

# THE VICTORIAN GAMBLING STUDY

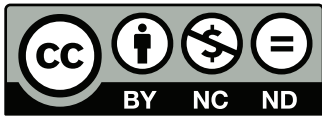
## A LONGITUDINAL STUDY OF GAMBLING AND HEALTH IN VICTORIA 2008–2012

### TECHNICAL REPORT ONE

#### SOCIAL DETERMINANTS AND CO-MORBIDITIES: SOCIAL DETERMINANTS AND CO-MORBIDITIES OF GAMBLERS AND NON-GAMBLERS

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Our vision: A Victoria free from gambling-related harm

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## Summary

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A series of secondary analyses were undertaken from *The Victorian Gambling Study- A longitudinal study of gambling and health 2008-2012* (*The Victorian Gambling Study*) (Billi, Stone, Abbott and Yeung 2014; Billi, Stone, Marden and Yeung 2014). This paper is the first of a series of technical reports. The focus of this paper is to compare the social determinants and comorbidities experienced by gamblers and non-gamblers. The purpose was to investigate a range of possible determinants (for example socio-demographics, physical and mental health, smoking and alcohol use, trauma, life events and social capital) to indicate which showed the strongest association with gambling participation and non-participation.

*The Victorian Gambling Study* is a longitudinal observational study which collected information from a representative sample (n=15,000) of adult Victorians, aged 18 years or older starting in 2008. Participants who agreed to further research were followed annually for four years. Data was collected on a wide range of gambling behaviours, self-rated health, mental health, social capital, trauma, life events and socio-demographic variables. In the original design of *The Victorian Gambling Study*, budgetary limitations resulted in only a sub sample being administered the full set of health questions in 2008. This sub sample comprised all gamblers who were classified as low, moderate or problem by the Problem Gambling Severity Index (PGSI) and one in three of those who were classified as non-problem-gamblers. Also in 2009 non-gamblers were not asked the health, trauma, life events, social capital and comorbidities questions. However in waves 3 and 4, full questionnaires were administered to all participants. Therefore only the socio-demographics of gamblers and non-gamblers can be compared across all four waves. And health, trauma, life events, social capital and comorbidities can be compared in waves 3 and 4 only.

This first report uses the full sample (n=15000) from the first wave and those who participated in subsequent waves. Its focus is the social determinants and comorbidities of gamblers and non-gamblers. Social determinants and comorbidities include both individual and environmental factors. Cross sectional analytical techniques were used to explore the relationships and strengths of association between psychosocial factors and gambling and non-gambling. The results are expressed in simple descriptive univariate techniques and reported as proportions, crude odds ratios, all with 95% confidence intervals, as well as chi square or p value.

## Gamblers and non-gamblers across the four waves

Gamblers made up 73% of the Victorian population in 2008. The proportion of gamblers among *The Victorian Gambling Study* respondents increased each wave from 75% in wave one, 86% in wave two, 86% in wave three to 87% in the 4<sup>th</sup> wave. The proportion of non-gamblers decreased among respondents from 25% in wave one, 14% in waves two and three to 13% in wave four. This represents a greater loss of non-gamblers than gamblers over the time of the study.

## Social determinants and comorbidities of gamblers and non-gamblers

Essentially all segments of the population can be gamblers or non-gamblers however some aspects are more strongly associated with gambling and others with non-gambling. There are statistical measures that indicate the strength of the association with a segment of the population. These measures show that gambling behaviour is strongly associated with most socio-demographics factors, many health behaviours, some life events and some measures of social capital.

## **Socio-demographics**

Gambling participation was strongly linked with age. Gambling was higher in those of middle age and lower in those who were older and younger. Gender was not related to gambling participation. Gambling is strongly associated with not being a recent migrant and with speaking English at home.

Lower educational achievement was strongly associated with gambling while higher educational achievement was associated with non-gambling. An unexpected finding was that gambling was strongly linked with higher and non-gambling linked with lower personal and household incomes.

Gambling was linked with where people live which may be the result of accessibility/availability of gambling products or gamblers moving closer to venues. This analysis cannot show whether the proximity was a cause of gambling or a result of gamblers choosing to live closer to venues and wanting better access to the gambling product. Gambling was linked to area level socioeconomic status which may be targeting of those areas by gambling industry or this segment of population was more vulnerable to start gambling, or a combination of both.

## **Trauma, life events and social capital**

Gambling was related to some stressful life events including the death of someone close; troubles with work, boss or superiors; a major change in living or working conditions; and experiencing any life event. Gamblers may have more life events or may perceive that they have life events. Gamblers did not have higher rates of reported trauma, hardship or problems in life or upbringing. Gamblers experience higher social capital on most measures compared with non-gamblers.

## **Comorbidities**

Gambling was not associated with physical or mental health however it was associated with health behaviours such as smoking and alcohol use. Non-gambling was very strongly linked to no alcohol use over the last year and strongly linked to never having smoked.

## Table of key findings

The following table summarises which characteristics were linked with gambling or non-gambling.

**Table 1 Characteristics of gamblers and non-gamblers**

<b>Non-gamblers tend to be/have</b>	<b>Gamblers tend to be/have</b>
<b>Socio-demographics (Waves 1 to 4)</b>	
Youngest and oldest age groups	Middle aged, 45-54 yrs
Bachelor or post graduate degree	Educated to year 10 or less
Recent migrants/LOTE	Not recent migrants/LOTE
Living in group households	
Unemployed/not in labour force	Full time employed
	Managers
Nil or negative personal/household income	Higher household/personal income
Residents of Metropolitan areas	Residents of rural/regional areas
Residents of Eastern EGM low spend area	Residents of EGM <sup>1</sup> medium and high spend areas
Residents of areas of SEIFA levels: 1 <sup>st</sup> and 10 <sup>th</sup> deciles of IRSD, 1 <sup>st</sup> and 2 <sup>nd</sup> highest deciles of IRSAD, 1 <sup>st</sup> highest decile of IEO and 1 <sup>st</sup> lowest decile of IER	Residents of areas of SEIFA <sup>2</sup> levels: 3rd lowest decile of IRSD <sup>3</sup> and IRSAD <sup>4</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> lowest decile of IEO <sup>5</sup> and 2 <sup>nd</sup> lowest decile of IER <sup>6</sup>
<b>Health and health behaviours (Waves 3 &amp; 4)</b>	
Self-rated health and Kessler 10 no difference	Self-rated health and Kessler 10 no difference
Past, current and ever non-smokers	Past, current and ever smokers
No past year alcohol use	Past year alcohol use and show signs of alcohol abuse
<b>Life events (Waves 3 &amp; 4)</b>	
No death of someone close	Death of someone close
	Troubles with their work, boss or superiors
	Major change in living or work conditions
No reported life event	Any life event
<b>Social capital (Waves 3 &amp; 4)</b>	
Higher 'sometimes' response to <ul style="list-style-type: none"> <li>• Able to get help from family, friends and neighbours when they need it</li> <li>• Like living in their community</li> </ul>	Higher 'yes definitely' response to <ul style="list-style-type: none"> <li>• Able to get help from family, friends and neighbours when they need it</li> <li>• Being involved in any community activities or events in the past 12 months</li> <li>• Like living in their community</li> </ul>
Higher 'no' response to <ul style="list-style-type: none"> <li>• Feeling valued by society</li> <li>• Being involved in any community activities or events in the past 12 months</li> </ul>	
No difference for 'trauma', 'volunteering' or 'ability to raise money'	No difference for 'trauma', 'volunteering' or 'ability to raise money'

<sup>1</sup> Electronic Gaming Machine

<sup>2</sup> SEIFA ABS measures SocioEconomic Indexes For Areas

<sup>3</sup> IRSD Index of Relative Socioeconomic Disadvantage

<sup>4</sup> IRSAD Index of Socioeconomic Advantage and Disadvantage

<sup>5</sup> IEO Index of Education and Occupation

<sup>6</sup> IER index of Economic Resources

# 1. Introduction

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The aim of this work is to build on current knowledge and understanding of the relationship between gambling problems and comorbid conditions. It is envisaged that this work will also contribute to the understanding of analytical methods used to study gambling problems as well as inform the development of harm minimisation and treatment programs.

Technical Report One - The first project compares social determinants and comorbidities of gamblers and non-gamblers. Psychosocial aspects that are being considered include both individual factors as well as environmental. This approach recognises the relationship between the individual, their environment and the gambling products. The following questions are being asked: How do gamblers differ from non-gamblers? What are the strongest psychosocial predictors of gambling/non-gambling? Are some measures better than others?

Using cross sectional analyses techniques we can explore the relationships and strength of associations between gambling and non-gambling, and psychosocial factors. The analyses include simple descriptive analysis. These analyses are relatively quick to do, easier to explain and communicate, and more accessible to the general public. They are more suitable for fact sheets. It is intended that more complex summary regression models will follow. The results will be expressed mainly as proportions, crude odds ratios, all with 95% confidence intervals as well as chi-square or other suitable statistic and p-value.

In addition, this work also provides a background to additional analysis which will only be conducted on gamblers. Therefore it is important to understand the characteristics of the group that is being excluded i.e. the non-gamblers. This group is being excluded for two reasons. Firstly some questions were not asked of non-gamblers in wave one. Secondly some of the more complex analytical techniques such as the negative binomial are simpler using data from the gamblers only. The Technical report series are described in Appendix One.

## Technical report one: Descriptive analysis

This first report is a technical report which outlines the findings from the descriptive analysis of the social determinants and comorbidities of gamblers and non-gamblers. It forms a prototype for the rest of the analytical work. *The Victorian Gambling Study* database is large, complex and the consistency of labelling of variables at times does not make it easy to conduct longitudinal or panel data analysis across the four waves. For the purposes of this project, a subset of the data has been cleaned and variables recoded according to our current understanding of logical groupings. These decisions are being tested and refined, as part of this preliminary analysis.

The findings are reported in four parts with more detailed tables in the appendices:

- Socio-demographics of gamblers and non-gamblers 2008. These data from wave one in 2008 are weighted and therefore represent proportions in the full Victorian population. This section describes the proportion of gamblers and non-gamblers in Victorians of various socio-demographic characteristics. Area of residence information was only asked in wave one so this section also describes gamblers and non-gamblers by the areas in which they live.
- Socio-demographics of gamblers and non-gamblers w1 to w4. The data for the second set of analyses are from all four waves and are unweighted. Information collected varies across waves. This section describes the proportion of gamblers and non-gamblers in the sample (respondents in each wave) of various socio-demographic characteristics.
- Gambling and non-gambling in wave 3 and 4 respondents with varying health and social profiles. These data are unweighted. Non-gamblers were not asked the health, life events and



social capital questions in wave 1 or wave 2 so these comparisons can only be done for waves 3 and 4. This section describes the proportion of gamblers and non-gamblers in the sample (respondents in each wave) of subpopulations with various health and social characteristics.

- Health and health behaviours, trauma and life events, and social capital in gamblers and non-gamblers (waves 3 & 4). These data are unweighted. Non-gamblers were not asked the health, life events and social capital questions in wave 1 or wave 2 so these comparisons can only be done for waves 3 and 4. This section describes the prevalence of various health and social characteristics in gamblers and non-gamblers.

## Materials and method

*The Victorian Gambling Study* baseline epidemiological wave used random digit dialling to survey 15,000 Victorians, 18 years and older, in 2008. (Hare 2009; Billi, Stone, Abbott and Yeung 2014) The sample was stratified by the eight state government regions and by high, medium and low electronic gaming machine (EGM) expenditure in local government areas within these regions. High EGM expenditure areas were oversampled in the ratio of high 70%, medium 20% and low 10%. Weights were applied to correct the sample to the known population while taking account of the stratified sampling procedure. The survey was introduced to potential participants as 'The Victorian Government is conducting a study on an important health and well-being issue to Victorian communities'. The survey response rate of 52% was calculated using the recommended method (Williams and Volberg 2010).

Using Computer Aided Telephone Interviewing (CATI), the questionnaire collected information on participants' demographics, gambling participation and frequency over the previous 12 months. Gambling activities that defined a gambler included informal private betting (e.g., playing cards at home for money), playing EGMs, betting on table games (e.g., blackjack, roulette, poker), horse or harness racing or greyhounds betting, sports and event betting, Lotto, Powerball or the pools, Keno, scratch tickets, bingo and raffles, sweeps and other competitions, event wagering (e.g., wagering on the outcomes of TV shows), participation in SMS or phone-in competitions and participation in speculative stock investments (such as day-trading in stocks and shares).

*The Victorian Gambling Study* longitudinal component used the same CATI technology to follow up over the next three years respondents who agreed to be contacted. Many questions were repeated over the four years of the study. Some questions were specific to a particular year. The responses to these questions form *The Victorian Gambling Study* database.

The determinants of gambling that were studied were those that described the person's socio-demographics, experience of trauma, hardship and problems in life and upbringing, life events over the previous 12 months, individual social capital and comorbidities. Most are indicative of current status or over the previous 12 months so are concurrent with the measure of gambling. Measures of area level socio-economic status, the ABS SEIFA, were merged into the database using the postcode of residence which was collected in the first wave of the study.

Participation rates significantly higher than the population average are in bold. Those significantly lower than the population average are in italics in the tables. The Odds Ratio (OR) reported is the OR of being a gambler for the subpopulation compared with the most frequent subpopulation. For example, in table 1 it is the OR of being a gambler for males compared with females or in table 2 is the ORs of being a gambler for other age groups compared with the most frequent age group of 35 to 44 years. Please note that the comparator for the proportions is the population average and the comparator for the OR is the most frequent subpopulation. The Pearson chi-square test and p-value show the strength of the association between the gambling participation and the subpopulations of the characteristic being investigated. As an example, the results in table 1 with a p-value much greater

than 0.05 indicate that gambling in the subpopulations (male and female) of the characteristic (gender) are not significantly different.

## Gambling participation rates over time

In Victoria, gambling participation rates showed rapid growth from 75% in 1992 to a peak of 87% in 1996 with increased availability of gambling products. Since then gambling rates have slowly decreased to a rate of 73% in 2008. Results from the early studies should be treated with caution as these were conducted on rather small survey sizes of around 2000 people. (Productivity Commission: Australia 1999; Roy Morgan Research 1999; Roy Morgan Research 2000; Productivity Commission: Australia 2010) The 2003 Victorian prevalence study sampled almost 8,500 Victorians (The Centre for Gambling Research: Australian National University 2004). The larger size of the survey enabled more accurate analysis of gambling at a more detailed level. It estimated the Victorian gambling participation rate was 77%. Gambling participation at 73% in 2008 is the lowest in the series in spite of *The Victorian Gambling Study* collecting more gambling activities than ever before.

Figure 1 Gambling participation in Victoria since the early 1990s



Nationally participation rates have decreased since the Productivity Commission conducted a national gambling survey in 1999 (Productivity Commission: Australia 1999). The national survey estimated that 82% of Australian adults participated in at least one gambling activity in the last 12 months. These rates varied around the country. Rates higher than the average occurred in Queensland (86%) and WA (84%). Lower rates occurred in Victoria (81%), NSW, ACT and NT all 80%, and SA and Tasmania both 77%. Recent surveys around Australia found similar current gambling participation rates to those found in Victoria in 2008. The rates in Queensland were 74%, ACT 70%, SA 69% and NSW 65%. (Davidson and Rodgers 2009; Department of Justice and Attorney-General 2012; Sproston, Hing and Palankay 2012; Office for Problem Gambling 2013). A survey has not been conducted in WA since the national survey, so current figures are not available for that state. Participation rates in New Zealand were higher at 80% but have also dropped from the 94% reported in 1999 (Abbott, Bellringer, Garrett and Mundy-McPherson 2014).

## Australia and New Zealand studies of gambling correlates

Most prevalence studies report gambling participation rates and limited socio-demographics profiles of gamblers. Few, if any, report more detailed profiles of health and health conditions, trauma life

events and social capital of gamblers and non-gamblers. The main focus of the reports consists of detailed profiles of problem gamblers and sometimes frequent gamblers. This section describes some of the socio-demographic information on gamblers and non-gamblers that was available in mainly web based reports from Australia and New Zealand. This information was not available from recent surveys in the NSW and SA.

There are some consistencies in these studies over time and place, and some inconsistencies. Gambling participation tends to be higher in those with lower educational achievement and lower in those with a university degree and higher. It is also higher in those who work full time and lower among students, retirees and those doing unpaid work at home. Gambling tended to be more prevalent in medium to high income earners but not always. Gambling showed no gender preference in three studies and in two participation rates were higher in males. Middle age was the time for gambling in two studies and younger age group in another two.

## Individual study findings

Participation levels in Victoria in 2003 were found to be highest amongst separated or divorced people (84.3 per cent); single parents (86.0 per cent); full-time workers (80.1 per cent); self-supporting retirees (79.2 per cent); people on medium incomes (83.4 per cent); and rural residents (78.9 per cent). Participation levels were lowest among: People older than 65 years (72.6 per cent); two-parent families (74.9 per cent); students (55.1 per cent); CAE/University educated (74.3 per cent); business owners (69.5 per cent). (The Centre for Gambling Research: Australian National University 2004).

Nationally participation was the higher for males (83%) than females (80%). Gambling participation was highest for the 18 to 24 age group (85%), 25 to 34 age-group (84%), 35 to 49 and 50 to 64 age-groups (82%) and dropped to 74% for those 65 and older. Gambling participation was highest (86%) for those whose personal income was \$25k-\$35k and \$35k-\$50k, lower (84%) for those earning over \$50k and lowest for the lowest incomes of <\$10k and \$10k-\$25k at 82% and 81% respectively. Participation was highest for educational levels of TAFE or technical (86%), then year ten or less and senior high school (84% and 84%) and lowest for those educated at CAE or University (76%) (Productivity Commission: Australia 1999).

The Queensland survey analysed the socio-demographics of 26% of the population who were non-gamblers. The findings indicate no statistical difference in their gender or work status compared with the general population. However there were differences for age group and highest educational level. Non-gamblers were more likely to be 18-34 years and less likely to be 35 to 54 years compared to the general population. Non-gamblers are also more likely to have a university or postgraduate degree and less likely to have trade, technical certificate or diploma, and less likely to have completed junior high school (Department of Justice and Attorney-General 2012).

The ACT survey also analysed the socio-demographics of 30% of the population who were non-gamblers. There were strong associations with gender, age group, employment and education. Women were more likely to be non-gamblers than men. Prevalence of non-gambling increased with age. Non-gambling was lowest in those employed full time (26%), higher in those employed part time or unemployed but looking for work, or retired or not in the paid labour force but home duties (all around 37%) and highest in those who were not in the paid work force but studying. Source of income was another determinant. Lowest non-gambling were found in those who were paid a wage/salary (29%), government source (33%), super/annuity/investments (37%) and highest in those with no personal income. The strongest association was seen with education. Non-gambling prevalence was lowest with lowest education, year 10 (20%), year 12 (28%), certificate/diploma (25%) and highest with higher education: bachelor's degree (36%) and higher (48%) (Davidson and Rodgers 2009).

The New Zealand survey reported the socio-demographics of the 20% of the population who were non-gamblers. Participation was not associated with gender, qualifications or household size. Non-

gambling was significantly higher for some ethnic groups (Pacific and Asian), the youngest and oldest age groups, those born outside of New Zealand, those who were students/at home/retired, lowest personal or household income. Non-gambling was significantly lower in Maoris, those born in New Zealand, and those with the highest personal and household income (Abbott, Bellringer, Garrett and Mundy-McPherson 2014).

## 2. Socio-demographics and comorbidities of gamblers and non-gamblers

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An estimated three quarters (73%) of the Victorian population gambled over the previous twelve months and just over a quarter (27%) did not.

Gambling was defined by self-reported participation over the last 12 months in one or more of the following activities: informal private betting (e.g., playing cards at home for money), playing EGMs, betting on table games (e.g., blackjack, roulette, poker), horse or harness racing or greyhounds betting, sports and event betting, Lotto, Powerball or the pools, Keno, scratch tickets, bingo and raffles, sweeps and other competitions, event wagering (e.g., wagering on the outcomes of TV shows), participation in SMS or phone-in competitions and participation in speculative stock investments (such as day-trading in stocks and shares). All results were weighted to the Victorian population.

The participation/non-participation rates reported in this paper show associations between gambling or non-gambling with particular characteristics of the respondents or where they live. These associations are crude unadjusted proportions and as such must be treated as an indication only. They may be a result of the characteristic itself or that the characteristic is a surrogate for another measure. These characteristics are also associated with each other. For example household income and personal income are strongly associated with each other, and they are strongly associated with gambling. Further more complex analyses adjusting for these factors can clarify which characteristics show the strongest associations with gambling/non-gambling. These are part of a later program of analyses.

### Socio-demographics of gamblers and non-gamblers 2008

These results are from the weighted analysis and represent the Victorian population rates. More detailed tables are available in Appendix Two.

#### Gamblers

Gambling participation at 73% was the same for males and females. Participation in gambling increased with age from 63% for the 18-24 year olds, peaks at 80% for the 45-54 year olds and dropped to 66% for those aged 75 and older. Participation was significantly higher than the population average for 45 to 54 year olds (80%) and for the 55 to 64 year olds (79%).

Higher levels of schooling were associated with decreased gambling participation. Victorians whose highest level of education was year 10 or less had a significantly higher participation (79%) than the general population.

Gambling is significantly higher in those who do not speak a language other than English at home (77%) and significantly lower in recent migrants (50%) or those who speak a language other than English at home (59%).

Gambling is significantly lower those who live in group households (62%). There is no variation with different number of dependent children or internet connection type (except for the 'don't know/refused' group).

Gambling participation was higher with increasing employment level. An estimated 76% of Victorians employed full time participated in gambling. When occupation was considered, an estimated 81% of managers gambled. Both of these results are significantly higher than the population average.

Increasing household or personal income was associated with increased gambling participation. Gambling participation was significantly higher in Victorian households with weekly incomes of \$800 and over with participation rates ranging from 77% for incomes of \$800 to \$1199 to 82% for incomes of \$2500 plus per week. Gambling participation was significantly higher for Victorians with personal weekly incomes of \$800 and over with participation rates ranging from 79% for incomes of \$800 to \$999 to 82% for incomes of \$1300 plus per week. These income results should be treated with caution because of the large number of missing data points. For the household income question 37% responded don't know or refused, and for the personal income question 29% responded don't know or refused.

Where people live is associated with gambling participation. Participation was significantly higher in rural/regional areas (80%) and significantly lower in metropolitan areas (71%). It tended to be higher in EGM medium and high spend areas of each government region but not all. Significantly higher than population participation rates were seen in the Loddon Mallee EGM high spend areas (83%), Barwon South Western medium (83%) and high (79%), Grampians medium (83%) and high (80%), Hume medium (88%) and high (79%) and North and Western low (80%) spend areas.

Gambling participation tended to be higher in the second and third lowest deciles of the ABS SEIFA variables: 3<sup>rd</sup> lowest decile of the Index of Relative Socioeconomic Disadvantage (IRSD) (80%) and Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) (79%), 2<sup>nd</sup> and 3<sup>rd</sup> lowest decile of Index of Education and Occupation (IEO) (78% for both) and 2<sup>nd</sup> lowest decile of Index of Economic Resources (IER) (79%).

## Non-gamblers

The proportion of males and females who were non-gamblers were the same at 27%. Non-gambling was highest at the extremes of the age-groups. It was significantly higher for those aged 18 to 24 years (37%), 25 to 34 years (32%) and 75 years and over (34%) compared to 27% in the general population.

An estimated 50% of Victorians who migrated in the last 5 years and 41% of those who speak a language other than English at home (LOTE) did not gamble.

More Victorians who lived in group households (38%) or other households/ DK/refused (44%) reported not gambling. This last category is to be treated with caution.

Victorians with a bachelor (33%) or postgraduate degree (32%) more often reported being a non-gambler.

Victorians who are unemployed and looking for work (37%) or not in the labour force (30%) more often report not gambling. Professionals are borderline significant higher non-gamblers.

Those who have nil or negative income household income (47%) or personal income (37%) more often reported being non-gamblers. These income results should be treated with caution because of the large number of missing data points. For the household income question 37% responded don't know or refused, and for the personal income question 29% responded don't know or refused.

The proportion of the population who did not gamble varied by where people live. Non-gamblers are higher in those who resided in a Metropolitan area (29%), Eastern EGM low spend area (37%) and North & Western medium EGM spend region (32%). Non-gamblers were higher in the lowest (31%) and highest (31%) deciles of IRSD, in the two highest deciles of IRSAD (30%, 31%), the highest (33%) decile of IEO and the lowest (31%) decile of IER.



## **Socio-demographics of gamblers and non-gamblers Waves 1 to 4**

These results are from the unweighted analysis of the responses from the sample in each wave. More detailed tables are available in Appendix Three.

The socio-demographics of gamblers and non-gamblers over all four waves showed similar patterns to the population estimates for 2008. The proportion of gamblers in the sample of respondents in each wave increased over time: 75%, 86%, 86% and 87%. This is probably due to increased retention of gamblers rather than an increase in gambling.

Gambling participation became particularly high in some subpopulations by W4: 35–44 age group (92%), schooling year 10 or less (91%), managers (92%), Clerical and administrative work (95%), occupation 'don't know/refused' (96%), household income of \$2500 and over (\$130,000 and over) (91%) and personal income \$1,000–\$1,299 (\$52,000–\$67,599) (91%).

## **Gambling and non-gambling in wave 3 and 4 respondents with varying health and social profiles**

In the longitudinal study questions were asked about health and health behaviours, trauma and life events, and measures of social capital. Non-gamblers were not asked these questions in wave one (2008) and two (2009). They were asked in waves three and four. This section describes the proportions of gamblers and non-gamblers of respondents with varying profiles of health and health behaviours, trauma and life events, and social capital. These results are from the unweighted analysis of the responses from the sample in each wave. More detailed tables are available in Appendix Four.

### **Gambling and health and health behaviours**

Gambling participation was not significantly different across the varying levels of self-rated health and the Kessler 10 screen for psychological distress.

Gambling participation tends to be higher in past year smokers (89%), current smokers (86%) and ever smokers (88%) than in non-smokers (85%, 86% and 84%) in wave 3. These differences were not significant in wave 4.

Non-gamblers were higher in those who did not smoke over the last year (15%), currently (14%) or ever (16%) than those who did in wave 3 (11%, 11% and 12%). These differences were not significant in wave 4.

Gambling participation tends to be higher in those with past year alcohol use (89%, 90%) in waves 3 and 4 than those who had no alcohol use in the past year (71%, 75%). Gambling participation was even higher in past year alcohol consumers who showed signs of alcohol abuse (93%, 92%) compared with those who showed no signs of alcohol abuse (88%, 89%).

Gambling participation was even higher in past year alcohol consumers who showed signs of alcohol abuse (93%, 92%) than the sample overall (86%, 87%). Non-gambling was significantly lower in past year alcohol consumers who showed signs of alcohol abuse (7%, 8%) than the sample overall (14%, 13%). Gambling participation was higher in past year alcohol consumers who showed no signs of alcohol abuse (88%) than the sample overall (86%). Non-gambling was significantly lower in past year alcohol consumers who showed no signs of alcohol abuse (12%) than the sample overall (14%) in wave 3. This difference was not significant in wave four.

## Gambling and life events and trauma

In wave four, respondents were asked ‘thinking of your personal background, would you say you are someone who has had 1) no really major problems, hardships and traumas in your life or upbringing or 2) a lot of trauma, hardship and problems in their life or upbringing?’ Participation in gambling (87%) was the same for those who reported a lot of trauma, hardship and problems in their life or upbringing and in those who did not.

Gamblers were asked to consider ‘things that happened in your life during the past 12mths. Which of the following life events did you experience in the past 12mths?’ Gambling is associated with some reported life events.

In wave 3 participation in gambling was significantly higher than in the total sample in anyone who reported ‘Troubles with their work, boss, or superiors’ (91%) or ‘Major change in living or work conditions (e.g. renovations, new job)’ (89%) and non-gambling was significantly lower (85%) and (85%). In waves 3 and 4 participation in gambling was significantly higher (88%, 90%) in those who reported ‘death of someone close’ than those who did not (85%, 86%). Gambling participation rates were significantly higher in those who reported a life event over the last 12 months (87%) than those who did not (83%).

Non-gambling was significantly higher (17%) in participants who did not report a life event than the sample overall (14%) in wave 3. Non-gambling was significantly higher in those who did not report the death of someone close (15%, 14%) than those who did (12%, 10%) in waves 3 and 4.

## Gambling and social capital

For many of the social capital questions used in waves 3 and 4 gambling participation tends to be higher in those responding ‘yes definitely’.

Gambling participation was higher in waves 3 and 4 (87%, 88%) for those who responded ‘yes, definitely’ to the question ‘can you get help from friends, family or neighbours when you need it?’ than those who responded sometimes (81%, 82%) or no (78%, 83%); in wave 3 (87%) for those who responded ‘yes, definitely’ to ‘do you feel valued by society’ than those who responded ‘no’ (78%); in wave 3 (88%) for those who responded ‘yes’ to ‘have you been involved in any community activities or events in the past 12mths’ than those who responded ‘no’ (83%); in wave 3 (87%) for those who responded ‘yes, definitely’ to ‘do you like living in your community?’ than those who replied ‘sometimes’ (82%).

Non-gambling was higher in waves 3 (22% or 19%) and 4 (17% or 18%) in those who responded ‘no’ or ‘sometimes’ to the question can you get help from friends, family or neighbours when you need it?’ than those who responded ‘yes, definitely’ (13%, 12%); in wave 3 (22%) in those who responded ‘no’ to ‘do you feel valued by society’ than those who responded ‘yes, definitely’ (13%); in wave 3 (17%) in those who responded ‘no’ to ‘have you been involved in any community activities or events in the past 12mths’ than those who responded ‘yes’ (12%); in wave 3 (18%) for those who responded ‘sometimes’ to ‘do you like living in your community?’ than those who replied ‘yes, definitely’ (13%).

There was no difference in gambling participation in groups who responded ‘yes’ or ‘no’ to the questions about being ‘a member of an organised group’, ‘volunteered to help out in the community in any way in the past 12 months’ or ‘If you needed to, could you raise \$2000 within 2 days in an emergency?’.



## Health and health behaviours, trauma and life events, and social capital in gamblers and non-gamblers (waves 3 & 4)

In the longitudinal study questions were asked about health and health behaviours, trauma and life events, and measures of social capital. Non-gamblers were not asked these questions in wave one (2008) and two (2009). They were asked in waves three and four. This section describes the proportions of gamblers and non-gamblers and their reported level of health and health behaviours, trauma and life events, and social capital. This is the reverse of the previous section. These results are from the unweighted analysis of the responses from the sample in each wave. More detailed tables are available in Appendix Five.

### Self-rated health and psychological distress

The self-rated health and level of psychological distress are very similar between gamblers and non-gamblers across both wave 3 and wave 4.

### Health behaviours

Gambling participation is associated with smoking and alcohol use.

Gamblers have higher past year (20%), current (16%) and ever smoking rates (54%) in wave 3 and ever smoking (53%) in wave 4 than non-gamblers (16%, 12%, 45% and 47% respectively). They have significantly higher rate of smoking 11-20 cigarettes a day.

Non-gamblers have higher non-smoking rates for past year (84%) current (88%) and never smoking (55%) in wave 3 and never smoking in wave 4 (53%) than gamblers (80%, 84%, 46% and 47% respectively). They have significantly higher rates of not smoking any cigarettes 87% than gamblers 84%.

Gamblers have higher rates of past year alcohol use, 86% in waves 3 and 4, compared with non-gamblers, 66% and 69% in waves 3 and 4. They have higher rates of alcohol use and no signs of alcohol abuse (72%, 71%) than non-gamblers (59%, 61%). Also their rates of alcohol abuse are higher (14%, 14%) than non-gamblers (7%, 8%).

Non-gamblers have higher rates of no past year alcohol use 34% in wave 3 and 31% in wave 4 compared with gamblers (13% and 14% respectively).

### Life events and trauma

Respondents were asked 'thinking of your personal background, would you say you are someone who has had 1) no really major problems, hardships and traumas in your life or upbringing or 2) a lot of trauma, hardship and problems in their life or upbringing?' Gamblers (27%) and non-gamblers (27%) reported the same proportion of those who reported 'a lot of trauma, hardship and problems in their life and upbringing' and in those 'who did not' (83%).

Respondents were also asked to consider 'things that happened in your life during the past 12mths. Which of the following life events did you experience in the past 12mths?' Gambling participation is associated with some reported life events.

Gamblers have reported higher rates of 'death of someone close' in waves 3 (32%) and 4 (33%) than non-gamblers (27% and 26% respectively); of 'troubles with your work, boss or superiors' in wave 3 (14%) than non-gamblers (8.5%); of 'major change in living or work conditions' in wave 3 (24%) than non-gamblers (17%) and any life event (77%) than non-gamblers (71%). Life events approaching significance in gamblers were 'Major injury and illness to either yourself or someone close' in waves 3 and 4; 'troubles with your work, boss or superiors' in wave 4; 'major change to financial situation' in

wave 3; 'taking on a mortgage, loan or making a big purchase' in waves 3 and 4; 'increase in number of arguments with someone close to you' in wave 4.

Non gamblers reported higher rates of no life events (29%) than gamblers 23% in wave 3.

## **Social capital**

Gambling participation is associated with some measures of social capital.

Gamblers reported high rates of 'yes definitely' to 'being able to get help from friends, family and neighbours when you need it' in waves 3 (88%) and 4 (85%) than non-gamblers (82% and 80% respectively); being 'involved in any community activities or events in the past 12 months' in wave 3 (64%) than non-gamblers (56%); and 'yes definitely' to 'do you like living in your community' in wave 3 (87%) than non-gamblers (80%). Approaching significance gamblers reported higher rates of being 'involved in any community activities or events in the past 12 months' in wave 4 (65%) than non-gamblers (61%); Gamblers (58%) and non-gamblers (52%) reported the same proportion of 'yes' to 'have you volunteered to help out in the community in any way in the past 12 months?'; and Gamblers (85%) and non-gamblers (83%) reported the same proportion of 'yes' to 'If you needed to, could you raise \$2000 within 2 days in an emergency?'.

### 3. Conclusion and next steps

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The focus of this paper was to compare the social determinants and comorbidities experienced by gamblers and non-gamblers. The purpose was to investigate a range of possible determinants (for example socio-demographics, physical and mental health, smoking and alcohol use, trauma, life events and social capital) to indicate which showed the strongest association with gambling participation and non-participation.

We have reported gambling participation rates in various sub-populations based on their socio-demographics, physical and mental health, smoking and alcohol use, trauma, life events and social capital. We have also described the physical and mental health, smoking and alcohol use, trauma, life events and social capital characteristics of gamblers and non-gamblers. To our knowledge this is the first time such detailed comparisons of gamblers and non-gamblers have been made. It is therefore difficult to compare the findings with other studies.

#### **Social determinants and comorbidities of gamblers and non-gamblers**

Gamblers made up 73% of the Victorian population in 2008. This is the lowest participation rate since 1992 when electronic gaming machines were first introduced in Victoria. Essentially all segments of the population can be gamblers or non-gamblers however some aspects are more strongly associated with gambling and others with non-gambling. In this study socio-demographics and health behaviours are important associations.

#### **Socio-demographics**

Gambling was strongly linked with age. Gambling was higher in those of middle age and lower in those who were older and younger. Gender was not related to gambling participation. Both these findings are similar to recent studies in Queensland and New Zealand (Department of Justice and Attorney-General 2012; Abbott, Bellringer, Garrett and Mundy-McPherson 2014). Gambling is strongly associated with not being a recent migrant and with speaking English at home. In New Zealand gambling was associated with being Maori or being born in New Zealand (Abbott, Bellringer, Garrett and Mundy-McPherson 2014).

Lower educational achievement was strongly associated with gambling while higher educational achievement was associated with non-gambling. Lower educational level was linked with gambling in Victoria previously (The Centre for Gambling Research: Australian National University 2004), nationally in 1999 (Productivity Commission: Australia 1999) and in Queensland (Department of Justice and Attorney-General 2012) and the ACT (Davidson and Rodgers 2009). Gambling was strongly linked with higher and non-gambling linked with lower personal and household incomes. This was also seen in New Zealand (Abbott, Bellringer, Garrett and Mundy-McPherson 2014).

Gambling was linked with where people live which may be the result of accessibility or availability of gambling products or gamblers moving closer to venues. This analysis cannot show whether the proximity was a cause of gambling or a result of gamblers choosing to live closer to venues and wanting better access to the gambling product. Gambling was linked to area level socioeconomic status which may be targeting of those areas by gambling industry or this segment of population was more vulnerable to start gambling, or a combination of both.

## **Trauma, life events and social capital**

Gambling was related to some stressful life events including the death of someone close; troubles with work, boss or superiors; a major change in living or working conditions; and experiencing any life event. Gamblers may have more life events or may perceive that they have life events. Gamblers did not have higher rates of reported trauma, hardship or problems in life or upbringing. Gamblers experience higher social capital on most measures compared with non-gamblers.

## **Comorbidities**

Gambling was not associated with physical or mental health however it was associated with health behaviours such as smoking and alcohol use. Non-gambling was very strongly linked to no alcohol use over the last year and strongly linked to never having smoked.

## **Next steps**

The findings from this report provide the basis for additional more detailed analysis. Many of the determinants were inter-related. It is important to understand which determinants are the key factors that are associated with gambling. The intention is to develop a series of multivariate models that better explore the relationship between gambling and each grouping of social determinants and comorbid conditions. Driven by a combination of theory and statistical tests, models will be developed to explore the relationship between gambling and:

1. Social determinants
2. Trauma/life events model
3. Social capital
4. Trauma/life events/social capital
5. Comorbidities

It is envisaged that the models will then be combined into a final summary model.

## Appendix One: Technical report series

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This report is part of a series of technical reports commissioned by the Victorian Responsible Gambling Foundation.

*The Victorian Gambling Study: a longitudinal study of gambling and health in Victoria 2008–2012, Technical report one – Social determinants and co-morbidities: social determinants and co-morbidities of gamblers and non-gamblers.* The first technical report describes a secondary analysis of *The Victorian Gambling Study - A longitudinal study of gambling and health 2008-2012 (The Victorian Gambling Study)* (Billi, Stone, Abbott and Yeung 2014; Billi, Stone, Marden and Yeung 2014) which compares the social determinants, trauma and life events, social capital, and comorbidities between gamblers and non-gamblers over the four years of *The Victorian Gambling Study*.

*The Victorian Gambling Study: a longitudinal study of gambling and health in Victoria 2008–2012, Technical report two – Social determinants and co-morbidities: univariate analysis of gamblers.* The second technical report describes a secondary analysis of gamblers from the first year of *The Victorian Gambling Study*. Each of the variables describing the social determinants, trauma and life events, social capital, and comorbidities were explored to determine which have the best or strongest individual association with the PGSI score. It investigated which characteristics of the determinants were associated with an increase (more gambling problems) or a decrease (less gambling problems) in the PGSI score.

*The Victorian Gambling Study: a longitudinal study of gambling and health in Victoria 2008–2012, Technical report three – Social determinants and co-morbidities: multivariate models of trauma and social capital.* The third technical report describes a secondary analysis of *The Victorian Gambling Study* which examined in detail the complex interplay between social determinants, trauma and life events, and social capital, and their association with the PGSI score in gamblers. This multivariate analysis indicated which determinants best explain the PGSI score after having taken into account other important determinants.

*The Victorian Gambling Study: a longitudinal study of gambling and health in Victoria 2008–2012, Technical report four – Social determinants and co-morbidities: multivariate models of co-morbidities.* The fourth technical report describes a secondary analysis of *The Victorian Gambling Study* which examined in detail the complex interplay between social determinants and comorbidities, and their association with the PGSI score in gamblers. This multivariate analysis indicated which determinants best explain the PGSI score after having taken into account other important determinants.

## Appendix Two: Socio-demographics of gamblers and non-gamblers in 2008

This section describes the socio-demographic aspects of gamblers and non-gamblers in 2008. These are weighted population estimates of gambling participation (and non-participation) over the previous year.

Participation rates are explored in various subpopulations based on self-reported characteristics of respondents or where they live. Characteristics explored include age and gender, recent migration and speaking a language other than English at home, number of dependent children and household composition, speed of internet connection, education, occupation, employment and income, area of residence including metropolitan/rural and regional, level of EGM spend and 4 ABS measures of Socio-Economic Indexes For Area (SEIFA).

### Age and gender

Three quarters (73%) of the Victorian population gambled over the previous twelve months and just over a quarter (27%) did not. There was no significant difference in the proportion of males and females who gambled.

**Table 2 Participation in gambling: Total population and by gender**

	Non-gambler	Gambler	
Population	26.93 [25.99,27.88]	73.07 [72.12,74.01]	
Gender	Non-gambler	Gambler	OR
Female	27.07 [25.88,28.29]	72.93 [71.71,74.12]	
Male	26.78 [25.33,28.28]	73.22 [71.72,74.67]	1.01 (0.92,1.11)
Pearson:			
Uncorrected $\chi^2(1) = 0.1554$			
Design-based $F(1, 14977) = 0.0855$ $P = 0.7699$			

Participation in gambling activities increased with age and reached a peak between the ages of 45 and 64 years. Gambling participation was lowest at the youngest and oldest age groups.

**Table 3 Participation in gambling by age group**

Agegroup2008	Non-gambler	Gambler	OR
18-24 years	<b>36.89 [33.27,40.66]</b>	63.11 [59.34,66.73]	0.56 (0.46,0.68)
25-34 years	<b>31.50 [28.94,34.18]</b>	68.50 [65.82,71.06]	0.71 (0.61,0.84)
35-44 years	24.81 [22.89,26.83]	75.19 [73.17,77.11]	ref
45-54 years	20.32 [18.58,22.18]	<b>79.68 [77.82,81.42]</b>	<b>1.29 (1.10,1.50)</b>
55-64 years	21.41 [19.47,23.49]	<b>78.59 [76.51,80.53]</b>	<b>1.21 (1.03,1.42)</b>
65-74 years	24.25 [22.09,26.54]	75.75 [73.46,77.91]	1.03 (0.87,1.21)
75+ years	<b>34.45 [31.59,37.43]</b>	65.55 [62.57,68.41]	0.62 (0.53,0.74)
Pearson:			
Uncorrected $\chi^2(6) = 260.9862$			
Design-based $F(5.30, 79398.35) = 26.3883$ $P = 0.0000$			

Participation in gambling activities increased with age and for both males and females reached a peak between the ages of 45 and 64 years. Gambling participation was lowest at the youngest and oldest age groups.

**Table 4 Gambling participation by gender and age**

<b>Males</b>			
<b>Agegroup2008</b>	<b>Non-gambler</b>	<b>Gambler</b>	<b>OR</b>
18-24 years	<b>34.05 [29.02,39.48]</b>	65.95 [60.52,70.98]	0.65 (0.48,0.87)
25-34 years	<b>32.08 [28.08,36.36]</b>	67.92 [63.64,71.92]	0.71 (0.55,0.92)
35-44 years	25.20 [22.10,28.57]	74.80 [71.43,77.90]	
45-54 years	20.66 [17.97,23.64]	<b>79.34 [76.36,82.03]</b>	<b>1.29 (1.01,1.65)</b>
55-64 years	22.10 [19.07,25.46]	<b>77.90 [74.54,80.93]</b>	1.18 (0.92,1.52)
65-74 years	24.64 [21.47,28.12]	75.36 [71.88,78.53]	1.03 (0.80,1.31)
75+ years	31.89 [27.63,36.47]	68.11 [63.53,72.37]	0.71 (0.55,0.93)
Pearson: Uncorrected $\chi^2(6) = 73.8518$ Design-based $F(5.30, 30902.15) = 8.1144$ $P = 0.0000$			
<b>Females</b>			
<b>Agegroup2008</b>	<b>Non-gambler</b>	<b>Gambler</b>	<b>OR</b>
18-24 years	<b>39.83 [34.79,45.09]</b>	60.17 [54.91,65.21]	0.48 (0.38,0.62)
25-34 years	30.92 [27.82,34.20]	69.08 [65.80,72.18]	0.72 (0.59,0.87)
35-44 years	24.43 [22.21,26.79]	75.57 [73.21,77.79]	
45-54 years	19.98 [17.85,22.31]	<b>80.02 [77.69,82.15]</b>	<b>1.29 (1.07,1.56)</b>
55-64 years	20.74 [18.39,23.31]	<b>79.26 [76.69,81.61]</b>	<b>1.23 (1.01,1.50)</b>
65-74 years	23.92 [21.05,27.04]	76.08 [72.96,78.95]	1.02 (0.83,1.26)
75+ years	<b>36.41 [32.63,40.37]</b>	63.59 [59.63,67.37]	0.56 (0.45,0.69)
Pearson: Uncorrected $\chi^2(6) = 215.2288$ Design-based $F(5.20, 47459.41) = 21.6513$ $P = 0.0000$			

## Migration, dependent children, household composition, internet connections

Those who migrated in last five years have significantly lower participation rates than those who did not.

**Table 5 Gambling participation and migration in last five years**

<b>Migrated in last 5 years</b>	<b>Non-gambler</b>	<b>Gambler</b>	<b>OR</b>
yes	<b>50.45 [45.29,55.61]</b>	49.55 [44.39,54.71]	0.33 (0.27,0.42)
no	25.68 [24.74,26.65]	74.32 [73.35,75.26]	
Pearson: Uncorrected $\chi^2(1) = 222.8488$ Design-based $F(1, 14977) = 107.1579$ $P = 0.0000$			

Those who speak a language other than English (LOTE) have significantly lower participation rates than those who do not.

**Table 6 Gambling participation and speaking a language other than English at home**

<b>LOTE</b>	<b>Non-gambler</b>	<b>Gambler</b>	<b>OR</b>
yes	<b>41.09 [38.73,43.50]</b>	58.91 [56.50,61.27]	0.43 (0.38,0.48)
no	23.35 [22.35,24.37]	<b>76.65 [75.63,77.65]</b>	
Pearson: Uncorrected $\chi^2(1) = 386.8276$ Design-based $F(1, 14977) = 210.8909$ $P = 0.0000$			

Gambling participation is highest in households with three dependent children and lowest in households with four or more dependent children. These differences are not significantly different from the population average.

**Table 7 Gambling participation and number of dependent children**

<b>No of dependent children</b>	<b>Non-gambler</b>	<b>Gambler</b>	<b>OR</b>
no children	26.87 [25.67,28.11]	73.13 [71.89,74.33]	
One child	27.93 [25.48,30.53]	72.07 [69.47,74.52]	0.94 (0.82,1.09)
Two children	26.61 [24.35,28.99]	73.39 [71.01,75.65]	1.01 (0.88,1.15)
Three children	23.98 [20.98,27.26]	76.02 [72.74,79.02]	1.16 (0.97,1.39)
Four or more	33.73 [27.55,40.53]	66.27 [59.47,72.45]	0.72 (0.53,0.97)
Pearson: Uncorrected $\chi^2(4) = 18.3258$ Design-based $F(3.97, 59436.37) = 2.2579$ $P = 0.0609$			

Gambling participation is highest for those with dial up internet connection and lowest for other connection or 'don't know/refused' group. These differences are only significant different from the population average for the 'don't know/refused' group.

**Table 8 Gambling participation and speed of internet.**

<b>Speed of internet connection</b>	<b>Non-gambler</b>	<b>Gambler</b>	<b>OR</b>
no internet	28.12 [26.38,29.94]	71.88 [70.06,73.62]	0.90 (0.81,1.00)
broadband	26.11 [24.93,27.33]	73.89 [72.67,75.07]	
dialup	23.64 [20.52,27.08]	76.36 [72.92,79.48]	1.14 (0.94,1.38)
other connection	38.57 [23.79,55.80]	61.43 [44.20,76.21]	0.56 (0.27,1.13)
DK/Refused	<b>37.67 [33.17,42.40]</b>	62.33 [57.60,66.83]	0.58 (0.47,0.71)
Pearson: Uncorrected $\chi^2(4) = 56.6843$ Design-based $F(3.96, 59308.29) = 8.6802$ $P = 0.0000$			



Gambling participation was highest (not significant) for households of couples without children and significantly lower than the population average for participants who lived in group households or other households/don't know/refused group.

**Table 9 Gambling participation and household composition**

Household type 2008	Non-gambler	Gambler	OR
Couple with children	26.14 [24.72,27.61]	73.86 [72.39,75.28]	
One parent family	26.96 [23.64,30.56]	73.04 [69.44,76.36]	0.95 (0.79,1.16)
Other family	28.16 [23.33,33.56]	71.84 [66.44,76.67]	0.90 (0.69,1.17)
Couple without children	24.97 [23.40,26.62]	75.03 [73.38,76.60]	1.06 (0.94,1.19)
Group household	<b>38.29 [32.69,44.22]</b>	61.71 [55.78,67.31]	0.57 (0.44,0.73)
Lone person household	28.95 [26.93,31.06]	71.05 [68.94,73.07]	0.86 (0.76,0.98)
Other Household /DK/refused	<b>43.52 [30.61,57.37]</b>	56.48 [42.63,69.39]	0.45 (0.26,0.80)
Pearson:			
Uncorrected $\chi^2(6) = 72.6911$			
Design-based $F(5.47, 81956.21) = 6.7106$ $P = 0.0000$			

## Education, employment and income

Generally gambling participation decreased as education level increased. Participants with bachelor or post graduate degree participated in gambling significantly less than the general population. Those with year 12 education or less had significantly higher participation rates than the general population.

**Table 10 Gambling participation and educational level achieved.**

Education	Non-gambler	Gambler	OR
Post-graduate degree	<b>32.72 [29.88,35.69]</b>	67.28 [64.31,70.12]	0.56 (0.47,0.65)
Bachelor's degree	<b>32.16 [29.82,34.58]</b>	67.84 [65.42,70.18]	0.57 (0.50,0.66)
Advanced diploma /diploma /certificate / trade qualification	24.56 [22.48,26.77]	75.44 [73.23,77.52]	0.83 (0.72,0.97)
Completed year 12	27.71 [25.57,29.96]	72.29 [70.04,74.43]	0.71 (0.61,0.82)
Schooling year 10 and less	21.44 [19.97,22.99]	<b>78.56 [77.01,80.03]</b>	
DK/refused	<b>39.17 [31.60,47.28]</b>	60.83 [52.72,68.40]	0.42 (0.30,0.59)
Pearson:			
Uncorrected $\chi^2(5) = 154.4635$			
Design-based $F(4.89, 73198.11) = 18.2532$ $P = 0.0000$			

Gambling participation was significantly higher in those who were employed full-time and significantly lower in those who were unemployed, not in the labour force and responded 'don't know/refused'.

**Table 11 Gambling participation and employment**

Employment 2008	Non-gambler	Gambler	OR
Employed F/T	23.55 [22.12,25.05]	<b>76.45 [74.95,77.88]</b>	
Employed P/T	27.15 [25.04,29.37]	72.85 [70.63,74.96]	0.82 (0.72,0.94)
Unemployed looking for work	<b>37.22 [31.21,43.64]</b>	62.78 [56.36,68.79]	0.51 (0.39,0.68)
Not in labour force	<b>30.14 [28.65,31.68]</b>	69.86 [68.32,71.35]	0.71 (0.64,0.79)
DK/Refused	<b>49.35 [31.29,67.59]</b>	50.65 [32.41,68.71]	0.31 (0.14,0.67)

Pearson:

Uncorrected  $\chi^2(4) = 100.7982$ Design-based  $F(3.81, 57076.58) = 13.9475$   $P = 0.0000$ 

Managers have significantly higher gambling participation rates. Professionals (approaching significance) and the 'don't know/refused' group have significantly lower participation rates than the general population.

**Table 12 Gambling participation and occupation**

Occupation 2008	Non-gambler	Gambler	OR
Manager	19.47 [16.77,22.47]	<b>80.53 [77.53,83.23]</b>	<b>1.34 (1.07,1.68)</b>
Professional	30.57 [27.75,33.54]	69.43 [66.46,72.25]	0.74 (0.61,0.89)
Technicians and trades workers	24.32 [21.09,27.88]	75.68 [72.12,78.91]	1.01 (0.80,1.27)
Community and personal service worker	23.49 [19.90,27.51]	76.51 [72.49,80.10]	1.06 (0.82,1.36)
Clerical and administrative worker	23.13 [17.91,29.34]	76.87 [70.66,82.09]	1.08 (0.76,1.53)
Sales worker	24.58 [22.27,27.05]	75.42 [72.95,77.73]	ref
Machinery operators and drivers	21.29 [16.74,26.69]	78.71 [73.31,83.26]	1.20 (0.87,1.66)
Labourers	29.53 [25.76,33.60]	70.47 [66.40,74.24]	0.77 (0.61,0.97)
DK/refused	<b>43.48 [33.39,54.14]</b>	56.52 [45.86,66.61]	0.42 (0.27,0.66)
Pearson:			
Uncorrected $\chi^2(8) = 95.1706$			
Design-based $F(7.83, 72871.66) = 6.2983$ $P = 0.0000$			

Generally participation rates increase as household income increases. Participation rates are significantly higher for household incomes \$800 and over per week. They are significantly lower for the negative/nil income group and the 'don't know/refused' group.

**Table 13 Gambling participation and household income.**

Household income 2008	Non-gambler	Gambler	OR
Negative/nil income	<b>46.84 [36.78,57.15]</b>	53.16 [42.85,63.22]	0.64 (0.42,0.98)
\$1–\$499	26.58 [23.92,29.41]	73.42 [70.59,76.08]	<b>1.56 (1.33,1.83)</b>
\$500–\$799	25.54 [22.70,28.61]	74.46 [71.39,77.30]	<b>1.65 (1.38,1.96)</b>
\$800–\$1199	22.76 [20.32,25.40]	<b>77.24 [74.60,79.68]</b>	<b>1.92 (1.63,2.26)</b>
\$1200–\$1699	20.87 [18.44,23.53]	<b>79.13 [76.47,81.56]</b>	<b>2.14 (1.80,2.54)</b>
\$1700–\$2499	18.12 [16.06,20.38]	<b>81.88 [79.62,83.94]</b>	<b>2.55 (2.17,3.01)</b>
\$2500 plus	17.69 [15.08,20.63]	<b>82.31 [79.37,84.92]</b>	<b>2.63 (2.14,3.23)</b>
DK/Refused	<b>36.15 [34.41,37.93]</b>	63.85 [62.07,65.59]	
Pearson:			
Uncorrected $\chi^2(7) = 462.6805$			
Design-based $F(6.66, 99721.41) = 41.5672$ $P = 0.0000$			

Generally participation rates increase as personal income increases. Participation rates are significantly higher for personal incomes of \$800 and over per week. They are significantly lower for the negative/nil income group and the 'don't know/refused' group.

**Table 14 Gambling participation and personal income.**

<b>Personal Income 2008</b>	<b>Non-gambler</b>	<b>Gambler</b>	<b>OR</b>
Negative/nil income	36.93 [33.14,40.88]	63.07 [59.12,66.86]	0.88 (0.73,1.06)
\$1–\$249	27.27 [24.31,30.44]	72.73 [69.56,75.69]	<b>1.38 (1.16,1.64)</b>
\$250–\$399	26.79 [23.87,29.93]	73.21 [70.07,76.13]	<b>1.41 (1.18,1.68)</b>
\$400–\$599	23.30 [20.36,26.52]	76.70 [73.48,79.64]	<b>1.70 (1.40,2.06)</b>
\$600–\$799	23.47 [20.19,27.11]	76.53 [72.89,79.81]	<b>1.68 (1.37,2.08)</b>
\$800–\$999	21.08 [18.02,24.50]	<b>78.92 [75.50,81.98]</b>	<b>1.94 (1.57,2.39)</b>
\$1,000–\$299	19.34 [16.49,22.56]	<b>80.66 [77.44,83.51]</b>	<b>2.16 (1.74,2.66)</b>
\$1,300 plus	18.01 [15.74,20.52]	<b>81.99 [79.48,84.26]</b>	<b>2.35 (1.96,2.82)</b>
DK/Refused	34.13 [32.32,35.98]	65.87 [64.02,67.68]	
Pearson: Uncorrected $\chi^2(8) = 320.3781$ Design-based $F(7.95, 1.2e+05) = 21.6542$ $P = 0.0000$			

## Area level parameters

Gambling participation varies by where people live.

### Metropolitan and rural and regional areas

Gambling participation is significantly higher in residents of rural and regional government regions of Victoria and significantly lower in residents of the metropolitan regions.

**Table 15 Gambling participation and metro/rural residence**

<b>Metro/rural</b>	<b>Non-gambler</b>	<b>Gambler</b>	<b>OR</b>
Metro	<b>29.44 [28.32,30.59]</b>	70.56 [69.41,71.68]	
Rural and regional	19.88 [18.23,21.63]	<b>80.12 [78.37,81.77]</b>	<b>1.68 (1.49,1.89)</b>
Pearson: Uncorrected $\chi^2(1) = 135.1164$ Design-based $F(1, 14977) = 73.4515$ $P = 0.0000$			

## Electronic gaming machine expenditure areas

Local government areas (LGAs) were divided into low, medium and high electronic gaming machine (EGM) expenditure areas. All except one of the eight government regions had all three levels of EGM spending. Gippsland had only high and medium spend areas.

Non-gamblers were over-represented in the Eastern low and North and Western medium EGM spend and under-represented in the North and Western low spend areas, Barwon South Western medium and high spend areas, Hume medium spend areas and Loddon Mallee high spend areas. Gamblers were over-represented in the Loddon Mallee high spend areas.

Using the North and Western high spend area as the reference, areas with higher odds of being gamblers were North and Western low spend, Barwon South Western medium and high spend, Gippsland high spend, Grampians medium and high spend, Hume medium and high spend, and Loddon Mallee high. Eastern low spend areas had a significantly lower odds of being a gambler.

Notes: Rural areas were higher than metro. NW low is higher than NW high? This is unexpected.

**Table 16 Gambling participation and region EGM spend band**

<b>EGM spend band</b>		<b>Non gambler</b>	<b>Gambler</b>	<b>OR</b>
Eastern	Low	<b>37.42 [31.39,43.87]</b>	62.58 [56.13,68.61]	0.66 (0.50,0.88)
Eastern	Medium	29.90 [25.79,34.37]	70.10 [65.63,74.21]	0.93 (0.74,1.17)
Eastern	High	28.66 [26.44,31.00]	71.34 [69.00,73.56]	0.99 (0.85,1.14)
North and Western	Low	20.34 [16.63,24.63]	<b>79.66 [75.37,83.37]</b>	<b>1.56 (1.19,2.03)</b>
North and Western	Medium	<b>32.03 [28.81,35.42]</b>	67.97 [64.58,71.19]	0.84 (0.70,1.01)
North and Western	High	28.50 [26.61,30.47]	71.50 [69.53,73.39]	
Southern	Low	29.03 [23.01,35.90]	70.97 [64.10,76.99]	0.97 (0.70,1.35)
Southern	Medium	29.84 [25.97,34.02]	70.16 [65.98,74.03]	0.93 (0.75,1.16)
Southern	High	26.52 [24.45,28.69]	73.48 [71.31,75.55]	1.10 (0.95,1.27)
Barwon S/W	Low	21.80 [14.35,31.68]	78.20 [68.32,85.65]	1.42 (0.85,2.39)
Barwon S/W	Medium	17.05 [12.08,23.51]	<b>82.95 [76.49,87.92]</b>	<b>1.93 (1.28,2.93)</b>
Barwon S/W	High	20.85 [17.38,24.80]	<b>79.15 [75.20,82.62]</b>	<b>1.51 (1.18,1.93)</b>
Gippsland	Medium	25.99 [19.63,33.55]	74.01 [66.45,80.37]	1.13 (0.77,1.65)
Gippsland	High	20.71 [16.18,26.13]	79.29 [73.87,83.82]	<b>1.52 (1.11,2.09)</b>
Grampian	Low	26.34 [16.18,39.85]	73.66 [60.15,83.82]	1.11 (0.59,2.07)
Grampian	Medium	16.51 [10.52,24.94]	<b>83.49 [75.06,89.48]</b>	<b>2.01 (1.18,3.41)</b>
Grampian	High	20.01 [15.50,25.43]	<b>79.99 [74.57,84.50]</b>	<b>1.59 (1.15,2.20)</b>
Hume	Low	21.82 [12.47,35.34]	78.18 [64.66,87.53]	1.42 (0.72,2.81)
Hume	Medium	11.64 [7.00,18.73]	<b>88.36 [81.27,93.00]</b>	<b>3.02 (1.71,5.33)</b>
Hume	High	20.57 [16.56,25.27]	<b>79.43 [74.73,83.44]</b>	<b>1.53 (1.15,2.04)</b>
Loddon-Mallee	Low	26.70 [18.31,37.20]	73.30 [62.80,81.69]	1.09 (0.66,1.79)
Loddon-Mallee	Medium	20.54 [13.17,30.59]	79.46 [69.41,86.83]	1.54 (0.89,2.64)
Loddon-Mallee	High	16.89 [13.60,20.80]	<b>83.11 [79.20,86.40]</b>	<b>1.96 (1.49,2.57)</b>
Pearson:				
Uncorrected chi2(22) = 203.3745				
Design-based F(16.77, 2.5e+05)= 5.1290 P = 0.0000				

## ABS SEIFA area categories

The first decile consists of Victorian postcodes with the 10<sup>th</sup> lowest values for the SEIFA variable. The 10<sup>th</sup> decile consists of the 10<sup>th</sup> highest values for the SEIFA variables.

In general gambling participation rates are higher in second and/or third decile and lower for the 9<sup>th</sup> and/or 10<sup>th</sup> of the SEIFA variables.

- The Index of Relative Socio-Economic Disadvantage (IRSD): Those in the third lowest decile were less likely to be non-gamblers. Compared with the 9<sup>th</sup> decile those in the 2<sup>nd</sup> to 5<sup>th</sup> decile, and in the 7<sup>th</sup> decile had higher odds of being gamblers.
- The Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD): Those in the third lowest decile were less likely to be non-gamblers. Compared with the 9<sup>th</sup> decile those in the 2<sup>nd</sup> to 8<sup>th</sup> decile had higher odds of being gamblers.

- The Index of Education and Occupation (IEO): Those in the third lowest decile were less likely to be non-gamblers and in the 10<sup>th</sup> decile were more likely to be non-gamblers. Compared with the 10<sup>th</sup> decile those in the 2<sup>nd</sup> to 8<sup>th</sup> decile had higher odds of being gamblers.
- The Index of Economic Resources (IER): Those in the second lowest decile were less likely to be non-gamblers. Compared with the 1<sup>st</sup> decile those in the 2<sup>nd</sup> to 6<sup>th</sup> decile, and in the 8<sup>th</sup> decile had higher odds of being gamblers.

Table 17 Gambling participation and ABS decile for IRSD

IRSD	Non-gambler	Gambler	OR
1	<b>30.78 [28.06,33.64]</b>	69.22 [66.36,71.94]	0.94 (0.79,1.12)
2	25.00 [21.93,28.35]	75.00 [71.65,78.07]	<b>1.25 (1.02,1.55)</b>
3	19.66 [16.70,23.00]	<b>80.34 [77.00,83.30]</b>	<b>1.71 (1.35,2.16)</b>
4	24.44 [21.55,27.59]	75.56 [72.41,78.45]	<b>1.29 (1.05,1.59)</b>
5	23.73 [20.94,26.76]	76.27 [73.24,79.06]	<b>1.35 (1.10,1.65)</b>
6	26.32 [23.22,29.67]	73.68 [70.33,76.78]	1.17 (0.95,1.44)
7	25.50 [22.56,28.68]	74.50 [71.32,77.44]	<b>1.22 (1.00,1.50)</b>
8	26.38 [23.99,28.91]	73.62 [71.09,76.01]	1.17 (0.98,1.39)
9	29.58 [27.13,32.15]	70.42 [67.85,72.87]	
10	<b>31.35 [27.98,34.93]</b>	68.65 [65.07,72.02]	0.91 (0.75,1.12)
9999	45.14 [23.95,68.25]	54.86 [31.75,76.05]	0.51 (0.19,1.34)
Pearson: Uncorrected $\chi^2(10) = 82.2611$ Design-based $F(9.74, 1.5e+05) = 4.8068$ $P = 0.0000$			

Table 18 Gambling participation and ABS decile for IRSAD

IRSAD	Non-gambler	Gambler	OR
1	30.76 [27.12,34.66]	69.24 [65.34,72.88]	0.98 (0.79,1.20)
2	24.84 [21.48,28.54]	75.16 [71.46,78.52]	<b>1.32 (1.06,1.64)</b>
3	21.03 [18.02,24.39]	<b>78.97 [75.61,81.98]</b>	<b>1.63 (1.31,2.04)</b>
4	21.68 [17.70,26.26]	78.32 [73.74,82.30]	<b>1.57 (1.19,2.07)</b>
5	22.96 [20.15,26.04]	77.04 [73.96,79.85]	<b>1.46 (1.20,1.78)</b>
6	25.83 [22.42,29.56]	74.17 [70.44,77.58]	<b>1.25 (1.01,1.55)</b>
7	25.35 [22.97,27.89]	74.65 [72.11,77.03]	<b>1.28 (1.08,1.52)</b>
8	26.38 [24.12,28.78]	73.62 [71.22,75.88]	<b>1.21 (1.03,1.43)</b>
9	<b>30.40 [28.16,32.72]</b>	69.60 [67.28,71.84]	
10	<b>30.99 [28.10,34.03]</b>	69.01 [65.97,71.90]	0.97 (0.81,1.15)
9999	45.14 [23.95,68.25]	54.86 [31.75,76.05]	0.53 (0.20,1.39)
Pearson: Uncorrected $\chi^2(10) = 88.5126$ Design-based $F(9.80, 1.5e+05) = 5.2166$ $P = 0.0000$			

**Table 19 Gambling participation and ABS decile for IEO**

IEO	Non-gambler	Gambler	OR
1	29.62 [26.75,32.66]	70.38 [67.34,73.25]	1.16 (0.96,1.41)
2	21.53 [18.90,24.40]	<b>78.47 [75.60,81.10]</b>	<b>1.78 (1.45,2.20)</b>
3	22.36 [19.65,25.34]	<b>77.64 [74.66,80.35]</b>	<b>1.70 (1.38,2.09)</b>
4	24.15 [21.22,27.36]	75.85 [72.64,78.78]	<b>1.54 (1.24,1.90)</b>
5	25.17 [22.43,28.12]	74.83 [71.88,77.57]	<b>1.45 (1.19,1.78)</b>
6	24.57 [20.82,28.76]	75.43 [71.24,79.18]	<b>1.50 (1.17,1.93)</b>
7	24.61 [21.53,27.98]	75.39 [72.02,78.47]	<b>1.50 (1.20,1.86)</b>
8	27.10 [24.18,30.24]	72.90 [69.76,75.82]	<b>1.31 (1.07,1.61)</b>
9	29.73 [27.31,32.26]	70.27 [67.74,72.69]	1.15 (0.97,1.38)
10	<b>32.92 [30.12,35.84]</b>	67.08 [64.16,69.88]	
9999	45.14 [23.95,68.25]	54.86 [31.75,76.05]	0.59 (0.22,1.57)
Pearson: Uncorrected $\chi^2(10) = 107.3512$ Design-based $F(9.85, 1.5e+05) = 6.2729$ $P = 0.0000$			

**Table 20 Gambling participation and ABS decile for IER**

IER	Non-gambler	Gambler	OR
1	<b>30.63 [28.16,33.22]</b>	69.37 [66.78,71.84]	
2	20.74 [18.11,23.64]	<b>79.26 [76.36,81.89]</b>	<b>1.68 (1.37,2.07)</b>
3	24.51 [21.27,28.07]	75.49 [71.93,78.73]	<b>1.36 (1.09,1.69)</b>
4	25.73 [22.85,28.84]	74.27 [71.16,77.15]	<b>1.27 (1.04,1.55)</b>
5	26.32 [23.40,29.48]	73.68 [70.52,76.60]	<b>1.23 (1.01,1.50)</b>
6	24.45 [21.46,27.71]	75.55 [72.29,78.54]	<b>1.36 (1.10,1.67)</b>
7	28.69 [25.67,31.90]	71.31 [68.10,74.33]	1.09 (0.90,1.33)
8	26.76 [24.06,29.64]	73.24 [70.36,75.94]	<b>1.20 (1.00,1.45)</b>
9	28.74 [25.95,31.70]	71.26 [68.30,74.05]	1.09 (0.91,1.31)
10	28.23 [25.09,31.60]	71.77 [68.40,74.91]	1.12 (0.91,1.37)
9999	45.14 [23.95,68.25]	54.86 [31.75,76.05]	0.53 (0.20,1.41)
Pearson: Uncorrected $\chi^2(10) = 55.6932$ Design-based $F(9.81, 1.5e+05) = 3.2197$ $P = 0.0004$			

**Table 21 Gambling participation and ABS SEIFA decile for all four SEIFA types**

<b>SEIFA summary table</b>	<b>Gamblers</b>			
Decile_Vic	IRSD	IRSAD	IEO	IER
1	69.22 [66.36,71.94]	69.24 [65.34,72.88]	70.38 [67.34,73.25]	69.37 [66.78,71.84]
2	75.00 [71.65,78.07]	75.16 [71.46,78.52]	<b>78.47 [75.60,81.10]</b>	<b>79.26 [76.36,81.89]</b>
3	<b>80.34 [77.00,83.30]</b>	<b>78.97 [75.61,81.98]</b>	<b>77.64 [74.66,80.35]</b>	75.49 [71.93,78.73]
4	75.56 [72.41,78.45]	78.32 [73.74,82.30]	75.85 [72.64,78.78]	74.27 [71.16,77.15]
5	76.27 [73.24,79.06]	77.04 [73.96,79.85]	74.83 [71.88,77.57]	73.68 [70.52,76.60]
6	73.68 [70.33,76.78]	74.17 [70.44,77.58]	75.43 [71.24,79.18]	75.55 [72.29,78.54]
7	74.50 [71.32,77.44]	74.65 [72.11,77.03]	75.39 [72.02,78.47]	71.31 [68.10,74.33]
8	73.62 [71.09,76.01]	73.62 [71.22,75.88]	72.90 [69.76,75.82]	73.24 [70.36,75.94]
9	70.42 [67.85,72.87]	69.60 [67.28,71.84]	70.27 [67.74,72.69]	71.26 [68.30,74.05]
10	68.65 [65.07,72.02]	69.01 [65.97,71.90]	67.08 [64.16,69.88]	71.77 [68.40,74.91]
9999	54.86 [31.75,76.05]	54.86 [31.75,76.05]	54.86 [31.75,76.05]	54.86 [31.75,76.05]
Chi2	82.26	88.51	107.35	55.69

## Appendix Three: Socio-demographics of gamblers and non-gamblers: waves 1, 2, 3 and 4 – unweighted samples

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This section describes gambling and non-gambling rates for people who participated in each of the four waves of the longitudinal study. These results are unweighted rates of gambling participation (and non-participation) over the previous year.

It also provides a breakdown by various socio-demographics aspects. Participation rates are explored in various subpopulations based on self-reported characteristics of respondents or where they live. Characteristics explored include age and gender, visa type and household composition, education, occupation, employment and income. Participation rates for the subpopulation are compared with participation rates for the full sample for that year (wave).

### Gambling participation

In wave one, the unweighted participation rate can be compared with the weighted participation rate. The unweighted participation rate is significantly higher than the weighted participation rate. Over the four waves there was an increase in proportion of the sample who participated in gambling over time. This is probably due to increased retention of gamblers rather than an increase in gambling per se. The greatest increase in the proportion of gamblers occurred between Wave 1 and Wave 2.

### Age and gender

The proportion of gamblers for males and females were not significantly different from the total sample. An increase in the proportion of gamblers is seen for both males and females, however this increase was higher for females than males as the sample changed over the four years.

In wave one, the proportion of gamblers was higher in the 45 to 64 years olds and lower in the youngest age group (18 to 24) and the oldest age group (75 years and over). Over the 4 years, the proportion of gamblers increased across almost all age groups. Growth was strongest for those who were in the 35-44 age group in 2008 and weakest for those 75 and over.



**Table 22 Participation in gambling: All waves and by gender and age unweighted**

	<b>Gamblers</b>			
	<b>W1</b>	<b>W2</b>	<b>W3</b>	<b>W4</b>
<b>Weighted participation</b>	73.07 (72.12, 74.01)			
<b>Unweighted participation</b>	74.90 (74.21, 75.59)	85.69 (84.72, 86.66)	86.01 (85.11, 86.92)	87.27 (86.20, 88.35)
<b>Gender</b>				
female	74.95 (74.06, 75.84)	87.00 (85.79, 88.20)	87.23 (86.11, 88.34)	89.10 (87.81, 90.39)
male	74.82 (73.71, 75.93)	83.72 (82.10, 85.34)	84.12 (82.59, 85.65)	84.46 (82.59, 86.32)
<b>Age group in 2008</b>				
18-24	63.92 (60.92, 66.93)	78.23 (73.31, 83.15)	80.87 (76.40, 85.35)	83.89 (78.50, 89.28)
25-34	70.78 (68.73, 72.84)	84.02 (80.76, 87.27)	85.79 (82.83, 88.76)	85.03 (81.20, 88.86)
35-44	76.88 (75.37, 78.40)	<b>89.97 (88.06, 91.87)</b>	<b>90.18 (88.42, 91.95)</b>	<b>92.02 (90.05, 93.99)</b>
45-54	<b>79.65 (78.22, 81.08)</b>	86.86 (84.91, 88.81)	88.23 (86.48, 89.98)	88.61 (86.53, 90.68)
55-64	<b>79.26 (77.74, 80.77)</b>	87.48 (85.49, 89.46)	85.82 (83.87, 87.77)	86.98 (84.70, 89.26)
65-74	74.85 (72.92, 76.77)	84.01 (81.22, 86.80)	84.18 (81.56, 86.80)	87.45 (84.47, 90.42)
75+	65.41 (62.95, 67.87)	77.08 (72.94, 81.22)	76.02 (71.92, 80.12)	74.27 (68.74, 79.81)

## Household composition

There was an increase in the proportion of gamblers between W1 and W3/W4 across all subpopulations of household composition. In wave 1 the proportion of gamblers was lower in group households and lone person households. In wave 3 lone person households had a lower proportion of gamblers than the wave 3 sample overall.

**Table 23 Participation in gambling and household composition**

	<b>Gamblers</b>			
	<b>W1</b>	<b>W2</b>	<b>W3</b>	<b>W4</b>
<b>Household composition</b>				
Couple with child or children	76.38 (75.32, 77.44)		88.02 (86.67, 89.37)	89.66 (88.09, 91.23)
One parent family	76.51 (74.09, 78.94)		88.10 (84.90, 91.30)	87.08 (83.08, 91.09)
Other family	74.31 (70.50, 78.12)		85.31 (80.08, 90.54)	89.56 (85.10, 94.02)
Couple without children	75.86 (74.53, 77.20)		84.93 (83.20, 86.66)	85.58 (83.44, 87.71)
Group household (not related)	64.23 (59.59, 68.87)		85.84 (79.38, 92.30)	86.79 (77.59, 96.00)
Lone person	71.65 (69.94, 73.35)		82.53 (80.18, 84.89)	84.03 (81.20, 86.86)
Other Household/DK/Refused	59.78 (49.71, 69.86)		88.14 (79.81, 96.46)	88.14 (79.81, 96.46)

## Education, employment, occupation and income

There was an increase in the proportion of gamblers between W1 and W3/W4 across all subpopulations of education, employment, occupation and income.

Gambling participation was particularly high in those who were schooled to year 10 or less in wave 1 (79%) and wave 4 (91%). It was higher in those who were employed full-time in wave 1 (79%) and in wave 3 (89%). It was higher in managers (w1 82%, w3 91%, w4 92%), Community and personal service workers (w1 80%), Clerical and administrative work (w1 80%, w3 93%, w4 95%), sales workers (w1 79%), Machinery operators and drivers (w1 81%), occupation 'don't know/refused' (w4 96%).

**Table 24 Participation in gambling and education, employment and occupation**

	<b>Gamblers</b>			
	<b>W1</b>	<b>W2</b>	<b>W3</b>	<b>W4</b>
<b>Education</b>				
post-graduate degree	68.80 (66.53, 71.06)		83.51 (80.70, 86.31)	82.51 (78.98, 86.04)
bachelors degree	71.21 (69.47, 72.94)		83.97 (81.75, 86.19)	85.24 (82.61, 87.88)
advanced diploma/diploma/certifi	77.05 (75.51, 78.58)		85.97 (84.06, 87.89)	86.37 (84.09, 88.66)
completed year 12	74.45 (72.89, 76.01)		87.32 (85.20, 89.43)	88.03 (85.36, 90.70)
schooling year 10 or less	<b>78.65 (77.47, 79.82)</b>		87.73 (86.16, 89.31)	<b>91.08 (89.40, 92.77)</b>
dk or refused	62.93 (56.70, 69.16)		69.23 (43.11, 95.35)	75.00 (57.30, 92.70)
<b>Employment</b>				
Employed, work full-time	<b>78.58 (77.51, 79.65)</b>		<b>88.64 (87.26, 90.01)</b>	89.34 (87.69, 91.00)
Employed, work part-time	76.81 (75.36, 78.27)		87.97 (86.26, 89.67)	89.44 (87.48, 91.40)
Unemployed	66.67 (62.12, 71.21)		80.47 (73.57, 87.37)	78.79 (70.69, 86.88)
Not in labour force/not looking	70.95 (69.77, 72.13)		82.44 (80.79, 84.09)	84.29 (82.32, 86.26)
DK/Refused	45.00 (29.39, 60.61)		50.00 (-6.59, 106.59)	50.00 (-48.03, 148.03)
<b>Occupation</b>				
Not in labour force/not looking	70.95 (69.77, 72.13)		82.44 (80.79, 84.09)	84.29 (82.32, 86.26)
Manager	<b>82.08 (80.00, 84.16)</b>		<b>90.73 (88.17, 93.28)</b>	<b>92.08 (89.30, 94.85)</b>
Professional	72.37 (70.21, 74.53)		86.12 (84.22, 88.01)	87.16 (84.87, 89.46)
Technicians and trades workers	77.36 (74.86, 79.85)		87.08 (84.23, 89.93)	85.28 (80.70, 89.86)
Community and personal service w	<b>79.59 (76.94, 82.25)</b>		90.07 (86.57, 93.57)	87.82 (83.65, 91.98)
Clerical and administrative work	<b>80.22 (76.15, 84.29)</b>		<b>93.36 (91.10, 95.62)</b>	<b>95.27 (92.93, 97.61)</b>
Sales worker	<b>78.71 (77.07, 80.35)</b>		88.81 (85.15, 92.47)	84.29 (79.12, 89.47)
Machinery operators and drivers	<b>80.91 (77.62, 84.20)</b>		85.71 (79.58, 91.85)	89.74 (82.96, 96.52)
Labourers	73.85 (71.06, 76.64)		83.87 (77.37, 90.37)	88.33 (82.56, 94.10)
DK/refused	62.24 (54.26, 70.21)		71.43 (54.38, 88.47)	<b>95.74 (89.91, 101.58)</b>

Gambling participation was particularly high in those with household incomes in w1 of \$800 and higher (\$41,600 and over), in w3 of \$1700 and higher (\$88,400 and over), and w4 of \$2500 and over (\$130,000 and over). It was higher in those with personal incomes in w1 of \$400 and over (\$20,800 and over), in w3 of \$800 and over (\$41,600 and over) and in W4 in the \$400 - \$599 (\$20,800–\$31,199).

**Table 25 Participation in gambling and income**

	<b>Gamblers</b>			
	<b>W1</b>	<b>W2</b>	<b>W3</b>	<b>W4</b>
<b>Household income</b>				
Negative/nil income	60.31 (51.89, 68.72)		82.61 (66.77, 98.45)	88.89 (67.1, 110.67)
\$1–\$499 (\$1–\$25,999)	74.49 (72.47, 76.52)		82.13 (79.09, 85.17)	85.37 (81.79, 88.95)
\$500–\$799 (\$26,000–\$41,599)	77.13 (74.84, 79.42)		85.71 (82.99, 88.43)	87.83 (84.69, 90.96)
\$800–\$1199 (\$41,600–\$62,399)	<b>79.18 (77.30, 81.05)</b>		85.63 (83.00, 88.27)	86.59 (83.62, 89.56)
\$1200–\$1699 (\$62,400–\$88,399)	<b>80.60 (78.68, 82.52)</b>		86.88 (84.37, 89.38)	86.83 (83.86, 89.79)
\$1700–\$2499 (\$88,400–\$129,999)	<b>82.17 (80.42, 83.92)</b>		<b>90.06 (88.08, 92.03)</b>	90.48 (88.14, 92.81)
\$2500 and over (\$130,000 and over)	<b>83.66 (81.66, 85.67)</b>		<b>91.30 (89.44, 93.16)</b>	<b>90.59 (88.36, 92.82)</b>
DK/Refused	66.85 (65.58, 68.13)		81.04 (78.81, 83.26)	82.29 (79.28, 85.29)
<b>Personal income</b>				
Negative/nil income	68.29 (65.47, 71.11)		84.02 (79.41, 88.62)	81.48 (74.90, 88.06)
\$1–\$249 (\$1–\$12,999)	74.15 (71.81, 76.49)		84.05 (80.43, 87.67)	87.79 (83.81, 91.76)
\$250–\$399 (\$13,000–\$20,799)	75.22 (73.11, 77.33)		84.85 (82.24, 87.46)	87.29 (84.31, 90.28)
\$400–\$599 (\$20,800–\$31,199)	<b>77.82 (75.68, 79.97)</b>		86.94 (84.50, 89.38)	<b>88.85 (86.11, 91.58)</b>
\$600–\$799 (\$31,200–\$41,599)	<b>79.51 (77.16, 81.85)</b>		85.90 (82.99, 88.80)	88.56 (85.44, 91.67)
\$800–\$999 (\$41,600–\$51,999)	<b>80.67 (78.40, 82.95)</b>		<b>89.71 (87.01, 92.42)</b>	85.35 (81.67, 89.04)
\$1,000–\$1,299 (\$52,000–\$67,599)	<b>82.03 (79.73, 84.33)</b>		89.44 (86.75, 92.13)	91.09 (88.09, 94.09)
\$1,300 and over (\$67,600 and over)	<b>82.91 (81.12, 84.70)</b>		<b>89.86 (87.96, 91.75)</b>	88.73 (86.39, 91.07)
DK/Refused	68.21 (66.84, 69.57)		80.26 (77.79, 82.72)	82.64 (79.34, 85.94)

## Appendix Four: Gamblers and non-gamblers in respondents reporting health and health behaviours, life events and trauma, and social capital

In the longitudinal study questions were asked about health and health behaviours, trauma and life events, and measures of social capital. Non-gamblers were not asked these questions in wave one (2008) and two (2009). They were asked in waves three and four. This section describes the proportions of gamblers and non-gamblers in respondents in the waves 3 (2010) and 4 (2011) samples based on their health and health behaviours, trauma and life events, and measures of social capital.

### Health and health behaviours

#### Self-rated health and psychological distress

Overall participation in gambling (86%, 87%) in either wave does not significantly differ from the sample overall across the different categories of self-rated health or psychological distress (Kessler 10).

**Table 26 Gambling participation at different levels of self-rated health and psychological distress**

	Wave 3		Wave 4	
	Non-gambler	Gambler	Non-gambler	Gambler
<b>Sample</b>	13.99 (13.08, 14.89)	86.01 (85.11, 86.92)	12.73 (11.65, 13.80)	87.27 (86.20, 88.35)
<b>Self-rated health</b>				
Excellent	13.20 (11.40, 14.99)	86.80 (85.01, 88.60)	11.59 ( 9.45, 13.72)	88.41 (86.28, 90.55)
Very Good	13.53 (12.01, 15.05)	86.47 (84.95, 87.99)	12.64 (10.87, 14.41)	87.36 (85.59, 89.13)
Good	15.50 (13.62, 17.38)	84.50 (82.62, 86.38)	14.46 (12.15, 16.77)	85.54 (83.23, 87.85)
Fair	13.38 (10.68, 16.07)	86.62 (83.93, 89.32)	12.59 ( 9.36, 15.83)	87.41 (84.17, 90.64)
Poor	14.07 ( 9.92, 18.23)	85.93 (81.77, 90.08)	10.75 ( 6.29, 15.22)	89.25 (84.78, 93.71)
Dk/Refused	66.67 (1.32, 132.01)	33.33 (-32.01, 98.68)		
<b>Kessler 10 score</b>				
0-19 <i>Likely to be well</i>	14.19 (13.21, 15.18)	85.81 (84.82, 86.79)	13.04 (11.87, 14.20)	86.96 (85.80, 88.13)
20-24 <i>Likely to have a mild disorder</i>	13.69 (10.36, 17.03)	86.31 (82.97, 89.64)	10.45 (6.91, 14.00)	89.55 (86.00, 93.09)
25-29 <i>Likely to have a moderate mental disorder</i>	11.70 (7.09, 16.31)	88.30 (83.69, 92.91)	11.67 (5.90, 17.44)	88.33 (82.56, 94.10)
30-50 <i>Likely to have a severe mental disorder</i>	10.97 (6.03, 15.90)	89.03 (84.10, 93.97)	10.23 (3.86, 16.60)	89.77 (83.40, 96.14)

## Smoking and alcohol use

### Smoking

Gambling participation is associated with smoking.

In wave 3 participation in gambling was significantly higher in past year smokers (89%) than the sample overall (86%). Non-gambling was significantly lower in past year smokers (11%) than the sample overall (14%). Similar results were seen for current smokers and ever smokers but these results were only approaching significance. These differences were no longer apparent in wave 4.

In wave 3, participation in gambling was significantly higher in those who smoked 11-20 cigarettes a day (92%) than the general population (86%). Non-gambling was significantly lower in those who smoked 11-20 cigarettes a day (8%) than the sample overall (14%). These differences were no longer apparent in wave 4.

**Table 27 Gambling participation at different levels of smoking**

	Wave 3		Wave 4	
	Non-gambler	Gambler	Non-gambler	Gambler
<b>Past year smoker</b>				
no	14.70 (13.66, 15.73)	85.30 (84.27, 86.34)	13.02 (11.82, 14.23)	86.98 (85.77, 88.18)
yes	11.07 (9.22, 12.92)	<b>88.93 (87.08, 90.78)</b>	11.48 (9.14, 13.83)	88.52 (86.17, 90.86)
<b>Current smoker</b>				
no	14.48 (13.48, 15.48)	85.52 (84.52, 86.52)	12.81 (11.65, 13.98)	87.19 (86.02, 88.35)
yes	11.29 (9.18, 13.40)	88.71 (86.60, 90.82)	12.23 (9.48, 14.97)	87.77 (85.03, 90.52)
<b>Ever smoker</b>				
no	16.28 (14.88, 17.69)	83.72 (82.31, 85.12)	14.20 (12.56, 15.83)	85.80 (84.17, 87.44)
yes	11.92 (10.75, 13.09)	88.08 (86.91, 89.25)	11.40 (9.99, 12.81)	88.60 (87.19, 90.01)
<b>Number of cigarettes</b>				
0	14.48 (13.48, 15.48)	85.52 (84.52, 86.52)	13.58 (12.39, 14.78)	86.42 (85.22, 87.61)
<10	11.35 (8.29, 14.41)	88.65 (85.59, 91.71)	9.80 (6.06, 13.53)	90.20 (86.47, 93.94)
11-20	8.12 (5.06, 11.17)	<b>91.88 (88.83, 94.94)</b>	9.41 (5.37, 13.44)	90.59 (86.56, 94.63)
21 and over	17.61 (11.32, 23.89)	82.39 (76.11, 88.68)	13.98 (6.89, 21.07)	86.02 (78.93, 93.11)
dk/refused	<b>25.00 (-24.01, 74.01)</b>	75.00 (25.99, 124.01)		

### Alcohol

Gambling participation is associated with alcohol use.

In wave 3 and wave 4 participation in gambling was significantly higher in anyone who consumed an alcoholic drink over the past year (89%, 90%) than the sample overall (86%, 87%). Non-gambling was significantly lower in anyone who had consumed an alcoholic drink over the past year (11%, 10%) than the sample overall (14%, 13%).

In wave 3 and wave 4 participation in gambling was significantly lower in anyone who had **not** consumed an alcoholic drink over the past year (71%, 75%) than the sample overall (86%, 87%). Non-gambling was significantly higher in anyone who had **not** consumed an alcoholic drink over the past year (29%, 25%) than the sample overall (14%, 13%).

Gambling participation was even higher in past year alcohol consumers who showed signs of alcohol abuse (93%, 92%) than the sample overall (86%, 87%). Non-gambling was significantly lower in past

year alcohol consumers who showed signs of alcohol abuse (7%, 8%) than the sample overall (14%, 13%). Gambling participation was higher in past year alcohol consumers who showed no signs of alcohol abuse (88%) than the sample overall (86%). Non-gambling was significantly lower in past year alcohol consumers who showed no signs of alcohol abuse (12%) than the sample overall (14%) in wave 3. This difference was not significant in wave four.

**Table 28 Gambling participation at different levels of alcohol use**

	Wave 3		Wave 4	
	Non-gambler	Gambler	Non-gambler	Gambler
<b>Past year alcohol</b>				
no	<b>29.01 (26.06, 31.96)</b>	70.99 (68.04, 73.94)	<b>24.66 (21.20, 28.13)</b>	75.34 (71.87, 78.80)
yes	11.08 (10.19, 11.98)	<b>88.92 (88.02, 89.81)</b>	10.43 (9.36, 11.51)	<b>89.57 (88.49, 90.64)</b>
<b>Alcohol use and abuse</b>				
No alcohol past year	29.01 (26.06, 31.96)	70.99 (68.04, 73.94)	24.66 (21.2, 28.13)	75.34 (71.87, 78.80)
No signs of clinical alcohol abuse	11.79 (10.78, 12.79)	<b>88.21 (87.21, 89.22)</b>	10.85 (9.66, 12.04)	<b>89.15 (87.96, 90.34)</b>
Signs of clinical alcohol abuse	7.41 (5.54, 9.28)	<b>92.59 (90.72, 94.46)</b>	8.16 (5.7, 10.62)	<b>91.84 (89.38, 94.30)</b>

## Life events and trauma

Respondents were asked ‘thinking of your personal background, would you say you are someone who has had 1) no really major problems, hardships and traumas in your life or upbringing or 2) a lot of trauma, hardship and problems in their life or upbringing?’ Participation in gambling was the same for those who reported a lot of trauma, hardship and problems in their life or upbringing and in those who did not.

Gamblers were asked to consider ‘things that happened in your life during the past 12mths. Which of the following life events did you experience in the past 12mths?’ Gambling is associated with some reported life events.

In wave 3 participation in gambling was significantly higher than in the total sample in anyone who reported ‘Troubles with their work, boss, or superiors’ (91%) or ‘Major change in living or work conditions (eg. renovations, new job)’ (89%) and non-gambling was significantly lower (85%) and (85%). In waves 3 and 4 participation in gambling was significantly higher (88%, 90%) in those who reported ‘death of someone close’ than those who did not (85%, 86%). Gambling participation rates were significantly higher in those who reported a life event over the last 12 months (87%) than those who did not (83%).

Non-gambling was significantly higher (17%) in participants who did not report a life event than the sample overall (14%) in wave 3. Non-gambling was significantly higher in those who did not report the death of someone close (15%, 14%) than those who did (12%, 10%) in waves 3 and 4.

**Table 29 Participation in gambling and reported life events**

	Wave 3		Wave 4	
	Non-gambler	Gambler	Non-gambler	Gambler
<b>1. Death of someone close to you</b>				
no	14.85 (13.73, 15.98)	85.15 (84.02, 86.27)	13.80 (12.45, 15.15)	86.20 (84.85, 87.55)
yes	12.12 (10.61, 13.64)	87.88 (86.36, 89.39)	10.45 (8.71, 12.19)	89.55 (87.81, 91.29)
<b>2. Divorce</b>				
no	14.02 (13.10, 14.94)	85.98 (85.06, 86.90)	12.78 (11.69, 13.87)	87.22 (86.13, 88.31)
yes	12.69 (7.03, 18.34)	87.31 (81.66, 92.97)	10.47 (3.96, 16.97)	89.53 (83.03, 96.04)
<b>3. Legal difficulties</b>				
no	14.13 (13.19, 15.06)	85.87 (84.94, 86.81)	12.58 (11.48, 13.68)	87.42 (86.32, 88.52)
yes	11.69 (8.19, 15.19)	88.31 (84.81, 91.81)	15.07 (10.32, 19.82)	84.93 (80.18, 89.68)
<b>4. Major injury or illness to either yourself or someone close to you</b>				
no	14.49 (13.39, 15.6)	85.51 (84.40, 86.61)	13.47 (12.13, 14.81)	86.53 (85.19, 87.87)
yes	12.82 (11.23, 14.41)	87.18 (85.59, 88.77)	11.20 (9.43, 12.98)	88.80 (87.02, 90.57)
<b>5. Marriage or finding a relationship partner</b>				
no	14.07 (13.14, 15.00)	85.93 (85.00, 86.86)	12.67 (11.57, 13.77)	87.33 (86.23, 88.43)
yes	12.32 (8.43, 16.20)	87.68 (83.80, 91.57)	13.71 (8.89, 18.52)	86.29 (81.48, 91.11)
<b>6. Troubles with your work, boss, or superiors</b>				
no	14.68 (13.69, 15.67)	85.32 (84.33, 86.31)	13.14 (11.97, 14.32)	86.86 (85.68, 88.03)
yes	9.27 (7.15, 11.38)	<b>90.73 (88.62, 92.85)</b>	10.14 (7.52, 12.75)	89.86 (87.25, 92.48)
<b>7. Retirement</b>				
no	14.03 (13.1, 14.96)	85.97 (85.04, 86.9)	12.52 (11.43, 13.62)	87.48 (86.38, 88.57)
yes	13.01 (8.79, 17.22)	86.99 (82.78, 91.21)	16.58 (11.23, 21.92)	83.42 (78.08, 88.77)
<b>8. Pregnancy or new family additions</b>				
no	14.20 (13.22, 15.17)	85.80 (84.83, 86.78)	12.57 (11.44, 13.69)	87.43 (86.31, 88.56)
yes	12.48 (10.01, 14.95)	87.52 (85.05, 89.99)	14.25 (10.58, 17.91)	85.75 (82.09, 89.42)
<b>9. Major change to your financial situation</b>				
no	14.37 (13.35, 15.39)	85.63 (84.61, 86.65)	13.16 (11.94, 14.38)	86.84 (85.62, 88.06)
yes	12.31 (10.32, 14.3)	87.69 (85.7, 89.68)	11.07 (8.85, 13.29)	88.93 (86.71, 91.15)
<b>10. Taking on a mortgage, loan or making a big purchase</b>				



	Wave 3		Wave 4	
no	14.45 (13.45, 15.46)	85.55 (84.54, 86.55)	13.13 (11.94, 14.32)	86.87 (85.68, 88.06)
yes	11.58 (9.51, 13.66)	88.42 (86.34, 90.49)	10.74 (8.31, 13.17)	89.26 (86.83, 91.69)
<b>11. Increase in the number of arguments with someone you are close to</b>				
no	14.07 (13.11, 15.03)	85.93 (84.97, 86.89)	13.06 (11.91, 14.22)	86.94 (85.78, 88.09)
yes	13.27 (10.52, 16.01)	86.73 (83.99, 89.48)	10.07 (7.18, 12.96)	89.93 (87.04, 92.82)
<b>12. Major change in living or work conditions (eg. renovations, new job)</b>				
no	15.01 (13.94, 16.07)	84.99 (83.93, 86.06)	12.91 (11.67, 14.15)	87.09 (85.85, 88.33)
yes	10.51 (8.83, 12.19)	<b>89.49 (87.81, 91.17)</b>	12.15 (10.00, 14.30)	87.85 (85.70, 90.00)
<b>Any life event</b>				
none	<b>17.26 (15.24, 19.29)</b>	82.74 (80.71, 84.76)	14.22 (11.91, 16.53)	85.78 (83.47, 88.09)
One or more	12.96 (11.95, 13.97)	87.04 (86.03, 88.05)	12.26 (11.05, 13.47)	87.74 (86.53, 88.95)
<b>Had a lot of trauma, hardship and problems in their life or upbringing</b>				
No			12.67 (11.42, 13.92)	87.33 (86.08, 88.58)
Yes			12.88 (10.79, 14.96)	87.12 (85.04, 89.21)

## Social capital

For many of the social capital questions used in waves 3 and 4 gambling participation tends to be higher in those responding 'yes definitely'.

Gambling participation was higher in waves 3 and 4 (87%, 88%) for those who responded 'yes, definitely' to the question 'can you get help from friends, family or neighbours when you need it?' than those who responded sometimes (81%, 82%) or no (78%, 83%); in wave 3 (87%) for those who responded 'yes, definitely' to 'do you feel valued by society' than those who responded 'no' (78%); in wave 3 (88%) for those who responded 'yes' to 'have you been involved in any community activities or events in the past 12mths' than those who responded 'no' (83%); in wave 3 (87%) for those who responded 'yes, definitely' to 'do you like living in your community?' than those who replied 'sometimes' (82%).

Non-gambling was higher in waves 3 and 4 (22%, 17% and 19%, 16%) in those who responded 'no' or 'sometimes' to the question can you get help from friends, family or neighbours when you need it?' than those who responded 'yes, definitely' (13%, 12%); in wave 3 (22%) in those who responded 'no' to 'do you feel valued by society' than those who responded 'yes, definitely' (13%); in wave 3 (17%) in those who responded 'no' to 'have you been involved in any community activities or events in the past 12mths' than those who responded 'yes' (12%); in wave 3 (18%) for those who responded 'sometimes' to 'do you like living in your community?' than those who replied 'yes, definitely' (13%).



There was no difference in gambling participation in groups who responded 'yes' or 'no' to the questions about being a member of an organised group, volunteering to help out in the community in any way in the past 12 months and being able to raise \$2000 within 2 days in an emergency.

**Table 30 Participation and social capital**

	Wave 3		Wave 4	
	Non-gambler	Gambler	Non-gambler	Gambler
<b>Can you get help from friends, family or neighbours when you need it?</b>				
yes	13.21 (12.26, 14.16)	86.79 (85.84, 87.74)	11.94 (10.81, 13.07)	88.06 (86.93, 89.19)
sometimes	<b>18.68 (15.53, 21.83)</b>	81.32 (78.17, 84.47)	<b>17.57 (14.02, 21.11)</b>	82.43 (78.89, 85.98)
no	21.60 (14.36, 28.84)	78.40 (71.16, 85.64)	17.02 (9.38, 24.66)	82.98 (75.34, 90.62)
DK/Refused	28.57 (-7.58, 64.73)	71.43 (35.27, 107.58)		
<b>Do you feel valued by society?</b>				
yes	12.57 (11.51, 13.63)	87.43 (86.37, 88.49)	12.33 (11.04, 13.63)	87.67 (86.37, 88.96)
sometime	14.68 (12.83, 16.53)	85.32 (83.47, 87.17)	12.83 (10.69, 14.97)	87.17 (85.03, 89.31)
no	<b>21.99 (17.88, 26.11)</b>	78.01 (73.89, 82.12)	14.23 (9.79, 18.67)	85.77 (81.33, 90.21)
DK/Refused	<b>30.56 (19.84, 41.27)</b>	69.44 (58.73, 80.16)	30.00 (13.32, 46.68)	70.00 (53.32, 86.68)
<b>Are you a member of an organised group such as a sport's or church group or another community group including those over the internet?</b>				
no	14.66 (13.25, 16.07)	85.34 (83.93, 86.75)	11.85 (10.23, 13.48)	88.15 (86.52, 89.77)
yes	13.48 (12.29, 14.66)	86.52 (85.34, 87.71)	13.3 (11.87, 14.73)	86.70 (85.27, 88.13)
<b>Have you been involved in any community activities or events in the past 12mths (eg. going to a local hall or community centre, playing a team sport, meeting with interest groups or clubs)</b>				
yes	12.46 (11.38, 13.55)	87.54 (86.45, 88.62)	12.13 (10.82, 13.45)	87.87 (86.55, 89.18)
no	<b>16.59 (14.99, 18.20)</b>	83.41 (81.80, 85.01)	13.80 (11.94, 15.66)	86.20 (84.34, 88.06)
<b>Do you like living in your community?</b>				
definitely	13.12 (12.17, 14.08)	86.88 (85.92, 87.83)	12.32 (11.17, 13.48)	87.68 (86.52, 88.83)
sometimes	<b>18.49 (15.34, 21.65)</b>	81.51 (78.35, 84.66)	14.39 (11.07, 17.70)	85.61 (82.30, 88.93)
no - not at all	24.19 (13.44, 34.94)	75.81 (65.06, 86.56)	20.00 (6.55, 33.45)	80.00 (66.55, 93.45)
no feeling about	16.78 (10.76, 22.80)	83.22 (77.20, 89.24)	13.79 (7.49, 20.10)	86.21 (79.90, 92.51)
DK/Refused	<b>66.67 (33.99, 99.34)</b>	33.33 (0.66, 66.01)	66.67 (1.31, 132.02)	33.33 (-32.02, 98.69)
<b>Have you volunteered to help out in the community in any way in the past 12 months?</b>				
No			14.06 (12.35, 15.77)	85.94 (84.23, 87.65)
yes			11.68 (10.30, 13.05)	88.32 (86.95, 89.70)
<b>If you needed to, could you raise \$2000 within 2 days in an emergency?</b>				
No			13.89 (10.89, 16.90)	86.11 (83.10, 89.11)
yes			12.46 (11.31, 13.62)	87.54 (86.38, 88.69)
			16.98 (6.77, 27.19)	83.02 (72.81, 93.23)

## Appendix five: Health, health behaviours, trauma, life events and social capital in gamblers and non-gamblers

This section describes the health and health behaviours, trauma and life events, and social capital in gamblers and non-gamblers (waves 3 & 4). These data are unweighted. Non-gamblers were not asked the health, life events and social capital questions in wave 1 or wave 2 so these comparisons can only be done for waves 3 and 4. This section describes the prevalence of various health and social characteristics in gamblers and non-gamblers.

### Self-rated health and psychological distress

The self-rated health and level of psychological distress are very similar between gamblers and non-gamblers across both wave 3 and wave 4.

**Table 31 Physical and mental health in gamblers and non-gamblers**

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
<b>Self-rated health status</b>								
excellent	22.90 (19.96, 25.84)	24.49 (23.28, 25.71)	24.27 (23.15, 25.39)	1.0 (0.8, 1.3)	21.23 (17.53, 24.93)	23.62 (22.16, 25.09)	23.32 (21.96, 24.68)	1.1 (0.8, 1.4)
very good	33.46 (30.16, 36.76)	34.77 (33.43, 36.12)	34.59 (33.35, 35.83)	ref	36.31 (31.96, 40.65)	36.59 (34.93, 38.26)	36.56 (35.01, 38.11)	
good	28.12 (24.97, 31.26)	24.93 (23.71, 26.15)	25.37 (24.24, 26.51)	0.9 (0.7, 1.0)	27.39 (23.36, 31.42)	23.62 (22.16, 25.09)	24.10 (22.72, 25.48)	0.9 (0.7, 1.1)
fair	10.43 (8.29, 12.57)	10.98 (10.10, 11.87)	10.91 (10.09, 11.72)	1.0 (0.8, 1.3)	10.83 (8.02, 13.64)	10.96 (9.88, 12.04)	10.94 (9.94, 11.95)	1.0 (0.7, 1.4)
poor	4.83 (3.33, 6.34)	4.80 (4.20, 5.40)	4.80 (4.24, 5.36)	1.0 (0.7, 1.4)	4.25 (2.42, 6.07)	5.14 (4.38, 5.90)	5.03 (4.32, 5.73)	1.2 (0.7, 2.0)
dk/refused	0.25 (-0.10, 0.61)	0.02 (-0.02, 0.06)	0.05 (-0.01, 0.11)	0.1 (0.0, 0.9)	0.00 (0, 0)	0.06 (-0.02, 0.15)	0.05 (-0.02, 0.13)	(, )
<b>Kessler 10 score</b>								
0-19 <i>Likely to be well</i>	87.91 (85.63, 90.19)	86.41 (85.44, 87.38)	86.62 (85.73, 87.51)	ref	88.75 (85.89, 91.61)	86.32 (85.13, 87.5)	86.63 (85.53, 87.72)	ref
20-24 <i>Likely to have a mild disorder</i>	7.12 (5.32, 8.92)	7.30 (6.57, 8.04)	7.28 (6.60, 7.96)	1.0 (0.8, 1.4)	6.37 (4.16, 8.58)	7.96 (7.02, 8.89)	7.75 (6.89, 8.62)	1.3 (0.9, 1.9)

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
25-29 <i>Likely to have a moderate mental disorder</i>	2.80 (1.64, 3.95)	3.43 (2.92, 3.95)	3.35 (2.87, 3.82)	1.2 (0.8, 2.0)	2.97 (1.44, 4.51)	3.28 (2.67, 3.90)	3.24 (2.67, 3.81)	1.1 (0.6, 2.0)
30-50 <i>Likely to have a severe mental disorder</i>	2.16 (1.15, 3.18)	2.85 (2.39, 3.32)	2.76 (2.33, 3.19)	1.3 (0.8, 2.2)	1.91 (0.67, 3.15)	2.45 (1.91, 2.98)	2.38 (1.89, 2.87)	1.3 (0.7, 2.6)

## Health behaviours

Gambling participation is associated with smoking and alcohol use.

Gamblers have higher past year (20%), current (16%) and ever smoking rates (54%) in wave 3 and ever smoking (53%) in wave 4 than non-gamblers (16%, 12%, 45% and 47% respectively). They have significantly higher rate of smoking 11-20 cigarettes a day.

Non-gamblers have higher non-smoking rates for past year (84%) current (88%) and never smoking (55%) in wave 3 and never smoking in wave 4 (53%) than gamblers (80%, 84%, 46% and 47% respectively). They have significantly higher rates of not smoking any cigarettes 87% than gamblers 84%.

**Table 32 Smoking in gamblers and non-gamblers**

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
<b>Past year smokers</b>								
no	84.48 (81.94, 87.01)	79.73 (78.59, 80.86)	80.39 (79.35, 81.43)		82.59 (79.16, 86.02)	80.43 (79.06, 81.80)	80.71 (79.44, 81.98)	
yes	15.52 (12.99, 18.06)	20.27 (19.14, 21.41)	19.61 (18.57, 20.65)	<b>1.4 (1.1, 1.7)</b>	17.41 (13.98, 20.84)	19.57 (18.20, 20.94)	19.29 (18.02, 20.56)	1.1 (0.9, 1.5)
<b>Current smokers</b>								
no	87.53 (85.22, 89.84)	84.07 (83.04, 85.10)	84.56 (83.61, 85.50)		85.77 (82.62, 88.93)	85.11 (83.88, 86.34)	85.19 (84.05, 86.34)	
yes	12.47 (10.16, 14.78)	15.93 (14.9, 16.96)	15.44 (14.5, 16.39)	<b>1.3 (1.1, 1.7)</b>	14.23 (11.07, 17.38)	14.89 (13.66, 16.12)	14.81 (13.66, 15.95)	1.1 (0.8, 1.4)
<b>Ever smoked</b>								

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
no	55.09 (51.61, 58.57)	46.05 (44.64, 47.45)	47.31 (46.01, 48.62)	0.7 (0.6, 0.8)	52.87 (48.35, 57.38)	46.59 (44.87, 48.32)	47.39 (45.78, 49.00)	0.8 (0.6, 0.9)
yes	44.91 (41.43, 48.39)	53.95 (52.55, 55.36)	52.69 (51.38, 53.99)		47.13 (42.62, 51.65)	53.41 (51.68, 55.13)	52.61 (51.00, 54.22)	
<b>Number of cigarettes</b>								
0	87.53 (85.22, 89.84)	84.07 (83.04, 85.10)	84.56 (83.61, 85.50)	ref	85.77 (82.62, 88.93)	85.11 (83.88, 86.34)	85.19 (84.05, 86.34)	ref
<10	5.98 (4.32, 7.64)	7.59 (6.85, 8.34)	7.37 (6.68, 8.05)	1.3 (1.0, 1.8)	7.22 (4.88, 9.56)	6.56 (5.71, 7.42)	6.65 (5.84, 7.45)	0.9 (0.6, 1.3)
11-20	3.18 (1.95, 4.41)	5.85 (5.19, 6.52)	5.48 (4.89, 6.08)	<b>1.9 (1.3, 2.9)</b>	4.88 (2.93, 6.83)	5.57 (4.78, 6.36)	5.49 (4.75, 6.22)	1.2 (0.7, 1.8)
21 and more	3.18 (1.95, 4.41)	2.42 (1.99, 2.85)	2.53 (2.12, 2.94)	0.8 (0.5, 1.2)	2.12 (0.82, 3.43)	2.60 (2.05, 3.15)	2.54 (2.03, 3.05)	1.2 (0.6, 2.4)
dk/refused all	0.13 (-0.12, 0.38)	0.06 (-0.01, 0.13)	0.07 (0, 0.14)	0.5 (0.1, 4.9)	0.00	0.15 (0.02, 0.29)	0.14 (0.02, 0.25)	(, )

Gamblers have higher rates of past year alcohol use, 86% in waves 3 and 4, compared with non-gamblers, 66% and 69% in waves 3 and 4. They have higher rates of ‘signs of clinical alcohol abuse (14%) in wave 3 and wave 4 than non-gamblers (7% and 8% respectively) and higher rates of alcohol consumption with no signs of alcohol abuse (72%, 73%) than non-gamblers (59%, 61%).

Non-gamblers have higher rates of no past year alcohol use 34% in wave 3 and 31% in wave 4 compared with gamblers (13% and 14% respectively).

**Table 33 Alcohol use in gamblers and non-gamblers**

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
<b>Past year alcohol use</b>								
no	33.59 (30.28, 36.89)	13.36 (12.40, 14.32)	16.19 (15.23, 17.16)	0.3 (0.3, 0.4)	31.21 (27.02, 35.40)	13.9 (12.71, 15.09)	16.10 (14.92, 17.29)	0.4 (0.3, 0.4)
yes	66.41 (63.11, 69.72)	86.64 (85.68, 87.60)	83.81 (82.84, 84.77)		68.79 (64.60, 72.98)	86.1 (84.91, 87.29)	83.90 (82.71, 85.08)	

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
<b>Alcohol use and abuse</b>								
No alcohol past year	33.59 (30.28, 36.89)	13.36 (12.40, 14.32)	16.19 (15.23, 17.16)	0.3 (0.3, 0.4)	31.21 (27.02, 35.40)	13.9 (12.71, 15.09)	16.1 (14.92, 17.29)	0.4 (0.3, 0.5)
No signs of alcohol abuse	59.29 (55.85, 62.73)	72.16 (70.89, 73.42)	70.36 (69.16, 71.55)	ref	60.51 (56.09, 64.93)	72.51 (70.97, 74.05)	70.98 (69.52, 72.44)	ref
Signs of alcohol abuse	7.12 (5.32, 8.92)	14.48 (13.49, 15.40)	13.45 (12.56, 14.34)	1.7 (1.3, 2.2)	8.28 (5.79, 10.77)	13.59 (12.41, 14.77)	12.92 (11.83, 14.00)	1.4 (1.0, 1.9)

## Life events and trauma

Respondents were asked ‘thinking of your personal background, would you say you are someone who has had 1) no really major problems, hardships and traumas in your life or upbringing or 2) a lot of trauma, hardship and problems in their life or upbringing?’ Gamblers (27%) and non-gamblers (27%) reported the same proportion of those who reported ‘a lot of trauma, hardship and problems in their life and upbringing’ and in those ‘who did not’ (83%).

Respondents were also asked to consider ‘things that happened in your life during the past 12mths. Which of the following life events did you experience in the past 12mths?’ Gambling participation is associated with some reported life events.

Gamblers have reported higher rates of ‘death of someone close’ in waves 3 (32%) and 4 (33%) than non-gamblers (27% and 26% respectively); of ‘troubles with your work, boss or superiors’ in wave 3 (14%) than non-gamblers (8.5%); of ‘major change in living or work conditions’ in wave 3 (24%) than non-gamblers (17%) and any life event (77%) than non-gamblers (71%). Life events approaching significance in gamblers were ‘Major injury and illness to either yourself or someone close’ in waves 3 and 4; ‘troubles with your work, boss or superiors’ in wave 4; ‘major change to financial situation’ in wave 3; ‘taking on a mortgage, loan or making a big purchase’ in waves 3 and 4; ‘increase in number of arguments with someone close to you’ in wave 4.

Non-gamblers reported higher rates of no life events (29%) than gamblers 23% in wave 3.

**Table 34 Life events in gamblers and non-gamblers**

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
<b>1. Death of someone close to you</b>								
no	72.52 (69.4, 75.64)	67.6 (66.28, 68.92)	68.29 (67.07, 69.51)		73.67 (69.69, 77.66)	67.09 (65.47, 68.71)	67.93 (66.42, 69.43)	

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
yes	27.48 (24.36, 30.6)	32.4 (31.08, 33.72)	31.71 (30.49, 32.93)	<b>1.3 (1.1, 1.5)</b>	26.33 (22.34, 30.31)	32.91 (31.29, 34.53)	32.07 (30.57, 33.58)	<b>1.4 (1.1, 1.7)</b>
<b>2. Divorce</b>								
no	97.84 (96.82, 98.85)	97.58 (97.15, 98.01)	97.62 (97.22, 98.01)		98.09 (96.85, 99.33)	97.62 (97.09, 98.14)	97.68 (97.19, 98.16)	
yes	2.16 (1.15, 3.18)	2.42 (1.99, 2.85)	2.38 (1.99, 2.78)	1.1 (0.7, 1.9)	1.91 (0.67, 3.15)	2.38 (1.86, 2.91)	2.32 (1.84, 2.81)	1.3 (0.6, 2.5)
<b>3. Legal difficulties</b>								
no	95.17 (93.66, 96.67)	94.06 (93.40, 94.73)	94.22 (93.61, 94.83)		92.99 (90.69, 95.3)	94.24 (93.44, 95.05)	94.08 (93.32, 94.84)	
yes	4.83 (3.33, 6.34)	5.94 (5.27, 6.60)	5.78 (5.17, 6.39)	1.2 (0.9, 1.8)	7.01 (4.70, 9.31)	5.76 (4.95, 6.56)	5.92 (5.16, 6.68)	0.8 (0.6, 1.2)
<b>4. Major injury or illness to either yourself or someone close to you</b>								
no	72.26 (69.13, 75.40)	69.32 (68.02, 70.62)	69.73 (68.53, 70.93)		71.13 (67.03, 75.22)	66.63 (65.00, 68.25)	67.2 (65.68, 68.71)	
yes	27.74 (24.60, 30.87)	30.68 (29.38, 31.98)	30.27 (29.07, 31.47)	1.1 (1.0, 1.4)	28.87 (24.78, 32.97)	33.37 (31.75, 35)	32.8 (31.29, 34.32)	1.2 (1.0, 1.5)
<b>5. Marriage or finding a relationship partner</b>								
no	95.67 (94.25, 97.10)	94.99 (94.38, 95.61)	95.09 (94.52, 95.65)		94.27 (92.17, 96.37)	94.74 (93.97, 95.51)	94.68 (93.95, 95.40)	
yes	4.33 (2.90, 5.75)	5.01 (4.39, 5.62)	4.91 (4.35, 5.48)	1.2 (0.8, 1.7)	5.73 (3.63, 7.83)	5.26 (4.49, 6.03)	5.32 (4.60, 6.05)	0.9 (0.6, 1.4)
<b>6. Troubles with your work, boss, or superiors</b>								
no	91.48 (89.52, 93.43)	86.43 (85.46, 87.40)	87.14 (86.26, 88.01)		88.96 (86.13, 91.79)	85.73 (84.52, 86.93)	86.14 (85.03, 87.25)	
yes	8.52 (6.57, 10.48)	13.57 (12.60, 14.54)	12.86 (11.99, 13.74)	<b>1.9 (1.3, 2.2)</b>	11.04 (8.21, 13.87)	14.27 (13.07, 15.48)	13.86 (12.75, 14.97)	1.3 (1.0, 1.8)
<b>7. Retirement</b>								
no	95.93 (94.55, 97.31)	95.57 (94.99, 96.15)	95.62 (95.09, 96.16)		93.42 (91.18, 95.66)	95.17 (94.43, 95.91)	94.95 (94.24, 95.65)	
yes	4.07 (2.69, 5.45)	4.43 (3.85, 5.01)	4.38 (3.84, 4.91)	1.1 (0.7, 1.6)	6.58 (4.34, 8.82)	4.83 (4.09, 5.57)	5.05 (4.35, 5.76)	0.7 (0.5, 1.1)
<b>8. Pregnancy or new family additions</b>								
no	89.06 (86.87, 91.24)	87.53 (86.59, 88.46)	87.74 (86.88, 88.60)		89.38 (86.60, 92.17)	90.68 (89.68, 91.68)	90.52 (89.57, 91.46)	
yes	10.94 (8.76, 13.13)	12.47 (11.54, 13.41)	12.26 (11.40, 13.12)	1.2 (0.9, 1.5)	10.62 (7.83, 13.40)	9.32 (8.32, 10.32)	9.48 (8.54, 10.43)	0.9 (0.6, 1.2)

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
<b>9. Major change to your financial situation</b>								
no	83.59 (81.00, 86.18)	80.99 (79.88, 82.10)	81.35 (80.33, 82.37)		81.95 (78.48, 85.43)	78.85 (77.45, 80.26)	79.25 (77.94, 80.56)	
yes	16.41 (13.82, 19.00)	19.01 (17.90, 20.12)	18.65 (17.63, 19.67)	1.2 (1.0, 1.5)	18.05 (14.57, 21.52)	21.15 (19.74, 22.55)	20.75 (19.44, 22.06)	1.2 (0.9, 1.6)
<b>10. Taking on a mortgage, loan or making a big purchase</b>								
no	86.51 (84.12, 88.9)	83.26 (82.21, 84.32)	83.72 (82.75, 84.68)		85.77 (82.62, 88.93)	82.76 (81.45, 84.06)	83.14 (81.93, 84.35)	
yes	13.49 (11.1, 15.88)	16.74 (15.68, 17.79)	16.28 (15.32, 17.25)	1.3 (1.0, 1.6)	14.23 (11.07, 17.38)	17.24 (15.94, 18.55)	16.86 (15.65, 18.07)	1.3 (1.0, 1.7)
<b>11. Increase in the number of arguments with someone you are close to</b>								
no	90.08 (87.98, 92.17)	89.45 (88.58, 90.32)	89.54 (88.74, 90.34)		91.08 (88.51, 93.66)	88.39 (87.28, 89.50)	88.73 (87.71, 89.75)	
yes	9.92 (7.83, 12.02)	10.55 (9.68, 11.42)	10.46 (9.66, 11.26)	1.1 (0.8, 1.4)	8.92 (6.34, 11.49)	11.61 (10.50, 12.72)	11.27 (10.25, 12.29)	1.3 (1.0, 1.9)
<b>12. Major change in living or work conditions (eg. renovations, new job)</b>								
no	82.95 (80.32, 85.58)	76.4 (75.20, 77.59)	77.31 (76.22, 78.41)		77.07 (73.27, 80.87)	75.82 (74.34, 77.30)	75.98 (74.60, 77.36)	
yes	17.05 (14.42, 19.68)	23.6 (22.41, 24.80)	22.69 (21.59, 23.78)	<b>1.5 (1.2, 1.8)</b>	22.93 (19.13, 26.73)	24.18 (22.70, 25.66)	24.02 (22.64, 25.40)	1.1 (0.9, 1.3)
<b>Any life event</b>								
no	29.39 (26.20, 32.58)	22.9 (21.72, 24.09)	23.81 (22.69, 24.92)	0.7 (0.6, 0.8)	26.54 (22.55, 30.53)	23.34 (21.88, 24.80)	23.75 (22.38, 25.12)	0.8 (0.7, 1.1)
yes	70.61 (67.42, 73.80)	77.1 (75.91, 78.28)	76.19 (75.08, 77.31)		73.46 (69.47, 77.45)	76.66 (75.20, 78.12)	76.25 (74.88, 77.62)	
<b>Had a lot of trauma, hardship and problems in their life or upbringing</b>								
No					72.82 (68.80, 76.85)	73.19 (71.66, 74.72)	73.14 (71.71, 74.57)	ref
Yes					27.18 (23.15, 31.20)	26.81 (25.28, 28.34)	26.86 (25.43, 28.29)	1.0 (0.8, 1.2)



## Social capital

Gambling participation is associated with some measures of social capital.

Gamblers reported high rates of ‘yes definitely’ to ‘being able to get help from friends, family and neighbours when you need it’ in waves 3 (88%) and 4 (85%) than non-gamblers (82% and 80% respectively); being ‘involved in any community activities or events in the past 12 months’ in wave 3 (64%) than non-gamblers (56%); and ‘yes definitely’ to ‘do you like living in your community’ in wave 3 (87%) than non-gamblers (80%). Approaching significance gamblers reported higher rates of being ‘involved in any community activities or events in the past 12 months’ in wave 4 (65%) than non-gamblers (61%); Gamblers (58%) and non-gamblers (52%) reported the same proportion of ‘yes’ to ‘have you volunteered to help out in the community in any way in the past 12 months?’; and Gamblers (85%) and non-gamblers (83%) reported the same proportion of ‘yes’ to ‘If you needed to, could you raise \$2000 within 2 days in an emergency?’.

**Table 35 Social capital measures in gamblers and non-gamblers**

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
<b>Can you get help from friends, family or neighbours when you need it?</b>								
yes	82.32 (79.65, 84.99)	87.96 (87.04, 88.88)	87.17 (86.3, 88.05)	ref	80.04 (76.43, 83.66)	86.10 (84.91, 87.29)	85.33 (84.19, 86.47)	ref
sometime	13.99 (11.57, 16.42)	9.91 (9.07, 10.75)	10.48 (9.68, 11.28)	0.7 (0.5, 0.8)	16.56 (13.20, 19.92)	11.33 (10.24, 12.42)	12 (10.95, 13.04)	0.6 (0.5, 0.8)
no	3.44 (2.16, 4.71)	2.03 (1.63, 2.42)	2.22 (1.84, 2.61)	0.6 (0.4, 0.9)	3.4 (1.76, 5.04)	2.41 (1.89, 2.94)	2.54 (2.03, 3.05)	0.7 (0.4, 1.1)
DK/Refused	0.25 (-0.1, 0.61)	0.1 (0.01, 0.19)	0.12 (0.03, 0.22)	0.4 (0.1, 2.0)	0 (0, 0)	0.15 (0.02, 0.29)	0.14 (0.02, 0.25)	(, )
<b>Do you feel valued by society?</b>								
yes	59.92 (56.49, 63.35)	67.77 (66.45, 69.09)	66.67 (65.44, 67.91)	ref	65.18 (60.87, 69.49)	67.55 (65.94, 69.17)	67.25 (65.74, 68.76)	ref
sometime	26.34 (23.25, 29.42)	24.89 (23.67, 26.11)	25.09 (23.96, 26.22)	0.8 (0.7, 1.0)	25.69 (21.74, 29.64)	25.45 (23.95, 26.95)	25.48 (24.08, 26.88)	1.0 (0.8, 1.2)
no	10.94 (8.76, 13.13)	6.31 (5.62, 7.00)	6.96 (6.29, 7.62)	0.5 (0.4, 0.7)	7.22 (4.88, 9.56)	6.35 (5.51, 7.19)	6.46 (5.67, 7.25)	0.8 (0.6, 1.2)
DK/Refused	2.8 (1.64, 3.95)	1.03 (0.75, 1.32)	1.28 (0.99, 1.58)	0.3 (0.2, 0.5)	1.91 (0.67, 3.15)	0.65 (0.37, 0.93)	0.81 (0.52, 1.10)	0.3 (0.1, 0.7)
<b>Are you a member of an organised group such as a sports or church group or another community group including those over the internet?</b>								

	Wave 3				Wave 4			
	Non-gamblers	Gamblers	Total Sample	OR	Non-gamblers	Gamblers	Total Sample	OR
no	45.17 (41.68, 48.65)	42.76 (41.36, 44.15)	43.1 (41.8, 44.39)	0.9 (0.8, 1.0)	38.43 (34.03, 42.83)	41.67 (39.97, 43.37)	41.26 (39.67, 42.85)	1.1 (0.9, 1.4)
yes	54.83 (51.35, 58.32)	57.24 (55.85, 58.64)	56.9 (55.61, 58.2)	ref	61.36 (56.96, 65.76)	58.33 (56.63, 60.03)	58.71 (57.13, 60.30)	ref
<b>Have you been involved in any community activities or events in the past 12mths (eg. going to a local hall or community centre, playing a team sport, meeting with interest groups or clubs)</b>								
yes	56.23 (52.76, 59.71)	64.21 (62.86, 65.56)	63.10 (61.83, 64.36)	ref	61.15 (56.74, 65.55)	64.58 (62.93, 66.23)	64.14 (62.60, 65.69)	ref
no	43.77 (40.29, 47.24)	35.77 (34.42, 37.12)	36.89 (35.62, 38.15)	0.7 (0.6, 0.8)	38.85 (34.45, 43.26)	35.39 (33.74, 37.04)	35.83 (34.28, 37.37)	0.9 (0.7, 1.0)
<b>Do you like living in your community?</b>								
definitely	80.41 (77.63, 83.18)	86.55 (85.59, 87.52)	85.69 (84.78, 86.61)	ref	81.53 (78.02, 85.04)	84.58 (83.34, 85.83)	84.19 (83.02, 85.37)	ref
sometimes	13.74 (11.33, 16.15)	9.85 (9.01, 10.69)	10.39 (9.59, 11.19)	0.7 (0.5, 0.8)	13.16 (10.11, 16.22)	11.42 (10.33, 12.52)	11.65 (10.61, 12.68)	0.8 (0.6, 1.1)
no - not at all	1.91 (0.95, 2.87)	0.97 (0.70, 1.25)	1.1 (0.83, 1.38)	0.5 (0.3, 0.9)	1.49 (0.39, 2.58)	0.87 (0.55, 1.19)	0.95 (0.63, 1.26)	0.6 (0.2, 1.3)
no feeling about	3.18 (1.95, 4.41)	2.57 (2.12, 3.01)	2.65 (2.23, 3.07)	0.7 (0.5, 1.2)	3.4 (1.76, 5.04)	3.1 (2.50, 3.69)	3.13 (2.57, 3.7)	0.9 (0.5, 1.5)
DK/Refused	0.76 (0.15, 1.37)	0.06 (-0.01, 0.13)	0.16 (0.06, 0.26)	0.1 (0.0, 0.3)	0.42 (-0.16, 1.01)	0.03 (-0.03, 0.09)	0.08 (-0.01, 0.17)	0.1 (0.0, 0.8)
<b>Have you volunteered to help out in the community in any way in the past 12 months?</b>								
No					47.56 (43.04, 52.07)	42.38 (40.68, 44.09)	43.04 (41.45, 44.64)	0.8 (0.7, 1.0)
Yes					52.23 (47.71, 56.75)	57.62 (55.91, 59.32)	56.93 (55.33, 58.53)	ref
					0.21 (-0.20, 0.63)	0 (0, 0)	0.03 (-0.03, 0.08)	
<b>If you needed to, could you raise \$2000 within 2 days in an emergency?</b>								
No					15.07 (11.84, 18.31)	13.62 (12.44, 14.81)	13.81 (12.70, 14.92)	0.9 (0.7, 1.2)
Yes					83.01 (79.62, 86.41)	85.02 (83.78, 86.25)	84.76 (83.60, 85.92)	ref
					1.91 (0.67, 3.15)	12.25 (36.80, 67.22)	1.43 (1.05, 1.81)	0.7 (0.3, 1.4)

## Appendix Six: Glossary

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This appendix provides a glossary of the key terms in the document.

### *ABS*

Australian Bureau of Statistics

### *Alcohol use and abuse*

An alcohol use and abuse variable was derived by combining the alcohol over previous twelve months and the CAGE questions. This produced a variable consisting of three categories: No alcohol use over previous twelve months; alcohol use and no signs of abuse; and alcohol use with signs of abuse or dependence. See *CAGE*.

### *Association*

Association refers to the statistical dependence between two variables, that is, the degree to which the rate of disease in persons with a specific exposure is either higher or lower than the rate of disease among those without that exposure. (Hennekens, Buring and Mayrent 1987) In statistical analysis, association is measured by correlation coefficient. See *correlate*.

### *BIC (Bayesian Information Criterion)*

A model fit statistics using saturated model as a point of comparison. See *saturated model* and *model fit statistics*.

### *BIC'*

An alternative form of Bayesian Information Criterion using null model with no independent variables as a point of comparison. See *null model* and *model fit statistics*.

### *BMI (Body Mass Index)*

It is defined as the body mass divided by the square of the body height and is expressed in units of kg/m<sup>2</sup>. The BMI is usually use as an indicator of obesity or anorexia in population research.

### *CAGE*

A brief screening tool for alcohol use and disorder. It measures patterns of drinking that results in harm to one's health, relationship problems or inability to perform work functions. See *Alcohol use and abuse*.

### *Case finding*

Case finding in this document refers to the tendency to concentrate on the small number of 'cases' of problem gambling and ignore the impact of the large number of gamblers with lower levels of problems.

### *CATI (Computer Assisted Telephone Interviews)*

CATI is a telephone surveying tool where telephone interviews are supported by a computer application. The interviewers follow a script promoted by an application and input the responses obtained into the application.

### *Cohort*

A group of persons followed or traced over time.

### *Comorbidity*

Condition(s) or disease(s) that exist in a study participant in addition to the index condition that is the subject of study (i.e. gambling). (Last 2001)

### *Confidence interval (CI)*

A computed interval with a given probability (usually 95%) that the true value of the variable of interest (e.g. a mean, proportion or rate) is contained within that interval.

### *Confounders or confounding variables*

A variable that can cause or prevent the outcome of interest, is not an intermediate variable and is associated with the factor under investigation (Last 2001).

### *Correlate*

Two variables (for example, variable x and variable y) are correlated or associated when the two variables change according to each other. Negative correlation means x decreases when y increase and a positive correlation means x increase when y increase. A correlation coefficient (r) ranges from -1 to 1. While  $r = 0$  indicates no correlation,  $r = -1$  indicates perfect negative correlation and  $r = 1$  indicates perfect positive correlation. Note that correlation detected in observed data can be a completely random observation and correlation does not imply causal relationship. See *association*.

### *Count data continuum*

Count data is a form of numerical discrete data. All values consist of whole numbers. In the case of the PGSI score, the only possible values are whole numbers along the continuum between 0 and 27. Therefore only 28 values are possible.

### *Decile*

One-tenth (e.g. of a population)

### *Determinants*

A factor which decisively affects the nature or outcome of something (Oxford University Press 2015). Whether people are healthy or not, is determined by many factors relating to their circumstances and their environment. These factors have many names including determinants, indicators, risk factors, predictors and influencers.

### *Dichotomous*

Dichotomous variables are nominal variables which have only two categories or levels. For example, if we were looking at gender, we would most probably categorize somebody as either "male" or "female".

### *DK/refused*

Don't know/Refused

### *DSM-IV (Diagnostic and Statistical Manual of Mental disorders, fourth edition)*

DSM-IV is a manual published by the American Psychiatric Association (APA) in 1994, describing all recognised mental health disorders at the time of publication. It is regarded as a handbook for mental health professionals to identify the features of a given mental disorder and distinguished the disorder from similar problems. The latest manual is DSM-V published in 2013.

### *EGM (Electronic gaming machine)*

A slot machine that has three or more reels that spin when a button is pushed. Often referred to 'poker machines' or 'pokies' (Australia), 'the slots' (Canada) or 'fruit machines' (United Kingdom).

### *Epidemiology*

The study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the control of health problems.

### *Factor*

A factor is an influence/effect that contributes to a health outcome.

### *GAD (Generalised Anxiety Disorder)*

A psychological disorder that describe a disproportionate anxiety about several aspects of life, such as work, relationships, health and financial matters for a long period of time (Beyond Blue 2015a).

### *Gambling continuum*

Gambling is considered a continuum disorder. The continuum varies from occasional non-problematic gambling to extreme over-involvement resulting in problems or harms for the gambler, and their family, friends and community.

### *HILDA*

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a household-based panel study which began in 2001. It is a large longitudinal study.

### *IRR (Incidence Rate Ratio)*

In regression analysis, IRR refers to the marginal change of the outcome variable in relation to a unit of change in a given exposure variable. For binary exposure variable, IRR refers the marginal change of the outcome variable in relation to the present of the exposure variable compared to the absence of the exposure variable.

### *Item response scale*

Response options to questions or items can be designed so that the options describe variations in intensity or frequency of a characteristic along an increasing or decreasing scale.

### *Kessler Psychological Distress Scale (K10)*

A measure of distress based on 10 questions about the anxiety and depression an individual has experienced in the previous four weeks (Kessler, Andrews, Colpe, Hiripi et al. 2002).

### *Life events*

A list of significant events (e.g. death, marriage, divorce, new employment and others) used in *The Victorian Gambling Study*

### *LLLP (Leisure, Lifestyle, Life Cycle Project)*

LLLP is a Canadian population longitudinal study conducted in Alberta, Canada between 2006 and 2011. The study aimed to 1) identify the normal patterns of continuity and discontinuity in gambling and problem gambling behaviours; 2) identify biopsychosocial variables and behaviour patterns that predict current and future problem gambling and 3) identify an etiological model of problem gambling that is best supported by the longitudinal findings. QLS was a very similar to a study conducted in the Quinte region of Ontario, Canada during the same time period. With overlapping of researchers involved in QLS and LLLP, a set of parallel analyses were conducted in both the studies for comparison. See *Quinte Study*.

### *LOTE (Language Other Than English)*

In population surveys, the question “Do you speak a language other than English at home?” is usually used to identify people from a culturally and linguistically diverse (CALD) background.

### *Logistic regression*

Statistical method for analysing data used when the outcome/dependent variable is dichotomous (e.g. yes/no, true/false).

- univariable: logistic regression using only one exposure/independent variable and a dichotomous outcome variable
- multiple: logistic regression using multiple exposure/independent variables and a dichotomous outcome variable

### *Longitudinal*

A study that involves repeated observations of a population over a long period of time (usually years).

### *Meta-analysis*

A meta-analysis is the use of statistical methods to summarise the results of systematic reviews by contrasting and combining results from different studies to identify patterns among study results

### *Model*

In statistical analysis, a theoretical model is used to describe the observed data. A theoretical model usually features a specific distribution and a selection of criteria.

### *Model fit statistics*

A collection of statistic indicators for models comparison. The indicators provide information on whether a model better describes the observed data when compared to another model. BIC' (Bayesian Information Criterion) was used as the model fit statistic in this report. See *BIC* and *BIC'*.

### *NCS-R (National Comorbidity Survey Replication)*

A National Comorbidity Survey (NCS) was conducted in 1990-92 in order to assess the prevalence and correlates of DSM-III-R disorders in America. Ten years later, respondents of the NCS were reinterviewed in NCS-2. The NCS-2 conducted in 2001-02 aimed to study the patterns and predictors of the course of mental and substance use disorders and to evaluate the effects of primary mental disorders in predicting the onset and course of secondary substance disorders. (Harvard Medical School 2005)

### *Negative binomial regression*

The negative binomial regression is a statistical method for analysing data when the outcome/dependent variable is count data (i.e. discrete and positive number). Negative binomial regression model assumes variances increases with means and therefore better describes over-dispersed data. (See *over-dispersed* and *Poisson regression*)

- univariate: negative binomial regression using only one exposure/independent variable and a count outcome variable
- multiple: negative binomial regression using multiple exposure/independent variables

### *NESARC (National Epidemiological Survey on Alcohol and Related Conditions)*

The NESARC is a longitudinal study and the first wave of the study was conducted in 2001-02 by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) in America. The second wave of the study was conducted in 2004-05. The study included questions on past and current alcohol consumption, and the use of alcohol treatment services. It also asked the respondents questions on tobacco and illicit drug use as well as mental wellbeing. (National Institute on Alcohol Abuse and Alcoholism 2006).

### *Null model*

A null model is a model without any independent/exposure variables apart from the intercept. It is usually used in model fit statistics to compare between models with and without fitted independent variables. This is to find out whether the fitted variables improve the model in describing the observed data compared to the intercept only model. See *BIC* and *model fit statistics*.

### *OCD (Obsessive Compulsive Disorder)*

OCD is an anxiety disorder and people who suffer from the disorder feel the necessity to perform an obsession or compulsion to release their anxiety. (Beyond Blue 2015b)

### *OECD (Organisation for Economic Co-operation and Development)*

The OECD was officially established on 30 September 1961 to facilitate the co-operation between countries, addressing the challenges facing global economy. There are 34 OECE member countries worldwide in 2015. (OECD 2015)

### *Outcome*

In epidemiology the outcome variable is the main variable of interest in the study. It is also called the dependent variable whose presence or absence, or level of severity may be 'dependent' on a particular exposure or circumstance which are often referred to as independent variables. In this report the outcome of

interest was the PGSI score and its level of severity was dependent on socio-demographics variables, comorbidities, and trauma and life events.

#### *Over-dispersed*

The observed data is over-dispersed when the variance observed is greater than the mean in the theoretical model that used to describe the data. See *Poisson regression* and *negative binomial regression*.

#### *Parameter*

Parameter is usually unknown and is estimated from observed data through statistical method.

#### *Poisson regression*

The Poisson regression is a statistical method for analysing data which is used when the outcome/dependent variable is count data (i.e. a discrete and positive number). Poisson regression model assumes that the mean equals the variance. See *over-dispersed* and *negative binomial regression*.

#### *P-value*

Probability value, represented by *P*. The probability that a test statistic would be as extreme as or more extreme than observed if the null hypothesis were true (Last, 2001). See *Statistical significance*.

#### *Predicting*

In regression analysis, a selection of exposure/independent variables are fitted in a model to describe the outcome/dependent variable. In statistical terms, the independent variable "predicts" the dependent variable. However, this does not imply any causal relationship.

#### *Problem Gambling Severity Index (PGSI) score*

A score based on nine questions, from the Canadian Problem Gambling Index, which can be used to estimate an individual's gambling risk status in the preceding 12 months.

#### *Psychological distress*

Negative emotional states that impact on a person's level of functioning. In this study general psychological distress was measured using the 10 questions that make up the Kessler 10. See also *Kessler Psychological Distress Scale*.

#### *Public health approach*

This approach views problem gambling as part of a gambling continuum. It recognises that vulnerability to gambling problems are due to complex interplay between personal, social, economic and environmental as well as biological factors. It is a practice which focuses on improving the health of populations, that is, the health of groups or sub groups, rather than the health of individuals.

#### *QLS (Quinte Longitudinal Study)*

The QLS is a longitudinal prospective study of gambling and problem gambling conducted in the Quinte region of Ontario, Canada from 2006 to 2011. The study aimed to investigate the patterns of continuity and discontinuity in gambling and problem gambling over time, identify individual, social, and structural variables mediating the development of responsible gambling and problem gambling and examine the etiological model of gambling and problem gambling based on the study. The study also explored the implications of the study findings in the prevention of problem gambling. LLLP was a very similar study conducted in Alberta during the same time period. With overlapping of researchers involved in QLS and LLLP, a set of parallel analyses were conducted in both the studies for comparison. See *LLL*.

#### *Saturated model*

A saturated model is a model with all the selected independent/exposure variables fitted. It is usually used in model fit statistics to compare between models with and without fitted independent variables. This is to find out whether the fitted variables improve the model in describing the observed data. See *null model* and *BIC*.



### *SEIFA (Australian Bureau of Statistics four indices of SocioEconomic Indexes For Areas)*

SEIFA was developed by the ABS in order to rank areas in Australia according to relative socio-economic advantage and disadvantage, based on the five-yearly Census. The latest version of SEIFA 2011 consisted of four indexes: 1) Index of Socioeconomic Advantage and Disadvantage (IAD); 2) Index of Education and Occupation (IEO); 3) Index of Economic Resources (IER) and 4) Index of Socioeconomic Disadvantage (IRSD). Each index summarise a different subset of Census variables and focuses on a different aspect of socio-economic advantage and disadvantage. It is used in public health research, usually to examine the relationship between socio-economic disadvantage and various health and educational outcomes at the area rather than at the individual level. (Australian Bureau of Statistics 2013)

### *SEIFA IAD*

Index of Socioeconomic advantage and Disadvantage. See *SEIFA*.

### *SEIFA IEO*

Index of Education and Occupation. See *SEIFA*.

### *SEIFA IER*

Index of Economic Resources. See *SEIFA*.

### *SEIFA IRSD*

Index of Socioeconomic Disadvantage. See *SEIFA*.

### *Size of the effect*

The magnitude of the difference between points of comparison in relation to an exposure or intervention.

### *Secondary analysis*

Analysis undertaken on data from an existing database

### *Social capital*

Social capital has been defined in many ways. It frequently refers to the features of social structures that make resources, advantages and opportunities available to individuals, and that can facilitate collective action. Most definitions of social capital are common in that they focus on networks among people that lead to cooperation and beneficial outcomes for all. Social capital affects health risk behaviour and, inversely, a lack of social capital can impair health. The association between strong social networks as a buffer to morbidity and mortality has been widely reported (Baum 2003; Lin, Smith and Fawkes 2014).

### *Social determinants of health*

The social determinants of health (SDH) are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems. (World Health Organisation 2015)

### *Socio demographics*

Socio-demographics in this study individual characteristics such as education, occupation, income, household type and area level characteristics such as residence in urban or rural regional areas or areas with high or low socioeconomic status.

### *South Oaks Gambling Screen (SOGS)*

A self-administered screen that contains 20 questions based on DSM-III criteria for pathological gambling (Lesieur and Blume 1987).

### *STATA/SE 12*

A statistical software to compute statistical analysis developed and licensed by StataCorp. (StataCorp 2011)

### *Statistical significance*

A mathematical technique to measure whether the results of a study are likely to be true. Statistical significance is calculated as probability that an effect observed in a research study is occurring because of chance. Statistical significance is usually expressed as a P-value. The smaller the P-value, the less likely that the results are due to chance (and more likely that the results are true). Researchers generally believe the results are probably true if the statistical significance is a P-value less than 0.05 ( $P < .05$ ).

### *Statistical test*

A procedure that is intended to determine whether a hypotheses about the distribution of one or more variables should be rejected or accepted.

### *Swelogs (Swedish Longitudinal Study)*

Swelogs is a prospective study of Swedish citizens aged 16-84 years at baseline in 2008 and who were follow for a further three waves. The main objective of this study was to estimate prevalence and incidence of problem and at-risk gambling. (Romild, Volberg and Abbott 2014)

### *Systematic review*

A systematic review answers a defined research question by collecting and summarising all empirical evidence that fits pre-specified eligibility criteria. It is a critical assessment and evaluation of all research studies that address a particular clinical issue.

### *TAFE (Technical and Further Education)*

TAFE refers to tertiary education providing vocational education and training in Australia.

### *Temporal*

Relating to, or denoting, time

### *Variable*

In statistical analysis, a variable refers to some unknown quantity fitted in a model. A model is used to describe and/or estimate the unknown quantities based on observed data. See model.

### *Variance*

In statistics, variance refers to the variation between individual observations within a sample.

### *Weighted/unweighted*

Adjustments or weightings are applied to the data to make it more representative of a broader population (such as the Victorian adult population). They are based on the combined probabilities of a person being selected in the survey. In *The Victorian Gambling Study*, the household selection probability, the intraregional selection probability and the population benchmark selection probability.

### *WHO HPR/HEP*

World Health Organisation Division of Health Promotion, Education and Communications (WHO HPR/HEP 1998 )

## Appendix Seven: References

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- Abbott, M., M. Bellringer, N. Garrett and S. Mundy-McPherson (2014). "New Zealand 2012 National gambling study: Overview and gambling participation." Wellington: AUT.
- Australian Bureau of Statistics. (2013). "SEIFA." Retrieved September 22, 2015, from <http://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa>.
- Baum, F. (2003). *The new public health*, Oxford University Press.
- Beyond Blue. (2015a). "Generalised Anxiety Disorder." Retrieved September 22, 2015, from <https://www.beyondblue.org.au/the-facts/anxiety/types-of-anxiety/gad>.
- Beyond Blue. (2015b). "Obsessive Compulsive Disorder." Retrieved September 22, 2015, from <https://www.beyondblue.org.au/the-facts/anxiety/types-of-anxiety/ocd>.
- Billi, R., C. Stone, M. Abbott and K. Yeung (2014). "The Victorian Gambling Study (VGS) a Longitudinal Study of Gambling and Health in Victoria 2008–2012: Design and Methods." *International Journal of Mental Health and Addiction*: 1-23.
- Billi, R., C. A. Stone, P. Marden and K. Yeung (2014). *The Victorian Gambling Study: A longitudinal study of gambling and health in Victoria, 2008-2012*. Victoria, Australia, Victorian Responsible Gambling Foundation.
- Davidson, T. and B. Rodgers (2009). "Survey of the nature and extent of gambling, and problem gambling, in the Australian Capital Territory." Australian National University: Canberra.
- Department of Justice and Attorney-General (2012). *Queensland Household Gambling Survey 2011-12*. Queensland.
- Hare, S. (2009). *A Study of Gambling in Victoria: Problem gambling from a public health perspective* Melbourne: State of Victoria, Department of Justice.
- Harvard Medical School. (2005). "National Comorbidity Survey." Retrieved September 22, 2015, from <http://www.hcp.med.harvard.edu/ncs/>.
- Hennekens, C. H., J. E. Buring and S. L. Mayrent (1987). *Epidemiology in medicine*, Boston: Little Brown and Company, 1987.
- Kessler, R. C., G. Andrews, L. J. Colpe, E. Hiripi, D. K. Mroczek, S.-L. Normand, . . . A. M. Zaslavsky (2002). "Short screening scales to monitor population prevalences and trends in non-specific psychological distress." *Psychological Medicine* 32(06): 959-976.
- Last, J. M. (2001). *A dictionary of epidemiology*, Oxford Univ Press.
- Lesieur, H. R. and S. B. Blume (1987). "The South Oaks Gambling Screen (SOGS): a new instrument for the identification of pathological gamblers." *Am J Psychiatry* 144(9): 1184-1188.
- Lin, V., J. Smith and S. Fawkes (2014). "Public Health Practice in Australia."
- National Institute on Alcohol Abuse and Alcoholism. (2006). "National Epidemiological Survey on Alcohol and Related Conditions." Retrieved September 15, 2015, from <http://pubs.niaaa.nih.gov/publications/AA70/AA70.htm>.
- OECD. (2015). "History - OECD." Retrieved September 22, 2015, from <http://www.oecd.org/about/history>.
- Office for Problem Gambling (2013). *Gambling Prevalence In South Australia (2012)*. Social Research Centre. North Melbourne.
- Oxford University Press. (2015). "Oxford dictionaries,." Retrieved 22 October 2015, from <http://www.oxforddictionaries.com/definition/english/determinant>.

- Productivity Commission: Australia (1999). Australia's Gambling Industries: Inquiry Report No. 10. Canberra, Retrieved on 27 January, 2016 from the Productivity Commission website: <http://www.pc.gov.au/inquiries/completed/gambling/report>.
- Productivity Commission: Australia (2010). Gambling Inquiry Report No. 50. Canberra, Retrieved on 6 June 2014 from the Productivity Commission website <http://www.pc.gov.au/projects/inquiry/gambling-2009/report>.
- Romild, U., R. Volberg and M. Abbott (2014). "The Swedish Longitudinal Gambling Study (Swelogs): design and methods of the epidemiological (EP-) track." Int J Methods Psychiatr Res: n/a-n/a.
- Roy Morgan Research (1999). Sixth Survey of Community Gambling Patterns and Perceptions. p. f. t. V. C. a. G. Authority.
- Roy Morgan Research (2000). Seventh Survey of Community Gambling Patterns and Perceptions. p. f. t. V. C. a. G. Authority.
- Sproston, K., N. Hing and C. Palankay (2012). "Prevalence of gambling and problem gambling in New South Wales." Sydney: NSW Office of Liquor, Gaming and Racing.
- StataCorp (2011). Stata Statistical Software: Release 12. College Station, TX: , StataCorp LP.
- The Centre for Gambling Research: Australian National University (2004). 2003 Victorian Longitudinal Community Attitudes Survey. Gambling Research Panel Report No. 6. Melbourne, Gambling Research Panel.
- WHO HPR/HEP. (1998 ). "Health promotion glossary." Retrieved 26 March 2015, from <http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf>.
- Williams, R. J. and R. A. Volberg (2010). Best Practices in the Population Assessment of Problem Gambling. Ontario Problem Gambling Research Centre. Retrieved on 27 January, 2016 from Gambling Research Exchange Ontario website: [http://greo.ca/sites/default/files/documents/Williams%20et%20al%282010%29Best\\_practices\\_in\\_the\\_population\\_assessment\\_of\\_PG.pdf](http://greo.ca/sites/default/files/documents/Williams%20et%20al%282010%29Best_practices_in_the_population_assessment_of_PG.pdf).
- World Health Organisation. (2015). "Social determinants of health." Retrieved 22 October 2015, from [http://www.who.int/social\\_determinants/en/](http://www.who.int/social_determinants/en/).

