other (4.2%) and Asian (3.1%) people.

Table 45: Gambling in current household for total population by gender, ethnicity and age

Demographic variables	Gambling in current household, excluding self % (95% CI)						
	Not at all	A little	A moderate amount	A lot	Not applicable/ live alone	Refused	Don't know
Total	44.5 (42.9 - 46.2)	43.7 (42.1 - 45.4)	3.8 (3.2 - 4.5)	0.8 (0.5 - 1.2)	6.8 (6.2 - 7.5)	0.0 (0.0 - 0.1)	0.3 (0.1 - 0.6)
Gender							
Male	45.6 (43.2 - 47.9)	44.4 (42.0 - 46.8)	3.7 (2.8 - 4.8)	0.7 (0.3 - 1.4)	5.4 (4.7 - 6.1)	0.1 (0.0 - 0.2)	0.2 (0.1 - 0.4)
Female	43.6 (41.5 - 45.7)	43.1 (41 - 45.3)	3.8 (3.1 - 4.7)	0.9 (0.5 - 1.4)	8.2 (7.2 - 9.2)	-	0.4 (0.1 - 0.9)
Ethnic group							
European/Other	41.5 (39.7 - 43.5)	46.2 (44.3 - 48.1)	3.5 (2.8 - 4.3)	0.7 (0.4 - 1.2)	7.7 (7.0 - 8.5)	0.0 (0.0 - 0.1)	0.3 (0.1 - 0.6)
Māori	42.7 (39.6 - 45.7)	43.2 (39.9 - 46.5)	6.6 (5.0 - 8.6)	1.5 (0.8 - 2.4)	5.8 (4.8 - 6.9)	0.1 (0.0 - 0.6)	0.1 (0.0 - 0.6)
Pacific	57.2 (52.6 - 61.7)	33.5 (29.4 - 37.8)	6.3 (4.1 - 9.2)	1.0 (0.3 - 2.2)	1.9 (1.3 - 2.8)	-	0.1 (0.0 - 0.7)
Asian	66.1 (62.4 - 69.7)	28.5 (25.1 - 32.1)	2.8 (1.7 - 4.5)	0.3 (0.1 - 0.8)	1.8 (1.1 - 2.9)	-	0.4 (0.1 - 1.2)
Age group							
18 - 24 years	48.4 (42.8 - 53.9)	41.8 (36.6 - 47.2)	6.2 (3.8 - 9.5)	1.7 (0.5 - 4.2)	1.5 (0.9 - 2.4)	-	0.4 (0.1 - 1.2)
25 - 34 years	44.3 (40.5 - 48.1)	43.3 (39.3 - 47.4)	5.7 (4.1 - 7.7)	1.1 (0.4 - 2.4)	4.7 (3.4 - 6.4)	-	0.9 (0.3 - 2.4)
35 - 44 years	47.8 (44.5 - 51.1)	44.0 (40.7 - 47.4)	3.3 (2.2 - 4.6)	0.4 (0.2 - 0.7)	4.4 (3.4 - 5.6)	0.1 (0.0 - 0.3)	0.0 (0.0 - 0.2)
45 - 54 years	46.8 (43.4 - 50.4)	45.0 (41.5 - 48.6)	2.7 (1.7 - 4.0)	0.3 (0.1 - 1.0)	5.0 (4.0 - 6.1)	0.0	0.2 (0.0 - 0.6)
55 - 64 years	37.2 (33.6 - 41)	48.7 (44.8 - 52.6)	3.2 (2.0 - 4.8)	1.6 (0.8 - 3.0)	9.1 (7.5 - 10.8)	0.0	0.2 (0 - 0.8)
65+ years	41.7 (38.5 - 44.8)	39.7 (36.5 - 42.9)	2.2 (1.4 - 3.3)	0.0 (0.0 - 0.2)	16.2 (14.3 - 18.3)	0.1 (0.0 - 0.5)	0.1 (0.0 - 0.5)

In Table 46, gambling in family of origin and gambling in current household are examined in relation to problem gambling level. Problem gamblers (26.4%) more often say there was a lot of gambling in the families they mainly grew up in than do moderate-risk (10.0%), low-risk (8.3%) and non-problem (4.5%) gamblers. Low- and moderate-risk gamblers somewhat more often than non-problem gamblers say there was a moderate amount of gambling.

With regard to gambling in current household, problem gamblers (26.6%) more often report a lot or a moderate amount of gambling than is the case for moderate-risk (16.7%), low-risk (15.2%) and non-problem (4.1%) gamblers. There do not appear to be any differences between the groups with respect to non-gambling (range 32.5%-38.6%) and while there are apparent differences for low levels of gambling, the confidence intervals are wide and they may not be real.

Table 46: Gambling in family mainly brought up in and current household by problem gambling level

Gambling in household contexts	Problem gambling level % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
Gambling in the family mainly brought up in								
Not at all	39.6	(37.9 - 41.4)	29.5	(23.5 - 36.0)	32.6	(22.9 - 43.6)	31.0	(16.8 - 48.7)
A little	45.8	(44.0 - 47.7)	46.3	(39.5 - 53.3)	37.5	(26.9 - 49.1)	28.8	(15.0 - 46.6)
A moderate amount	9.9	(8.8 - 11.0)	16.0	(11.1 - 22.0)	19.9	(11.9 - 30.4)	13.8	(5.8 - 27.0)
A lot	4.5	(3.9 - 5.2)	8.3	(5.3 - 12.0)	10.0	(5.6 - 16.1)	26.4	(13.6 - 43.2)
Don't know	0.0	(0.1 - 0.3)	-	-	-	-	-	-
Current household gambling, apart from self								
Not at all	38.6	(36.7 - 40.5)	36.8	(30.2 - 43.9)	32.5	(23.4 - 42.8)	37.9	(23.1 - 54.7)
A little	50.1	(48.1 - 52.0)	39.4	(32.6 - 46.6)	43.4	(32.6 - 54.6)	32.6	(17.5 - 51.1)
A moderate amount	3.4	(2.8 - 4.1)	13.5	(7.9 - 21.1)	10.1	(4.7 - 18.6)	17.3	(6.9 - 33.8)
A lot	0.7	(0.3 - 1.2)	1.7	(0.3 - 5.3)	6.6	(2.4 - 14.3)	9.3	(1.9 - 27.1)
Not applicable/live alone	7.0	(6.3 - 7.8)	7.4	(5.0 - 10.4)	5.8	(2.9 - 10.1)	2.9	(1.1 - 6.2)
Refused	0.0	(0.0 - 0.1)	-	-	-	-	-	-
Don't know	0.2	(0.1 - 0.6)	1.3	(0.2 - 4.6)	1.7	(0.3 - 6.2)	-	-

Table 47 provides information regarding the people participants know whom they consider may have or have had a problem with gambling. It also examines this by gender, ethnicity and age.

Overall, a third of participants (33.0%) were of the view that they knew at least one person who has or had a problem with gambling. In the table this percentage is presented in the reverse, as people who did not know someone in this category. There is no gender difference in this regard. However, there are ethnic differences. Over three quarters of Asian people said they did not know anyone like this, compared to around two-thirds of European/Other and Pacific people, and half of Māori. Over three-quarters of people in the oldest age group also said they were not aware of anyone in their social circle being in this situation, higher than for the other age groups.

For adults generally, 2.2% considered that their spouse or partner either currently experienced, or had in the past, problems with gambling. Corresponding figures are 3.6% for fathers, 2.4% for mothers, 2.7% for brothers, 1.4% for sisters, 1.1% for sons or daughters, 5.3% for workmates, 0.4% for a boarder, 8.8% for another close family member, 1.3% for an additional other close family member, 13.7% for a friend or someone else in the respondent's life and 1.6% for an additional person in this category.

With regard to gender, apart from spouse or partner where more females mentioned this, and workmates, where more males do, gender differences appear to be minor. Age differences are also generally minor. The most marked ethnic difference is the higher rate of reporting by Māori of family members and other people considered likely to have gambling-related problems. This is also evident to a lesser degree for Pacific people, although in some cases including son or daughter, very few people say that they think they have or had problems.

Table 47: People respondents think have a gambling problem for total population by gender, ethnicity and age

Demographic variables	People who may have or have had a problem with gambling % (95% CI)					
	Spouse/partner		Father		Mother	
Total	2.2	(1.8 - 2.6)	3.6	(3.1 - 4.2)	2.4	(2.0 - 2.8)
Gender						
Male	1.5	(1.0 - 2.0)	3.0	(2.3 - 3.8)	1.7	(1.3 - 2.3)
Female	2.9	(2.3 - 3.5)	4.2	(3.4 - 5.0)	3.0	(2.3 - 3.7)
Ethnic group						
European/Other	2.1	(1.6 - 2.5)	3.5	(2.9 - 4.1)	2.0	(1.6 - 2.5)
Māori	4.7	(3.5 - 6.1)	7.3	(5.8 - 8.9)	7.3	(5.7 - 9.2)
Pacific	2.6	(1.7 - 3.8)	4.8	(3.4 - 6.7)	5.9	(4.1 - 8.2)
Asian	1.8	(1.0 - 3.0)	2.2	(1.3 - 3.5)	1.8	(1.0 - 3.0)
Age group						
18 - 24 years	0.9	(0.4 - 1.7)	2.4	(1.4 - 4.1)	3.4	(2.1 - 5.3)
25 - 34 years	1.7	(0.9 - 2.9)	4.2	(2.8 - 6.0)	4.2	(3.0 - 5.7)
35 - 44 years	2.9	(2.1 - 3.9)	4.6	(3.5 - 6.0)	3.1	(2.2 - 4.3)
45 - 54 years	2.7	(1.8 - 3.7)	4.4	(3.1 - 5.9)	1.4	(0.9 - 2.1)
55 - 64 years	3.2	(2.1 - 4.7)	3.3	(2.0 - 5.2)	1.3	(0.5 - 2.8)
65+ years	1.5	(0.9 - 2.3)	2.0	(1.3 - 3.0)	0.7	(0.3 - 1.4)

Demographic variables	People who may have or have had a problem with gambling % (95% CI)					
	Brother		Sister		Son/daughter	
Total	2.7	(2.2 - 3.2)	1.4	(1.1 - 1.7)	1.1	(0.9 - 1.4)
Gender						
Male	2.7	(2.0 - 3.4)	0.8	(0.5 - 1.2)	0.8	(0.5 - 1.2)
Female	2.7	(2.2 - 3.4)	1.9	(1.4 - 2.4)	1.4	(1.1 - 1.9)
Ethnic group						
European/Other	2.7	(2.2 - 3.3)	1.0	(0.7 - 1.3)	1.3	(1.0 - 1.7)
Māori	5.8	(4.4 - 7.5)	5.2	(4.0 - 6.6)	1.2	(0.7 - 1.8)
Pacific	2.9	(1.8 - 4.5)	2.9	(1.9 - 4.2)	0.1	(0.0 - 0.3)
Asian	1.4	(0.7 - 2.5)	0.7	(0.2 - 1.6)	0.5	(0.1 - 1.2)
Age group						
18 - 24 years	1.7	(0.8 - 3.2)	0.5	(0.2 - 1.2)	-	-
25 - 34 years	2.8	(1.7 - 4.2)	1.9	(1.3 - 2.8)	0.0	(0.0 - 0.2)
35 - 44 years	2.9	(1.9 - 4.1)	1.4	(0.9 - 2.2)	0.1	(0.0 - 0.2)
45 - 54 years	3.1	(2.2 - 4.2)	1.3	(0.8 - 2.0)	1.3	(0.8 - 2.2)
55 - 64 years	3.3	(2.2 - 4.9)	2.4	(1.4 - 3.9)	3.0	(1.9 - 4.5)
65+ years	2.2	(1.4 - 3.2)	0.5	(0.2 - 0.9)	2.5	(1.7 - 3.6)

Demographic variables	People who may have or have had a problem with gambling % (95% CI)					
	Workmate		Boarder		Another close family member (1st)	
Total	5.3	(4.6 - 6.1)	0.4	(0.2 - 0.6)	8.8	(8.0 - 9.7)
Gender						
Male	7.7	(6.5 - 9.1)	0.5	(0.2 - 0.8)	8.2	(7.0 - 9.5)
Female	3.1	(2.4 - 3.9)	0.3	(0.1 - 0.5)	9.3	(8.2 - 10.5)
Ethnic group						
European/Other	5.6	(4.8 - 6.6)	0.4	(0.2 - 0.6)	8.5	(7.5 - 9.6)
Māori	6.7	(5.2 - 8.5)	0.6	(0.2 - 1.3)	18.2	(15.8 - 20.7)
Pacific	6.5	(4.7 - 8.8)	0.3	(0.1 - 1.0)	12.2	(9.8 - 14.9)
Asian	3.7	(2.4 - 5.6)	-	-	4.6	(3.2 - 6.3)
Age group						
18 - 24 years	4.1	(2.3 - 6.8)	0.2	(0.0 - 1.1)	11.0	(8.2 - 14.4)
25 - 34 years	6.2	(4.4 - 8.5)	0.2	(0.0 - 0.6)	11.1	(8.8 - 13.9)
35 - 44 years	6.6	(5.1 - 8.4)	0.4	(0.1 - 1.0)	8.5	(6.9 - 10.4)
45 - 54 years	6.3	(4.9 - 8.1)	1.0	(0.5 - 1.7)	9.6	(7.9 - 11.6)
55 - 64 years	5.6	(3.9 - 7.7)	0.2	(0.1 - 0.7)	6.5	(4.5 - 9.1)
65+ years	2.2	(1.4 - 3.2)	-	-	5.8	(4.6 - 7.3)

Demographic variables	People who may have or have had a problem with gambling % (95% CI)							
	Another close family member (2nd)		A friend or someone else in your life (1st)		A friend or someone else in your life (2nd)		None	
Total	1.3	(1.0 - 1.7)	13.7	(12.6 - 14.9)	1.6	(1.3 - 2.0)	67.0	(65.5 - 68.5)
Gender								
Male	0.9	(0.6 - 1.4)	14.4	(12.6 - 16.3)	1.7	(1.2 - 2.3)	66.1	(63.8 - 68.4)
Female	1.6	(1.2 - 2.2)	13.1	(11.8 - 14.5)	1.6	(1.2 - 2.1)	67.9	(65.9 - 69.8)
Ethnic group								
European/other	1.1	(0.8 - 1.5)	14.3	(12.9 - 15.7)	1.7	(1.3 - 2.2)	66.5	(64.7 - 68.3)
Māori	4.5	(3.3 - 6.1)	18.6	(16.1 - 21.4)	2.7	(1.7 - 3.9)	50.3	(46.8 - 53.9)
Pacific	2.7	(1.7 - 4.7)	9.1	(7.0 - 11.6)	1.7	(0.8 - 2.4)	65.2	(61.1 - 69.2)
Asian	1.0	(0.4 - 1.9)	10.2	(8.0 - 12.7)	1.3	(0.7 - 2.3)	77.0	(73.6 - 80.1)
Age group								
18 - 24 years	2.1	(1.2 - 3.6)	14.4	(10.8 - 18.7)	1.3	(0.6 - 2.5)	66.7	(61.6 - 71.6)
25 - 34 years	1.4	(0.9 - 2.1)	19.0	(16.0 - 22.2)	2.3	(1.2 - 3.7)	60.3	(56.5 - 64.1)
35 - 44 years	1.3	(0.8 - 2.1)	16.8	(14.2 - 19.7)	2.2	(1.4 - 3.3)	64.3	(60.8 - 67.7)
45 - 54 years	1.3	(0.8 - 2.1)	15.3	(12.9 - 17.9)	1.8	(1.1 - 2.7)	64.5	(61.1 - 67.7)
55 - 64 years	1.2	(0.5 - 2.6)	9.3	(7.5 - 11.3)	1.2	(0.6 - 2.0)	68.6	(64.8 - 72.3)
65+ years	0.7	(0.4 - 1.3)	6.1	(4.7 - 7.6)	0.8	(0.4 - 1.5)	79.3	(76.7 - 81.7)

Further details by demographics are presented in Appendix 6.

Participants were asked, for each person they indicated had or may have had a problem with gambling, how their relationship with that person was mainly affected by their gambling. Responses were recorded verbatim and later categorised as indicated in Table 48. Socio-demographic differences are also considered.

Approximately three-quarters of people said that their relationship had not been affected (about 258,000 adults were affected). Males (81.7%) more often said this was the case than did females (72.5%), as did Māori (89.9%) to people in the other three ethnic categories (range 76.2%-81.8%).

For the population as a whole, adverse financial impacts (21.3%) were mentioned most often, followed by loss of relationship (9.5%), stress to family (8.3%), loss or lack of trust (7.3%), felt anger, frustration and resentment (6.5%) and felt sorry or concern for them and/or tried to help (6.1%). Less frequently mentioned effects include loss of time together in relationship and family (4.9%), fights and domestic violence (3.7%), consequences of gambler's bad moods and distress (3.4%), puts people off gambling (3.1%), family breakup or split (2.7%), tried to give them advice not to gamble (2.5%), and pressure to go to gambling places when don't want to (2.1%). Some other effects were mentioned by less than two percent of people.

Females more often mentioned the following effects than males did: adverse financial impacts; loss of relationship; stress to the family; loss or lack of trust; felt anger, frustration and resentment; and family breakup or split. Māori (29.9%) and Pacific people (32.2%) more often referred to adverse financial impacts than European/Other (19.0%) and Asian (22.6%). Māori, relative to Asian people, more often mentioned feeling sorry or concern for the gambler, and loss of time together. Adults aged 18-24 years, less often than the other age groups, mentioned adverse financial impacts. Other differences are generally minimal and are unlikely to be significant.

Further details by demographics are presented in Appendix 7. Sample size is generally too small to be able to determine reliable estimates and differences between groups.

Table 48: Main effects of people respondents think have a gambling problem by gender, ethnicity and age

Demographic variables	Main effects of other people's gambling % (95% CI)							
	Relationship broke up/split up/destroyed the relationship		Loss of trust/lack of trust/lies/deceit/ secrecy/dishonesty		Loss of respect/ have no respect		Financially/lack of money/ borrowing money/bills not paid/no money for food/ amount of money being spent/lost everything	
Total	1.3	(0.8 - 1.9)	7.3	(6.0 - 8.7)	1.6	(1.1 - 2.3)	21.3	(19.3 - 23.5)
Gender								
Male	0.6	(0.2 - 1.2)	5.0	(3.5 - 6.9)	1.6	(0.9 - 2.7)	17.4	(14.6 - 20.5)
Female	2.0	(1.2 - 3.1)	9.5	(7.5 - 11.8)	1.6	(0.9 - 2.6)	25.1	(22.2 - 28.2)
Ethnic group								
European/Other	1.4	(0.9 - 2.1)	7.4	(5.9 - 9.1)	1.9	(1.2 - 2.7)	19.0	(16.7 - 21.6)
Māori	1.3	(0.6 - 2.4)	8.1	(5.9 - 10.8)	2.0	(0.9 - 3.7)	29.9	(25.9 - 34.1)
Pacific	1.1	(0.3 - 2.7)	6.3	(3.8 - 9.7)	0.5	(0.1 - 1.8)	32.2	(26.2 - 38.7)
Asian	0.2	(0.0 - 0.9)	3.6	(1.6 - 7.1)	-	-	22.6	(16.7 - 29.6)
Age group								
18 - 24 years	0.2	(0.0 - 1.0)	4.6	(1.7 - 9.8)	-	-	10.6	(6.8 - 15.5)
25 - 34 years	2.3	(1.0 - 4.7)	5.9	(3.3 - 9.7)	1.9	(0.7 - 4.3)	27.8	(22.1 - 34.1)
35 - 44 years	1.1	(0.4 - 2.6)	9.1	(6.4 - 12.5)	2.7	(1.3 - 5.0)	22.0	(18.2 - 26.1)
45 - 54 years	1.0	(0.4 - 2.2)	10.8	(7.8 - 14.6)	1.8	(0.8 - 3.4)	23.4	(19.5 - 27.7)
55 - 64 years	1.4	(0.5 - 3.3)	7.0	(4.1 - 11.0)	1.2	(0.3 - 3.3)	21.8	(16.6 - 27.8)
65+ years	1.1	(0.4 - 2.6)	3.3	(1.6 - 6.1)	0.8	(0.2 - 2.8)	15.2	(11.1 - 20.2)

Demographic variables	Main effects of other people's gambling % (95% CI)							
	Had arguments/ fights/domestic violence		Affected badly/a lot/strongly affected/ gave us problems		Family break-up/ split the family up/ strained relations		Lost contact/not friends anymore/have no contact now/avoid/hardly see	
Total	3.7	(2.8 - 4.7)	0.8	(0.5 - 1.3)	2.7	(2.0 - 3.5)	9.5	(8.0 - 11.0)
Gender								
Male	2.8	(1.5 - 4.7)	0.4	(0.1 - 0.9)	1.5	(0.8 - 2.6)	7.0	(5.1 - 9.3)
Female	4.5	(3.4 - 5.9)	1.3	(0.7 - 2.0)	3.8	(2.8 - 5.1)	11.9	(9.9 - 14.1)
Ethnic group								
European/Other	3.3	(2.3 - 4.6)	0.7	(0.4 - 1.2)	2.5	(1.8 - 3.4)	8.7	(7.1 - 10.6)
Māori	6.0	(4.2 - 8.3)	2.0	(1.1 - 3.4)	4.0	(2.6 - 5.9)	12.5	(9.8 - 15.7)
Pacific	3.8	(2.2 - 6.2)	1.1	(0.4 - 2.6)	1.9	(0.8 - 3.7)	9.4	(6.5 - 13.0)
Asian	4.6	(2.1 - 8.8)	2.5	(0.9 - 5.6)	2.4	(0.9 - 5.4)	10.4	(6.5 - 15.6)
Age group								
18 - 24 years	3.1	(1.4 - 5.8)	0.6	(0.1 - 1.9)	0.8	(0.3 - 2.0)	7.7	(3.9 - 13.5)
25 - 34 years	3.0	(1.1 - 6.8)	0.4	(0.2 - 0.9)	1.5	(0.7 - 2.8)	10.0	(6.7 - 14.4)
35 - 44 years	5.9	(3.9 - 8.5)	1.7	(0.8 - 3.4)	5.5	(3.4 - 8.5)	11.2	(8.6 - 14.2)
45 - 54 years	4.7	(2.8 - 7.4)	0.3	(0.1 - 0.8)	2.6	(1.4 - 4.3)	9.3	(6.6 - 12.6)
55 - 64 years	2.6	(1.1 - 5.0)	1.4	(0.4 - 3.5)	2.5	(1.1 - 5.0)	10.1	(6.1 - 15.5)
65+ years	0.7	(0.2 - 1.9)	0.5	(0.1 - 1.7)	2.4	(1.2 - 4.3)	6.6	(3.8 - 10.7)

Demographic variables	Main effects of other people's gambling % (95% CI)									
	Gambler has bad moods/ grumpiness when losing/angry/ tense/stressed out		Stress/stress to the family/worry about it/felt worried/ emotionally affected/upsetting		Always gambling/ obsessed/ addicted/ using free time for gambling/ isolated/ unsociable/not there for us		Tried to give advice/talk to them/advised them not to gamble/they wouldn't listen		Felt sorry for them/felt concern/ sad for them/ sympathy/tried to help/had to help them	
Total	3.4	(2.5 - 4.4)	8.3	(6.8 - 10.0)	4.9	(4.0 - 6.0)	2.5	(1.9 - 3.4)	6.1	(5.0 - 7.5)
Gender										
Male	2.5	(1.5 - 4.1)	4.8	(3.3 - 6.7)	3.8	(2.6 - 5.2)	2.3	(1.3 - 3.6)	5.3	(3.7 - 7.3)
Female	4.2	(3.0 - 5.7)	11.7	(9.3 - 14.4)	6.0	(4.6 - 7.6)	2.8	(1.9 - 3.9)	7.0	(5.3 - 8.9)
Ethnic group										
European/Other	3.6	(2.6 - 4.9)	9.0	(7.3 - 11.0)	4.7	(3.6 - 6.0)	1.9	(1.2 - 2.8)	6.1	(4.7 - 7.7)
Māori	3.2	(1.8 - 5.1)	6.0	(4.2 - 8.2)	7.6	(5.6 - 10.2)	3.9	(2.3 - 6.1)	9.2	(7.0 - 11.8)
Pacific	3.5	(1.6 - 6.7)	6.5	(3.3 - 11.4)	6.7	(4.0 - 10.5)	3.6	(1.8 - 6.3)	4.8	(2.9 - 7.6)
Asian	1.3	(0.3 - 4.3)	4.7	(2.2 - 8.8)	2.9	(1.3 - 5.5)	5.9	(2.6 - 11.3)	2.3	(0.9 - 4.8)
Age group										
18 - 24 years	4.3	(1.7 - 9.3)	3.9	(1.7 - 7.6)	3.2	(1.3 - 6.4)	1.4	(0.5 - 3.3)	3.0	(0.9 - 7.6)
25 - 34 years	2.8	(1.4 - 4.9)	9.7	(5.9 - 15)	8.1	(5.7 - 11.1)	2.5	(1.2 - 4.7)	7.6	(4.6 - 11.7)
35 - 44 years	5.2	(3.1 - 8.3)	8.4	(5.7 - 12.0)	5.3	(3.4 - 7.8)	1.8	(0.8 - 3.2)	5.3	(3.2 - 8.1)
45 - 54 years	2.8	(1.5 - 4.7)	8.7	(5.9 - 12.4)	4.0	(2.4 - 6.1)	2.2	(1.1 - 3.9)	7.2	(4.9 - 10.1)
55 - 64 years	2.5	(1.1 - 4.8)	9.5	(6.0 - 14.2)	4.2	(2.1 - 7.4)	4.9	(2.4 - 9.0)	8.1	(5.3 - 11.9)
65+ years	2.0	(0.8 - 4.3)	7.9	(4.8 - 12.2)	2.4	(1.0 - 5.1)	3.1	(1.5 - 5.8)	4.3	(2.1 - 7.8)

Main effects of other people's gambling % (95% CI)								
Demographic variables	A little affected/a bit/a slight concern		Stealing/theft of money		Became lazy/days off work/no energy/not doing their share		Felt annoyance/anger/frustration/resentment/disappointed/wary of them/felt they were not nice people/didn't like them	
Total	0.7	(0.4 - 1.3)	1.5	(1.0 - 2.3)	1.3	(0.8 - 2.0)	6.5	(5.3 - 7.8)
Gender								
Male	0.1	(0.0 - 0.4)	1.5	(0.8 - 2.7)	1.6	(0.9 - 2.6)	4.0	(2.8 - 5.6)
Female	1.3	(0.6 - 2.4)	1.6	(0.9 - 2.5)	1.1	(0.5 - 2.1)	8.9	(7.1 - 10.9)
Ethnic group								
European/Other	0.8	(0.3 - 1.5)	1.6	(1.0 - 2.5)	1.4	(0.8 - 2.2)	6.5	(5.2 - 8.0)
Māori	0.3	(0.1 - 0.9)	1.7	(0.8 - 3.0)	1.4	(0.6 - 2.9)	6.7	(4.8 - 9.0)
Pacific	0.9	(0.4 - 2.0)	1.2	(0.4 - 2.9)	1.8	(0.5 - 4.6)	6.8	(4.3 - 10.4)
Asian	0.6	(0.1 - 2.8)	-	-	0.8	(0.2 - 2.5)	5.2	(2.7 - 8.8)
Age group								
18 - 24 years	1.4	(0.2 - 6.1)	-	-	-	-	5.7	(2.7 - 10.5)
25 - 34 years	0.3	(0.0 - 1.5)	1.4	(0.5 - 3.3)	0.4	(0.1 - 1.1)	5.0	(3.0 - 7.9)
35 - 44 years	0.4	(0.1 - 1.5)	2.4	(1.1 - 4.7)	1.8	(0.7 - 3.9)	7.0	(4.5 - 10.2)
45 - 54 years	0.5	(0.2 - 1.0)	2.1	(1.0 - 4.1)	2.2	(0.9 - 4.5)	9.2	(6.5 - 12.4)
55 - 64 years	1.3	(0.4 - 3.0)	1.6	(0.5 - 3.8)	1.9	(0.7 - 4.5)	4.7	(2.7 - 7.8)
65+ years	0.3	(0.0 - 1.2)	0.8	(0.1 - 2.9)	1.4	(0.4 - 3.9)	6.4	(3.9 - 10.0)

Main effects of other people's gambling % (95% CI)								
Demographic variables	Put me off gambling/helps me keep away from it/made me more aware/hate any type of gambling		Pressure to go to places/gambling places/sometimes didn't want to go		Positive effects		Introduced me to gambling/influenced me and others to gamble/an influence on my gambling	
Total	3.1	(2.3 - 4.1)	2.1	(1.4 - 3.1)	2.0	(1.4 - 2.8)	1.2	(0.7 - 1.8)
Gender								
Male	2.1	(1.3 - 3.2)	1.8	(0.9 - 3.3)	2.0	(1.2 - 3.2)	1.1	(0.4 - 2.2)
Female	4.1	(2.7 - 5.9)	2.5	(1.6 - 3.7)	2.0	(1.3 - 3.0)	1.3	(0.7 - 2.1)
Ethnic group								
European/Other	3.1	(2.1 - 4.4)	2.3	(1.5 - 3.4)	2.0	(1.3 - 2.9)	1.1	(0.6 - 1.8)
Māori	5.5	(3.6 - 7.9)	2.2	(1.3 - 3.5)	3.3	(1.9 - 5.5)	1.7	(0.9 - 2.9)
Pacific	2.8	(1.3 - 5.3)	1.4	(0.5 - 3.2)	2.3	(1.0 - 4.7)	0.9	(0.3 - 2.2)
Asian	3.1	(1.3 - 6.1)	1.9	(0.5 - 4.9)	3.1	(1.2 - 6.4)	2.8	(0.6 - 8.8)
Age group								
18 - 24 years	2.4	(1.0 - 5.0)	6.0	(2.6 - 11.8)	2.2	(0.6 - 5.9)	0.3	(0.1 - 1.0)
25 - 34 years	5.2	(2.7 - 9.2)	1.9	(0.9 - 3.6)	1.3	(0.5 - 2.9)	2.8	(1.3 - 5.4)
35 - 44 years	1.3	(0.6 - 2.6)	2.0	(1.0 - 3.8)	2.4	(1.1 - 4.6)	1.1	(0.4 - 2.5)
45 - 54 years	3.5	(1.9 - 5.8)	1.6	(0.7 - 3.0)	2.6	(1.3 - 4.6)	1.2	(0.4 - 2.6)
55 - 64 years	2.1	(0.9 - 4.3)	0.9	(0.1 - 3.5)	2.2	(1.0 - 4.0)	-	-
65+ years	3.3	(1.5 - 6.3)	0.8	(0.1 - 2.8)	1.1	(0.3 - 3.0)	0.5	(0.1 - 1.7)

Main effects of other people's gambling % (95% CI)								
Demographic variables	Lack of communication/didn't talk much		Share their problems with me/always complaining		Others		Relationship not affected	
Total	0.8	(0.4 - 1.5)	0.5	(0.3 - 0.8)	3.5	(2.7 - 4.5)	77.0	(74.8 - 79.2)
Gender								
Male	1.5	(0.7 - 2.8)	0.3	(0.1 - 1.0)	2.8	(1.8 - 4.1)	81.7	(78.7 - 84.5)
Female	0.3	(0.1 - 0.5)	0.6	(0.3 - 1.1)	4.2	(3.0 - 5.7)	72.5	(69.4 - 75.4)
Ethnic group								
European/Other	0.6	(0.2 - 1.4)	0.5	(0.2 - 0.9)	3.5	(2.5 - 4.6)	76.2	(73.5 - 78.7)
Māori	1.1	(0.4 - 2.5)	0.6	(0.2 - 1.8)	4.6	(3.0 - 6.7)	89.9	(86.9 - 92.3)
Pacific	2.4	(1.0 - 4.8)	0.9	(0.2 - 2.3)	3.5	(1.5 - 6.9)	81.8	(76.3 - 86.5)
Asian	1.3	(0.4 - 3.3)	0.4	(0.0 - 1.8)	0.8	(0.2 - 2.7)	76.3	(69.1 - 82.6)
Age group								
18 - 24 years	0.2	(0.0 - 0.9)	-	-	2.2	(0.6 - 5.9)	82.3	(76.0 - 87.4)
25 - 34 years	1.4	(0.3 - 4.4)	0.8	(0.2 - 2.3)	3.8	(2.0 - 6.5)	76.8	(71.7 - 81.4)
35 - 44 years	0.9	(0.3 - 2.0)	1.1	(0.5 - 2.2)	4.7	(2.8 - 7.5)	79.0	(74.7 - 82.9)
45 - 54 years	1.2	(0.4 - 2.8)	0.1	(0.0 - 0.7)	2.6	(1.5 - 4.4)	76.3	(71.6 - 80.4)
55 - 64 years	0.3	(0.1 - 0.9)	0.3	(0.1 - 1.1)	3.1	(1.6 - 5.5)	73.0	(65.5 - 79.7)
65+ years	0.5	(0.1 - 2.3)	-	-	4.3	(2.2 - 7.4)	74.5	(68.5 - 79.8)

All participants were asked if there had ever been an argument in their household about gambling and if so, whether it was about their gambling, someone else's gambling or both. They were also asked if an argument of this type had taken place in the past 12 months. Results are given in Table 49.

Around one in ten people (11.5%, about 386,000 adults) said they had an argument of this type in their lifetime and just over a quarter of those who had done so (27.4%) said that they had an argument of this type during the past 12 months.

Females (13.1%) somewhat more often than males (9.8%) said they had an argument of this type sometime in their life, and men more often (13.8% versus 4.6%) said it was about their gambling rather than someone else's. Māori (23.3%) and Pacific Island (17.2%) people more often said they had an argument of this type than European/Other (11.1%) and Asian (7.6%). European/Other (90.3%) more often than Māori (77.2%) indicated that arguments were about someone else's gambling other than their own. They less often (2.3%) than Māori (8.1%) said arguments had been about both their own and someone else's gambling. Age differences are not marked although people in the second and third older categories (16.6% and 14.2%) are somewhat higher than people in the youngest (9.1%) and two oldest (9.9%, 4.7%) categories.

A higher percentage of Pacific (46.0%) and Asian (43.3%) people who had experienced arguments of this type reported that they had done so in the past 12 months than was the case for European/Other (23.6%) and Māori (32.3%). Younger adults (18-24 years, 52.2%; 25-34 years, 32.4%) also more often said they had arguments during the past year (range of 11.2%-23.6% for other age groups).

All participants were asked if, in their wider family or household, someone had ever had to go without something they needed, or some bills weren't paid, because too much was spent on gambling by another person. People who answered in the affirmative were asked if it was their gambling, someone else's or both that was involved. They were also asked if someone went without something or some bills weren't paid in the past 12 months (Table 50).

About one in 12 people (about 430,000 adults) said this had happened at some time and of these people, a third said it had happened during the past year. As with arguments, females (9.7%) somewhat more often than males (6.1%) indicated that this had occurred at some time. Māori (19.9%) and Pacific (13.5%) people said this more often than European/Other (7.4%) and Asian (3.1%) people. Again, adults in the youngest and older age groups reported this experience less often than those in other age groups.

Most people (92.3%) said they went without something or didn't pay bills because of someone else's gambling. Much smaller numbers said it was because of their own gambling (4.8%) or both their own and someone else's (3.0%). The apparent gender and ethnic differences are unlikely to be significant. This is also probably the case with respect to age, other than that people aged 45-54 years (8.5%) might have this experience more often than people aged 65 years and older (4.1%). Pacific (48.3%), Asian (42.4%) and Māori (41.9%) more often than Europeans/Other (28.2%) said this happened in the last 12 months. Younger people also more often reported that this was the case than did older people (56.5% of the youngest group, 11.7% of the oldest group).

New Zealand born, unemployed people, and people with large households also more often reported gambling-related arguments and going without things, or bills not being paid (Appendix 8).

Table 49: Arguments because of gambling for total population by gender, ethnicity and age

Demographic variables	Arguments about time or money spent gambling % (95% CI)				
	Ever been an argument	Whose gambling that argument was about			Argument was in the last 12 months
		My gambling	Someone else's gambling	Both	
Total	11.5 (10.6 - 12.5)	8.4 (6.1 - 11.1)	88.0 (85.0 - 90.6)	3.7 (2.5 - 5.2)	27.4 (23.6 - 31.5)
Gender					
Male	9.8 (8.6 - 11.3)	13.8 (9.2 - 19.5)	82.3 (76.3 - 87.3)	3.9 (2.1 - 6.7)	25.6 (19.3 - 32.8)
Female	13.1 (11.8 - 14.4)	4.6 (2.9 - 6.9)	91.9 (89.1 - 94.2)	3.5 (2.1 - 5.4)	28.7 (24.0 - 33.8)
Ethnic group					
European/Other	11.1 (10.0 - 12.2)	7.5 (4.8 - 10.9)	90.3 (86.6 - 93.2)	2.3 (1.1 - 4.1)	23.6 (19.0 - 28.7)
Māori	23.3 (20.8 - 26.0)	6.3 (3.7 - 9.8)	85.6 (80.7 - 89.7)	8.1 (5.2 - 11.9)	32.3 (26.5 - 38.5)
Pacific	17.2 (14 - 20.9)	15.4 (8.7 - 24.7)	77.2 (66.9 - 85.5)	7.3 (3.3 - 14.1)	46.0 (35.5 - 56.7)
Asian	7.6 (5.7 - 9.7)	11.4 (3.6 - 26.1)	84.1 (68.6 - 93.7)	4.5 (1.3 - 11.6)	43.3 (29.8 - 57.6)
Age group					
18 - 24 years	9.1 (6.7 - 12.0)	8.7 (3.1 - 18.8)	88.1 (77.5 - 94.8)	3.2 (0.8 - 8.8)	52.2 (36.3 - 67.7)
25 - 34 years	16.6 (13.8 - 19.7)	9.2 (4.7 - 15.9)	88.5 (81.9 - 93.3)	2.3 (1.0 - 4.4)	32.4 (24.5 - 41.2)
35 - 44 years	14.2 (12.1 - 16.7)	6.8 (3.3 - 12.3)	88.6 (82.8 - 92.9)	4.6 (2.4 - 8.0)	23.3 (17.5 - 30.1)
45 - 54 years	12.8 (10.7 - 15.1)	9.3 (4.9 - 15.7)	87.9 (81.4 - 92.7)	2.8 (1.1 - 5.7)	21.6 (15.0 - 29.5)
55 - 64 years	9.9 (7.8 - 12.4)	8.1 (3.3 - 16.2)	86.5 (76.1 - 93.4)	5.4 (1.5 - 14.2)	23.6 (15.0 - 34.3)
65+ years	4.7 (3.6 - 6.1)	7.6 (3.1 - 15.6)	86.6 (76.2 - 93.5)	5.8 (1.5 - 15.3)	11.2 (4.9 - 21.3)

Table 50: Going without something needed in family or household because of gambling for total population by gender, ethnicity and age

Demographic variables	Someone went without something they needed, or some bills weren't paid, because too much was spent on gambling % (95% CI)				
	By another person in the wider family or house	One's own gambling or someone else's gambling			In the last 12 months
		My gambling	Someone else's gambling	Both	
Total	8.0 (7.2 - 8.8)	4.8 (3.0 - 7.2)	92.3 (89.5 - 94.5)	3.0 (1.8 - 4.6)	33.0 (28.3 - 38.1)
Gender					
Male	6.1 (5.1 - 7.2)	7.3 (3.7 - 12.8)	88.5 (82.3 - 93.1)	4.2 (1.8 - 8.6)	29.4 (21.5 - 38.5)
Female	9.7 (8.6 - 10.9)	3.3 (1.9 - 5.4)	94.4 (92.0 - 96.3)	2.2 (1.2 - 3.7)	35.1 (29.3 - 41.3)
Ethnic group					
European/Other	7.4 (6.5 - 8.4)	4.2 (2.2 - 7.2)	93.0 (89.5 - 95.6)	2.8 (1.5 - 5.0)	28.2 (22.3 - 34.7)
Māori	19.9 (17.5 - 22.6)	5.3 (2.9 - 8.9)	90.9 (86.4 - 94.3)	3.8 (1.9 - 6.8)	41.9 (34.9 - 49.3)
Pacific	13.5 (10.9 - 16.6)	9.3 (4.4 - 17.3)	87.4 (78.7 - 93.3)	3.3 (0.8 - 9.3)	48.3 (37.9 - 58.9)
Asian	3.1 (2.1 - 4.4)	5.3 (0.5 - 22.9)	86.9 (68.1 - 96.4)	7.8 (1.6 - 23.5)	42.4 (24.6 - 61.8)

Demographic variables	Someone went without something they needed, or some bills weren't paid, because too much was spent on gambling % (95% CI)				
	By another person in the wider family or house	One's own gambling or someone else's gambling			In the last 12 months
		My gambling	Someone else's gambling	Both	
Age group					
18 - 24 years	6.6 (4.5 - 9.4)	2.0 (0.3 - 7.0)	96.5 (90.1 - 99.2)	1.5 (0.2 - 7.1)	56.5 (38 - 73.7)
25 - 34 years	11.4 (9.2 - 13.9)	6.7 (2.8 - 13.4)	91.3 (84.7 - 95.7)	2.0 (0.7 - 4.4)	43.1 (32.9 - 53.8)
35 - 44 years	9.9 (8.1 - 11.9)	3.1 (1.4 - 6.1)	91.0 (85.3 - 95.0)	5.9 (2.6 - 11.3)	29.8 (22.7 - 37.7)
45 - 54 years	8.5 (6.9 - 10.3)	8.2 (3.5 - 16.0)	88.5 (80.1 - 94.1)	3.3 (0.9 - 9.0)	25.1 (17 - 34.8)
55 - 64 years	6.0 (4.6 - 7.9)	3.4 (0.9 - 9.3)	94.7 (87.0 - 98.4)	1.9 (0.3 - 6.3)	24.7 (14.5 - 37.6)
65+ years	4.1 (3.1 - 5.3)	0.6 (0.1 - 2.9)	99.4 (97.1 - 99.9)	- -	11.7 (4.5 - 24.1)

In Table 51, arguments and going without something needed in the family or household are examined by problem gambling level.

Having arguments about time or money spent gambling at some time increases from 10.8% for non-problem gamblers to 22.8% for low-risk gamblers, 43.7% for moderate-risk gamblers and 72.8% for problem gamblers. A similar pattern is evident with respect to whose gambling these arguments are about, with 2.6% of non-problem gamblers and 46.8% of problem gamblers saying it was about their own gambling. The risk groups fall between. Problem gamblers (68.4%) also more often said this type of argument had taken place during the past 12 months. The corresponding percentages for non-problem gamblers, low-risk gamblers and moderate-risk gamblers are 22.2%, 35.9% and 41.0%.

Almost two-thirds of problem gamblers (61.9%) reported that someone in their wider family or household had at some time gone without something they needed, or some bills weren't paid, because too much was spent on gambling by another person. Nearly a quarter of moderate-risk (23.5%), 12.8% of low-risk and 7.6% of non-problem gamblers reported this experience. Problem gamblers more often said this was because of their own gambling (26.2%) or their own and someone else's gambling (28.4%) than did non-problem gamblers (1.9%; 1.1%). Again, the other groups fell between. Problem gamblers (72.7%) also more often said these arguments had occurred during the past 12 months than did moderate-risk (40.1%), low-risk (42.6%) and non-problem (27.4%) gamblers.

Table 51: Arguments and going without something needed in family or household because of gambling by respondent versus someone else's gambling by problem gambling level

Household effects of gambling	Problem gambling level (95% CI)			
	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Argument about time/money spent on betting/gambling in wider family or household ever in one's lifetime	10.8 (9.7 - 12.0)	22.8 (17.4 - 28.9)	43.7 (33.2 - 54.6)	72.8 (54.4 - 86.7)
Whose gambling that argument was about				
My gambling	2.6 (1.4 - 4.4)	14.3 (6.2 - 27.3)	41.0 (25.6 - 57.9)	46.8 (28.3 - 66.0)
Someone else's gambling	96.5 (94.6 - 97.9)	81.4 (68.4 - 90.5)	42.2 (27.4 - 58.2)	22.2 (8 - 44.4)
Both	0.9 (0.4 - 1.7)	4.3 (1.3 - 10.4)	16.8 (7.1 - 31.9)	31.0 (16.4 - 49.3)
This topic of argument has occurred in the last 12 months	22.2 (18.0 - 26.9)	35.9 (23.5 - 49.9)	41.0 (25.4 - 58.1)	68.4 (49.5 - 83.5)

Household effects of gambling	Problem gambling level (95% CI)			
	Non-problem gambler	Low-risk gambler	Moderate-risk gambler	Problem gambler
Whether someone ever had to go without something they needed, or some bills were not paid, because too much was spent on gambling by another person in the wider family or household in one's lifetime	7.6 (6.7 - 8.6)	12.8 (8.8 - 17.7)	23.5 (16.1 - 32.3)	61.9 (44 - 77.7)
Whose gambling this was because of				
My gambling	1.9 (0.7 - 4.2)	9.2 (1.5 - 29.8)	20.3 (9.2 - 36.7)	26.2 (13.7 - 42.7)
Someone else's gambling	97.1 (94.6 - 98.6)	87.7 (68.6 - 96.8)	70.0 (53.6 - 83.2)	45.4 (24.7 - 67.4)
Both	1.1 (0.4 - 2.5)	3.2 (0.7 - 9.6)	9.7 (3.3 - 21.7)	28.4 (12.3 - 50.3)
Whether someone went without something they needed, or some bills were not paid, because too much was spent on gambling in the last 12 months	27.4 (21.6 - 33.8)	42.6 (27.7 - 58.7)	40.1 (24.0 - 58.0)	72.7 (51.9 - 87.9)

3.2 Changes over time and comparisons

3.2.1 Problem gambling

The PGSI has been used in three previous New Zealand national surveys, the 2006/07 and 2011/12 National Health Surveys and the 2010 Health and Lifestyle Survey. As previously indicated, these surveys all involved face-to-face household interviews. The first two were presented as part of a general health survey. The latter was presented as part of a wider health and lifestyle survey although potential survey participants were advised that it would also involve answering questions about gambling. Table 52 provides past 12 month problem gambling level prevalence estimates from the three previous surveys and the present survey.

With regard to problem, moderate-risk and low-risk gamblers, there are no major prevalence differences between the 2010 and 2012 gambling surveys. This is also the case for problem and moderate-risk gambling in the 2006/07 and 2011/12 health surveys. However, there is a reduction in low-risk gambling from 2006/07 to 2011/12. While a number of the prevalence estimates are higher in the current study than in the two earlier health surveys, this could be a consequence of the former being presented as a gambling study and the latter being presented as health studies. This issue is considered further in the discussion section.

In Table 53, moderate-risk and problem gambler gender and ethnicity estimates from the 2006/07, 2010 and 2012 surveys are compared.

Table 52: Prevalence of past 12 month problem gambling, total adults and past year gamblers: 2006/07-2012

Problem gambling level	Prevalence %					
	Total adults				Past year gamblers	
	2006/07	2010	2011/12 [#]	2012	2006/07	2012
Non-gambler	31.9 (30.8 - 33.1)	17.1 (13.7 - 20.5)	47.9 (45.9 - 49.9)	19.6 (18.4 - 20.9)	-	-
<i>[Estimated population]</i>	<i>[1,082,300]</i>	-	-	<i>[658,121]</i>	-	-
Non-problem gambler	62.6 (61.4 - 63.8)	73.7 (70.2 - 77.3)	49.0 (47.0 - 51.0)	73.0 (71.6 - 74.4)	92.0 (91.4 - 92.7)	90.8 (87.9 - 91.9)
<i>[Estimated population]</i>	<i>[1,875,400]</i>	-	-	<i>[2,451,165]</i>	-	-
Low-risk gambler	3.6 (3.2 - 4.0)	6.1 (4.4 - 7.7)	1.8 (1.5 - 2.2)	5.0 (4.3 - 5.7)	5.3 (4.8 - 5.9)	6.2 (5.3 - 7.1)
<i>[Estimated population]</i>	<i>[109,000]</i>	-	-	<i>[167,888]</i>	-	-
Moderate-risk gambler	1.4 (1.2 - 1.6)	2.4 (1.4 - 3.3)	1.0 (0.7 - 1.3)	1.8 (1.4 - 2.2)	2.0 (1.7 - 2.3)	2.2 (1.7 - 2.7)
<i>[Estimated population]</i>	<i>[40,900]</i>	-	-	<i>[60,440]</i>	-	-
Problem gambler	0.5 (0.3 - 0.6)	0.7 (0.3 - 1.4)	0.3 (0.2 - 0.5)	0.7 (0.5 - 0.9)	0.6 (0.5 - 0.8)	0.8 (0.6 - 1.1)
<i>[Estimated population]</i>	<i>[13,100]</i>	-	-	<i>[23,504]</i>	-	-
Combined problem and moderate-risk gambler	1.7 (1.5 - 2.0)	-	-	2.5 (2.0 - 2.9)	2.7 (2.3 - 3.0)	3.0 (2.6 - 3.6)
<i>[Estimated population]</i>	<i>[54,000]</i>	-	-	<i>[83,944]</i>	-	-

[#] 15 years and older vs. 18 years and older for the other surveys

Table 53: Prevalence of past 12 month moderate-risk and problem gambling for total adults by gender and ethnicity

Demographic variables	Prevalence % for total adults (95% CI)						
	Moderate-risk gambler		Problem gambler			Combined problem and moderate-risk gambler	
	2006/07	2012	2006/07	2010 [#]	2012	2006/07	2012
Total [†]	1.4 (1.2 - 1.6)	1.8 (1.4 - 2.2)	0.4 (0.3 - 0.6)	0.7 (0.3 - 1.4)	0.7 (0.5 - 0.9)	1.7 (1.5 - 2.0)	2.5 (2.0 - 2.9)
Gender Total[‡]							
Male	2.0 (1.5 - 2.4)	1.9 (1.4 - 2.6)	0.5 -	- -	1.0 (0.6 - 1.5)	2.5 (2.0 - 3.0)	2.9 (2.2 - 3.7)
Female	0.8 (0.6 - 1.0)	1.6 (1.1 - 2.1)	0.4 -	- -	0.4 (0.2 - 0.6)	1.2 (0.9 - 1.4)	2.0 (1.5 - 2.5)
European /other							
Males	1.4 (0.9 - 1.9)	1.3 (0.8 - 2.0)	0.3 (0.1 - 0.5)	- -	0.7 (0.7 - 1.9)	1.7 (1.2 - 2.2)	2.1 (1.4 - 2.9)
Females	0.5 (0.3 - 0.7)	1.2 (0.4 - 1.3)	0.2 (0.1 - 0.4)	- -	0.2 (0.1 - 0.5)	0.7 (0.4 - 0.9)	1.4 (0.9 - 2.1)
Total	0.9 (0.7 - 1.2)	1.3 (0.9 - 1.7)	0.2 (0.1 - 0.4)	0.2 (0.0 - 0.8)	0.5 (0.3 - 0.8)	1.1 (0.9 - 1.4)	1.7 (1.3 - 2.3)
Māori							
Males	4.2 (3.0 - 5.5)	3.4 (1.8 - 5.8)	2.0 (1.1 - 3.2)	- -	2.6 (3.0 - 6.3)	6.2 (4.7 - 7.7)	6.0 (3.8 - 9.0)
Females	2.8 (2.1 - 3.6)	4.4 (1.2 - 4.9)	1.5 (0.8 - 2.1)	- -	2.1 (1.1 - 3.4)	4.3 (3.3 - 5.3)	6.5 (4.7 - 8.6)
Total	3.5 (2.7 - 4.2)	3.9 (2.8 - 5.3)	1.7 (1.2 - 2.2)	2.7 (1.2 - 5.3)	2.3 (1.4 - 3.5)	5.2 (4.3 - 6.1)	6.2 (4.8 - 8.0)
Pacific							
Males	4.9 (2.8 - 7.7)	9.2 (5.3 - 14.8)	1.8 (0.6 - 3.8)	- -	2.0 (1.8 - 6.6)	6.6 (4.5 - 9.3)	11.3 (6.9 - 17.1)
Females	2.6 (1.2 - 4.7)	3.7 (0.8 - 4.2)	1.6 (0.6 - 3.5)	- -	1.3 (0.6 - 2.4)	4.1 (2.4 - 6.6)	4.9 (2.8 - 8.0)
Total	3.7 (2.2 - 5.1)	6.4 (4.1 - 9.5)	1.7 (0.7 - 3.3)	0.6 (0.1 - 2.1)	1.6 (0.9 - 2.8)	5.3 (3.6 - 7.1)	8.0 (5.5 - 11.2)

Demographic variables	Prevalence % for total adults (95% CI)						
	Moderate-risk gambler		Problem gambler			Combined problem and moderate-risk gambler	
	2006/07	2012	2006/07	2010 [#]	2012	2006/07	2012
Asian							
Males	2.2 (1.1 - 4.0)	3.1 (1.2 - 6.6)	0.1 (0.0 - 0.5)	- -	1.4 (0.6 - 3.3)	2.3 (1.2 - 4.1)	4.5 (2.2 - 8.0)
Females	0.6 (0.2 - 1.5)	1.5 (0.5 - 3.3)	0.0 (0.0 - 0.3)	- -	- -	0.7 (0.2 - 1.5)	1.5 (0.6 - 3.3)
Total	1.4 (0.8 - 2.2)	2.3 (1.2 - 4.0)	0.1 (0.0 - 0.3)	2.4 (0.2 - 9.6)	0.7 (0.2 - 1.5)	1.4 (0.8 - 2.3)	2.9 (1.6 - 4.8)

[#] Data are for adults 15 years and older.

[†] 2006/07 total data for moderate-risk and problem gambler are for participants 18 years and older.

Gender by age comparisons are provided in Table 54.

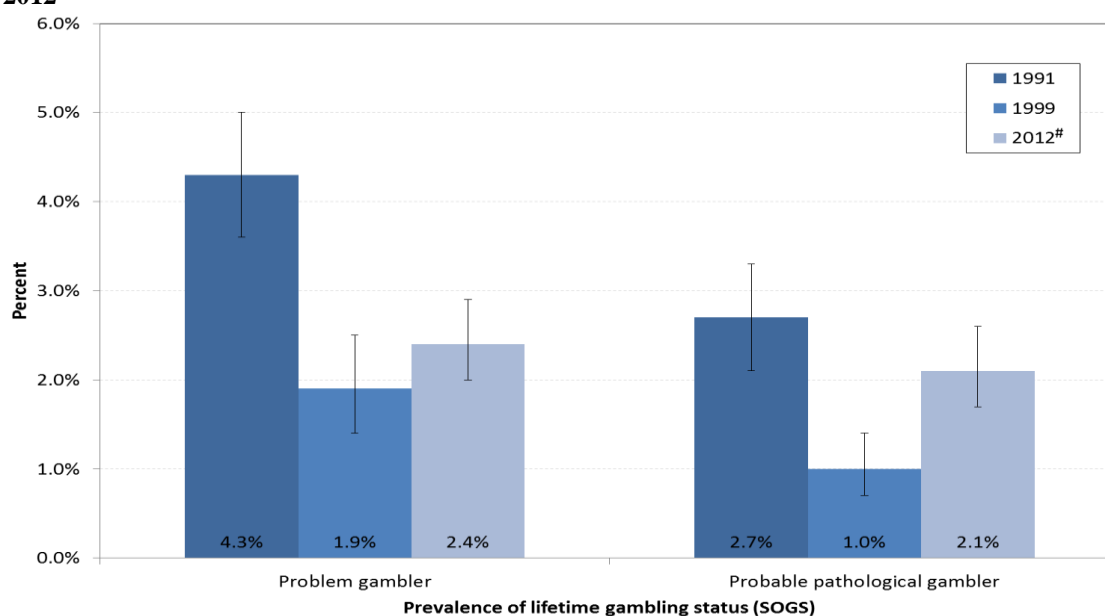
Table 54: Prevalence of combined moderate risk and problem gambling by gender and age

Age	Combined moderate-risk and problem gambler prevalence %	
	2006/07	2012
Male		
18 - 24 years	4.0	4.5
25 - 34 years	2.7	5.1
35 - 44 years	3.6	4.0
45 - 54 years	2.7	1.8
55 - 64 years	0.9	0.9
65+ years	0.9	1.0
Female		
18 - 24 years	1.0	3.8
25 - 34 years	1.3	2.3
35 - 44 years	1.4	1.8
45 - 54 years	1.4	2.0
55 - 64 years	1.1	2.3
65+ years	0.7	0.2

In 1991 and 1999, the SOGS-R was used to measure and estimate the prevalence of probable pathological and problem gambling among New Zealand adults aged 18 years and older. In these studies, both lifetime and past six month estimates were provided. In the current study, as indicated previously, just the lifetime scale was used. In Figure 7, lifetime probable pathological and problem gambling prevalence estimates are provided from the 1991, 1999 and 2012 studies. In comparing the results, one needs to recall that the 1991 and 1999 studies involved telephone interviews whereas in the current study interviews were face-to-face.

The reductions in lifetime probable pathological and problem gambling prevalence from 1991 to 1999 are statistically significant. While there appears to be an increase in probable pathological gambling prevalence from 1999 to 2012, consideration needs to be given to the likely impact of using face-to-face interviews in 2012.

Figure 7: Prevalence of lifetime probable pathological and problem gambling: 1991, 1999 and 2012



[#] Face-to-faces vs. telephone in 1991 and 1999

Lifetime probable pathological and problem gambling are examined by gender, ethnicity and age in Table 55.

In 1991, males had significantly higher probable pathological and problem gambling prevalence rates than females. In 1999, for males, there was a significant reduction in the prevalence of probable pathological and problem gambling. For females there was a reduction in problem gambling but not probable pathological gambling. In 1999, there was no gender difference in probable pathological gambling although the problem gambling differential remained. In 2012, this gender difference also applied to problem gambling but not to probable pathological gambling. While the probable pathological gambling prevalence is higher for males in 2012 than in 1999, this may be a result of methodological differences.

In 1991, younger adults (18-24 years and 25-29 years) had higher probable pathological gambling prevalence rates than other age groups, and Māori and Pacific Island people had much higher rates of both probable pathological and problem gambling than Europeans. The Asian problem gambling (but not probable pathological gambling) rate was also significantly higher than the European rate. In 1999, European prevalence rates for both probable pathological and problem gambling were significantly lower than in 1991. While there were reductions in the point prevalence estimates for other ethnic groups, confidence intervals overlap and none are statistically significant. In 1999, Māori probable pathological and problem gambling remained significantly higher than the European rate and the Pacific problem gambling rate was also higher. In 2012, Māori and Pacific rates for both probable pathological and problem gambling were higher than the European/Other rates.

Table 55: Prevalence of lifetime probable pathological and problem gambling by gender, ethnicity and age: 1991, 1999 and 2012

Demographic variables	Lifetime gambling status % (95% CI)					
	1991		1999		2012	
	Problem	Probable pathological	Problem	Probable pathological	Problem	Probable pathological
Total	4.3 (3.6 - 5.0)	2.7 (2.2 - 3.3)	1.9 (1.4 - 2.5)	1.0 (0.7 - 1.4)	2.4 (2.0 - 2.9)	2.1 (1.7 - 2.6)
Gender						
Male	6.0 (4.9 - 7.4)	4.0 (3.1 - 5.2)	2.8 (2.0 - 3.9)	1.2 (0.8 - 1.9)	3.1 (2.4 - 4.0)	2.6 (2.0 - 3.3)
Female	3.0 (2.3 - 3.9)	1.0 (0.6 - 1.6)	1.1 (0.7 - 1.6)	0.9 (0.5 - 1.4)	1.7 (1.3 - 2.2)	1.6 (1.2 - 2.2)
Ethnicity						
European	3.0 (2.4 - 3.7)	2.0 (1.5 - 2.6)	1.3 (1.0 - 1.7)	0.6 (0.4 - 0.9)	-	-
Other	5.0 (1.9 - 12.5)	2.0 (0.4 - 8.8)	0.8 (0 - 4.7)	1.2 (0 - 6.8)	-	-
European/Other	-	-	-	-	2.0 (1.3 - 2.2)	1.8 (1.4 - 2.3)
Māori	9.0 (6.0 - 13.2)	7.0 (4.4 - 10.9)	3.6 (1.8 - 6.4)	3.5 (1.6 - 6.6)	4.5 (3.2 - 6.1)	5.8 (4.5 - 7.3)
Pacific	16.0 (9.2 - 26.3)	15.0 (8.5 - 25.1)	7.8 (2.0 - 19.5)	3.2 (0.7 - 8.6)	5.4 (3.6 - 7.8)	3.8 (2.5 - 5.6)
Asian	10.0 (4.6 - 20.5)	1.0 (0.1 - 11.4)	2.9 (0.7 - 7.4)	-	3.4 (2.0 - 5.4)	1.7 (0.9 - 2.9)
Age group						
18 - 24 years	9.0 (6.6 - 12.2)	5.0 (3.3 - 7.6)	2.1 (1.1 - 3.8)	0.6 (0.1 - 1.8)	3.7 (2.3 - 5.7)	1.3 (0.7 - 2.4)
25 - 29 years	5.0 (6.6 - 12.2)	6.0 (3.3 - 7.6)	3.0 (1.1 - 3.8)	1.1 (0.1 - 1.8)	-	-
25 - 34 years	-	-	-	-	2.4 (1.5 - 3.7)	2.3 (1.5 - 3.5)
30 - 39 years	5.0 (3.7 - 6.8)	2.0 (1.2 - 3.3)	2.6 (1.6 - 4.0)	1.6 (0.9 - 2.6)	-	-
35 - 44 years	-	-	-	-	2.7 (1.7 - 4.1)	2.9 (2.0 - 4.1)
40 - 49 years	2.0 (1.1 - 3.5)	2.0 (1.1 - 3.5)	2.1 (1.2 - 3.5)	1.0 (0.4 - 1.8)	-	-
45 - 54 years	-	-	-	-	1.9 (1.2 - 2.7)	2.6 (1.6 - 3.9)
50 - 64 years	3.0 (1.9 - 4.8)	1.0 (0.4 - 2.3)	1.3 (0.6 - 2.4)	1.4 (0.5 - 3.1)	-	-
55 - 64 years	-	-	-	-	2.5 (1.5 - 4.0)	2.5 (1.5 - 4.1)
65+ years	2.0 (1.0 - 3.8)	2.0 (1.0 - 3.8)	0.5 (0.2 - 1.2)	0.2 (0 - 0.8)	1.6 (0.9 - 2.7)	0.6 (0.2 - 1.3)

In 1999, there were significant reductions in lifetime probable pathological and problem gambling prevalence for people aged 24 years and less. This was also the case for lifetime probable pathological gambling in the 25 to 29 years group. Probable pathological gambling also decreased significantly among people aged 65 years and older. However, problem gambling did not reduce significantly in either of these two groups or in any of the remaining age groups. In 1999, the differences in the prevalence rates between the two youngest age groups and the older age groups are no longer evident. The only significant difference is between the 30-39 year and 65 year and older age groups. The 30-39 year and 25-29 year groups also have a higher prevalence of problem gambling than the 65 year and older group. In 2012, only males aged 65 years and older differed from other age categories. The probable pathological gambling prevalence rate was lower in this group than for people aged 18 to 24 years.

4. OVERVIEW, DISCUSSION AND CONCLUSIONS

Gambling-related harm including problem gambling

A major purpose of the present study was to quantify problem gambling and other gambling-related harms and consider the extent to which they have changed since earlier studies. Based on the SOGS-R it is estimated that 2.1% of adults are lifetime probable pathological gamblers and 2.4% are lifetime problem gamblers. In 1999, it was estimated that 1.0% of adults were probable pathological gamblers and that 1.9% were problem gamblers. Both these 1999 estimates are significantly lower than corresponding estimates from the earlier 1991 survey. The past six month prevalence estimates in 1999 are also significantly lower than the past six month estimates from the 1991 survey.

Taking the SOGS-R findings at face value and noting the confidence intervals for the point estimates, it appears that lifetime probable pathological gambling but not lifetime problem gambling, increased significantly from 1999 to 2012. However, while many aspects of the three national gambling studies are similar, it will be recalled that the current survey used face-to-face residential household recruitment and interviewing whereas the two earlier studies used telephone recruitment and interviewing. As discussed, these differences have been shown to influence gambling survey results. Using the formula Williams, Volberg and Stevens (2011) developed to adjust estimates to enable more valid comparisons to be made across studies, the adjusted probable pathological gambling and problem gambling estimates in 2012 are 1.6% (CI 1.3-2.0%) and 1.8% (CI 1.5-2.2%). The corresponding 1999 estimates are 1.1% (CI 0.8-1.5%) and 2.1% (CI 1.5-2.7%). The confidence intervals overlap, which means that the apparent difference is unlikely to be statistically significant. On balance it is concluded that lifetime probable pathological and problem gambling prevalence have not changed since 1999.

Based on the PGSI, 0.7% of adults are estimated to be current (past 12 months) problem gamblers, 1.8% moderate-risk gamblers and 5.0% low-risk gamblers. These estimates are similar to those from the recent South Australian (The Social Research Centre, 2013) and Queensland (Australia) (Department of Justice & Attorney General, 2012) surveys as well as to those from the somewhat earlier Swedish (Abbott, Romild & Volberg, 2013; Statens folkhälsoinstitut, 2012) and Victorian (Australia) (Department of Justice, 2009) studies. This said, caution is required in making comparisons with findings from these studies because they all differed methodologically from the New Zealand study in a variety of ways that are likely to influence prevalence estimates.

The PGSI was used in the two previous New Zealand Health Surveys and the Health Sponsorship Council survey. As with the 2012 survey, all three used residential recruitment and face-to-face interviewing. As mentioned, two were presented as health surveys and one as a health and lifestyle survey, although potential participants in the latter survey were advised that it would include questions about gambling. From examination of the 2006/07 and 2011/12 estimates, it is evident that the confidence intervals for problem and moderate-risk gambling overlap. Consequently, it is unlikely there was any significant change between the two studies. It appears likely, on the other hand, that there was a decrease in the prevalence of low-risk gambling. However, the results of the 2011/12 survey are provisional, based on an analysis of only part of the sample, and may change when the official survey report is published.

The 2010 lifestyle survey produced similar problem, moderate-risk and low-risk gambling estimates to the 2012 survey. The problem gambling point estimates are identical and the confidence intervals overlap for all estimates. The past 12 month non-gambler estimates are also very similar. Given that potential participants were advised that the health and lifestyle survey included gambling, it was not considered appropriate to make an adjustment to the survey estimates. The NZHS estimates were, however, adjusted to take account of it being a health rather than gambling survey.

The adjusted past 12 months problem gambling estimates for the 2006/07 and 2011/12 surveys are 0.9% (0.65-1.3%) and 0.65% (0.4-1.1%) respectively. The corresponding adjusted estimate for the 2012 survey is 1.15% (CI 0.8-1.5%). The confidence intervals for the three estimates overlap so it is unlikely that there have been significant changes in the prevalence of current problem gambling. Confidence intervals have not yet been provided for the 2011/2012 current combined problem and moderate-risk prevalence estimate. However, the adjusted combined 2006/07 and 2012 estimates, respectively 1.0% (0.9-1.2%) and 1.1% (0.9-1.3%), are similar.

Overall, it seems likely that the prevalence of problematic gambling, within the range assessed as moderate-risk, problem and probable pathological gambling reduced during the 1990s and since that time has remained at around the same level.

During the 1990s, increasing numbers of people had problems associated with EGMs in pubs, casinos and clubs and fewer had problems associated with horse and dog race betting. However, there was little or no difference in prevalence rates between people who participated weekly or more often in EGM and horse and dog race betting. The increase in the percentage of people with EGM-related problems was largely a consequence of an increase in the availability of EGMs and increased participation.

The finding that prevalence rates were significantly lower at the end of the 1990s than at the beginning was, at the time, unexpected and controversial. The investigators had expected that with the introduction of new continuous forms of gambling during the late 1980s and rapid increase in overall gambling availability there would be an increase in prevalence. However, they did consider the possibility that there might be no change or perhaps even a decrease. They were of the view that as people and society gradually obtained increased experience with new forms of gambling, adaptations would be made that enable problems to be more readily countered and contained. As discussed in the introduction, this was thought to involve increased public awareness of problem gambling and its early warning signs, the development of informal social controls and the expansion of prevention and treatment services. However, at that time, they thought this adaptation process would take a longer period of time and that a reduction in problem gambling and related harms was unlikely to occur during a period of rapidly increasing gambling availability and rising expenditure. Following the 1999 study, their views on this changed somewhat. More recent research, for example Storer, Abbott and Stubbs (2009) and Williams, Volberg and Stevens (2011) indicate that similar changes have occurred elsewhere.

Reductions in gambling participation, especially regular participation in continuous forms including EGMs, has been discussed as an indicator of adaptation (Abbott, 2006; Abbott et al., 2013a). Given the substantial reduction in regular continuous gambling participation in the present study and the strong association between this type of gambling involvement and problem gambling, it would not have been surprising if there was also a reduction in problem and at-risk gambling. This was the case from 1991 to 1999. Changes in other indicators including the proportion of adults who participate in multiple gambling activities were also

found. Additionally, although it is often maintained that only a very small percentage of problem gamblers seek specialist or other forms of help, New Zealand has well-established, nationally distributed services that in recent years have engaged many thousands of problem gamblers. In 2011, the helpline saw 1,242 new problem gambler clients and 591 significant others; face-to-face services saw 4,657 problem gamblers and 1,561 significant others. In addition, a similar number of problem gamblers and significant others received brief interventions from face-to-face services. It is unknown what proportion of these people also received telephone and/or face-to-face counselling. This is a substantial proportion of the estimated 23,504 current problem gamblers in the country at that time.

While it is not known how effective the face-to-face services are, helpline outcome and effectiveness studies have demonstrated that around two-thirds of clients sustain clinically significant reductions in gambling and associated mental health problems 12 months after making contact with the service (Abbott et al., 2012, 2013). Although formal evaluation is required, it is likely that similar outcomes are achieved by face-to-face services. As will be discussed further shortly, the great majority of problem gamblers in the present study and other New Zealand surveys have problems that are predominantly associated with EGM participation. The meta-analysis of Australian and New Zealand problem gambling surveys referred to in the introduction examined problem gambling prevalence, the date when studies were conducted and the availability (density) of EGMS (Storer, Abbott & Stubbs, 2009). It found a strong association between increased problem gambling prevalence and increased per capita EGM density. It also found that with density held constant there was a decrease in prevalence of 0.09% per annum. Given that since 2004 the number of EGMS has decreased steadily and that per capita gambling expenditure (predominantly EGM expenditure) has reduced by about a fifth in inflation-adjusted terms, the meta-analysis equation predicts a fall in prevalence.

In summary there are a number of findings from the present and past New Zealand national surveys, as well as predictions based on the Storer et al.'s (2009) meta-analysis, that are consistent with the expectation of a reduction in problem gambling prevalence and related harms. This expectation is also in keeping with findings from the Williams, Volberg and Stevens (2011) review of trends in prevalence rates over time in major world regions. While it appears that lifetime and past year prevalence rates for serious problem gambling and less severe problem and at-risk gambling are lower than in the early 1990s, contrary to expectation these rates appear to have stayed much the same since 1999. However, although the proportion of people who participate in multiple gambling activities has diminished from 2005 to 2012, people in this category report spending much more on gambling than was the case in earlier surveys. This means that the smaller percentage of the population that participates regularly, particularly regular continuous gamblers who take part in a variety of activities, now spends (loses) substantially more than in the past. Māori and Pacific Islanders, adults aged 65 years and older and people who lack formal qualifications or are unemployed are over-represented in the regular continuous category and, with the exception of older adults, also report high average overall gambling expenditure.

While frequent participation in continuous forms of gambling has dropped over time across almost all socio-demographic groups, unemployed people are an exception and smaller, probably non-significant reductions have occurred for Māori, Pacific Islanders, older adults and people without formal qualifications. Pacific Islanders are one of the 'bi-modal' groups referred to earlier. These groups have proportionately large numbers of non-gamblers as well as relatively large numbers of higher intensity gamblers. In the case of Pacific Islanders, while average reported gambling expenditure is already high, it is substantially higher if non-gamblers are excluded from the calculation. It would be further magnified if expressed as a

percentage of personal, household or disposable family income. Asians, recent migrants, Other Christians, Other religions and people with low incomes or living in low income households also have high average expenditure when non-gamblers are excluded. In the present study, a number of the foregoing groups, consistent with both exposure and adaptation hypotheses, continued to have significantly higher rates of problem, moderate- and low-risk gambling as well as disproportionately experience a variety of other gambling related harms. This will be discussed further shortly.

Methodological considerations

Discussion of the methodology used in the present study, including strengths and weaknesses and comparisons with previous gambling surveys, is provided in Abbott et al. (2014a). Mention is made there, as well as in the present report, of methodological factors that could influence the problem gambling survey prevalence estimates and compromise valid assessment of potential changes in the adult population over time. Some of these factors were taken into account when the current 2012 results were considered in relation to results from previous New Zealand studies. This increases our confidence that valid comparisons have been made between studies over time.

In addition to the question of the validity of assessment of change over time, it is also important to consider how accurate gambling survey findings are, generally. How well do they reflect the actual level of problem gambling and other-gambling related harm in the general population? First, it is important to note that surveys can only capture information that participants know about and report. Many of the adverse impacts of gambling, for example the extent and consequences of gambling-related crimes such as burglaries, embezzlement and fraud, cannot be determined from general population surveys. Although a lot is known about sampling and methodological factors that influence survey results, there is no absolute measure of outcomes. In the case of serious problem gambling, in theory it would be possible for appropriately qualified and experienced clinicians to assess all adults in a population and determine prevalence rates for that population and subsections of it. However, this is not practically possible. For this reason, samples of adults are selected and interviewed, usually by trained, non-clinician interviewers using measures such as the SOGS-R and PGSI. These measures have been validated by, among other things, examining their ability to identify people who have been independently diagnosed as problem gamblers. However, psychiatric diagnoses fall far short of being totally reliable and may in fact be less reliable than questionnaires that have been developed to assess mental disorders and psychological distress. There is no one hundred percent gold standard for assessing problem gambling.

As surveys involve samples and not a full census, estimates obtained from survey information contain sampling errors. Point prevalence estimates are typically used throughout the report. These are mid-points with ranges within which the true population estimates are expected to fall. In the case of PGSI current problem gambling, in the present study there is a 95% probability that the point prevalence estimate is within the range of 0.5% to 0.9% (approximately 17,000 - 30,000 adults). The point prevalence estimate is 0.7% (approximately 23,500 adults). The SOGS-R lifetime point estimate is three times higher (2.1%) with a 95% confidence interval of 1.7% to 2.6%. While most likely to be within these ranges, on the basis of chance alone five out of 100 surveys would be expected to obtain a result that falls outside these ranges. Furthermore, these confidence intervals are quite wide. They could be tightened in future studies by using larger, less complex, samples. However, this would probably be prohibitively expensive and could compromise other objectives such

as obtaining more accurate information on major ethnic groups. Increased precision could also be achieved by meta-analysis, pooling data from the present study with data from 2011/12 NZHS and perhaps other recent New Zealand gambling surveys (see Devlin & Walton, 2012). Small area estimation (SAE), as recently applied to the estimation of local and regional prevalence rates of serious mental health disorders (Hudson & Abbott, 2013), is another approach that could be considered.

Like health and social surveys generally, the study relied on participant self-reports, including responses to potentially sensitive questions about gambling and other matters. Even when participants are willing to be interviewed and interested in the topic, recall can be unreliable. This is especially problematic when questions are asked about distant events. The SOGS-R, as used in the present study, is a lifetime measure. However, as indicated in the introduction, Abbott, Williams and Volberg (1999; 2004) found that many people who scored as SOGS-R lifetime probable pathological and problem gamblers no longer did so when reassessed seven years later. This suggests that a moderate to large proportion of people who have actually experienced significant gambling problems in the more distant past will not recall or report them, or will report lower severity problems. Given this finding it is highly likely, for this reason alone, that the lifetime prevalence estimates in the present survey are conservative.

Recall failure or bias, leading to over- or under-reporting, is less likely to be a major factor when questions are asked about more recent events and experiences although it could be important in some situations. Responses can also be influenced by a variety of other factors (Schwartz, 1999). For example some heavy or problem gamblers may wish to conceal or down-play their gambling involvement. The present study sought to reduce these potential biases by careful questionnaire design, piloting and including standard measures that had been validated and used in other gambling and health surveys. As mentioned the SOGS-R, adapted from the original SOGS, was initially developed in New Zealand and validated in a general population setting (Abbott, 2001; Abbott & Volberg, 1992; 1996). The PGSI has also been widely used in New Zealand, shown to perform well with different ethnic groups and has good construct validity (Devlon & Walton, 2012).

As indicated previously, the present study followed best practice advice by selecting a large sample that was both recruited and interviewed face-to-face in residential dwellings. Multiple call-backs were made and other procedures used to achieve a high response rate relative to similar types of survey conducted internationally. Sub-sectors of the population including Māori, Pacific Islanders and Asians were over-sampled to increase the reliability of information relating to these groups and facilitate comparisons between them. However, this oversampling also had a down-side. It reduced the statistical power for the sample as a whole, thereby somewhat widening confidence intervals around many of the survey estimates. The sample was appropriately weighted to correct for likely sample departures from expected population proportions. However, weighting cannot correct for potential differences between the sample and the population that are unknown and not corrected by demographic weighting. Statistical procedures were used that took account of the sample complexity and both small and large proportions. Similar methods were used in the New Zealand Health Surveys and the 2010 Health Sponsorship Council survey. Although the 1991 and 1999 national surveys used telephone recruitment and interviewing, they also achieved relatively high response rates, weighted the sample, and in the case of the 1999 survey, used similar statistical procedures to those employed in the other New Zealand surveys.

The target population for the present study was the usually resident adult population (18 years and older) living in permanent private residential dwellings in New Zealand. For this reason the problem gambling and other results may not apply to the total New Zealand population.

The sample did not include people aged less than 18 years. While international studies usually show that youth generally have higher rates of problem gambling than adults, in the 2006/07 NZHS those aged 15-17 years had lower levels of gambling problems than adults generally, especially those aged 18 to 54 years. While adding youth to the present survey would have had minimal impact on the overall problem and risk prevalence estimates, probably reducing them slightly, people in this category do have problems and increase the number of problem, moderate and low risk gamblers in the total population. People living in hospitals and rest homes were also excluded. In the present and previous New Zealand studies, older people living in private dwellings have very low problem gambling prevalence rates so it is reasonable to expect that this is also the case for older people who reside in rest homes and other non-private dwellings. Older people are over-represented among people in general hospitals. The inclusion of people in hospitals and these other settings would very probably reduce the overall prevalence estimates.

A number of other people were not included. Prisoners, homeless people, people living in caravan parks and people residing in treatment and other facilities for people with serious mental health disorders including alcohol and substance misuse were not interviewed. New Zealand studies indicate that around a fifth of recently sentenced prisoners are probable pathological gamblers immediately prior to their imprisonment (Abbott & McKenna, 2005; Abbott, McKenna & Giles, 2005). While gambling opportunities are limited in prison it is evident that many prisoners have been problem gamblers and a significant number may still be experiencing some gambling-related problems. These people are also probably at high risk for relapse when they return to the community. Problem gamblers are also likely to be over-represented in residential treatment programmes for alcohol and other forms of substance misuse, psychiatric units and wards and various semi-sheltered and supported community houses and hostels. Inclusion of these sectors of the population would increase the overall prevalence estimates.

The SOGS, like many other mental health measures, was initially developed and validated as a screening measure. Its purpose was to identify people who are likely to have a serious gambling problem so they can be assessed clinically to determine whether or not they actually have a problem. This is why people who score above the threshold are referred to as probable pathological gamblers rather than pathological gamblers. The latter term, in this context, is reserved for people diagnosed by a suitably qualified clinician as meeting formal diagnostic criteria. Again like many other screens, the SOGS was subsequently used in a wider variety of settings including general population surveys. It is well established that when clinically derived screens are used in general population settings their accuracy diminishes (Abbott & Volberg, 2000). In some contexts, for example alcohol or drug treatment programmes, base rates of serious problem gambling are very high. In this situation, people who are assessed on the basis of their SOGS scores as being probable pathological gamblers have a high probability of actually being pathological gamblers when independently clinically assessed (referred to as true positives). People with low scores in these contexts have a high probability of not being pathological gamblers when clinically assessed (true negatives). This means that the SOGS produces very few false positives; people classified on the basis of their SOGS score as being probable pathological gamblers when they actually are not. It also means that it produces very few false negatives; people classified as not being probable pathological gamblers but who in fact are.

In general population settings, the base rate for serious problem gambling is very low, with surveys generally providing estimates between 0.5% to 1.5% for current problems (Devlin & Walton, 2012; Williams, Volberg & Stevens, 2011). The accuracy of clinically derived screens diminishes in this situation because when base rates are low the proportion of false

positives increases, often considerably. It has often been claimed that the original SOGS and SOGS-R overestimate the prevalence of serious gambling problems when used in general population settings (Devlin & Walton, 2012; Dickerson, 1993; Walker & Dickerson, 1996). However, although the number of false positives increases, this does not inevitably result in incorrect, inflated prevalence estimates. An increase in false positives will have this effect only if the increase is not balanced by an increase in false negatives (Gambino, 1997).

There are strong indications that the SOGS and SOGS-R, when used in general population settings, generate significant numbers of both false positives and false negatives. The three studies that have endeavoured to formally assess the impact of classification errors (false positives and negatives) on SOGS and SOGS-R prevalence estimates all found that the revised estimates were similar to or higher than the original estimates (Abbott, 2001; Abbott & Volberg, 1996; 1999; Gambino, 1997; 1999). In addition, one prevalence study measured prevalence directly by using clinical interviews rather than using screening tests. The estimates were very similar to those obtained in the same country (Spain) when the SOGS was used (Becona, 1996). On balance, rather than inflating problems, it seems more likely that the SOGS-R produces fairly accurate or somewhat conservative estimates. A recent study suggests the PGSI produces even more conservative estimates (Williams & Volberg, 2014).

Other gambling-related harms

While the SOGS was initially developed as a clinical screening measure the SOGS-R was subsequently used to assess a wider spectrum of gambling-related problems (Abbott & Volberg, 2006). The PGSI was largely derived by taking items from the SOGS and DSM pathological gambling criteria. However, from the outset it was also intended to measure less severe problems and identify people who are at greater risk for the development of future problems. The extent to which it can actually make these predictions will be assessed in the longitudinal extension of the present study.

While assessing the prevalence of problem gambling and less severe, at-risk gambling is an important purpose of the present study, there was also interest in assessing wider gambling-related harms, which in aggregate are likely to have more impact on people generally and the wider community than serious problem gambling per se. In recent years, in contrast to the situation when general gambling studies began, most surveys have just used current rather than lifetime measures. However, while lifetime measures are conservative, missing a number of people who experienced problems in the more distant past, they provide some indication of the number of people who had problems in the past but who do not currently. With respect to predicting future problem gambling status, this is an important group because it has been shown that a large proportion of people who develop problems in any given 12 month period are past problem gamblers who are relapsing (Victorian Responsible Gambling Foundation, 2011; 2012). There could be value in adding a lifetime frame to the PGSI.

Although SOGS-R lifetime probable pathological gamblers and PGSI problem gamblers much more often reported that individual SOGS-R and PGSI items applied to them than did people in the less severe problem and at-risk groups, those in the latter groups and non-problem gamblers in aggregate reported more of these experiences. This is because there are many more people in the non-problem groups that report one or a few of these adverse gambling-related experiences. For example, while most of the estimated 0.7% of PGSI problem gamblers said they lost control of their gambling, 3.6% of adults reported this experience, meaning that over 80% adults who reported loss of control during the preceding

12 months were not problem gamblers. One of the implications of this is that public health and other approaches to harm reduction and minimisation need to take account of the whole spectrum of gamblers, not just those with serious problems.

Some of the wider impacts of gambling were picked up by asking all participants about gambling-related arguments and going without something their household needed, or not paying bills because too much was spent on gambling. Around one in ten adults reported that this had occurred at some time; between a quarter and third within the past 12 months. Participants were also asked whether they knew people who they thought have or have had a problem with gambling and, if they did, what effects that had on them. About a third of adults said they knew at least one person in this category and around eight percent (around a quarter of those who knew someone with a problem) reported that it had affected them personally. Negative financial impacts were mentioned most often, followed by loss of relationships, stress to family, loss or lack of trust, anger, frustration and resentment. Some people said they felt sorry for the person they thought had a problem and tried to help them.

Questions about the problems experienced as a result of someone's gambling were also included in the 2006/07 NZHS. However the wording was such that these problems could have been due to participant's own gambling as well as that of other persons. They also applied to the past 12 months whereas questions used in the present study were more general. In the NZHS around three percent of adults experienced problems of this type, the large majority of whom were recreational or non-gamblers. As mentioned in the introduction, most people mentioned that EGMs, both in and outside casinos, were implicated. These findings provide additional indications of the impacts of gambling and problematic gambling on individuals, relationships and families. Further research is required to advance understanding of the wider impacts of gambling and problematic gambling, especially at community and societal levels. General population surveys can only partially assess impacts of this type.

As in previous New Zealand studies problem gamblers, and to a lesser extent moderate-risk and low-risk gamblers, had high rates of hazardous drinking, tobacco use, other drug use, self-rated fair or poor health, and low quality of life. While there was no difference between problem gamblers and the other PGSI groups with regard to ever having smoked cigarettes or tobacco, problem gamblers were significantly more likely to have ever smoked more than 100 cigarettes in their lifetimes, and significantly more problem and moderate-risk gamblers than non-problem gamblers were current smokers. Problem gamblers and, to a lesser extent moderate-risk and low-risk gamblers, more often than non-problem and non-gamblers reported using cannabis in the past 12 months. They also more often said they used other substances including ecstasy, amphetamines, party pills, stimulants and benzodiazepines. People in these groups also reported higher levels of hazardous drinking, having experienced a lot of trauma, hardship and problems, depression and anxiety, and Kessler defined psychological disorder.

A study of clients seeking help from New Zealand's national gambling helpline found that 56% had high levels of psychological disorder, as measured by the Kessler scale, somewhat higher than in the present survey (46%) (Abbott et al., 2012). In the client sample, 60% smoked tobacco and 62% met the criteria for alcohol misuse; almost identical percentages to that found in the present survey. In the client survey, 58% met diagnostic criteria for major depression, 12% for minor depression and 12% for substantial or moderate drug problems. It is of interest that alcohol, tobacco and perhaps other drug use/misuse rates were similar in the clinical and general population studies, while psychological distress and disorder was greater in clinical group. The latter group also had much higher average PGSI scores. These differences are probably largely a consequence of most people seeking help for

gambling problems when they have escalated and they are experiencing more adverse consequences including high levels of psychological distress (Pulford et al., 2009).

A recent meta-analysis of general population prevalence surveys of comorbid conditions in problem gamblers found that the highest mean prevalence was for nicotine dependence (60%), followed by a substance use disorder (57%), any type of mood disorder (38%) and any type of anxiety disorder (37%) (Lorains, Cowlshaw & Thomas, 2011). The findings of the present survey are very similar to those of this review. Studies of treatment seeking problem gamblers show similar co-occurring substance use and abuse and mental health disorders (Abbott et al., 2004; Petry, 2005). Consistent with the differences noted between participants in the present study and the helpline survey, problem gambling severity and co-morbidity rates are generally higher in help-seeking populations (Slutske, 2006).

While there is some consistency in the findings from community and clinical studies, problem gamblers who seek help are not representative of problem gamblers in the general population most of whom have not, and probably never will, seek specialist help. For this reason the characteristics of help-seeking problem gamblers should not be used to infer the characteristics of problem gamblers generally. Very few people with less severe or moderate-risk gambling problems seek formal help which means they cannot be studied in clinical settings. While people who present for help often have more severe gambling problems and high rates of co-morbidity, it is evident from the present survey that rates are nevertheless high for problem gamblers in the general population and are also significantly elevated for people with less severe problems including moderate- and low-risk gamblers.

Cross-sectional surveys are unable to clearly identify temporal or causal relationships. Prospective research provides greater understanding of the natural history of mental health disorders and the extent to which co-morbid disorders precede, follow or develop and change together with gambling problems over time. While research of this type is in its relative infancy, there is some evidence that mood and anxiety disorders both precede and contribute to the development of problem gambling and arise as a consequence of problem gambling and related adverse events such as relationship breakups and financial loss (Abbott & Clarke, 2007; Kim et al., 2006). In the case of substance misuse and abuse and problem gambling, it is possible that common underlying factors may be involved in their development and maintenance. In this regard it is interesting that in the helpline study, while gambling, mood disorder and general psychological distress greatly diminished over time, substance use and misuse did not. As Lorains, Cowlshaw & Thomas (2011) suggest, in the case of problem gamblers with multiple addictions, there might be value in focusing on underlying predispositions to addictive behaviours rather than treating them separately. Relationships between some comorbidities and problem gambling will be examined in the longitudinal extension of the present study.

Both life events and deprivation were considered in the present study. Problem gamblers reported high levels of deprivation, with nearly three-quarters saying they had been forced to buy cheaper food during the past 12 months compared to a quarter of adults generally. Over a half said they had been out of paid work for more than a month and around a third had received support from a benefit. Moderate-risk and low-risk gamblers also more frequently experienced some of these deprivations than non-gamblers and non-problem gamblers.

Life events will be shortly considered further in relation to reasons that participants gave for self-perceived changes in their recent gambling behaviour. In the present context, as with higher deprivation, it is of note that problem gamblers more often experienced multiple life events during the past 12 months than adults in the other groups. Relative to the general adult

population and non-problem gamblers they much more often reported a major change in their financial situation, increased arguments with someone close, major injury or illness, legal difficulties, marriage or finding a relationship or partner, and becoming a student. As with deprivation and a number of other gambling-related harms, moderate- and low-risk gamblers also more often reported some of these events. While likely that many of these events and deprivations contribute to the development of at-risk and problem gambling, others are more likely to be consequences of excessive and problem gambling. Again, longitudinal research is required to clarify the nature of these relationships.

Gambling-related risk factors for problem and at-risk gambling

As in previous New Zealand surveys, regular continuous gamblers were much more likely to be problem or moderate-risk gamblers than regular non-continuous gamblers, infrequent gamblers and non-gamblers. Monthly or more frequent involvement in a number of specific forms of continuous gambling, most notably non-casino and casino EGMs, casino table games and housie was strongly associated with problem and moderate-risk gambling. Accessing overseas internet gambling sites during the past year, preferences for non-casino EGMs, casino gambling and some other continuous forms, taking part in multiple gambling activities and high gambling expenditure were additional risk factors.

Given the high degree of overlap between these activities and preferences, multivariate analyses were conducted. These analyses identified preferences for non-casino EGMs, casino gambling and betting with friends and workmates, past year overseas internet gambling and at least monthly participation in card games and pub EGMs as the strongest independent risk factors. As indicated in the introduction preferences for, and frequent participation in, EGMs and casino table games have consistently been found to be strongly associated with problem gambling in New Zealand. This is consistent with help-seeking data, where the large majority of callers to the national gambling helpline and clients of specialist face-to-face services report that EGMs, predominantly in pubs, are the primary gambling mode causing them harm (Gambling Helpline New Zealand, 2012). In the recent helpline study, over three-quarters of participants mentioned pub EGMs in this regard, followed by club EGMs (9%), horse and dog race betting (4%) and casino EGMs and table games (both 3%) (Abbott et al., 2012).

The NZHSs did not specifically ask participants about some forms of gambling including raffles, as well as playing cards (other than in casinos) and betting with friends and workmates. In these surveys, the PGSI was only administered to people who indicated that they had taken in part in one or more gambling activities during the past 12 months. In calculating problem gambling and problem gambling risk prevalence estimates it was assumed that there were no problem and at-risk gamblers in this 'non-gambling' group. The omission of people who only purchased raffle tickets is unlikely to have an impact on prevalence estimates. However, given that participation in card games and a preference for betting with friends and workmates are significant independent risk factors, their omission could be expected to somewhat reduce prevalence estimates. Apart from being presented as health rather than gambling studies, this may be a further reason why the two most recent NZHSs had somewhat lower prevalence estimates than the 2010 Health Sponsorship survey and present study.

Online gambling

There are features of internet gambling, including anonymity, availability, virtual payment methods, high event frequency and density, that can be expected to carry high risk with respect to the development of problematic gambling (Wood & Williams, 2009). In the present study, while less than one percent of adults gambled using overseas internet sites during the past year, around one-in-ten problem gamblers did. This means that although the great majority of problem gamblers did not access gambling activity in this way, problem gamblers were much more likely to do so than non-problem gamblers, including moderate- and low-risk gamblers.

Of the less than one percent of adult past year internet gamblers, approximately one in ten were problem gamblers and another one in twenty were moderate-risk gamblers. This means that a relatively high proportion of people who gambled on overseas internet sites in the past year, about one in six, were problem or moderate-risk gamblers. This is a high proportion relative to past year participation in any other gambling activity. Only three percent of both past year non-casino EGM and casino EGM participants were problem gamblers. The 2006/07 NZHS obtained very similar estimates. Given the small sample sizes involved in both studies, this provides increased confidence in the present results. Although one in ten problem gamblers gambled this way in the past 12 months, less than a third of these people did so in the past month. These findings suggest that internet gambling is not currently implicated significantly in problem and at-risk gambling in New Zealand. While some problem and moderate-risk gamblers occasionally take part, few do so regularly. This is in marked contrast to the situation with non-casino EGMs where large numbers of problem gamblers (58%) participated during the past year and over three-quarters of them did so during the past month. Interestingly, casino EGM and table game participation patterns resemble internet gambling, with monthly participation rates much lower than annual rates.

As in the present study, recent overseas studies have found that problem gambling rates are high among internet gamblers, often higher than among non-internet gamblers (Griffiths et al., 2011; Nordmyr et al., 2014; Svensson & Romild, 2011; Wood & Williams, 2011). However, Wardle et al. (2011) found in a national British survey that the great majority of on-line gamblers also gambled off-line. They concluded that the online-off-line dichotomy is overly simplistic and misleading. They identified four groups: those who only gambled off-line, those who only gambled online, those who gambled online and off-line using the same activity and those who gambled online and off-line using different activities. The majority of adults gambled off-line exclusively. A small number confined their participation to online activities only. Most participated both on- and off-line. People in the two mixed mode groups had higher overall levels of gambling engagement and problem gambling rates than off-line gamblers. There were too few people in the exclusively on-line group to compare problem gambling rates across the four categories. The foregoing analyses included all forms of gambling that were accessed online, that is lottery and sports and horse and dog race betting, as well as cards and casino sites. Other research has also found that very few internet gamblers, including those with gambling problems, gamble exclusively online. Many participants take part in multiple off-line gambling activities, especially frequent and problem gamblers (Brosowski et al., 2012; LaPlante et al., 2011; Welte et al., 2009; Wood & Williams, 2009). In the present survey, most problem gamblers participated in multiple activities. A third said they preferred non-casino EGMs; a fifth casino EGMs or table games. However, around one in ten said they most preferred gambling on overseas internet sites.

It is of interest that past year internet gambling remained a significant predictor of problem gambling in the multivariate analysis that included participation in other gambling activities

(both annual and past month) gambling preferences and number of different activities engaged in. Infrequent involvement in any other form of gambling, including EGMs, had little or no relationship to problem gambling. Past month internet gambling participation did not feature in either the univariate or multivariate analyses. Further investigation is required to identify what it is about past year internet participation that contributes to the prediction of problem gambling, after the effects of preferences for, and regular participation in, EGMs and some other continuous gambling activities are taken into account. It may, in part, have been acting as a proxy for participation in multiple gambling activities. More generally these findings support Warldle et al.'s (2011) call for greater sophistication in the consideration of how online gambling is integrated with other gambling behaviour, both in its own right and in relation to the development of gambling problems. It may be possible to explore this further in the longitudinal extension of the present study; however, such investigation is constrained by the very small number of people who accessed online gambling activities, especially off-shore internet site activities. This may change during the next three waves of the study.

In Abbott et al. (2014a), the present study findings on participation in internet gambling-type games that do not involve money are discussed. Just under a fifth of adults took part in activities of this type during the past year, substantially more than the less than one percent who played online for money. Of these people nearly half did so regularly. In the 12 month and subsequent phases of the present study, this type of activity will be examined more fully to assess its stability over time and whether or not some people migrate from participation not-for-money to participation for money, i.e. online gambling. This is a particularly important issue about which little is known. Examination of other potential relationships between involvements of this type of activity, gambling and at-risk and problem gambling may also be possible. While gambling on overseas internet sites is not currently commonplace in New Zealand, involvement could increase significantly in the future and might in large part be facilitated by movement from participation in not-for-money activities to gambling.

Other gambling-related risk factors

A variety of factors, additional to gambling preferences, participation and number of activities engaged in, were considered in relation to problem and at-risk gambling. In comparison to non-problem gamblers, problem gamblers and sometimes moderate- and/or low-risk gamblers, significantly more often said they won and lost large amounts of money gambling, that the amount they gambled made them nervous, that they usually had long EMG sessions, that there was a lot of gambling in the family they grew up in and in their current household, and that they know people who have or have had a problem with gambling. Around a third of problem gamblers said they thought their partner either has or had a gambling problem compared to 12% of moderate-risk, four percent of low-risk and two percent of non-problem gamblers.

As with the previous gambling-related risk factors for problem and at-risk gambling, most of these factors were strongly inter-related. When they were examined in multivariate analyses the largest amount of money lost in a day gambling, having felt nervous about the amount gambled, and believing a spouse or sister has or had a problem with gambling were identified as the most important predictors of problem gambling after the effects of other factors had been taken into account. Similar factors emerged when examined in relation to combined problem and moderate-risk gambling. Additional factors included spending three or more hours playing pub or casino EGMs in an average day and being with another person when taking part in their most preferred gambling activity. In the case of both problem gambling

and combined problem and moderate-risk gambling, the relationship with long pub EMG sessions was particularly strong.

Most of the foregoing factors that were strongly associated with problem and moderate-risk gambling have been identified in previous studies including the 1991 and 1999 New Zealand national studies that were discussed earlier. These findings help extend the construct validity of the PGSI and SOGS-R by showing that performance on these measures relates to other indicators of problematic and at-risk gambling such as large gambling losses, long EGM sessions and feeling nervous about gambling. Relationships between these factors and at-risk and problem gambling require longitudinal study to assess the extent to which they precede and contribute to the development of problem gambling and other adverse consequences, as well as the extent to which they are consequences of out of control, problematic gambling.

Reports of heavy gambling in the household that people were mainly brought up was also associated with problem gambling in the previous New Zealand national studies (Abbott, 2001; Abbott & Volberg, 1992). In the present study, while most problem gamblers were not brought up in such households, significantly more were than was the case for non-problem gamblers. This finding is consistent with findings from other studies that suggest that gambling in the family and associated factors including family dysfunction and child abuse during childhood play a role in the development of problem gambling (Saugeres, Thomas & Moore, 2014). Most of this research involves retrospective accounts of childhood experiences and there is little research that prospectively examines family environments, childhood exposure to gambling and gambling participation in relation to subsequent gambling and other behaviour during adolescence and adulthood. The Pacific Islands Families Study is currently considering these and related matters (Bellringer et al., 2012). While family of origin characteristics no doubt play a role in influencing subsequent gambling behaviour, external socialising agencies and experiences clearly also play a significant role. In both the present and 1999 national study (Abbott, 2001) problem gamblers more often than non-problem gamblers reported that their spouse or sister has or had a problem with gambling. Further research is required to examine the impact both of past and current household composition on gambling and problem gambling.

Socio-demographic risk factors for problem and at-risk gambling

As in all previous New Zealand general population surveys the present study found substantial differences between major ethnic groups. In comparison to New Zealand European/Other and Asians, Māori and Pacific Islanders had much higher rates of lifetime probable pathological and problem gambling as well as past 12 month problem, moderate-risk and low-risk gambling.

Gender differences, especially with respect to probable pathological gambling, were substantial when the first national survey was conducted in 1991 (Abbott & Volberg, 1991). In both the 1999 and present study there was no gender difference in the case of lifetime probable pathological gambling. However, in both of the latter surveys, males had higher rates of lifetime problem gambling. These findings are consistent with those of the 2006/07 NZHS. In that survey, there was no gender difference between male and female current problem gambling (similar to the SOGS-R probable pathological gambling) prevalence estimates. Again, males had higher rates of less serious (moderate-risk) gambling problems. While most studies internationally have found significant gender differences, as mentioned in the introduction, New Zealand is one of the jurisdictions where differences have diminished considerably over time. In the present study there were gender differences within some ethnic

groups. European/Other males had a higher current problem rate than European/ Other females, and Pacific males had a higher rate of moderate-risk gambling than Pacific females. In contrast, in the 2006/07 NZHS, European/Other males had significantly higher moderate-risk gambling prevalence than did European/Other females. There were no significant gender differences within the other ethnic categories. With respect to males, in 2012 around one in eight Pacific Islanders and one in 16 Māori were current problem or moderate-risk gamblers, compared to one in 22 Asians and one in 48 European/Others. For females, around one in 20 Pacific Islanders and one in 15 Māori were current or moderate-risk gamblers, compared to one in 67 Asians and one in 71 European/Others.

Current problem gambling prevalence does not differ by age although adults in the younger categories have higher rates of moderate-risk gambling than adults in some of the older categories. People aged 65 years and older have low rates of combined problem and moderate-risk gambling as well as low rates of lifetime probable pathological gambling compared to adults in most of the other age categories. In 1991, young adults generally had higher rates of probable pathological and problem gambling than older adults. In 1999 this difference was no longer present (Abbott & Volberg, 2000). The 65 years and older group had lower rates than some of the other age groups and those aged 25-34 years had the highest rates. In the 2006/07 NZHS, adults aged 36-44 years had higher problem gambling rates than those in other groups and adults aged 55 years and older had lower rates than adults in some of the other groups. As with gender, age differences have diminished somewhat over time. Compared to some other groups in their categories (e.g. religion) the following have higher rates of either current problem and/or moderate-risk prevalence rates: unemployed, Other Christians, Other religions, lacking formal qualifications, low income and large household size. Most of these high risk groups also had higher rates of lifetime probable pathological or problem gambling. Anglicans had a low rate relative to a number of other religious groups.

As membership of the high risk groups overlaps, often considerably, multivariate analyses were conducted to help clarify the nature of their relationship with the various measures of problematic gambling. These analyses identified Māori and Pacific Island ethnicity as the major independent risk factors for current problem gambling, followed by male gender. They were also independent risk factors for combined problem and moderate-risk gambling. Younger age, lack of formal qualifications, unemployment and residence in the most deprived deprivation quintile emerged as significant risk factors for problem/moderate-risk gambling. Māori ethnicity, male gender and residence in the most deprived quintile were also found to be independent risk factors for lifetime probable pathological gambling. Membership in these groups were major independent predictors of combined probable pathological and problem gambling, along with lacking formal qualifications and living in households of two or more persons. Anglicans, relative to some other religious groups, were at low risk.

As mentioned in the introduction, during the 1990s, while Māori and Pacific Islanders continued to have very high rates of problem gambling, differences diminished somewhat with respect to gender, age and education and employment status (Abbott & Volberg, 2000). While the present findings are similar to findings from other more recent studies with respect to age and gender, they are more similar to the 1991 findings with respect to educational and occupational status. As in 1991, but not in 1999, unemployment was a significant risk factor for current problem and moderate-risk gambling.

In 1999, Catholicism was identified as a risk factor for both current and lifetime probable pathological and problem gambling and was retained in multivariate regression analyses when the effects of other factors had been taken into account (Abbott & Volberg, 2000). Other Christians were at somewhat lower risk. In the present study, Catholics were also at greater

risk of being a lifetime probable pathological or problem gambler. In the present study, Other Christians and Other Religions were at higher risk for combined current problem and moderate-risk gambling and Anglicans at lower risk. Religion has been relatively little studied in relation to problem gambling (Abbott & Volberg, 1999; Abbott et al., 2004). This is surprising given the positions taken by major world religions in relation to gambling, the part played by religious organisations socially and politically with respect to legislative and other measures taken to prohibit or restrict access to gambling, and the place of religion in community and family life in most parts of the world. Gamblers Anonymous, the major mutual help approach to problem gambling, is based on a quasi-religious programme requiring belief in a higher power.

In the 1999 national study Catholics, in addition to having higher rates of disordered gambling, had higher weekly average gambling expenditure than other religious groups and were over-represented among horse and dog race bettors and regular continuous gamblers. Research elsewhere has also found high gambling involvement by Catholics (Abbott et al., 2004) and an early Texas survey (Wallisch, 1993) found that Catholics had elevated problem gambling prevalence rates. Other people who were not Protestant or Jewish also had high rates in the latter study.

Historically, most major world religions including Islam, Christianity and Judaism, have opposed gambling. Within Christianity, relative to most Protestant denominations, the Catholic Church has long adopted a more permissive attitude. In New Zealand, in recent decades, most Protestant churches have become more permissive and some rely on income from gambling to support parish and other charitable activities (Abbott, 1999; Abbott et al., 2004; Grant, 1994). In New Zealand, people with non-Christian religious affiliations are often recent migrants and many are Asians, particularly Chinese, Indians and Koreans. They resemble Other Christians (Methodists and a variety of Fundamentalist churches/denominations) in that many are non- or infrequent gamblers and relatively few are regular gamblers. However, in 1999, while a large proportion of non-Christians did not gamble, their average expenditure was similar to that of a number of the other religious groups. In the present study, while about a third of adults in both the Non-Christian and Other Religions categories did not gamble, they resembled most other religious groups with respect to proportions of regular continuous gamblers and average gambling expenditure.

As mentioned, in the current study as in previous New Zealand surveys, regular participation in continuous forms of gambling is strongly associated with problem gambling. In 2012, around one in ten regular continuous gamblers were current problem gamblers. In this study, as noted in the introduction and described more fully in Abbott et al. (2014a), Māori, Pacific Islanders, adults aged 65 years and older, people who lack formal qualifications and unemployed people all had high rates of regular continuous gambling. Pacific Islanders are one of the 'bimodal' groups that have a large portion of non-gamblers and a relatively large number of high intensity gamblers. Other bimodal groups include Asians, recent migrants, some religious groups (Other Christians and Other religions) and, to a lesser extent, the youngest and oldest age groups and people outside the paid workforce other than unemployed people. As discussed earlier, many people in some of these categories come from families and/or have migrated from countries with low levels of involvement in the types of gambling that are widely available in New Zealand. According to the combined availability/exposure-adaptation model, people in these groups, both those with high level of participation in regular continuous gambling and those with bimodal participation patterns, are predicted to be at higher risk for problem gambling. Many people in some of these groups reside in the quartile of neighbourhoods that have particularly high concentrations both of non-casino EGMS and TABs (Pearce et al., 2008). According to the availability/exposure hypothesis this

should increase the risk of problem development and continuity. According to the adaptation hypothesis this risk should be substantially greater for groups with previously limited exposure to these gambling activities.

As mentioned, with the exception of older adults, in the present study all of the groups with high levels of regular continuous gambling participation were found to have elevated rates of problematic and/or at-risk gambling. Older age may be a protective factor for problem gambling, with older people more able to take part regularly in continuous forms of gambling without developing problems. If so, this could in large part be a consequence of their previous experience with gambling and thus an indicator of adaptation at the individual level. It may also be a consequence of older people having much lower rates of mental disorder than other adults (Oakley Brown, Wells & Scott, 2006). Anxiety and depression, the most common mental health problems, are risk factors for the development of problem gambling (Abbott et al., 2004; Blaszczynski & Nower, 2002). The other bimodal groups, apart from Asians, while they did not have high proportions of regular continuous gamblers, as predicted also had significantly higher rates of problem and/or at-risk gambling. A number of these groups including Māori, Pacific and youth also have high rates of mental health disorders.

The multivariate analyses, as mentioned, indicated that Māori and Pacific adults remained at very high risk, even when other factors associated with Māori and Pacific Island ethnicity, were taken into account. This included among other things, age, educational and employment status and neighbourhood deprivation. This is a consistent finding in New Zealand national gambling and health surveys. This means that ethnicity per se is important, rather than just reflecting the influence of other factors associated with being a Māori or Pacific Islander. Previous research, additional to the earlier New Zealand studies, has found that some indigenous populations, ethnic minority groups and recent migrants are at high risk for problem gambling (Abbott et al., 2004; Productivity Commission, 2010; Raylu & Oei, 2002; Volberg & Abbott, 1997). Indigenous populations have typically experienced histories of colonisation and associated exploitation and oppression. They continue to be economically and socially disadvantaged in a variety of ways and are at risk for a range of health and social problems.

Welte et al. (2004) found in the United States of America, as in the present study, that both gambling participation and socio-demographic factors were strong predictors of problem gambling. They demonstrated that participation measures remained strong predictors of problem gambling after socio-demographic factors were taken into account in multivariate analyses. Consistent with exposure theory, these findings indicate that gambling exposure/participation is fundamentally important in predicting problem gambling prevalence. However they also found that when gambling participation differences were controlled for, ethnic minority status and poverty continued to be associated with problem gambling. This indicates that ethnic minority status and lower socio-economic status influence problem gambling in ways additional to contributing to exposure to high risk forms of gambling and independently of other socio-demographic variables including gender and age. The study authors suggested that this might, at least in part, arise because minorities have less net worth than whites, even at the same income levels. Consequently they have fewer financial resources and assets to buffer the effects of gambling losses. They also suggested that gambling might be more likely to be regarded as a type of investment and way to escape poverty. These possibilities could apply in New Zealand and warrant further examination. However, it is probable that a variety of cultural and religious values and social practices also play a role. In the case of some high-risk New Zealand ethnic, migrant and religious groups, as previously discussed, membership also reflects recent exposure to, and experience of, particular gambling activities, at both community and individual levels.

While there is considerable variation in problem gambling prevalence across the socio-demographic groups in the current study, differences are probably only partly a consequence of different levels of gambling involvement. It was also found that when this variation was controlled for, adults living in more socio-economically deprived neighbourhoods remained at significantly higher risk than adults living in less deprived neighbourhoods. This means that very high problem gambling prevalence rates in deprived neighbourhoods are a consequence both of living in these high concentration EGM and TAB settings per se, and the socio-demographic composition and vulnerabilities of their resident populations.

Reasons for gambling and beliefs about gambling

These topics are examined and discussed in Abbott et al. (2014a). There were relatively few differences between problem and at-risk gamblers and non-problem gamblers on these measures. Reasons given for taking part vary considerably from one gambling activity to another, both for problem and non-problem gamblers. For some activities, problem gamblers more often said they took part because it was an interest or hobby or for excitement and challenge. In comparison to non-problem and, in some cases, low-risk gamblers, more problem gamblers said they believed they lost money overall playing cards for money and playing pub and club EGMs. These findings are consistent with their high self-reported gambling expenditure (losses).

Participants in the present study were asked about their use of special systems or skills to improve their chances of winning. These questions were included because previous research indicates that a variety of methods, including superstitious beliefs and actions, are used by problem gamblers and that they contribute to intensive participation, loss of control and problem gambling (Mackay & Hodgins, 2012). The erroneous beliefs about chance and cognitive distortions that underlie most of these methods are a target in cognitive therapies for problem gambling. In Abbott et al. (2014a) it was found that about one in four adults who bet on horse and dog races and sports events, and participated in casino table games reported using methods of this type. These forms of gambling can involve an element of skill. Special systems or skills were mentioned less often in relation to EGMs, Lotto and other totally chance-driven activities. With respect to their frequency of use, contrary to expectation, there were no differences between problem, moderate-risk, low-risk and non-problem gamblers. This raises questions about whether or not they do play a significant role in the development of excessive and problematic gambling. This matter can be addressed in the longitudinal extension of this study by examining their use in relation to changes in gambling behaviour and gambling-related problems over time.

Methods used to moderate gambling participation

As discussed in Abbott et al. (2014a) questions were included in the present survey regarding methods to stop or reduce gambling. This topic will be explored further in the longitudinal extension to see to what extent the use of these methods sustain gambling within safe limits and reduce the gambling of people at risk of developing a gambling as well as those who have problems. In Abbott et al. (2014a) it was found that about a third of adults who reported gambling in the past 12 months had used one or more methods of this type during that time. Most used only one method, predominantly setting a money limit, and a large majority considered this and other methods to be effective in stopping them from spending too much money and/or time gambling. Other methods used by five percent or more of adults who

participated in gambling activities included separating betting money and stopping when it was used, avoiding venues, setting time limits and leaving ATM and credit cards at home.

Over three-quarters of problem gamblers used these methods, compared to around two-thirds of moderate-risk gamblers, a half of low-risk gamblers and a quarter of non-problem gamblers. It is of interest, albeit perhaps not surprising, that these methods were used more often by people who gamble at greater intensity and are losing, or have substantially lost, control over their gambling and are experiencing adverse consequences. Problem and moderate-risk gamblers more often than non-problem gamblers said they avoided places that had gambling or betting facilities. Moderate-risk gamblers more often than non-problem gamblers separated money for betting from other money, left ATM and credit cards at home and set time limits.

While all methods were considered to be effective by most people in all of the gambling categories, more problem and moderate-risk gamblers were of the view that setting a money limit was ineffective. More problem gamblers, relative to non-problem gamblers, believed that separating money for betting and setting time limits were either ineffective or neither effective nor ineffective. Thus problem and, to some extent, moderate-risk gamblers more often used methods to stop or reduce their gambling and most found them effective. However, higher proportions in these groups also found them to be ineffective. This is consistent with their reduced ability to moderate their gambling and avoid associated costs and harms. In subsequent phases of the study it will be interesting to see how the use of these methods influences gambling behaviour over time. Most at-risk and problem gamblers do not seek specialist professional help. There may be potential to promote the use of these methods through public health and education programmes. They also have potential to be used more widely in treatment and relapse prevention. Their efficacy in these contexts should be evaluated.

Recent behaviour change

The examination of changes in gambling participation over time will be a major focus of future waves of the present study, where change can be examined prospectively. Prospective study of change relies less on recall of past behaviour and subjective judgements. As a consequence it produces more reliable results than cross-sectional retrospective studies. In this first phase of the study, participants were asked whether or not they considered that their overall gambling involvement had changed during the past 12 months and, if they thought it had, why. As reported in Abbott et al. (2014a) over three-quarters of adults were of the view that their involvement had stayed much the same. This is not surprising given the relatively short time-frame. In the 1999 national study, when a longer five-year period was used, just over a half of participants believed that they had maintained their previous level of involvement (Abbott, 2001). In the present study, almost four times as many people thought their gambling had decreased rather than increased.

Regular continuous gamblers changed substantially more than regular non-continuous, infrequent and non-problem gamblers. Of the regular continuous gamblers who reported changes, somewhat more than people in other categories said their gambling had decreased rather than increased. However, relative to the other groups, more continuous gamblers also reported increased participation. High gambling expenditure was also associated with less stability. The great majority of people who most preferred gambling on overseas internet sites reported decreased participation. Somewhat higher rates of change were found for people who preferred non-casino EGMs, casino EGMs or table games, sports betting,

Bullseye and Instant Kiwi or other scratch tickets. Relative to other ethnic groups, Māori and Pacific Islanders more often considered their gambling to have decreased. Other groups in this category included unemployed people and people in the lowest household income category. Employed people, relative to adults outside the paid workforce or unemployed people, more often reported increased involvement. These findings suggest that more intensive gambling is transitory for many people, even over relatively short periods of time. There is less change over time for people who engage predominantly in non-continuous forms or who participate less frequently in continuous forms. Low income appears to contribute to reduced involvement. It is unclear to what extent the reporting of reductions as being more common than increases reflects actual behaviour change rather than distorted perception. This will be able to be clarified in subsequent waves of the study.

Participants who believed that their gambling had increased or decreased were asked why they thought it had changed. Over a third said it had increased because of friends and family. Other more frequently mentioned reasons included having more money to spend and having more opportunities to gamble. Reasons for decreased participation included changed priorities, wanted to save money or spend it on other things, having less money to spend, having lost interest and having less time or being too busy. In Abbott et al. (2014a) further information is provided about reasons for change including life events.

The frequency of life events in relation to problem and at-risk gambling was reported earlier in the report. Participants were also asked, for each event reported, whether it had led to increased or decreased gambling. Consistent with the findings just mentioned, a major change in financial situation was mentioned most often, in relation to both increased and decreased participation. Trouble at work and the death of someone close were next most often mentioned in relation to increased gambling, followed by a major illness to self or someone close, an earthquake or other natural disaster and moving to a new town or city. The death of someone close, major illness to self or someone close, an earthquake or other natural disaster and moving to a new town or city were also given as reasons for decreased gambling. Additional reasons included pregnancy or new family additions, a major change in living or work conditions, taking on a mortgage or loan, making a big purchase and moving house.

Recent behaviour change is reported in the present report in relation to problem and at-risk gambling. Over three-quarters of problem gamblers around two-thirds of moderate-risk gamblers considered that their participation had changed during the past 12 months. In contrast, less than a quarter of non-problem gamblers and more than a third of low-risk gamblers indicated changed participation. In all groups, decreased involvement was mentioned more often than increased involvement. This was especially so for problem gamblers and moderate-risk gamblers. However, people in these two groups and the low-risk group also more often than non-problem gamblers reported increased participation. While the problem gambling and moderate-risk groups reported high rates of change, especially reduced participation, it is unclear what the extent of this change is and how reliable their self-assessments are. The prospective phase of the study will enable this to be assessed more clearly.

In the first prospective adult general population study of problem gambling, Abbott, Williams and Volberg (1999; 2004) found substantial changes in problem gambling status and gambling participation. Infrequent and non-gamblers and regular non-continuous gamblers were the most stable over time, followed by probable pathological gamblers. Regular continuous gamblers and problem gamblers were the least stable. Similar findings have more recently emerged from the longitudinal Victorian Gambling Study (Victorian Responsible Gambling Foundation, 2011; 2012).

The reasons given by problem and at-risk gamblers for increased and decreased involvement were similar to those given by adults generally including non-problem gamblers. Some reasons, however, differed in the frequency with which they were mentioned. For example, problem gamblers much more often than non-problem gamblers said their involvement increased because they had more money to spend. Moderate-risk gamblers more often said their gambling had increased because they had more time available or felt like it. Problem gamblers much more often than non-problem gamblers said their gambling had decreased because their priorities had changed. Problem gamblers also somewhat more often mentioned to save money or spend money on other things and having less money to spend. Relative to the other groups, problem gamblers less often said they reduced their gambling because of a loss of interest in activities previously engaged in.

As mentioned, problem gamblers much more often reported experiencing life events during the past 12 months than adults in the other gambling groups. Moderate-risk and low-risk gamblers also experienced some of these events more frequently than non-problem gamblers. As discussed, some of these events, including those mentioned more often by problem and moderate-risk gamblers, were reported as having an influence on changes in gambling involvement. Unfortunately the impacts of life events could not be assessed directly for problem gamblers and the other gambling groups because the samples were too small.

Problem and at-risk gamblers were administered a scale that assesses readiness to change their gambling behaviour. As expected, readiness to change scores were highest for problem gamblers, somewhat lower for moderate-risk gamblers and lowest for low-risk gamblers. Performance on this measure will be examined in future waves of the study in relation to gambling behaviour change, problem gambling and help-seeking.

Help-seeking

Nearly nine out of 10 current problem gamblers reported that during the past 12 months they at least sometimes felt they might have a problem with gambling. Forty-five percent said they felt they had almost always or most of the time. Nearly half of moderate-risk gamblers also said they at least sometimes felt they had a problem, although the majority of these people did not indicate that they did so frequently. Over a half of current problem gamblers and a quarter of moderate-risk gamblers said they wanted help to stop or reduce their gambling at some time; much higher than the two percent of adults generally and five percent of low-risk gamblers who said this. These findings suggest a high level both of problem recognition and a desire to seek help, especially in the case of people with more serious problems.

As mentioned in the introduction, at the time of the first national study (Abbott & Volberg, 1991) less than a third of lifetime probable pathological and problem gamblers considered that they had a problem with gambling. This increased to a half in the subsequent national study (Abbott & Volberg, 2000). This suggests a substantial increase of problem recognition over time. This might be expected given the expansion of specialist problem gambling services, regular public health campaigns and heavy media coverage about problem gambling during this period. There was also an increase during the 1990s in the proportion of people with gambling problems who said they had wanted help as well as in the proportion that subsequently sought it.

In the present study, one in a hundred adults said they had tried to get help to stop or reduce their gambling at some time and over four out of ten of these people said they had done so for

the first time in the past 12 months. A third of current problem gamblers reported having tried to get help in the past and a quarter of these people said they did this for the first time during the past 12 months. Around a half of problem gamblers indicated that they had sought help on more than one occasion. Some of these people had done so multiple times. Nearly a fifth of moderate-risk gamblers also reported seeking help with just under a third doing so for the first time during the past 12 months.

As in the previous 1991 and 1999 New Zealand national studies, informal sources of help were mentioned most often, although there has been a significant increase over the years in seeking help from professionals and specialist gambling services. In the present study, friends were mentioned most often in this regard, followed by family, helplines, community support groups, a counsellor or doctor. Other sources of help, including Gamblers Anonymous and specialist gambling counselling services were mentioned less frequently. Of those who received help, a third mentioned counselling. Discussion and meetings, support, encouragement and assurance, and receiving advice were mentioned somewhat less often. Around a fifth mentioned receiving gambling booklets, brochures and information packs and a further fifth mentioned that they had been barred from or avoided gambling venues. The large majority of people who received help considered it was helpful and around two-thirds identified a type of help that was most helpful for them personally. Support, encouragement and assurance were mentioned most often, followed by counselling and having money limited in some way such as having a cash card taken away or having someone take control of their budget.

The foregoing findings indicate that a moderate proportion of people with gambling problems, including a somewhat lower proportion of moderate-risk gamblers, sought help from a variety of informal and formal services. Most indicated that this help was of value to them. The frequent mention of friends and families underlines the importance of ongoing public education and measures to raise levels of health literacy regarding problem gambling. Significant numbers of people also approached doctors and generalist counsellors for assistance. It was mentioned in the introduction that problem gamblers visited general practitioners more often than non-problem gamblers and much more often saw psychologists, counsellors and social workers (Ministry of Health, 2009). It is not known to what extent these visits are for gambling problems and how well such problems are identified when patients do not explicitly indicate that they are concerned about their gambling. Greater attention to increasing awareness and professional competence regarding gambling in non-specialist health and social services might increase their effectiveness. While a larger proportion of problem and at-risk gamblers sought help than in previous surveys, around two-thirds said they had never tried to get assistance.

While sample size is small and caution is required in interpreting the findings, there appear to be differences in help-seeking across social groups. Gender differences appear to be minimal, although somewhat more males may have sought help for the first time in the past 12 months. Other groups with relatively high proportions of people ever wanting or trying to get help include Māori, Pacific Islanders, those with no qualification or only school-level qualifications, unemployed, Other Christians, Other religions, large household size and low personal income. It is of interest that these groups also have elevated problem and moderate-risk gambling prevalence. Older adults less often wanted or tried to get help.

Service access can also be assessed from the present survey by comparing problem gambling prevalence rates with data from specialist gambling service providers. Comparing the current estimates with official client presentations indicates that a substantial proportion of people with serious gambling problems are accessing the gambling helpline and face-to-face services

funded by the Ministry of Health. In 2011, 2,122 new clients contacted the gambling helpline, 59% of whom sought help for their own gambling problems. A further 1,478 repeat clients contacted the helpline. Information is not provided regarding the percentage of problem gamblers who were repeat clients. Assuming it was also 59%, 2,124 people sought help for their own problems during 2011. In the 2011/12 financial year, 4,657⁴ people contacted a Ministry of Health funded specialist problem gambling treatment service for help with their own gambling problem. An additional 2,383 people received brief interventions from these services for gambling problems. Approximately a third of helpline callers involved in a recent outcome study also received specialist treatment during a 12 month follow-up period (Abbott et al., 2013). Assuming a third of all helpline callers generally accessed specialist treatment, this suggests that a total of 5,838 people received specialist telephone or face-to-face counselling for their own gambling problem during the 12 months prior to the present study. While we can estimate the number of helpline callers who also contacted face-to-face specialist services, it is not known what proportion of people who access face-to-face services also access the gambling helpline. On balance, it is likely that approximately a quarter of the estimated 23,504 problem gamblers and seven percent of the estimated 83,944 problem and moderate-risk gamblers combined access services.

If brief interventions are also included, the numbers of people seeking help increases by 2,383 to total 8,221; just over a third of the estimated number of problem gamblers and ten percent of problem and moderate-risk gamblers combined. However, this probably gives an over-estimate of the proportions of problem and moderate-risk gamblers who accessed gambling counselling and treatment services. This is because an unknown number of people who received brief interventions will also have received helpline counselling and/or accessed specialist gambling treatment services. Additionally, it is likely that a number of people who received brief interventions were people at lower levels of risk and not currently experiencing significant problems. Therefore, it is estimated that the actual presentation rate for problem gamblers is somewhere between 25% and 30%, and for the problem and moderate-risk gamblers combined is between seven percent and ten percent.

Gender presentations appear to be fairly similar to their respective representation in the population. Māori accessed services in greater numbers during the 1990s and, at the time of the 1999 national survey, a fifth of national helpline callers were Māori. This was also the case with face-to-face counselling presentations. However, this suggests that Māori were still under-represented. During this period there had been little increase in the number of Pacific Islanders accessing helpline and counselling services. They appeared to be significantly under-represented relative to population estimates. It is likely that this was also the case for Asians.

In 2011, 21% of new gambling helpline callers were classified as Māori, seven percent as Pacific Islanders and eight percent as Asian. Some caution is required in interpreting these percentages as 27% were classified as “other/multi” and may well include a number of people from these ethnic categories. Taken at face value it appears that the percentages of Māori and Pacific Island first time callers have stayed much the same since the time of the 1999 survey and that the Asian percentage has increased to about the same as that for Pacific Islanders. Thirty percent of specialist gambling counselling clients were Māori in 2011/12. Pacific Island, Asian and Other percentages were respectively 13, six and 49. Since the mid-2000s, Pacific Island presentation proportions have more than doubled but Asian proportions have not changed. While there is some uncertainty about the reliability of the client ethnic data, on

⁴ Of this total, 235 are double-counted as the Ministry of Health treatment service dataset includes 235 helpline callers who are recorded as having full interventions.

balance it appears likely that Māori, Pacific Islanders and Asians remain under-represented in problem gambling intervention services. This may be especially the case with Pacific Islanders and Asians. Further examination of barriers to help-seeking and initiatives to increase access is warranted.

Other people's gambling

In the present study, participants were asked about gambling in the family they grew up in and in their present household. They were also asked about people they know or have known who they think might have a problem with gambling and how their relationship was mainly affected by this.

As found in the 1999 study (Abbott & Volberg, 2000), in 2012 most people said there was little or no gambling in the household they were mainly brought up in. Only around one in ten said there was a moderate amount and one in twenty reported a lot. In the 1999 study, it was found that substantially more people reported gambling in their present family than had gambled in their family of origin. However, although more gambled in their present family than in the family they grew up in, the great majority said they only gambled a little. In contrast, less said they gambled a lot or a moderate amount. While noting that caution is required when interpreting retrospective accounts of behaviour, these findings suggest that while a much larger proportion of families gambled in 1999 than in the past, fewer did so frequently. Abbott and Volberg (2000) opined that that this was a potentially important finding because it contradicts the notion that increased overall gambling involvement within a society leads to a disproportionate increase in the number of people who gamble a lot (Lund, 2007). A further finding, namely that adults aged 35 years and older more often reported both non-gambling and moderate to heavy gambling in their families of origin than those aged under 35 years, was consistent with this interpretation.

These 1999 findings are also consistent with the view that younger adults grew up with considerably more gambling in their households of origin than did older adults. However, younger adults did not report that this was repeated in their current families. They reported much lower levels of moderate and heavy gambling. This suggests that at that time there was discontinuity of familial gambling patterns across generations and implies that external socialising and a variety of other factors play a significant role in the development of gambling behaviour.

In contrast to 1999, in the present study most people said there was little or no gambling in their current household, as well as in the household they mainly grew up in. There was little if any difference between the two. Only a third as many adults in the present study as in 1999 considered there to be a moderate amount or a lot of gambling in their current household. This difference is consistent with the gambling participation findings from the 1999 and 2012 studies. Weekly or more frequent participation, including regular participation in continuous forms, dropped considerably over time. There was also a substantial reduction in the proportion of adults who participated in multiple gambling activities. While average self-reported gambling expenditure has probably stayed much the same, high expenditure appears to have become more concentrated within a smaller section of the population. In the present study, both the oldest adult groups and the youngest group reported that there was no gambling in the households they grew up in. The young adult findings are consistent with survey results indicating an increase in the proportion of non-gamblers in the population during the last decade and the substantial reduction in regular continuous gambling. The

older adult groups were growing up prior to the late 1980s gambling ‘boom’ and subsequent expansion in the range and availability of gambling activities.

In the present study, two-thirds of Asians and a half of Pacific adults said there was no gambling in their families of origin, substantially higher than was the case for Māori and European/Other. Again in comparison to Māori and European/Other, few Asians or Pacific Islanders mentioned low levels of gambling involvement. Relative to other ethnic groups Māori reported higher proportions of moderate and heavy gambling. Although, most Pacific Island adults reported no or little gambling, substantial minorities said there was a lot or a moderate amount. Asians, while being similar to Pacific Islanders with respect to no or little gambling, differed in that they also reported very low levels of heavy gambling. As for Asians and Pacific Islanders, high proportions (over half) of migrants, Other Christians and Other Religions reported growing up in non-gambling households.

Findings for gambling in participants’ current household were fairly similar to those for family of origin. Again Asian and Pacific adults more often reported no participation than did Māori and European/Other. Māori and European/Other more often mentioned a little gambling, and Māori and Pacific Islanders somewhat more often than European/Other and Asians mentioned a moderate amount or a lot. Over a half of migrants, Other Christians, Other Religions and people living in low income households also said there was no gambling in their current household. Both the family of origin and present household findings are generally consistent with the past 12 month gambling participation findings where Māori and European/Other have high levels of overall participation, Māori have more frequent engagement with continuous forms and Pacific Islanders, Asians and a number of these other groups, to varying degrees, have bimodal patterns.

As predicted, in both the present study and in 1999 study, problem gamblers reported much higher levels of moderate to heavy gambling in their families of origin than was the case for non-problem gamblers. However, three-quarters did not. Moderate-risk and low-risk gamblers also reported somewhat higher levels. These findings are consistent with the view that family socialisation plays a part in the development of problem gambling. Again, as expected and found in 1999, problem gamblers also reported more moderate and heavy gambling in their present households. The higher levels of moderate and heavy gambling reported by Māori in their families of origin and current household are consistent with the high prevalence of problem gambling among Māori. Pacific Islanders and most of the other bimodal groups also had high rates of problem and moderate-risk gambling, despite the large proportions that grew up in households where there was no gambling involvement. In contrast to Māori and European/Other, the majority of problem gamblers in these groups would have first experienced gambling outside their families of origin. While heavy exposure to gambling during childhood and the age at which people commence gambling are risk factors for problem gambling, there are indications from the present results and other research that people are also at risk, irrespective of age, when they begin to get involved in continuous forms of gambling that they have not had prior experience of.

A third of adults in the present study said that they knew at least one other person whom they thought currently has, or has had, a problem with gambling. A half of Māori, a third of Pacific Islanders and European/Other and a quarter of Asians reported knowing people they think have or had a problem with gambling. The high number of Māori who reported this is consistent with the high Māori prevalence rates for problem and moderate-risk gambling. Given that Māori and Pacific Islanders both have high prevalence rates, it might be expected that similar proportions would mention knowing people who they think have or had problems. This might be an indication of lower levels of awareness of problem gambling and its

recognition among Pacific people. This might also be the case for Asians as their problem and moderate-risk prevalence rates are similar to, or slightly higher than, European/Other rates. Migrants, especially recent migrants, and some other groups including people of other religions also reported knowing people they think have a problem less than might be expected given their prevalence rates. This is likely to reflect both the low rates of problem gambling in the countries that many recent migrants (many of whom are also in the Other Religion category) came from and less awareness of problem gambling. If this interpretation is correct, further attention could be given to gambling health literacy education in these population sectors.

For adults generally, two percent of adults considered that their spouse or partner has or had a problem with gambling. Estimates ranged from two to three percent for fathers, mothers and brothers. Sisters and sons or daughters were mentioned by one percent. Much higher percentages of friends or acquaintances, family members other than immediate family, and workmates were mentioned. It is of interest that the participants' assessment of problems for spouses/partners, fathers and mothers are virtually the same as the prevalence of lifetime probable pathological gambling in the present study. Some ethnic differences appear to be substantial, particularly in the case of Māori where high rates were reported for spouse/partner, father, mother, siblings, other close family members and friends. However the sample sizes for ethnic and other socio-demographic groups are small and apparent differences should be treated with caution. Nevertheless, the Māori results are consistent with other findings in this and previous studies referred to in the introduction that show very high levels of problem gambling and other gambling-related harm among Māori.

For each person they thought currently has or had a problem with gambling, participants were asked how their relationship was mainly affected. Eight percent of adults (around a quarter of the third of adults who believed they knew someone in this category) said they were affected personally. The low percentage who said they were affected is a consequence of the relatively large proportion of people thought to have a problem being more distant relatives, friends and acquaintances, and workmates. Adverse financial impacts were mentioned most often, followed by loss of relationship, stress to family, loss or lack of trust and anger, frustration and resentment. Loss of time together, fights and family violence and family break-ups and splits were also mentioned. Some people said they felt sorry for the person they thought had problems and that they had tried to help them. Small sample size limited the assessment of socio-demographic differences. These findings provide an indication of the widespread negative ripple effects that problem gambling has throughout families, other social networks and the wider community.

As mentioned earlier, all participants were asked if there had ever been an argument in their household about gambling and if this had been in the past 12 months. They were also asked if their family had to go without something they needed or bills were not paid because too much was spent on gambling. Around one in ten and one in eight adults, respectively, reported that this had sometimes happened. Most problem gamblers reported arguments and going without or not paying bills. Moderate-risk gamblers and low-risk gamblers also more often than non-problem gamblers reported these adverse events. People in the problem gambling and risk groups also more often said it was their gambling, rather than someone else's that was responsible. Sample sizes were sufficiently large to examine some socio-demographic differences. Females, adults aged 25 to 64 years, Māori, Pacific Islanders, New Zealand-born, unemployed people and people living in large households more often reported one or both of these events. These groups again include a number of the population sectors found to have higher rates of problem and moderate-risk gambling. They further amplify the range and concentration of problem gambling and other gambling-related harms that characterise

these groups as well as providing further construct validation for the PGSI and its use in New Zealand.

In the 2006/07 NZHS, participants were asked if they had experienced problems due to someone's gambling during the past 12 months. Just less than three percent of people reported that they had experienced problems of this type. Over 80% of these people said the problems were due to non-casino or casino EGMs. Three-quarters of them were non-problem gamblers. This again indicates that while problem and at-risk gamblers are more likely to also be affected by other peoples' gambling, the large majority of people affected by other peoples' gambling are non-gamblers or recreational gamblers. Māori and Pacific adults and adults living in the most deprived neighbourhoods were significantly more likely to report problems of this type. As mentioned earlier, these were also major risk factors for problem gambling in that study.

Conclusions

Current gambling harm

A major objective of the present study was to assess the extent of problem gambling and other gambling-related harm in New Zealand. This has been documented at length in this report and discussed in the present chapter. Overall, 0.7% of adults were estimated to currently be problem gamblers; a further 1.8% were estimated to be moderate-risk gamblers and 5.0% were estimated to be low-risk gamblers. This means that around one in 40 adults is either a problem gambler or moderate-risk gambler and a further one in 20 adults is a low-risk gambler. Substantially more people were estimated to have had gambling problems at some time during their life. While lower than the proportions of hazardous drinkers and smokers, these findings indicate a significant burden of harm.

Recently, longitudinal studies in Sweden and Victoria, Australia have found that past problem gamblers who did not score as problem gamblers during the previous 12 months are at high risk for relapse during the next few years. This will also be assessed in future waves of the present study. Among other things it will enable the determination of what proportion of people who develop problems or increase their risk category over time are in fact new cases rather than people who are moving back (relapsing) into higher-risk or problem gambling. The characteristics of new and relapsing cases, including risk factors for both first onset and relapse, may be able to be identified. They might differ and this could have implications for both prevention and treatment.

It has been explained that estimates of lifetime problem gambling are likely to be conservative. This is mainly because it has been shown that many people under-report gambling problems experienced in the more distant past. Additionally, surveys rarely administer problem gambling measures to people who do not report having taken part in gambling activities during the past year. Given that a number of past problem gamblers do not gamble currently, or gamble periodically, they are not assessed. This further contributes to underestimates of lifetime problems.

During the past decade, surveys have rarely assessed lifetime problem gambling. It might be timely to re-introduce lifetime measures. Apart from providing a more accurate indication of how many people there are in the population who are at risk of having problems, because some past problem gamblers experience adverse consequences long after they stop gambling,

the inclusion of lifetime problem gamblers would also provide more accurate estimates of current gambling-related harm.

As with alcohol-related harm, while those with more serious gambling problems are most likely to experience a range of adverse health, social and other consequences and cause harm to others, in aggregate those with less serious or minor problems generate the most harm. This is because many more people are in the less serious categories. From a public health perspective these groups are important, both because effective interventions with at-risk and pre-clinical groups have potential to significantly reduce overall harm and because they could prevent progression, for some individuals, to more serious, relapsing gambling disorders.

A third of adults said they knew at least one person whom they thought had a problem with gambling. Around one in 12 were of the view that they had been affected personally by another person's gambling. Adverse financial impacts were mentioned most often, followed by relationship break-ups, stress to family, loss of trust, anger, frustration and resentment. Approximately one in 33 adults said there had been an argument about gambling in their household during the past 12 months and around one in 36 reported that their family or household had gone without something they needed or bills were not paid because of gambling.

Problem gamblers and, to a somewhat lesser extent, people in the at-risk groups much more often than other adults experienced adverse life events and deprivations of various kinds. It is unclear to what extent they are consequences of gambling problems and to what extent they are precipitants. The longitudinal extension of the study will help clarify this. Further research is required to assess the extent to which these experiences impact on other family members and the wider community.

Risk factors

As in previous New Zealand studies preferences for, and regular participation in, EGMs and some other forms of continuous gambling were strongly associated with gambling problems. Again, as found in numerous previous studies, self-reported high gambling expenditure and participation in multiple gambling activities were similarly associated.

Perhaps the most notable finding was that there are very large differences between ethnic and some other groups in problem and at-risk gambling and that these differences extend to various co-morbidities, deprivations and other problems as well as to the harmful consequences of other people's gambling problems.

Māori and Pacific people have particularly high rates of gambling problems. For Pacific Island adult males, approximately one in eight are problem or moderate-risk gamblers. This compares to one in 16 Māori, one in 22 Asians and one in 48 European/Other. Corresponding female estimates are one in 15 Māori, one in 20 Pacific Islanders, one in 67 Asians and one in 71 European/Other. There are also indications that Pacific Islanders and, perhaps to a somewhat lesser extent, Māori and Asians are under-represented in gambling-specific counselling services.

A number of other groups have elevated problem gambling rates. Membership in these groups overlap so multivariate analyses were undertaken to examine their independent contribution to predicting problem and moderate-risk gambling. In addition to Māori and Pacific Island ethnicity, male gender, younger age, lack of formal education, being

unemployed and residence in the most socio-economically deprived neighbourhoods were also significant risk factors. People of Other Christian and non-Christian religions were also at higher risk.

Many of the fore-mentioned factors are indicators of low educational and social status, socio-economic inequality and privation. Some, including Pacific Islanders, Other Christians and non-Christians also include relatively high proportions of migrants from countries with low exposure to gambling. As discussed earlier, socio-economically deprived neighbourhoods contain high concentrations of EGM venues and TABs. Consequently, people resident in these communities are characterised by a number of socio-demographic and other risk factors as well as elevated exposure to forms of gambling that are strongly associated with gambling problems. Most of these factors are likely to contribute to the development of problems and relapse. Others such as unemployment, while being a contributing factor, may also be a consequence of problem gambling. As gambling problems are associated with a variety of financial, health and social problems, it is highly likely that they increase existing social and health inequalities.

Changes over time

In addition to assessing present gambling and gambling-related harm, the study was designed to facilitate the examination of changes over time in gambling and gambling problems.

Two major hypotheses have been advanced regarding associations between increased gambling availability and gambling-related harms including problem gambling and other adverse health and social costs. The availability/exposure hypothesis maintains that increased availability leads to increased problems. As Orford (2005, p. 1,236) put it "... the more a product is supplied in accessible form, the greater the volume of consumption and the greater the harm." He stated that he doubted there would be many who would argue with this in other areas of public health including the supply of alcohol and tobacco and that it would be surprising if this was not also true for gambling. In the introduction and elsewhere research findings have been discussed that are largely consistent with this hypothesis (Abbott, 2006, 2007; Williams, Volberg & Stevens, 2011).

Contrary to Orford's contention, in more recent years there has also been growing support for the alternative adaptation hypothesis (Abbott, Williams & Volberg, 1999; Shaffer, Hall & Vander Bilt, 1997). Shaffer et al. (1997) thought that while highly likely that problems increase initially, over time they might reduce as populations adapt and learn about gambling and ways to counter adverse effects. They were of the view that if this occurred it would be slow, possibly after many decades of experience.

Although Orford and some others have stated or implied that availability and adaptation hypotheses are alternatives, Shaffer et al. (1997) and Abbott et al. (1999) regarded them as both applying at different times during periods of gambling expansion. Furthermore, Abbott (2006, 2007) argued that both occur simultaneously, with the relative balance influenced by a variety of factors related to the agent (nature of gambling activities and their availability), host (individuals involved in gambling) and the wider social, cultural and economic environment. To some extent this model is based on an analogy with traditional public health frameworks concerning infectious diseases where agent, host and environment interact in complex ways.

When exposed to a novel disease agent, individuals and populations are at high risk. However, over time, immunity increases. This happens naturally but can be boosted by inoculation and other measures. In addition to building immunity, protection can also be provided by reducing exposure to a disease agent. Exposure can be diminished by eliminating the agent, reducing its presence or avoiding it. Risk can also be reduced by modifying environmental factors that influence resilience and susceptibility, for example by improving general health and health literacy, especially for groups that are socially and economically disadvantaged and marginalised. These processes are dynamic. Agents also continue to adapt to host and environmental changes to maximise host access and reproductive success.

As indicated in the introduction Abbott (2006) proposed that:

1. During exposure to new forms of gambling, particularly EGMs and other continuous forms, previously unexposed individuals, population sectors and societies are at high risk for the development of gambling problems
2. Over time, years rather than decades, adaptation ('host' immunity and protective environmental changes) typically occurs and problem levels reduce, even in the face of increasing expenditure
3. Adaptation can be accelerated by regulatory and public health measures
4. While strongly associated with problem development (albeit comparable to some other continuous forms when exposure is held constant) EGMs give rise to more transient problems.

As discussed in Abbott et al. (2014a), during the late 1980s a variety of new gambling activities were introduced to New Zealand including Lotto (a national lottery), other lottery products and EGMs in clubs and pubs. This was followed by the establishment of casinos and addition of further forms of gambling as well as new ways of accessing them. From 1987 to 1990, total national annual expenditure on all official forms of gambling more than doubled. Expenditure continued to increase significantly until 2004, when it reached \$2 billion. In 2004, half of total expenditure was on non-casino EGMs. The number of non-casino EGMs and EGM venues also reached a peak at around that time and declined in subsequent years. Since 2004, total expenditure has remained steady at around \$2 billion, a reduction of 19% in inflation-adjusted terms. This reduction is predominantly due to reduced non-casino EGM expenditure.

From 1985 to 1990, adult past 12 months gambling participation increased from 85% to 90%. It remained at about this level during the early to mid-1990s. Despite increases in the availability of an expanding variety of gambling activities, participation gradually declined until 2005 when it was estimated that 80% of adults participated annually. Participation has stayed at around the same level since. More substantial reductions occurred in frequent (weekly or more often) gambling participation. When frequent participation was first assessed in 1991, nearly a half of adults reported taking part in at least one type of gambling weekly or more often. This reduced somewhat in 1999 when the next survey was conducted. It reduced substantially, to less than a quarter, in the present survey. Even more substantial reductions were found for frequent involvement in continuous forms including EGMs and casino table games. Weekly or more frequent participation in these forms fell from 18% in 1991 to 10% in 1999 and six percent in the present study.

As discussed in the last chapter, participation in most new forms of gambling rose steadily during the first few years of their introduction, then declined steadily in subsequent years. This was particularly evident for some continuous forms including Instant Kiwi and EGMs. Since the 1990s, the proportion of people who engage in multiple gambling activities has also

greatly diminished. Frequent participation in EGMs and other continuous forms and involvement with multiple activities are both strongly associated with self-reported gambling expenditure and problem gambling.

While there is some support in the early New Zealand surveys for the availability hypothesis with respect to gambling participation, from the mid-1990s there is strong support for adaptation. The finding that frequent participation in continuous forms and participation in multiple activities both declined during the 1990s was consistent with the finding of significant reductions in problem gambling prevalence in subsequent surveys in 1996 and 1999.

The present study found further reductions in regular continuous gambling and participation in multiple activities. Given this, it would not have been unexpected to find a reduction in problem gambling prevalence. However, while there was a decrease in the proportion of people who took part in multiple activities, there was a substantial increase in reported expenditure of those who continued to do so. Additionally, while there have been major reductions in gambling involvement generally during the past decade, some groups including Māori, Pacific Islanders, people without formal education and unemployed people continue to have higher participation than other groups. While methodological differences may play some part in influencing survey results, on balance it is concluded that lifetime and past 12 months disordered gambling prevalence, has not changed significantly during the 2000s.

Māori and Pacific Island adults, as in all previous New Zealand surveys, continue to have high prevalence rates relative to other New Zealanders. Residence in high deprivation neighbourhoods also continues to be a major risk factor. A number of the other risk factors have also been found in earlier surveys. However, unemployment appears to have increased in significance as have membership of non-Christian and Other Christian religions. As with Pacific Islanders, people in the two latter categories have bimodal patterns of participation and for a variety of reasons, consistent with the availability-adaptation model, are predicted to be at elevated risk for the development of gambling problems and related harm. These groups remain a priority for further research, policy and other measures to prevent and overcome gambling-related harm.

One of the hypotheses proposed is that adaptation can be accelerated by regulatory and public health measures. New Zealand was the first country to conduct a national problem gambling survey (in 1991) and probably the first jurisdiction (since 1993) to establish a comprehensive framework to provide information, support and treatment, including a national helpline and local treatment centres. In 2004, legislation was enacted that formally placed problem gambling within a public health framework. The Ministry of Health has since implemented an integrated problem gambling strategy. That strategy is required by statute to promote public health by preventing and minimising harm from gambling and include services to assist problem gamblers and their families, independent scientific research and evaluation. One of the objectives of the current strategic plan is to reduce health inequalities related to problem gambling.

From the present study it is not possible to directly assess the impact of these measures on overall gambling participation and gambling-related harms including problem gambling. There are indications that public awareness of gambling-related harms was high during the 1990s (Department of Internal Affairs, 2007) and as mentioned nationwide services were in place before the legislation came into effect. However, since then additional resources have been put into a range of public health programmes and intervention services expanded to provide more comprehensive nationwide coverage. A number of measures were taken to

engage and provide ethnic specific programmes and interventions for high-risk groups including Māori, Pacific islanders and Asians. As discussed, there appears to have been an increase in self-recognition of gambling problems and both formal and informal help-seeking since the 1990s.

A substantial proportion of problem gamblers access Ministry-funded specialist problem gambling intervention services and clinically significant, sustained improvements were demonstrated 12 months after problem gamblers contacted the national gambling helpline (Abbott et al, 2013). If other counselling and treatment providers achieve similar outcomes it is likely that they are having a meaningful impact, reducing current gambling-related problems and perhaps reducing the probability of future relapse. However, most problem gamblers do not seek professional help. Many problem gamblers obtain support from informal or alcohol and drug or generalist health and social services. In the present study people also reported using a variety of informal strategies to moderate their gambling, with varying degrees of self-assessed efficacy. Ministry-funded initiatives are likely to have contributed to problem awareness, help-seeking and self-management including recovery without professional intervention. However, it is not known to what extent this was the case. The subsequent phases of the present study some additional information will be provided about these matters.

The 2004 legislation also mandated that there would be no new casinos and placed a cap on total EGM numbers as well as reduced the number of machines per venue. Since 2004, both non-casino EGM venues and machine numbers have steadily reduced. A variety of purported harm minimisation measures have also been introduced or expanded, including self- and venue-exclusion and informational pop-up messages on EGMs. Venue staff are required to undergo training in problem recognition and to intervene if they have reason to believe patrons are experiencing problems. Exclusion appears to assist some people to stop or reduce gambling (Bellringer, Coombes, Pulford & Abbott, 2010); however, it is not known how effective these or related measures are.

Conclusion

To conclude, since 1987 the variety and availability of gambling activities increased markedly and until 2004 this was associated with substantial increases in official gambling expenditure, particularly on non-casino EGMs and casino gambling. Although new forms of gambling and ways of accessing them continued to increase, since 2004 EGM numbers steadily decreased, along with official EGM expenditure and overall inflation-adjusted gambling expenditure. Self-reported gambling participation also increased during the first few years of the gambling expansion and, at the time of the 1991 prevalence survey, high problem levels were found. During the 1990s, despite rapid increases in availability and official expenditure, frequent participation in high-risk continuous forms decreased and these and other decreases continued during the 2000s. The 1996 and 1999 surveys obtained significantly lower rates of problem gambling than in 1991. Although EGM numbers reduced since 2004, reductions in frequent gambling participation continued during the 2000s and regulatory and public health measures were intensified; it appears likely that problem gambling and related harms plateaued. For the most part these findings are consistent with the adaptation hypothesis. The challenge for future research is to identify the barriers to further reductions in gambling-related harm including the wide inequalities between major ethnic and some other social groups.

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APPENDICES

Appendix 1: Responses to individual PGSI items by gender, ethnicity and age

Demographic variables	PGSI item responses % [#]								
	Betting more than could afford	Needing to gamble with more money to get same feeling of excitement	Returning later to win back losses	Borrowing money or selling items to get money to gamble	Feeling might have a problem with gambling	Gambling causing health problems including stress or anxiety	Other people criticising gambling	Gambling causing financial problems for oneself or household	Feeling guilty about gambling
Total	3.6	1.3	2.5	0.8	1.8	1.4	1.8	1.1	3.1
Gender									
Male	3.9	1.7	3.2	1.2	2.3	1.8	2.3	1.3	3.5
Female	3.3	0.9	1.8	0.4	1.4	1.1	1.3	0.8	2.8
Ethnic group									
European/Other	2.8	1.0	1.9	0.7	1.4	1.1	1.3	0.8	2.3
Māori	8.8	2.8	5.1	2.6	4.6	3.8	4.7	3.0	6.5
Pacific	9.7	4.5	5.5	0.8	5.2	4.1	4.6	3.0	10.7
Asian	4.0	2.5	4.2	0.2	2.1	1.7	2.3	1.1	3.8
Age group									
18 - 24 years	6.2	3.0	5.8	2.1	2.5	1.5	1.8	1.0	3.7
25 - 34 years	6.0	1.8	4.0	1.2	2.3	1.6	3.1	1.3	4.6
35 - 44 years	2.7	1.1	1.9	0.9	1.9	2.1	2.1	1.8	4.1
45 - 54 years	3.1	1.1	1.2	0.4	2.2	1.9	1.6	0.9	2.4
55 - 64 years	2.2	0.5	1.6	0.6	1.6	1.2	1.5	1.0	2.8
65+ years	1.6	0.4	1.4	0.0	0.5	0.2	0.5	0.4	0.9

[#] 'Yes' responses where 'Yes' = Sometimes + Most of the time + Almost always

Appendix 2: Responses to individual SOGS-R items by gender, ethnicity and age

Lifetime problem gambling – responses to individual SOGS items %										
Demographic variables	Gone back another day to win money lost	Claimed to be winning from gambling when in fact lost	Spent either more time or more money gambling than intended	People have criticised one's gambling	Felt guilty about the way one gambled, or about what happens when one is gambling	Felt like would like to stop gambling, but didn't think that could	Hidden betting slips, lottery tickets, gambling money, or other signs of gambling from important people	Arguments have centred on one's gambling	Missed time from work, school or study due to one's gambling	Borrowed from someone and not paid them back as a result of one's gambling
Total	5.5	1.7	11.4	6.9	7.4	3.6	2.9	22.3	0.8	1.1
Gender										
Male	6.3	2.0	13.6	8.8	8.8	4.4	3.5	26.1	1.1	1.5
Female	4.7	1.4	9.4	5.2	6.2	3.0	2.4	16.8	0.6	0.7
Ethnic group										
European/Other	4.1	0.9	10.9	6.4	6.1	2.5	2.7	19.0	0.7	1.0
Māori	10.7	5.5	17.8	10.7	13.5	7.5	5.3	33.6	1.7	2.7
Pacific	14.2	7.4	14.8	9.6	18.2	12.9	4.9	28.1	1.0	1.1
Asian	12.1	2.9	11.5	8.2	11.4	7.1	2.4	27.9	1.5	0.9
Age group										
18 - 24 years	11.2	2.8	13.2	6.9	7.9	3.9	2.6	14.0	0.7	2.3
25 - 34 years	8.4	2.6	13.3	7.5	9.9	3.2	2.8	14.7	0.9	1.4
35 - 44 years	4.3	1.8	11.4	7.6	8.1	4.4	3.7	26.0	0.5	0.7
45 - 54 years	4.5	1.4	10.3	7.5	7.4	4.5	3.2	27.9	0.9	1.2
55 - 64 years	3.4	0.8	11.9	7.9	6.8	4.3	3.4	44.0	1.1	1.0
65+ years	2.5	0.7	8.8	4.1	3.9	1.4	1.6	17.1	0.6	0.5

Lifetime problem gambling – responses to individual SOGS items %										
Demographic variables	Borrowed household money to get money for gambling or to pay gambling debts	Borrowed money from your spouse or partner to get money for gambling or to pay gambling debts	Borrowed from relatives or other in-laws to get money for gambling or to pay gambling debts	Borrowed from banks, loan companies, or other finance companies to get money for gambling or to pay gambling debts	Made cash withdrawals on credit cards to get money for gambling or to pay gambling debts	Borrowed from loan sharks to get money for gambling or to pay gambling debts	Cashed in shares, insurance policies or other securities to get money for gambling or to pay gambling debts	Sold personal or family property to get money for gambling or to pay gambling debts	Borrowed from one's cheque account by writing cheques that bounced to get money for gambling or to pay gambling debts	Felt that had a problem with betting or money gambling
Total	1.7	1.7	1.2	0.6	1.8	0.4	0.3	0.6	0.2	3.2
Gender										
Male	1.9	2.0	1.4	0.7	2.7	0.4	0.4	0.8	0.2	4.0
Female	1.5	1.5	1.1	0.5	0.9	0.4	0.2	0.4	0.2	2.5
Ethnic group										
European/Other	1.4	1.2	0.9	0.4	1.8	0.3	0.3	0.6	0.2	2.6
Māori	4.8	5.6	4.4	1.9	2.2	1.4	0.7	1.1	0.3	9.0
Pacific	2.2	3.7	2.5	0.9	2.0	0.3	0.3	0.4	0.1	6.9
Asian	1.6	2.0	1.0	0.9	2.1	0.5	0.4	0.4	0.4	3.1

Lifetime problem gambling – responses to individual SOGS items %

Demographic variables	Borrowed household money to get money for gambling or to pay gambling debts	Borrowed money from your spouse or partner to get money for gambling or to pay gambling debts	Borrowed from relatives or other in-laws to get money for gambling or to pay gambling debts	Borrowed from banks, loan companies, or other finance companies to get money for gambling or to pay gambling debts	Made cash withdrawals on credit cards to get money for gambling or to pay gambling debts	Borrowed from loan sharks to get money for gambling or to pay gambling debts	Cashed in shares, insurance policies or other securities to get money for gambling or to pay gambling debts	Sold personal or family property to get money for gambling or to pay gambling debts	Borrowed from one's cheque account by writing cheques that bounced to get money for gambling or to pay gambling debts	Felt that had a problem with betting or money gambling
Age group										
18 - 24 years	2.1	1.5	2.5	0.5	1.4	0.8	0.2	0.7	0.0	2.9
25 - 34 years	1.6	2.8	2.0	0.6	1.5	0.1	0.3	0.7	0.0	4.9
35 - 44 years	2.0	1.7	1.0	0.5	1.8	0.2	0.1	0.4	0.1	3.6
45 - 54 years	2.4	1.6	0.9	0.8	2.6	0.5	0.4	0.9	0.4	3.5
55 - 64 years	1.6	2.1	0.9	0.6	2.0	0.6	0.6	0.6	0.6	2.5
65+ years	0.4	0.6	0.3	0.3	1.2	0.3	0.5	0.3	0.3	1.3

Appendix 3: Use of special systems or skills to improve winning chances by problem gambling level

Gambling activity	Problem gambling level % (95% CI)							
	Non-problem gambler		Low-risk gambler		Moderate-risk gambler		Problem gambler	
Cards for money (not in a casino)								
Yes	7.7	(3.4 - 14.7)	10.5	(3.4 - 23.8)	17.1	(7.6 - 31.6)	28.8	(4.9 - 70.5)
No	89.5	(82.1 - 94.5)	88.2	(74.9 - 95.7)	81.0	(64.6 - 91.8)	53.2	(19.0 - 85.0)
Don't know	2.8	(0.8 - 7.2)	1.4	(0.1 - 6.3)	1.9	(0.2 - 8.9)	18.0	(1.5 - 63.9)
Bets with friends/workmates								
Yes	5.0	(3.2 - 7.3)	13.6	(7.6 - 22.0)	15.6	(5.9 - 31.7)	14.8	(1.9 - 48.6)
No	93.2	(90.6 - 95.2)	86.2	(77.9 - 92.2)	78.9	(62.4 - 90.3)	85.2	(51.4 - 98.1)
Don't know	1.8	(1.0 - 3.1)	0.1	(0.0 - 0.7)	5.5	(1.3 - 15.9)	-	-
Text game or competition								
Yes	2.6	(0.8 - 6.3)	-	-	-	-	-	-
No	95.9	(90.4 - 98.6)	100.0	-	97.6	(88.9 - 99.8)	100.0	-
Don't know	1.5	(0.2 - 7.1)	-	-	2.4	(0.2 - 11.1)	-	-
New Zealand raffle/lottery								
Yes	3.2	(2.5 - 4.2)	5.9	(3.1 - 10.3)	7.7	(2.4 - 18.6)	2.0	(0.2 - 9.1)
No	94.5	(93.2 - 95.6)	92.6	(88.0 - 95.8)	86.9	(75.2 - 94.3)	97.7	(91.0 - 99.7)
Don't know	2.2	(1.5 - 3.2)	1.4	(0.5 - 3.5)	5.4	(1.5 - 14.0)	0.3	(0.0 - 1.6)
Lotto								
Yes	6.3	(5.3 - 7.3)	7.0	(4.3 - 10.8)	10.7	(4.8 - 20.3)	5.6	(1.9 - 12.7)
No	92.7	(91.5 - 93.7)	90.8	(86.5 - 94.1)	86.1	(76.3 - 92.9)	94.4	(87.3 - 98.1)
Don't know	1.1	(0.7 - 1.6)	2.1	(0.7 - 5.2)	3.1	(0.8 - 8.9)	-	-
Keno								
Yes	5.2	(2.6 - 9.2)	7.0	(1.5 - 20.2)	6.6	(1.3 - 20.5)	8.3	(0.8 - 35)
No	93.3	(89.1 - 96.2)	89.9	(74.8 - 97.2)	93.4	(79.5 - 98.7)	87.2	(60.8 - 97.9)
Don't know	1.5	(0.5 - 3.4)	3.1	(0.3 - 14.3)	-	-	4.4	(0.4 - 20.0)
Instant Kiwi tickets or other scratch tickets								
Yes	1.1	(0.6 - 1.8)	1.2	(0.3 - 3.2)	2.0	(0.5 - 5.6)	-	-
No	95.9	(94.5 - 97.0)	96.4	(92.6 - 98.5)	93.1	(86.5 - 97)	97.6	(92.1 - 99.6)
Don't know	3.0	(2.0 - 4.2)	2.5	(0.8 - 6.1)	4.9	(1.7 - 11.1)	2.4	(0.4 - 7.9)
Housie or bingo								
Yes	-	-	7.8	(1.5 - 23.5)	5.0	(0.5 - 22.2)	-	-
No	94.9	(85.6 - 98.8)	92.2	(76.5 - 98.5)	95	(77.8 - 99.5)	100.0	-
Don't know	5.1	(1.2 - 14.4)	-	-	-	-	-	-
Horse/dog race betting								
Yes	15.1	(11.8 - 18.8)	27.5	(12.6 - 47.6)	27.4	(10.6 - 51.6)	32.0	(7.7 - 68.6)
No	82.9	(78.9 - 86.4)	70.7	(50.9 - 85.8)	68.8	(46.2 - 86.1)	63.2	(25.7 - 90.8)
Don't know	2.0	(0.9 - 4.0)	1.9	(0.2 - 8.6)	3.8	(0.7 - 12.2)	4.8	(0.4 - 22.5)
Sports betting								
Yes	17.4	(10.4 - 26.6)	18.6	(6.9 - 37.5)	12.7	(2.6 - 35.5)	17.5	(3.1 - 48.9)
No	80.9	(71.9 - 88.0)	67.1	(38.6 - 88.1)	87.3	(64.5 - 97.4)	82.5	(51.1 - 96.9)
Don't know	1.7	(0.2 - 7.6)	14.3	(1.3 - 53.4)	-	-	-	-
Casino table games (NZ)								
Yes	18.1	(9.9 - 29.4)	28.7	(9.4 - 57.3)	21.5	(4.9 - 52.5)	22.4	(1.8 - 73.5)
No	81.7	(70.5 - 89.9)	68.1	(40.7 - 88.1)	78.5	(47.5 - 95.1)	77.6	(26.5 - 98.2)
Don't know	0.1	(0.0 - 0.7)	3.2	(0.6 - 10.5)	-	-	-	-
Casino EGMs (NZ)								
Yes	1.2	(0.3 - 3.7)	-	-	8.7	(2.3 - 22.4)	1.7	(0.2 - 8.1)
No	97	(93.8 - 98.8)	92.2	(70.6 - 99.0)	91.3	(77.6 - 97.7)	95.2	(86.7 - 98.8)
Don't know	1.8	(0.6 - 4.4)	7.8	(1.0 - 29.4)	-	-	3.1	(0.6 - 10.2)
Non-casino EGMs								
Yes	3.4	(2.0 - 5.5)	12.0	(4.0 - 26.9)	8.4	(3.0 - 18.5)	10.9	(1.9 - 33.3)
No	95.7	(93.5 - 97.3)	80.5	(64.8 - 91.1)	90.9	(81.0 - 96.5)	87.4	(65.8 - 97.2)
Don't know	0.9	(0.3 - 2.2)	7.5	(1.7 - 21.1)	0.7	(0.1 - 2.3)	1.7	(0.3 - 5.8)
Short-term speculative investments								
Yes	45.3	(28.0 - 63.5)	73.0	(24.2 - 97.1)	-	-	100.0	-
No	52.3	(34.5 - 69.6)	27.0	(2.9 - 75.8)	-	-	-	-
Don't know	2.4	(0.5 - 7.8)	-	-	-	-	-	-

Appendix 4: Help-seeking by demographics

Demographic variables	Help seeking %															
	Ever wanted to get help to reduce or stop gambling		Length of time ago when first thought wanted to get help to reduce or stop gambling						Ever tried to get help to reduce or stop gambling (informally or formally)		How long ago first tried to get help					
	Yes	No	Within the last month	1 to 6 months ago	6 to 12 months ago	1 to 2 years ago	2 to 5 years ago	Longer than 5 years ago	Yes	No	In the last 12 months	One to two years ago	Three to four years ago	Five to ten years ago	Eleven to twenty years ago	More than twenty years ago
Total	1.9	98.1	9.6	10.4	10.2	12.0	14.8	43.0	1.0	99.0	20.0	21.1	14.6	34.8	7.0	2.5
Gender																
Male	2.1	97.9	11.9	16.5	4.6	7.4	16.0	43.6	1.2	98.8	24.7	14.7	19.2	34.3	4.5	2.5
Female	1.7	98.3	6.7	3.2	16.8	17.5	13.5	42.4	0.9	99.1	14.4	28.7	9.1	35.3	9.9	2.5
Ethnic group																
European/Other	1.2	98.8	5.4	5.3	7.5	14.7	16.4	50.7	0.6	99.4	2.1	25.2	15.7	43.6	10.1	3.3
Māori	5.1	94.9	1.8	12.6	9.8	18.7	20.1	37.0	3.2	96.8	30.7	22.8	9.3	22.5	7.1	7.6
Pacific	7.0	93.0	23.2	16.2	8.1	5.1	16.3	31.1	4.3	95.7	31.2	19.3	15.8	26.2	7.4	0.0
Asian	4.2	95.8	20.0	17.4	20.5	8.1	6.8	27.3	1.8	98.2	41.7	20.1	11.1	27.1	0.0	0.0
Age group																
18 - 24 years	1.7	98.3	27.3	5.3	7.8	43.0	16.6	-	1.3	98.7	46.6	53.4	-	-	-	-
25 - 34 years	1.9	98.1	3.6	11.2	12.4	18.4	16.2	38.2	0.8	99.2	26.5	19.6	23.2	30.7	-	-
35 - 44 years	2.7	97.3	0.0	17.3	3.3	9.9	21.2	48.4	1.5	98.5	27.1	5.0	26.8	31.3	8.4	1.4
45 - 54 years	2.6	97.4	18.6	3.4	4.2	3.3	12.9	57.6	1.5	98.5	5.6	18.1	6.2	58.6	7.5	4.0
55 - 64 years	1.8	98.2	7.2	14.4	34.3	3.8	4.8	35.5	0.9	99.1	-	30.6	5.8	37.0	18.8	7.8
65+ years	0.2	99.8	0.0	0.0	10.8	0.0	0.0	89.2	0.1	99.9	-	-	100.0	-	-	-
Country of birth																
NZ	1.6	98.4	4.4	10.8	9.3	12.2	18.6	44.8	1.0	99.0	16.9	25.0	17.9	27.0	9.5	3.6
Elsewhere	2.8	97.2	18.6	9.6	11.8	11.8	8.2	40.0	1.3	98.7	27.0	12.3	7.2	52.4	1.1	-
Arrival in NZ																
2008 or later	2.4	97.6	59.6	19.1	21.4	-	-	-	1.2	98.8	79.4	-	-	20.6	-	-
Before 2008	2.9	97.1	12.5	8.2	10.3	13.5	9.5	46.0	1.3	98.7	18.6	14.2	8.3	57.5	1.3	-
Highest qualification																
No formal qual.	3.2	96.8	7.2	24.8	12.0	14.2	14.9	26.9	1.5	98.5	25.4	35.4	15.7	18.4	5.1	-
School qual.	2.3	97.7	12.9	9.2	5.6	9.6	8.2	54.5	1.4	98.6	24.1	11.5	0.7	51.0	12.7	-
Trade/voc. qual.	1.9	98.1	12.2	-	16.3	18.1	9.9	43.5	0.9	99.1	14.5	35.8	-	35.8	9.2	4.6
Degree/higher	1.2	98.8	5.4	6.8	8.0	6.9	27.3	45.6	0.7	99.3	15.5	9.3	41.2	28.2	-	5.7

Demographic variables	Help seeking %															
	Ever wanted to get help to reduce or stop gambling		Length of time ago when first thought wanted to get help to reduce or stop gambling						Ever tried to get help to reduce or stop gambling (informally or formally)		How long ago first tried to get help					
	Yes	No	Within the last month	1 to 6 months ago	6 to 12 months ago	1 to 2 years ago	2 to 5 years ago	Longer than 5 years ago	Yes	No	In the last 12 months	One to two years ago	Three to four years ago	Five to ten years ago	Eleven to twenty years ago	More than twenty years ago
Labour force status																
Employed	1.7	98.3	13.0	10.5	9.4	7.7	14.4	45.1	0.9	99.1	20.0	16.1	16.2	39.0	7.1	1.6
Unemployed	5.5	94.5	2.2	15.6	4.6	24.8	20.2	32.6	3.8	96.2	23.1	29.0	13.1	25.4	9.4	-
Student/Home/Retired	1.2	98.8	6.7	1.8	22.4	10.2	8.2	50.8	0.5	99.5	12.7	27.8	10.8	38.2	-	10.5
Other	-	100.0	-	-	-	-	-	-	0.7	99.3	-	-	-	-	-	100.0
Religion																
No religion	1.7	98.3	8.5	12.3	6.5	14.1	16.4	42.2	0.8	99.2	20.9	19.8	18.8	22.2	13.5	4.8
Anglican	0.4	99.6	-	25.4	47.7	-	-	26.9	-	100.0	-	-	-	100.0	-	-
Presbyterian	1.1	98.9	12.9	-	25.3	4.3	13.8	43.7	1.2	98.8	23.2	20.4	15.2	30.8	10.5	-
Catholic	2.5	97.5	4.4	12.9	4.6	8.2	13.9	55.9	2.0	98.0	25.2	6.7	1.8	59.5	2.9	3.9
Other Christian	3.5	96.5	7.7	5.5	5.1	18.4	15.4	47.9	2.0	98.0	7.7	29.0	18.7	37.8	6.8	-
Other religion	4.6	95.4	19.8	7.7	17.3	1.6	16.6	37.0	2.2	97.8	34.7	24.9	17.8	22.6	-	-
Household size																
1	0.6	99.4	-	5.6	7.0	15.5	-	71.8	0.6	99.4	3.1	24.3	21.3	14.6	29.0	7.7
2	1.4	98.6	15.5	6.3	10.5	9.5	22.1	36.1	0.7	99.3	7.0	21.7	19.7	43.9	3.3	4.5
3	2.1	97.9	3.0	0.0	3.9	14.8	25.5	52.8	0.9	99.1	12.0	10.0	9.0	66.8	2.1	-
4	1.6	98.4	12.0	14.9	17.6	3.9	14.4	37.1	0.9	99.1	20.2	9.0	36.7	27.9	6.2	-
5+	3.9	96.1	8.6	17.3	9.9	16.2	5.0	43.0	2.2	97.8	33.7	31.7	1.2	21.8	8.5	3.1
Personal Income (\$)																
Up to 20,000	2.1	97.9	13.9	9.6	7.1	19.5	16.6	33.3	1.3	98.7	39.2	20.3	12.2	16.8	7.4	4.2
20,001 - 40,000	2.3	97.7	4.8	9.6	11.9	13.7	9.5	50.4	1.3	98.7	2.9	23.8	7.4	64.8	1.1	-
40,001 - 60,000	2.6	97.4	11.8	17.6	4.5	1.3	19.9	44.8	1.2	98.8	23.2	15.4	20.6	37.4	3.4	-
60,001 - 80,000	0.5	99.5	23.9	-	32.8	15.1	6.3	21.9	0.5	99.5	-	54.8	16.8	15.4	13.0	-
80,001 - 100,000	0.8	99.2	-	-	39.2	34.2	-	26.6	0.2	99.8	-	-	-	-	-	100.0
Over 100,000	1.2	98.8	-	-	-	-	35.2	64.8	0.8	99.2	-	-	52.8	-	47.2	-
Household Income (\$)																
Up to 20,000	2.8	97.2	14.5	2.6	2.7	21.3	16.7	42.2	1.5	98.5	14.4	17.6	34.2	13.5	16.0	4.3
20,001 - 40,000	2.5	97.5	5.6	6.7	10.6	16.8	16.6	43.7	1.1	98.9	16.0	13.5	18.8	43.4	8.3	-
40,001 - 60,000	1.8	98.2	8.6	13.8	11.7	2.5	21.5	41.8	0.7	99.3	38.5	22.5	7.3	31.7	-	-
60,001 - 80,000	1.0	99.0	9.5	14.1	24.1	19.9	-	32.4	0.5	99.5	21.9	37.6	-	30.4	10.0	-
80,001 - 100,000	2.8	97.2	11.3	15.1	7.0	0.0	19.6	47.1	1.7	98.3	14.0	14.0	15.4	49.1	3.1	4.5
Over 100,000	1.2	98.8	9.9	1.9	15.2	10.2	12.2	50.6	0.9	99.1	17.5	15.6	15.1	37.1	10.0	4.7

Demographic variables	Help seeking %																		
	Where went for help									Who mainly referred to help									
	Friend	Family	Helpline/0800 Gambling Helpline	Gamblers Anonymous	Problem Gambling Foundation	Church/Salvation Army	Counsellor/Doctor	Community Support Groups	Others	Myself	Family/Spouse/Partner	Friend(s)/mate	Radio/TV	Support Groups/Hotline	Counsellor/Doctor	Police/Probation Officer/Budget Advisor	Others	Don't know	
Total	25.4	17.9	17.0	9.5	2.5	9.1	10.2	14.2	9.9	62.6	20.6	10.8	2.0	8.8	7.2	1.9	1.1	0.4	
Gender																			
Male	31.9	12.7	17.5	4.5	2.3	16.6	13.7	6.6	9.3	60.7	24.7	15.9	0.9	4.1	-	2.6	1.6	-	
Female	17.6	24.1	16.4	15.4	2.6	-	6.1	23.4	10.7	64.9	15.6	4.7	3.3	14.5	15.8	1.1	0.4	0.8	
Ethnic group																			
European/Other	10.1	8.7	20.1	17.1	-	5.6	18.6	23.2	14.6	77.6	19.3	-	-	10.9	11.3	1.9	-	-	
Māori	25.6	19.4	19.1	4.7	3.6	12.3	8.3	18.1	6.4	51.8	18.4	20.3	4.5	6.8	5.9	5.7	-	1.1	
Pacific	32.5	24.8	18.3	6.3	-	12.6	-	2.0	4.6	53.1	31.8	8.1	2.5	3.5	-	-	5.7	-	
Asian	61.0	23.5	4.4	-	11.1	-	-	-	11.1	62.6	7.8	29.6	-	11.1	-	-	-	-	
Age group																			
18 - 24 years	40.7	23.4	6.8	-	-	-	-	37.9	8.7	34.5	24.5	22.7	-	-	28.1	-	-	-	
25 - 34 years	47.5	24.9	22.7	-	-	-	-	3.5	1.4	49.8	18.3	22.2	-	4.8	-	3.5	1.4	-	
35 - 44 years	26.9	15.2	26.8	9.8	1.6	14.1	1.3	10.6	14.6	72.6	8.9	10.7	1.6	6.5	-	4.8	-	-	
45 - 54 years	13.9	16.6	12.2	6.9	7.0	17.4	30.1	13.4	6.8	66.6	37.0	-	2.8	5.8	6.3	-	3.1	1.3	
55 - 64 years	7.8	14.2	12.3	37.0	-	-	9.8	9.9	9.1	74.6	9.8	9.9	5.8	37.0	9.8	-	-	-	
65+ years	-	-	-	-	-	-	-	-	100.0	100.0	-	-	-	-	-	-	-	-	
Country of birth																			
NZ	19.1	18.1	21.6	6.9	1.7	5.9	14.7	16.5	12.2	61.9	23.8	7.5	2.2	3.3	10.4	2.7	-	0.5	
Elsewhere	39.8	17.4	6.5	15.2	4.1	16.3	-	9.1	4.8	64.2	13.3	18.2	1.5	21.5	-	-	3.6	-	
Arrival in NZ																			
2008 or later	100.0	-	-	-	-	-	-	-	-	-	20.6	79.4	-	-	-	-	-	-	
Before 2008	30.2	20.2	7.6	17.6	4.8	18.9	-	10.6	5.5	74.4	12.1	8.3	1.8	24.9	-	-	4.1	-	
Highest qualification																			
No formal qual.	-	24.9	17.6	3.7	2.2	19.5	-	36.8	3.3	30.2	31.8	14.7	3.8	8.9	19.8	4.8	4.2	-	
School qual.	22.7	9.9	8.7	24.3	-	12.6	15.8	10.0	4.3	65.4	15.8	13.0	-	18.5	-	1.6	0.7	-	
Trade/voc. qual.	22.2	26.8	31.4	5.6	3.5	5.2	19.8	5.1	6.1	76.2	34.2	-	-	-	14.3	-	-	1.8	
Degree/higher	50.8	14.4	14.5	-	4.7	-	4.2	8.8	24.5	73.9	6.5	13.6	4.4	4.7	-	1.5	-	-	
Labour force status																			
Employed	31.5	18.6	13.7	14.5	3.3	4.0	12.5	1.9	11.2	72.2	21.5	8.2	0.8	10.6	1.2	-	1.8	0.6	
Unemployed	10.1	18.9	18.2	2.7	-	14.0	5.5	30.7	3.9	34.9	26.6	20.1	2.7	4.8	18.5	5.1	-	-	
Student/Home/Retired	34.3	11.9	32.5	-	4.4	23.9	10.5	38.2	16.1	87.1	-	-	6.7	10.5	9.9	-	-	-	
Other	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	

Demographic variables	Help seeking %																	
	Where went for help									Who mainly referred to help								
	Friend	Family	Helpline/0800 Gambling Helpline	Gamblers Anonymous	Problem Gambling Foundation	Church/Salvation Army	Counsellor/Doctor	Community Support Groups	Others	Myself	Family/Spouse/Partner	Friend(s)/mate	Radio/TV	Support Groups/Hotline	Counsellor/Doctor	Police/Probation Officer/Budget Advisor	Others	Don't know
Religion																		
No religion	17.9	6.7	21.3	8.7	3.7	9.5	30.2	11.0	11.7	62.7	37.8	9.5	-	1.4	9.3	1.3	-	1.2
Anglican	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	100.0	-	-
Presbyterian	30.1	-	37.0	-	-	12.1	-	-	20.9	93.8	-	-	-	6.2	-	-	-	-
Catholic	36.3	29.6	1.9	19.9	-	10.2	1.6	14.1	6.9	74.2	14.2	9.7	1.9	18.4	-	-	-	-
Other Christian	10.5	19.2	33.4	6.1	-	3.8	-	24.9	6.8	47.6	17.3	7.1	5.7	6.8	15.7	3.8	-	-
Other religion	49.3	32.1	8.1	-	10.2	8.9	-	1.7	11.9	57.4	7.2	27.3	6.4	10.2	-	-	8.9	-
Household size																		
1	24.3	24.3	-	22.0	-	-	-	3.1	50.6	77.7	-	-	-	7.4	-	7.7	-	7.1
2	31.0	4.0	38.6	1.9	3.3	11.8	11.8	11.8	16.4	75.8	15.8	14.1	3.3	1.9	3.3	-	0.9	-
3	12.0	18.9	12.8	-	10.6	-	32.5	24.1	7.7	54.5	30.1	7.6	4.9	10.6	6.6	3.0	-	-
4	31.7	24.0	16.2	23.3	-	5.0	6.2	5.0	6.5	59.0	19.0	16.9	-	28.4	6.2	5.0	-	-
5+	24.7	21.5	8.7	8.9	-	15.0	3.1	17.9	3.1	58.1	23.0	8.4	1.3	1.8	11.3	-	2.4	-
Personal Income (\$)																		
Up to 20,000	19.4	21.0	17.9	4.3	4.7	8.3	7.4	16.8	12.2	40.5	23.0	19.2	2.1	7.5	14.5	1.1	-	-
20,001 - 40,000	28.8	23.6	16.6	17.4	-	6.7	-	16.8	4.2	73.1	11.8	11.8	-	19.4	3.4	4.8	3.5	1.2
40,001 - 60,000	37.0	-	8.5	-	-	12.9	37.4	13.8	20.4	69.6	37.4	-	6.0	-	-	-	-	-
60,001 - 80,000	15.4	48.4	13.0	-	13.0	23.1	-	-	-	84.6	15.4	-	-	-	13.0	-	-	-
80,001 - 100,000	100.0	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-
Over 100,000	-	-	52.8	47.2	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-
Household Income (\$)																		
Up to 20,000	33.3	35.4	2.2	8.2	4.9	-	4.1	11.6	34.4	69.8	21.9	-	-	9.0	-	4.3	-	-
20,001 - 40,000	15.9	23.1	36.2	4.1	6.6	5.3	6.4	18.5	13.6	58.3	21.1	3.4	4.2	14.0	12.1	7.8	5.7	2.0
40,001 - 60,000	44.2	16.3	17.3	8.1	-	-	-	14.1	-	39.3	16.4	37.0	7.3	-	-	-	-	-
60,001 - 80,000	33.7	-	28.7	-	10.0	17.8	-	19.8	-	93.5	19.8	-	6.5	-	10.0	-	-	-
80,001 - 100,000	19.8	16.3	2.2	21.0	-	25.7	11.7	11.7	18.5	82.0	15.7	14.0	-	21.0	-	-	-	-
Over 100,000	30.1	11.2	19.5	10.0	-	4.5	24.7	-	-	59.9	23.6	13.8	-	2.7	-	-	-	-

Demographic variables	Help seeking %													Overall effectiveness of help		Any one type of help that was particularly helpful		
	Type of help received													Helpful	Neither helpful nor unhelpful	Unhelpful	Yes	No
	Counselling/counselling group/one on one counselling	Talking/discussion/meetings/seminar	Advice/good advice	Gambling booklet/brochures/ information pack	Support/encouragement/assurance	Keep busy with other activities/ hobby/work	Barred from casino/gaming venues/ computer program removed/avoiding gambling	Took cashflow card off me/limited money/did a budget for me	I stopped/didn't enjoy it	Unhelpful advice/no help/still waiting	Others	Helpful	Neither helpful nor unhelpful					
Total	30.8	25.5	22.6	8.8	25.2	7.7	6.2	2.3	2.5	3.9	7.7	85.8	10.4	3.8	64.1	35.9		
Gender																		
Male	17.8	24.4	33.5	12.7	13.0	11.6	2.3	3.3	0.9	4.5	2.6	84.2	11.3	4.5	58.8	41.2		
Female	46.5	26.8	9.6	4.2	39.8	3.0	10.8	1.1	4.5	3.3	13.8	87.7	9.3	3.0	66.8	33.2		
Ethnic group																		
European/Other	45.8	20.5	18.8	10.1	26.1	9.8	3.9	1.1	-	5.3	9.9	81.7	13.0	5.3	57.9	42.1		
Māori	34.7	35.2	-	9.8	37.5	3.4	7.7	1.5	3.6	2.5	7.6	92.4	6.2	1.4	77.7	22.3		
Pacific	9.5	12.3	43.9	5.2	18.0	16.6	6.3	-	2.5	3.5	5.2	85.9	9.5	4.6	48.7	51.3		
Asian	4.4	27.8	48.9	11.1	18.9	-	11.1	15.7	7.8	-	-	87.9	12.1	-	100.0	-		
Age group																		
18 - 24 years	37.9	32.6	22.7	6.8	9.8	-	-	-	-	-	34.9	84.0	16.0	-	34.7	65.3		
25 - 34 years	5.1	32.3	19.9	13.1	22.9	15.0	9.7	3.5	-	4.8	6.5	91.9	0.0	8.1	62.0	38.0		
35 - 44 years	22.2	7.7	27.9	15.0	33.6	15.4	-	-	6.0	11.2	1.4	86.6	4.3	9.1	54.7	45.3		
45 - 54 years	33.0	35.1	29.3	5.7	21.6	4.0	8.6	-	2.8	-	-	79.1	20.9	-	70.4	29.6		
55 - 64 years	68.9	31.1	-	-	37.0	-	9.8	14.2	-	-	9.8	93.5	6.5	-	100.0	-		
65+ years	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-		
Country of birth																		
NZ	36.2	26.8	12.5	10.9	23.5	9.5	6.3	0.7	1.7	4.7	11.1	84.5	11.3	4.2	53.8	46.2		
Elsewhere	18.8	22.6	45.5	4.1	29.2	3.5	5.8	5.8	4.4	2.2	-	88.7	8.4	2.9	91.9	8.1		
Arrival in NZ																		
2008 or later	-	-	100.0	-	-	20.6	-	-	-	-	-	100.0	-	-	0.0	100.0		
Before 2008	21.8	26.2	36.8	4.8	33.9	0.8	6.7	6.8	5.1	2.5	-	86.9	9.8	3.3	100.0	-		
Highest qualification																		
No formal qual.	45.7	10.4	11.0	4.8	35.0	10.9	3.3	-	-	3.9	24.6	84.4	14.6	1.0	39.9	60.1		
School qual.	33.0	21.1	26.8	4.4	34.1	-	-	1.6	-	10.1	-	77.1	12.8	10.1	70.2	29.8		
Trade/voc. qual.	23.6	58.7	12.2	24.6	13.5	-	12.2	8.4	1.8	-	10.1	81.8	16.0	2.2	72.7	27.3		
Degree/higher	22.6	16.2	35.1	4.7	16.6	20.0	10.7	-	8.0	-	1.5	100.0	-	-	78.0	22.0		

Demographic variables	Help seeking %														Any one type of help that was particularly helpful		
	Type of help received											Overall effectiveness of help			Yes	No	
	Counselling/counselling group/one on one counselling	Talking/discussion/meetings/seminar	Advice/good advice	Gambling booklet/brochures/ information pack	Support/encouragement/assurance	Keep busy with other activities/ hobby/work	Barred from casino/gaming venues/ computer program removed/avoiding gambling	Took cashflow card off me/limited money/did a budget for me	I stopped/didn't enjoy it	Unhelpful advice/no help/still waiting	Others	Helpful	Neither helpful nor unhelpful	Unhelpful			
Household Income (\$)																	
Up to 20,000	18.2	52.7	-	-	11.8	24.1	5.4	-	4.1	-	4.3	78.9	18.8	2.2	86.4	13.6	
20,001 - 40,000	27.7	31.5	13.3	34.1	31.6	-	21.3	2.6	-	-	6.4	97.5	0.0	2.5	85.5	14.5	
40,001 - 60,000	19.7	25.4	5.8	10.1	22.8	-	-	-	8.0	8.3	10.1	73.5	26.5	-	-	100.0	
60,001 - 80,000	42.0	-	51.5	-	29.9	-	-	-	6.5	-	-	100.0	-	-	100.0	-	
80,001 - 100,000	23.3	27.9	39.4	-	51.4	15.4	3.1	-	4.0	-	-	76.6	23.4	-	60.2	39.8	
Over 100,000	35.8	14.9	26.3	5.6	9.4	8.2	3.7	7.3	-	12.8	3.7	87.2	-	12.8	69.1	30.9	

Demographic variables	Help seeking %									Whether tried to get help to reduce/stop gambling on other occasions since the first time						
	Type of help that was particularly helpful									Number of times tried to get help to reduce or stop gambling on other occasions since the first time						
	Counselling/ counselling group/one on one counselling	Talking/discussion/me etings/ seminar	Gambling booklet/ brochures/ information pack	Support/ encouragement/ assurance	Barred from casino/ gaming venues/ computer program removed/avoiding gambling	Took cashflow card off me/limited money/ did a budget for me	Others	Yes	No	1	2	3	4	7	10	
Total	24.2	12.0	3.1	42.9	5.5	22.1	1.9	29.0	71.0	41.4	4.4	17.0	3.1	6.1	28.0	
Gender																
Male	-	-	-	33.5	-	66.5	-	32.8	67.2	45.0	2.7	23.8	-	10.0	18.6	
Female	35.0	17.4	4.5	47.0	7.9	2.3	2.7	24.5	75.5	35.7	7.2	6.1	8.0	-	43.0	
Ethnic group																
European/Other	45.0	-	-	37.9	-	28.0	-	38.9	61.1	47.5	4.5	3.8	-	-	44.2	
Māori	4.2	26.0	8.1	52.3	14.3	4.2	4.9	12.4	87.6	58.8	19.5	-	21.7	-	-	
Pacific	-	24.1	-	100.0	-	-	-	23.9	76.1	23.4	19.0	34.5	19.5	-	3.6	
Asian	-	-	-	41.4	-	58.6	-	49.7	50.3	8.8	-	59.6	-	31.7	-	
Age group																
18 - 24 years	-	47.1	-	52.9	-	-	-	22.7	77.3	-	-	100.0	-	-	-	
25 - 34 years	-	-	-	59.8	40.2	-	-	14.1	85.9	54.5	-	-	45.5	-	-	
35 - 44 years	7.4	-	-	31.3	8.5	68.7	8.5	18.9	81.1	23.6	16.1	-	-	-	60.4	
45 - 54 years	15.1	7.3	11.1	88.9	-	-	-	41.3	58.7	81.9	3.3	13.4	-	-	1.4	
55 - 64 years	60.7	16.0	-	-	-	23.3	-	51.2	48.8	-	-	-	-	27.8	72.2	
65+ years	-	-	-	-	-	-	-	0.0	100.0	-	-	-	-	-	-	
Country of birth																
NZ	9.6	16.3	5.1	48.1	9.0	24.6	3.1	24.9	75.1	66.2	4.6	4.0	5.2	-	20.1	
Elsewhere	47.2	5.3	-	34.7	-	18.1	-	38.3	61.7	4.9	4.0	36.2	-	15.2	39.6	
Arrival in NZ																
2008 or later	-	-	-	-	-	-	-	79.4	20.6	-	-	100.0	-	-	-	
Before 2008	47.2	5.3	-	34.7	-	18.1	-	31.7	68.3	6.9	5.7	10.6	-	21.3	55.5	
Highest qualification																
No formal qual.	-	-	18.2	81.8	10.8	-	10.8	17.4	82.6	46.1	10.8	43.1	-	-	-	
School qual.	78.8	-	-	21.2	-	6.4	-	43.1	56.9	36.7	3.1	25.3	-	-	34.9	
Trade/voc. qual.	13.3	31.2	-	35.4	11.3	22.1	-	47.1	52.9	48.9	-	-	-	17.9	33.2	
Degree/higher	-	8.0	-	47.4	-	52.6	-	7.8	92.2	27.4	22.5	-	42.4	-	7.7	

Demographic variables	Type of help that was particularly helpful							Help seeking %		Whether tried to get help to reduce/stop gambling on other occasions since the first time					
	Counselling/ counselling group/one on one counselling	Talking/discussion/me etings/ seminar	Gambling booklet/ brochures/ information pack	Support/ encouragement/ assurance	Barred from casino/ gaming venues/ computer program removed/avoiding gambling	Took cashflow card off me/limited money/ did a budget for me	Others	Yes	No	Number of times tried to get help to reduce or stop gambling on other occasions since the first time					
										1	2	3	4	7	10
Labour force status															
Employed	29.4	-	-	35.2	5.3	32.5	-	37.8	62.2	41.1	3.9	21.9	4.0	7.9	21.3
Unemployed	-	41.6	18.8	52.0	-	-	-	16.9	83.1	24.7	8.0	-	-	-	67.3
Student/Home/Retired	27.6	33.2	-	66.8	12.1	-	12.1	14.3	85.7	100.0	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-
Religion															
No religion	10.0	11.4	-	57.1	4.4	31.6	4.4	30.4	69.6	98.4	-	-	-	-	1.6
Anglican	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-
Presbyterian	-	100.0	-	100.0	-	-	-	30.8	69.2	-	-	-	-	-	100.0
Catholic	63.1	17.6	-	19.4	-	-	-	28.6	71.4	11.4	12.0	-	12.4	-	64.2
Other Christian	29.0	-	56.0	15.0	-	29.0	-	25.2	74.8	34.1	6.1	10.3	-	-	49.5
Other religion	-	7.7	11.7	48.4	13.5	26.4	-	49.0	51.0	-	-	70.4	-	29.6	-
Household size															
1	-	-	-	100.0	-	-	-	18.0	82.0	41.3	41.5	-	-	-	17.1
2	6.9	-	-	35.5	-	64.5	-	36.1	63.9	41.8	5.1	-	11.2	-	41.8
3	28.2	-	20.8	79.2	12.4	-	12.4	43.1	56.9	100.0	-	-	-	-	-
4	60.5	39.5	-	6.8	-	-	-	42.7	57.3	5.8	-	39.6	-	-	54.6
5+	-	-	-	59.3	13.8	26.9	-	12.7	87.3	17.7	10.2	33.8	-	38.3	-
Personal Income (\$)															
Up to 20,000	-	42.2	11.0	54.0	6.6	-	6.6	23.6	76.4	19.3	4.5	38.4	-	-	37.9
20,001 - 40,000	54.4	-	-	55.2	-	3.6	-	25.3	74.7	13.6	5.2	11.3	11.3	-	58.7
40,001 - 60,000	-	-	-	-	21.2	78.8	-	49.4	50.6	86.6	4.8	7.0	-	-	1.6
60,001 - 80,000	-	-	-	29.2	-	70.8	-	44.7	55.3	29.2	-	-	-	70.8	-
80,001 - 100,000	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-
Over 100,000	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-

Demographic variables	Help seeking %								Whether tried to get help to reduce/stop gambling on other occasions since the first time		Number of times tried to get help to reduce or stop gambling on other occasions since the first time					
	Type of help that was particularly helpful								Yes	No	1	2	3	4	7	10
	Counselling/ counselling group/one on one counselling	Talking/discussion/me etings/ seminar	Gambling booklet/ brochures/ information pack	Support/ encouragement/ assurance	Barred from casino/ gaming venues/ computer program removed/avoiding gambling	Took cashflow card off me/limited money/ did a budget for me	Others									
Household Income (\$)																
Up to 20,000	-	72.6	-	48.2	18.9	-	18.9	13.2	86.8	68.7	31.3	-	-	-	-	-
20,001 - 40,000	17.4	14.4	9.3	71.5	-	4.8	-	29.9	70.1	18.8	7.2	15.6	-	-	-	58.3
40,001 - 60,000	-	-	-	-	-	-	-	24.7	75.3	57.0	-	-	36.3	-	-	6.6
60,001 - 80,000	-	-	-	100.0	-	-	-	16.5	83.5	60.8	39.2	-	-	-	-	-
80,001 - 100,000	57.8	-	-	-	-	42.2	-	38.1	61.9	36.6	-	8.2	-	-	-	55.2
Over 100,000	-	-	-	33.4	22.5	44.1	-			48.7	-	33.5	-	17.8	-	-

Demographic variables	Help seeking %		How effective the help was overall		
	Tried to get help to reduce or stop gambling in the past 12 months, whether informally from a friend or more formally from a health professional		Helpful	Neither helpful nor unhelpful	Unhelpful
	Yes	No			
Total	41.6	58.4	64.9	35.1	-
Gender					
Male	50.5	49.5	61.9	38.1	-
Female	28.7	71.3	72.5	27.5	-
Ethnic group					
European/Other	38.8	61.2	62.9	37.1	-
Māori	66.6	33.4	54.0	46.0	-
Pacific	36.1	63.9	100.0	-	-
Asian	-	100.0	-	-	-
Age group					
18 - 24 years	-	-	-	-	-
25 - 34 years	-	100.0	-	-	-
35 - 44 years	90.3	9.7	100.0	-	-
45 - 54 years	48.8	51.2	41.5	58.5	-
55 - 64 years	-	100.0	-	-	-
65+ years	-	-	-	-	-
Country of birth					
NZ	55.5	44.5	61.3	38.7	-
Elsewhere	12.2	87.8	100.0	-	-
Arrival in NZ					
2008 or later	-	-	-	-	-
Before 2008	12.2	87.8	100.0	-	-
Highest qualification					
No formal qual.	61.9	38.1	100.0	-	-
School qual.	-	100.0	-	-	-
Trade/voc. qual.	77.2	22.8	56.9	43.1	-
Degree/higher	-	-	-	-	-

	Help seeking %				
	Tried to get help to reduce or stop gambling in the past 12 months, whether informally from a friend or more formally from a health professional		How effective the help was overall		
	Yes	No	Helpful	Neither helpful nor unhelpful	Unhelpful
Demographic variables					
Labour force status					
Employed	24.6	75.4	21.1	78.9	-
Unemployed	90.4	9.6	100.0	-	-
Student/Home/Retired	100.0	-	100.0	-	-
Other	-	-	-	-	-
Religion					
No religion	49.9	50.1	31.7	68.3	-
Anglican	-	-	-	-	-
Presbyterian	100.0	-	100.0	-	-
Catholic	-	100.0	-	-	-
Other Christian	70.0	30.0	100.0	-	-
Other religion	33.3	66.7	100.0	-	-
Household size					
1	49.9	50.1	100.0	-	-
2	94.2	5.8	50.0	50.0	-
3	24.0	76.0	100.0	-	-
4	-	100.0	-	-	-
5+	26.5	73.5	100.0	-	-
Personal Income (\$)					
Up to 20,000	91.4	8.6	100.0	-	-
20,001 - 40,000	28.0	72.0	100.0	-	-
40,001 - 60,000	29.9	70.1	-	100.0	-
60,001 - 80,000	29.2	70.8	-	100.0	-
80,001 - 100,000	-	-	-	-	-
Over 100,000	-	-	-	-	-
Household Income (\$)					
Up to 20,000	68.7	31.3	100.0	-	-
20,001 - 40,000	92.8	7.2	100.0	-	-
40,001 - 60,000	-	-	-	-	-
60,001 - 80,000	100.0	-	-	100.0	-
80,001 - 100,000	30.8	69.2	-	100.0	-
Over 100,000	-	100.0	-	-	-

Appendix 5: Gambling in family mainly brought up in and in current household by demographics

Demographic variables	Gambling in the family mainly brought up in %					How much people in current household gamble, apart from self %						
	Not at all	A little	Mod	A lot	Don't know	Not at all	A little	Mod	A lot	NA/live alone	Ref-used	Don't know
Total	43.6	42.2	9.6	4.5	0.1	44.5	43.7	3.8	0.8	6.8	0.0	0.3
Gender												
Male	43.7	42.5	9.9	3.8	0.1	45.6	44.4	3.7	0.7	5.4	0.1	0.2
Female	43.5	41.8	9.3	5.2	0.2	43.6	43.1	3.8	0.9	8.2	0.0	0.4
Ethnic group												
European/Other	41.0	45.0	9.8	4.1	0.1	41.5	46.2	3.5	0.7	7.7	0.0	0.3
Māori	32.4	40.3	14.6	12.6	0.2	42.7	43.2	6.6	1.5	5.8	0.1	0.1
Pacific	52.0	29.7	11.0	7.3	0.0	57.2	33.5	6.3	1.0	1.9	0.0	0.1
Asian	67.7	25.7	4.2	2.5	0.0	66.1	28.5	2.8	0.3	1.8	0.0	0.4
Age group												
18 - 24 years	45.5	42.6	9.0	3.0	0.0	48.4	41.8	6.2	1.7	1.5	0.0	0.4
25 - 34 years	34.1	47.2	13.4	5.1	0.2	44.3	43.3	5.7	1.1	4.7	0.0	0.9
35 - 44 years	39.3	44.8	9.8	6.0	0.0	47.8	44.0	3.3	0.4	4.4	0.1	0.0
45 - 54 years	45.4	40.6	8.4	5.6	0.0	46.8	45.0	2.7	0.3	5.0	0.0	0.2
55 - 64 years	46.4	40.3	9.3	4.0	0.0	37.2	48.7	3.2	1.6	9.1	0.0	0.2
65+ years	52.8	36.8	7.2	2.7	0.4	41.7	39.7	2.2	0.0	16.2	0.1	0.1
Country of birth												
NZ	39.0	45.0	10.8	5.1	0.1	40.5	46.5	4.3	0.9	7.6	0.0	0.2
Elsewhere	55.9	34.6	6.4	3.0	0.2	55.3	36.4	2.3	0.5	4.9	0.1	0.5
Arrival in NZ												
2008 or later	56.8	32.7	9.5	1.0	0.0	59.4	31.8	3.4	0.0	3.3	0.0	2.2
Before 2008	55.7	35.0	5.7	3.4	0.2	54.4	37.4	2.1	0.6	5.3	0.1	0.1
Highest qualification												
No formal qual.	48.9	33.6	10.7	6.6	0.2	42.1	42.3	2.8	0.5	12.1	0.0	0.2
School qual.	43.2	42.3	10.4	3.9	0.2	43.7	43.2	6.1	1.2	5.4	0.0	0.3
Trade/voc. qual.	41.1	43.4	10.7	4.7	0.1	43.7	44.8	3.8	0.8	6.6	0.1	0.3
Degree/higher	43.4	44.6	7.9	4.1	0.0	46.4	44.0	2.7	0.6	5.8	0.0	0.4
Labour force status												
Employed	41.2	44.8	9.5	4.5	0.1	43.8	46.8	3.5	0.6	4.9	0.0	0.3
Unemployed	39.7	38.1	15.8	6.2	0.2	45.7	35.3	5.8	1.6	11.4	0.0	0.3
Student/Home/Retired	51.3	36.6	7.8	4.2	0.2	46.1	38.7	3.5	0.9	10.5	0.0	0.2
Religion												
No religion	37.5	47.4	10.0	5.0	0.1	42.3	47.6	3.7	0.7	5.5	0.0	0.1
Anglican	40.0	47.1	9.1	3.6	0.2	37.6	47.7	4.9	0.9	8.8	0.0	0.1
Presbyterian	47.5	39.8	9.3	3.2	0.1	39.0	46.1	2.5	0.5	11.7	0.2	0.0
Catholic	38.7	42.7	13.3	5.1	0.2	42.9	42.0	4.7	2.1	6.9	0.0	1.4
Other Christian	55.4	31.2	8.0	5.4	0.1	55.0	34.8	3.2	0.3	6.4	0.0	0.4
Other religion	62.7	28.3	5.8	3.2	0.0	59.0	33.1	3.1	0.0	4.7	0.0	0.1
Household size												
1	46.0	40.1	9.2	4.4	0.3	29.4	7.8	0.9	0.0	61.9	0.0	0.0
2	45.2	41.9	8.9	3.8	0.2	44.5	49.2	3.7	0.4	1.8	0.1	0.4
3	40.5	43.0	11.9	4.5	0.2	47.4	45.5	4.7	0.6	1.7	0.1	0.1
4	42.5	43.4	10.3	3.8	0.0	47.8	47.2	3.4	0.8	0.5	0.0	0.3
5+	43.8	41.5	7.8	6.9	0.0	45.7	46.0	4.9	2.1	0.9	0.0	0.5
Personal Income (\$)												
Up to 20,000	47.3	39.2	8.9	4.6	0.1	46.1	41.3	4.8	1.4	6.3	0.0	0.1
20,001 - 40,000	42.9	41.6	11.4	3.9	0.3	44.1	41.4	3.8	0.7	9.5	0.0	0.5
40,001 - 60,000	40.8	45.4	8.7	5.1	0.0	42.0	47.6	3.7	0.8	5.7	0.1	0.1
60,001 - 80,000	39.4	44.6	10.1	5.9	0.0	43.3	47.5	2.1	0.4	6.8	0.0	0.0
80,001 - 100,000	35.4	50.0	9.3	5.2	0.0	41.7	50.4	2.6	0.4	4.4	0.0	0.5
Over 100,000	41.2	45.5	10.6	2.8	0.0	45.7	47.0	2.7	0.0	4.3	0.0	0.3
Household Income (\$)												
Up to 20,000	48.6	35.5	8.8	7.0	0.2	51.3	21.5	1.1	0.4	25.4	0.0	0.2
20,001 - 40,000	49.4	35.2	10.2	4.9	0.2	48.6	33.1	3.6	1.1	13.6	0.0	0.1
40,001 - 60,000	45.2	41.0	9.3	4.1	0.3	46.2	42.6	3.5	1.1	6.5	0.0	0.1
60,001 - 80,000	42.7	43.6	8.5	5.2	0.0	42.9	47.2	3.6	0.6	4.9	0.0	0.8
80,001 - 100,000	40.0	46.9	8.7	4.3	0.0	43.1	50.3	2.9	0.6	2.8	0.1	0.3
Over 100,000	40.0	45.9	10.3	3.7	0.0	40.4	52.5	4.7	0.8	1.4	0.0	0.2

Appendix 6: People respondents think have a gambling problem for total population by demographics

Demographic variables	People who may have or have had a problem with gambling %												
	Spouse/ partner	Father	Mother	Brother	Sister	Son/ daughter	Work mate	Boarder	Another close family member (1st)	Another close family member (2nd)	A friend/ someone else (1st)	A friend/ someone else (2nd)	None
Total	2.2	3.6	2.4	2.7	1.4	1.1	5.3	0.4	8.8	1.3	13.7	1.6	67.0
Gender													
Male	1.5	3.0	1.7	2.7	0.8	0.8	7.7	0.5	8.2	0.9	14.4	1.7	66.1
Female	2.9	4.2	3.0	2.7	1.9	1.4	3.1	0.3	9.3	1.6	13.1	1.6	67.9
Ethnic group													
European/Other	2.1	3.5	2.0	2.7	1.0	1.3	5.6	0.4	8.5	1.1	14.3	1.7	66.5
Māori	4.7	7.3	7.3	5.8	5.2	1.2	6.7	0.6	18.2	4.5	18.6	2.7	50.3
Pacific	2.6	4.8	5.9	2.9	2.9	0.1	6.5	0.3	12.2	2.7	9.1	1.7	65.2
Asian	1.8	2.2	1.8	1.4	0.7	0.5	3.7	0.0	4.6	1.0	10.2	1.3	77.0
Age group													
18 - 24 years	0.9	2.4	3.4	1.7	0.5	0.0	4.1	0.2	11.0	2.1	14.4	1.3	66.7
25 - 34 years	1.7	4.2	4.2	2.8	1.9	0.0	6.2	0.2	11.1	1.4	19.0	2.3	60.3
35 - 44 years	2.9	4.6	3.1	2.9	1.4	0.1	6.6	0.4	8.5	1.3	16.8	2.2	64.3
45 - 54 years	2.7	4.4	1.4	3.1	1.3	1.3	6.3	1.0	9.6	1.3	15.3	1.8	64.5
55 - 64 years	3.2	3.3	1.3	3.3	2.4	3.0	5.6	0.2	6.5	1.2	9.3	1.2	68.6
65+ years	1.5	2.0	0.7	2.2	0.5	2.5	2.2	0.0	5.8	0.7	6.1	0.8	79.3
Country of birth													
NZ	2.4	4.0	3.0	3.2	1.6	1.2	5.4	0.4	10.1	1.5	14.5	1.5	64.4
Elsewhere	1.7	2.7	0.8	1.4	0.8	1.0	5.2	0.3	5.3	0.9	11.7	1.9	74.0
Arrival in NZ													
2008 or later	1.2	1.7	0.5	1.3	0.7	0.5	2.8	0.0	4.8	0.3	10.4	1.3	78.2
Before 2008	1.7	2.9	0.8	1.5	0.8	1.1	5.7	0.3	5.5	1.0	12.0	2.0	73.0
Highest qualification													
No formal qual.	2.9	4.9	2.8	4.1	2.8	2.0	3.2	0.8	9.8	1.6	10.4	1.2	67.9
School qual.	2.2	3.3	3.3	1.8	1.7	0.7	5.6	0.3	8.5	1.4	14.9	1.5	65.8
Trade/voc. qual.	2.2	3.9	2.7	3.0	0.9	1.0	7.2	0.4	8.7	1.2	15.5	2.1	63.1
Degree/higher	1.9	3.1	1.5	2.5	0.9	1.1	4.9	0.2	8.6	1.2	13.3	1.6	69.8
Labour force status													
Employed	2.0	3.7	2.3	2.6	1.5	1.0	6.3	0.3	9.1	1.2	15.0	1.7	64.4
Unemployed	4.6	5.5	5.1	4.1	3.1	1.5	4.7	1.0	10.9	2.1	17.1	2.5	61.9
Student/Home/Retired	1.9	2.7	1.7	2.3	0.6	1.4	3.1	0.2	7.5	1.4	9.6	1.1	75.2

People who may have or have had a problem with gambling %													
Demographic variables	Spouse/ partner	Father	Mother	Brother	Sister	Son/ daughter	Work mate	Boarder	Another close family member (1st)	Another close family member (2nd)	A friend/ someone else (1st)	A friend/ someone else (2nd)	None
Religion													
No religion	2.2	3.7	2.6	2.2	1.3	0.7	6.2	0.5	9.7	1.1	16.8	1.9	64.0
Anglican	1.7	3.5	1.4	3.9	0.6	1.1	4.3	0.0	8.4	1.6	11.8	1.9	69.7
Presbyterian	2.5	1.8	2.1	1.4	0.2	2.3	4.0	0.4	6.6	0.7	12.2	1.1	70.3
Catholic	2.2	4.7	3.5	3.6	3.1	1.6	4.0	0.3	9.7	1.1	11.7	0.9	64.8
Other Christian	2.4	4.3	2.2	3.3	1.9	1.0	6.3	0.4	9.1	1.8	11.2	1.8	68.1
Other religion	2.5	3.2	2.7	1.5	0.7	1.3	5.8	0.0	5.0	1.5	11.8	1.6	74.3
Household size													
1	3.6	4.0	1.4	3.0	1.2	2.1	4.4	0.3	7.0	1.3	13.6	1.9	68.6
2	1.8	2.9	1.5	3.0	1.5	2.0	4.8	0.6	7.5	1.1	12.2	1.4	69.4
3	2.2	3.7	2.7	2.9	0.9	1.0	5.0	0.5	7.7	0.8	14.4	2.5	67.7
4	1.5	3.1	2.4	1.8	1.0	0.3	7.2	0.2	9.6	1.1	15.5	1.6	63.6
5+	3.0	5.2	4.2	2.8	2.0	0.0	4.8	0.0	12.2	2.4	13.9	1.2	65.2
Personal Income (\$)													
Up to 20,000	2.2	3.3	2.7	2.8	1.5	1.1	3.6	0.2	9.0	1.3	12.9	1.4	69.6
20,001 - 40,000	2.7	4.3	3.0	2.5	1.6	1.3	4.4	0.3	9.5	1.3	14.9	2.0	65.0
40,001 - 60,000	2.6	3.5	1.9	3.2	1.0	1.1	7.9	0.8	8.8	1.4	14.2	1.3	64.0
60,001 - 80,000	2.0	4.5	2.6	2.5	1.9	1.3	6.1	0.5	6.4	1.1	14.9	2.2	65.5
80,001 - 100,000	1.4	2.6	0.9	3.3	0.5	0.4	9.9	0.4	11.8	2.4	13.1	1.9	61.3
Over 100,000	0.5	2.4	0.3	1.6	0.7	1.0	7.8	0.0	7.2	0.7	14.8	0.9	70.5
Household Income (\$)													
Up to 20,000	2.9	3.5	3.6	3.6	2.0	1.2	3.4	0.4	11.2	1.7	13.2	1.3	68.3
20,001 - 40,000	3.6	4.3	2.5	3.3	2.0	1.7	4.2	0.4	8.3	1.6	13.2	2.0	68.0
40,001 - 60,000	2.3	3.7	2.4	2.2	1.6	1.3	5.5	0.4	8.3	1.2	13.3	1.5	66.0
60,001 - 80,000	1.6	4.3	3.0	2.4	2.0	1.2	6.6	0.2	7.8	1.3	14.7	1.1	63.7
80,001 - 100,000	2.0	4.4	1.7	3.4	0.9	0.3	5.7	0.6	8.0	1.4	12.9	2.0	67.3
Over 100,000	1.5	2.6	2.0	2.3	0.7	1.0	6.1	0.3	9.6	1.1	14.7	1.6	67.5

Appendix 7: Main effects of someone else's gambling total population by demographics

Main effects of other people's gambling %														
Demographic variables	Relationship broke up/split up/destroyed the relationship	Loss of trust/lack of trust/lies/ deceit/secret/dishonesty	Loss of respect/have no respect	Financially/lack of money/ borrowing money/bills not paid/no money for food/ amount of money being spent/lost everything	Had arguments/fights/ domestic violence	Affected badly/a lot/strongly affected/gave us problems (unspecified)	Family break-up/split the family up/strained relationship	Lost contact/not friends anymore/have no contact now/avoid/hardly see	Gambler has bad moods/ grumpiness when losing/ angry/tense/stressed out	Stress/stress to the family/ worry about it/felt worried/ emotionally affected/ upsetting	Always gambling/obsessed/ addicted/using free time for gambling/ isolated/ unsociable/not there for us	Tried to give advice/talk to them/ advised them not to gamble/they wouldn't listen	Felt sorry for them/felt concern/ sad for them/ sympathy/tried to help/had to help them	
Total	1.3	7.3	1.6	21.3	3.7	0.8	2.7	9.5	3.4	8.3	4.9	2.5	6.1	
Gender														
Male	0.6	5.0	1.6	17.4	2.8	0.4	1.5	7.0	2.5	4.8	3.8	2.3	5.3	
Female	2.0	9.5	1.6	25.1	4.5	1.3	3.8	11.9	4.2	11.7	6.0	2.8	7.0	
Ethnic group														
European/Other	1.4	7.4	1.9	19.0	3.3	0.7	2.5	8.7	3.6	9.0	4.7	1.9	6.1	
Māori	1.3	8.1	2.0	29.9	6.0	2.0	4.0	12.5	3.2	6.0	7.6	3.9	9.2	
Pacific	1.1	6.3	0.5	32.2	3.8	1.1	1.9	9.4	3.5	6.5	6.7	3.6	4.8	
Asian	0.2	3.6	-	22.6	4.6	2.5	2.4	10.4	1.3	4.7	2.9	5.9	2.3	
Age group														
18 - 24 years	0.2	4.6	-	10.6	3.1	0.6	0.8	7.7	4.3	3.9	3.2	1.4	3.0	
25 - 34 years	2.3	5.9	1.9	27.8	3.0	0.4	1.5	10.0	2.8	9.7	8.1	2.5	7.6	
35 - 44 years	1.1	9.1	2.7	22.0	5.9	1.7	5.5	11.2	5.2	8.4	5.3	1.8	5.3	
45 - 54 years	1.0	10.8	1.8	23.4	4.7	0.3	2.6	9.3	2.8	8.7	4.0	2.2	7.2	
55 - 64 years	1.4	7.0	1.2	21.8	2.6	1.4	2.5	10.1	2.5	9.5	4.2	4.9	8.1	
65+ years	1.1	3.3	0.8	15.2	0.7	0.5	2.4	6.6	2.0	7.9	2.4	3.1	4.3	
Country of birth														
NZ	1.3	8.2	2.0	21.3	4.1	0.8	2.9	9.1	3.5	8.3	4.9	2.3	6.6	
Elsewhere	1.1	4.1	0.3	21.3	2.2	0.9	2.0	10.7	3.0	8.4	4.9	3.4	4.6	
Arrival in NZ														
2008 or later	-	0.9	-	12.7	4.5	1.1	2.6	-	3.6	0.8	2.0	6.9	7.0	
Before 2008	1.3	4.7	0.3	22.8	1.8	0.8	1.9	12.5	2.9	9.7	5.3	2.8	4.2	

Main effects of other people's gambling %													
Demographic variables	Relationship broke up/split up/destroyed the relationship	Loss of trust/lack of trust/lies/ deceit/secret/dishonesty	Loss of respect/have no respect	Financially/lack of money/ borrowing money/bills not paid/no money for food/ amount of money being spent/lost everything	Had arguments/fights/ domestic violence	Affected badly/a lot/strongly affected/gave us problems (unspecified)	Family break-up/split the family up/strained relationship	Lost contact/not friends anymore/have no contact now/avoid/hardly see	Gambler has bad moods/ grumpiness when losing/ angry/tense/stressed out	Stress/stress to the family/ worry about it/felt worried/ emotionally affected/ upsetting	Always gambling/obsessed/ addicted/using free time for gambling/ isolated/ unsociable/not there for us	Tried to give advice/talk to them/ advised them not to gamble/they wouldn't listen	Felt sorry for them/felt concern/ sad for them/ sympathy/tried to help/had to help them
Highest qualification													
No formal qual.	1.6	7.8	1.1	25.2	6.0	1.5	2.9	13.4	2.9	6.6	3.4	4.8	5.8
School qual.	1.3	5.9	1.4	19.0	2.8	0.6	1.5	9.3	2.2	7.3	5.0	2.1	4.0
Trade/voc. qual.	2.0	7.9	0.7	25.6	2.6	0.4	2.3	7.6	5.0	7.9	5.0	1.7	7.2
Degree/higher	0.6	7.6	2.6	18.4	4.1	1.0	3.8	9.4	3.2	9.9	5.4	2.5	7.0
Labour force status													
Employed	1.1	7.9	2.2	19.8	3.4	0.9	2.7	9.0	3.3	7.4	4.9	2.3	6.7
Unemployed	3.4	7.3	-	39.9	6.0	1.0	3.8	13.9	5.7	11.9	6.8	2.7	6.0
Student/Home/Retired	1.0	5.2	0.3	17.2	3.5	0.4	2.3	9.2	2.6	9.8	4.3	2.8	3.6
Religion													
No religion	1.7	6.9	1.7	21.0	3.6	0.3	3.2	10.9	4.5	5.4	5.5	2.4	6.9
Anglican	0.8	10.0	1.2	18.3	5.5	1.4	1.9	8.8	1.4	10.7	5.6	1.5	4.4
Presbyterian	2.0	4.5	0.3	13.1	3.0	0.7	1.9	7.5	3.0	9.4	3.4	2.8	6.7
Catholic	1.2	10.2	1.6	23.0	2.2	0.9	1.8	5.4	2.3	14.1	3.5	1.7	4.4
Other Christian	0.5	5.0	2.3	27.0	4.2	1.5	2.5	9.2	1.8	7.3	4.3	3.1	7.0
Other religion	0.5	7.4	2.0	25.5	5.2	1.2	4.8	12.8	8.3	12.9	5.5	5.4	4.9
Household size													
1	2.8	7.5	1.2	31.7	4.0	0.4	3.6	7.4	4.6	7.4	5.1	3.3	4.6
2	0.8	5.3	1.8	19.4	3.6	0.7	2.4	9.6	2.1	8.9	4.5	3.3	5.9
3	2.2	5.7	2.1	23.5	4.8	1.6	3.5	10.1	6.3	6.2	6.4	2.6	6.7
4	1.2	7.8	1.0	17.6	1.8	0.4	2.4	11.7	3.2	7.8	4.3	1.4	6.4
5+	0.6	11.1	1.8	22.3	4.9	1.0	2.5	6.9	2.4	10.3	4.9	2.2	6.3

Main effects of other people's gambling %

Demographic variables	Relationship broke up/split up/destroyed the relationship	Loss of trust/lack of trust/lies/ deceit/secret/dishonesty	Loss of respect/have no respect	Financially/lack of money/ borrowing money/bills not paid/no money for food/ amount of money being spent/lost everything	Had arguments/fights/ domestic violence	Affected badly/a lot/strongly affected/gave us problems (unspecified)	Family break-up/split the family up/strained relationship	Lost contact/not friends anymore/have no contact now/avoid/hardly see	Gambler has bad moods/ grumpiness when losing/ angry/tense/stressed out	Stress/stress to the family/ worry about it/felt worried/ emotionally affected/ upsetting	Always gambling/obsessed/ addicted/using free time for gambling/ isolated/ unsociable/not there for us	Tried to give advice/talk to them/ advised them not to gamble/they wouldn't listen	Felt sorry for them/felt concern/ sad for them/ sympathy/tried to help/had to help them
Personal Income (\$)													
Up to 20,000	1.0	7.6	0.6	22.4	4.0	1.4	2.6	10.7	5.1	10.9	4.3	3.7	6.0
20,001 - 40,000	2.0	6.8	1.4	24.7	4.4	0.4	2.7	11.0	2.6	8.7	5.5	1.9	4.5
40,001 - 60,000	1.1	9.5	3.3	18.0	3.6	0.7	1.7	6.7	2.7	9.0	3.8	2.0	7.2
60,001 - 80,000	0.9	8.6	1.4	20.2	4.0	0.3	5.2	7.5	3.3	1.7	6.5	1.8	7.1
80,001 - 100,000	-	4.8	1.1	25.4	0.4	1.0	3.6	12.5	5.1	7.3	7.6	2.6	5.1
Over 100,000	-	1.4	4.3	13.2	-	0.5	1.5	4.0	-	6.2	4.0	0.4	7.7
Household Income (\$)													
Up to 20,000	2.6	9.9	0.2	36.8	5.8	0.8	4.9	16.2	4.3	9.1	5.8	6.0	6.9
20,001 - 40,000	3.4	4.8	1.3	26.1	6.1	1.6	2.2	8.6	5.1	10.5	4.2	1.8	4.9
40,001 - 60,000	0.6	9.2	1.5	22.4	3.5	0.2	2.9	9.8	4.6	6.9	7.1	2.7	5.0
60,001 - 80,000	0.6	4.7	1.0	13.6	2.3	1.0	3.2	4.8	1.2	6.1	4.5	1.1	4.3
80,001 - 100,000	0.5	8.1	1.3	25.2	1.7	0.9	0.4	9.3	4.1	9.6	3.7	4.8	9.8
Over 100,000	0.2	8.1	3.1	18.3	3.4	0.7	3.7	10.0	1.9	8.8	4.8	1.5	7.1

Main effects of other people's gambling % (continued)

Demographic variables	A little affected/a bit/a slight concern (unspecified)	Stealing/theft of money	Became lazy/days off work/ no energy/not doing their share	Felt annoyance/anger/frustration/resentment/disappointed/wary of them/felt they were not nice people/didn't like them	Put me off gambling/helps me keep away from it/made me more aware/hate any type of gambling	Pressure to go to places/gambling places/sometimes didn't want to go	Positive effects	Introduced me to gambling/influenced me and others to gamble/an influence on my gambling	Lack of communication/didn't talk much	Share their problems with me/ moaning to me/always complaining	Others	Relationship not affected	Don't know
Total	0.7	1.5	1.3	6.5	3.1	2.1	2.0	1.2	0.8	0.5	3.5	77.0	0.2
Gender													
Male	0.1	1.5	1.6	4.0	2.1	1.8	2.0	1.1	1.5	0.3	2.8	81.7	0.3
Female	1.3	1.6	1.1	8.9	4.1	2.5	2.0	1.3	0.3	0.6	4.2	72.5	0.1
Ethnic group													
European/Other	0.8	1.6	1.4	6.5	3.1	2.3	2.0	1.1	0.6	0.5	3.5	76.2	0.0
Māori	0.3	1.7	1.4	6.7	5.5	2.2	3.3	1.7	1.1	0.6	4.6	89.9	0.2
Pacific	0.9	1.2	1.8	6.8	2.8	1.4	2.3	0.9	2.4	0.9	3.5	81.8	3.0
Asian	0.6	-	0.8	5.2	3.1	1.9	3.1	2.8	1.3	0.4	0.8	76.3	0.9
Age group													
18 - 24 years	1.4	-	-	5.7	2.4	6.0	2.2	0.3	0.2	-	2.2	82.3	0.4
25 - 34 years	0.3	1.4	0.4	5.0	5.2	1.9	1.3	2.8	1.4	0.8	3.8	76.8	0.6
35 - 44 years	0.4	2.4	1.8	7.0	1.3	2.0	2.4	1.1	0.9	1.1	4.7	79.0	0.1
45 - 54 years	0.5	2.1	2.2	9.2	3.5	1.6	2.6	1.2	1.2	0.1	2.6	76.3	0.1
55 - 64 years	1.3	1.6	1.9	4.7	2.1	0.9	2.2	-	0.3	0.3	3.1	73.0	-
65+ years	0.3	0.8	1.4	6.4	3.3	0.8	1.1	0.5	0.5	-	4.3	74.5	-
Country of birth													
NZ	0.8	1.5	1.2	6.6	2.9	2.4	2.0	1.1	0.8	0.5	3.5	77.1	0.1
Elsewhere	0.3	1.8	1.8	6.1	3.6	1.0	2.2	1.6	1.1	0.3	3.5	76.8	0.8
Arrival in NZ													
2008 or later	-	-	-	-	-	1.4	2.6	3.3	1.2	-	6.1	78.7	-
Before 2008	0.4	2.1	2.1	7.1	4.3	1.0	2.1	1.3	1.0	0.4	3.0	76.4	0.9

Main effects of other people's gambling % (continued)

Demographic variables	A little affected/a bit/a slight concern (unspecified)	Stealing/theft of money	Became lazy/days off work/no energy/not doing their share	Felt annoyance/anger/frustration/resentment/disappointed/wary of them/felt they were not nice people/didn't like them	Put me off gambling/helps me keep away from it/made me more aware/hate any type of gambling	Pressure to go to places/gambling places/sometimes didn't want to go	Positive effects	Introduced me to gambling/influenced me and others to gamble/an influence on my gambling	Lack of communication/didn't talk much	Share their problems with me/ moaning to me/always complaining	Others	Relationship not affected	Don't know
Highest qualification													
No formal qual.	0.6	1.7	0.7	5.7	2.2	4.8	1.1	0.7	0.4	-	4.0	79.0	-
School qual.	0.9	0.7	0.5	7.4	2.4	2.1	2.0	0.7	0.3	0.5	1.9	81.1	0.1
Trade/voc. qual.	0.7	0.8	2.3	5.4	2.8	1.0	1.9	0.6	1.3	0.4	2.7	78.8	0.2
Degree/higher	0.7	2.6	1.5	6.9	4.1	1.9	2.4	2.1	1.1	0.7	5.0	72.2	0.4
Labour force status													
Employed	0.6	1.6	1.2	6.3	2.6	2.0	1.9	1.0	1.0	0.4	3.4	75.5	0.2
Unemployed	2.0	1.9	-	8.0	4.7	6.1	3.5	4.3	0.5	1.1	4.5	80.1	0.1
Student/Home/Retired	0.2	1.1	2.6	6.5	3.7	0.8	1.6	0.5	0.5	0.7	3.5	80.9	0.1
Religion													
No religion	0.8	2.3	1.3	6.1	2.7	2.9	1.4	1.4	0.4	0.6	3.8	79.3	0.1
Anglican	0.4	0.5	1.9	7.1	5.1	2.5	0.9	1.4	2.3	-	2.9	73.7	-
Presbyterian	0.1	0.1	0.6	8.4	1.5	0.1	1.9	1.8	-	1.1	1.5	66.9	0.2
Catholic	1.7	1.6	1.1	6.2	3.4	1.6	2.7	0.9	0.5	0.3	2.1	76.4	0.4
Other Christian	0.3	1.4	1.0	5.6	3.0	1.5	2.5	1.1	1.5	0.3	3.7	83.4	0.8
Other religion	0.6	-	3.1	9.9	2.6	1.4	7.6	0.7	0.6	0.4	9.5	68.4	-
Household size													
1	1.0	1.3	0.2	9.3	3.3	1.4	1.6	2.3	0.4	-	4.1	73.5	-
2	0.5	2.0	1.9	8.8	3.0	1.7	2.1	1.2	0.4	0.6	2.9	77.0	-
3	1.0	1.8	1.2	2.8	2.4	3.3	3.0	1.6	0.9	0.6	4.3	77.5	0.1
4	1.1	1.2	1.0	6.8	3.6	2.2	0.6	0.2	0.9	0.1	3.9	70.2	0.2
5+	0.3	1.1	1.5	4.5	3.2	2.2	2.9	1.4	1.6	0.8	2.9	86.8	0.8

Main effects of other people's gambling % (continued)

Demographic variables	A little affected/a bit/a slight concern (unspecified)	Stealing/theft of money	Became lazy/days off work/no energy/not doing their share	Felt annoyance/anger/frustration/resentment/disappointed/wary of them/felt they were not nice people/didn't like them	Put me off gambling/helps me keep away from it/made me more aware/hate any type of gambling	Pressure to go to places/gambling places/sometimes didn't want to go	Positive effects	Introduced me to gambling/influenced me and others to gamble/an influence on my gambling	Lack of communication/didn't talk much	Share their problems with me/ moaning to me/always complaining	Others	Relationship not affected	Don't know
Personal Income (\$)													
Up to 20,000	1.0	1.6	1.0	6.2	3.2	2.4	2.6	2.1	0.5	0.2	3.2	74.9	0.0
20,001 - 40,000	1.0	0.9	0.8	6.8	4.5	3.4	1.5	0.7	1.1	0.5	4.7	75.0	0.7
40,001 - 60,000	-	1.3	2.6	7.9	2.5	1.6	1.4	1.2	0.9	0.3	3.5	78.9	-
60,001 - 80,000	0.6	1.8	1.2	5.5	1.7	0.7	2.5	-	0.2	0.4	4.0	76.0	-
80,001 - 100,000	-	3.4	1.2	11.5	2.5	1.5	-	2.8	1.7	1.7	-	72.9	0.3
Over 100,000	0.2	2.4	2.4	1.4	1.1	1.2	5.1	-	1.7	0.4	1.5	90.7	-
Household Income (\$)													
Up to 20,000	2.5	2.6	-	6.4	3.2	1.4	0.9	2.9	1.1	0.4	3.3	74.4	-
20,001 - 40,000	0.7	0.5	1.7	9.3	2.7	3.5	3.4	2.7	0.7	0.6	3.0	80.4	0.1
40,001 - 60,000	-	0.9	0.9	6.1	2.2	2.0	1.9	0.6	0.7	-	3.9	72.8	0.2
60,001 - 80,000	0.5	1.0	0.7	2.1	4.1	3.8	1.9	0.9	0.4	0.3	6.1	82.8	0.7
80,001 - 100,000	0.2	1.9	1.2	7.1	3.2	1.1	2.6	1.0	0.3	-	3.0	71.4	-
Over 100,000	1.2	2.5	2.4	7.5	3.3	0.9	1.5	0.5	1.6	0.6	2.3	75.7	0.2

Appendix 8: Arguments and going without something needed in family or household because of gambling by respondent vs. someone else's gambling for total population by demographics

Demographic variables	Household effects of gambling %														
	Ever been an argument about time or money spent on betting or gambling in wider family or household in one's lifetime			Whose gambling that argument was about			This topic of argument has occurred in the last 12 months		If someone ever had to go without something they needed, or some bills weren't paid, because too much was spent on gambling by another person in the wider family or household in one's lifetime		Someone went without something they needed, or some bills weren't paid, because too much was spent on gambling, because of one's own gambling or someone else's gambling			Whether someone went without something they needed, or some bills weren't paid, because too much was spent on gambling in the last 12 months	
	Yes	No	My gambling	Someone else's gambling	Both	Yes	No	Yes	No	My gambling	Someone else's gambling	Both	Yes	No	
Total	11.5	88.5	8.4	88.0	3.7	27.4	72.6	8.0	91.9	4.8	92.3	3.0	33.0	66.5	
Gender															
Male	9.8	90.2	13.8	82.3	3.9	25.6	74.4	6.1	93.8	7.3	88.5	4.2	29.4	70.6	
Female	13.1	86.9	4.6	91.9	3.5	28.7	71.3	9.7	90.1	3.3	94.4	2.2	35.1	64.2	
Ethnic group															
European/Other	11.1	88.9	7.5	90.3	2.3	23.6	76.4	7.4	92.4	4.2	93.0	2.8	28.2	71.2	
Māori	23.3	76.7	6.3	85.6	8.1	32.3	67.7	19.9	79.6	5.3	90.9	3.8	41.9	57.7	
Pacific	17.2	82.8	15.4	77.2	7.3	46.0	54.0	13.5	86.5	9.3	87.4	3.3	48.3	51.4	
Asian	7.6	92.4	11.4	84.1	4.5	43.3	56.7	3.1	96.5	5.3	86.9	7.8	42.4	57.6	
Age group															
18 - 24 years	9.1	90.9	8.7	88.1	3.2	52.2	47.8	6.6	93.4	2.0	96.5	1.5	56.5	43.5	
25 - 34 years	16.6	83.4	9.2	88.5	2.3	32.4	67.6	11.4	88.1	6.7	91.3	2.0	43.1	56.5	
35 - 44 years	14.2	85.8	6.8	88.6	4.6	23.3	76.7	9.9	89.9	3.1	91.0	5.9	29.8	70.1	
45 - 54 years	12.8	87.1	9.3	87.9	2.8	21.6	78.4	8.5	91.4	8.2	88.5	3.3	25.1	73.3	
55 - 64 years	9.9	90.1	8.1	86.5	5.4	23.6	76.4	6.0	94.0	3.4	94.7	1.9	24.7	75.3	
65+ years	4.7	95.3	7.6	86.6	5.8	11.2	88.8	4.1	95.8	0.6	99.4	-	11.7	88.3	

Demographic variables	Household effects of gambling %														
	Ever been an argument about time or money spent on betting or gambling in wider family or household in one's lifetime			Whose gambling that argument was about			This topic of argument has occurred in the last 12 months		If someone ever had to go without something they needed, or some bills weren't paid, because too much was spent on gambling by another person in the wider family or household in one's lifetime		Someone went without something they needed, or some bills weren't paid, because too much was spent on gambling, because of one's own gambling or someone else's gambling			Whether someone went without something they needed, or some bills weren't paid, because too much was spent on gambling in the last 12 months	
	Yes	No	My gambling	Someone else's gambling	Both	Yes	No	Yes	No	My gambling	Someone else's gambling	Both	Yes	No	
Country of birth															
NZ	13.1	86.9	7.3	89.8	2.9	26.4	73.6	9.4	90.4	4.5	92.9	2.6	33.2	66.3	
Elsewhere	7.3	92.7	13.3	79.6	7.1	32.1	67.9	4.0	95.9	6.6	88.5	4.9	31.8	68.2	
Arrival in NZ															
2008 or later	7.9	92.1	25.0	71.8	3.2	32.4	67.6	2.3	97.7	-	89.3	10.7	53.2	46.8	
Before 2008	7.2	92.8	10.6	81.4	8.1	32.1	67.9	4.4	95.5	7.4	88.4	4.3	29.3	70.7	
Highest qualification															
No formal qual.	13.5	86.5	8.8	84.8	6.4	22.9	77.1	9.8	89.9	7.7	87.4	5.0	29.5	70.0	
School qual.	10.1	89.9	13.0	83.1	4.0	30.9	69.1	7.1	92.8	10.7	86.3	3.0	29.1	70.8	
Trade/voc. qual.	12.3	87.7	7.3	88.8	3.8	25.9	74.1	10.1	89.9	1.9	94.5	3.6	34.7	65.3	
Degree/higher	11.2	88.7	6.2	91.7	2.1	28.5	71.5	6.6	93.2	1.8	97.0	1.2	36.2	62.8	
Labour force status															
Employed	11.8	88.1	7.3	90.1	2.5	26.0	74.0	8.2	91.6	4.3	92.7	2.9	31.9	67.4	
Unemployed	17.9	82.1	10.6	80.8	8.6	31.6	68.4	14.2	85.5	11.5	82.5	6.0	36.6	63.2	
Student/Home/Retired	8.7	91.3	10.7	84.8	4.5	30.4	69.6	5.5	94.5	1.1	98.3	0.6	34.8	65.2	

Demographic variables	Household effects of gambling %														
	Ever been an argument about time or money spent on betting or gambling in wider family or household in one's lifetime			Whose gambling that argument was about			This topic of argument has occurred in the last 12 months		If someone ever had to go without something they needed, or some bills weren't paid, because too much was spent on gambling by another person in the wider family or household in one's lifetime		Someone went without something they needed, or some bills weren't paid, because too much was spent on gambling, because of one's own gambling or someone else's gambling			Whether someone went without something they needed, or some bills weren't paid, because too much was spent on gambling in the last 12 months	
	Yes	No	My gambling	Someone else's gambling	Both	Yes	No	Yes	No	My gambling	Someone else's gambling	Both	Yes	No	
Religion															
No religion	12.8	87.2	8.5	89.5	2.0	26.6	73.4	9.5	90.3	6.0	91.6	2.4	32.8	67.2	
Anglican	9.7	90.3	1.5	96.4	2.1	20.1	79.9	4.5	95.2	-	97.7	2.3	22.6	77.4	
Presbyterian	9.6	90.4	8.8	85.3	5.9	19.7	80.3	6.6	93.4	5.7	84.9	9.4	33.1	66.9	
Catholic	13.4	86.6	8.1	86.8	5.1	38.8	61.2	9.4	90.6	2.9	96.1	1.0	43.6	56.4	
Other Christian	11.7	88.1	9.1	82.6	8.3	29.0	71.0	8.7	91.1	6.0	89.7	4.3	35.1	64.8	
Other religion	8.8	91.2	26.4	68.5	5.2	35.4	64.6	5.6	94.2	4.7	88.6	6.7	25.4	66.3	
Household size															
1	9.8	90.2	8.1	89.2	2.7	12.6	87.4	8.1	91.9	4.3	95.1	0.6	13.7	86.3	
2	9.5	90.5	6.2	89.5	4.2	23.9	76.1	6.7	93.2	3.5	91.3	5.2	22.9	75.9	
3	11.9	88.1	11.4	85.3	3.3	23.8	76.2	7.8	92.2	11.4	85.5	3.0	34.6	65.4	
4	11.7	88.3	10.9	86.2	2.9	31.8	68.2	7.7	92.1	1.6	97.4	1.0	38.4	61.0	
5+	15.5	84.4	6.2	89.5	4.3	35.1	64.9	10.7	88.8	4.4	92.7	2.9	46.5	53.5	
Personal Income (\$)															
Up to 20,000	12.4	87.6	10.4	84.9	4.7	28.4	71.6	8.9	90.8	5.5	91.1	3.4	35.4	64.6	
20,001 - 40,000	12.6	87.4	8.5	85.6	5.9	25.8	74.2	9.1	90.8	4.3	93.8	1.9	30.2	68.3	
40,001 - 60,000	12.2	87.6	5.0	93.1	1.9	26.5	73.5	7.8	92.0	6.3	88.6	5.0	35.3	64.7	
60,001 - 80,000	10.9	89.1	6.8	92.8	0.4	33.5	66.5	6.3	93.6	3.7	95.7	0.6	21.4	78.6	
80,001 - 100,000	10.1	89.9	6.3	91.8	1.8	32.9	67.1	6.1	93.6	3.8	96.2	-	59.5	40.5	

Demographic variables	Household effects of gambling %														
	Ever been an argument about time or money spent on betting or gambling in wider family or household in one's lifetime			Whose gambling that argument was about			This topic of argument has occurred in the last 12 months		If someone ever had to go without something they needed, or some bills weren't paid, because too much was spent on gambling by another person in the wider family or household in one's lifetime		Someone went without something they needed, or some bills weren't paid, because too much was spent on gambling, because of one's own gambling or someone else's gambling			Whether someone went without something they needed, or some bills weren't paid, because too much was spent on gambling in the last 12 months	
	Yes	No	My gambling	Someone else's gambling	Both	Yes	No	Yes	No	My gambling	Someone else's gambling	Both	Yes	No	
Over 100,000	7.5	92.5	5.2	94.8	-	8.7	91.3	4.9	95.1	-	90.8	9.2	15.0	85.0	
Household Income (\$)															
Up to 20,000	12.0	88.0	9.9	84.5	5.6	22.6	77.4	11.0	89.0	6.3	90.9	2.8	34.9	65.1	
20,001 - 40,000	12.6	87.4	8.6	84.9	6.5	26.9	73.1	9.2	90.8	6.1	88.9	5.0	30.6	67.7	
40,001 - 60,000	12.0	88.0	6.0	90.0	4.0	29.3	70.7	9.8	90.0	4.4	93.5	2.1	34.1	65.4	
60,001 - 80,000	12.0	88.0	15.1	82.2	2.7	23.3	76.7	7.7	91.9	5.1	91.5	3.4	28.0	72.0	
80,001 - 100,000	10.9	89.1	4.3	92.2	3.4	26.0	74.0	7.0	93.0	1.9	94.7	3.4	36.9	63.1	
Over 100,000	11.3	88.7	6.8	92.2	1.0	30.7	69.3	6.3	93.5	4.5	93.8	1.7	35.1	64.9	