Correlates of reported gambling problems in the CALD population of Australia

Commissioned by:
Gambling Research Australia
2010

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Funded by the State and Territory Governments and the Australian Government
Published on behalf of Gambling Research Australia
By the Office of Gaming and Racing
Department of Justice Melbourne Victoria Australia
September 2010
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The authors wish to thank Dr. Martin Young, Head of the Gambling Research Unit at Charles Darwin University, Darwin, for his assistance in putting together the proposal for this research and editorial comments on an earlier draft.

ACRONYMS

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AVS	Asian Values Scale
CALD	Culturally and Linguistically Diverse Communities
CI	Confidence interval
CURF	Confidentialised Unit Record File
DIAC	Department of Immigration and Citizenship
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders
EGMs	Electronic Gaming Machines
ESWB	Emotional and social wellbeing
GSS	General Social Survey
MIAC	Minister for Immigration and Citizenship
NESB	Non-English Speaking Background
NILF	Not in the labour force
NLES	Negative Life Events Scale
NSW	New South Wales
NT	Northern Territory
OR	Odds ratio
QLD	Queensland
PTSD	Post traumatic stress disorder
RADL	Remote Access Data Laboratory
RR	Rate ratio
SA	South Australia
SOGS	South Oaks Gambling Screen
SVR	Survey replicate methods
TAS	Tasmania
UK	United Kingdom
VIC	Victoria
WA	Western Australia

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Executive Summary

This report deals with the issue of gambling problems within Australia's Culturally and Linguistically Diverse Communities (CALD). It addresses the following research questions using 2002 and 2006 General Social Survey (thereafter GSS) data:

1. Does the CALD population experience gambling problems amongst social and family networks at higher levels than the non-CALD population in Australia?
2. Does the CALD population experience other life stressors at higher levels than the non-CALD population in Australia?
3. Are there differences between the CALD and non-CALD populations in the inter-relationships between gambling problems and other NLES items?
4. Is being a member of the CALD population significantly associated with reported gambling problems after taking into account other significant predictors of the reported gambling problems in the general population?

Chapter 2 presents descriptive statistics using 2002 and 2006 GSS data obtained from the Australian Bureau of Statistics (ABS), with comparisons made between the CALD and non-CALD population for demographic, socioeconomic, social connectedness and health variables. Chapter 3 then summarises literature from both Australia and overseas on problem gambling in CALD populations. Chapter 4 provides a detailed statistical analysis identifying associations between reported gambling problems and other negative life events, as well as determining the relationship between CALD status and related variables with reported gambling problems. Chapter 5 provides a discussion of the results, and Chapter 6 summarises key findings and offers issues for consideration to monitor and reduce gambling-related harm.

The **measurement of gambling problems** in Australian Bureau of Statistics surveys is captured using the Negative Life Events Scale (NLES). The NLES asks respondents *have any of these things* [list of "stressors" or "negative life events"] *been a problem for you or your family or friends during the last year?* Respondents then answer 'yes' or 'no' to a list of 12 stressors or negative life events namely:

- gambling problem; divorce or separation; death of family member or close friend; serious illness or disability; close friend of family in a serious accident; alcohol or drug related problems; not able to get a job; lost job, made redundant, sacked; witness to violence; victim of abuse or violent crime; trouble with the police; and mental illness.

It is apparent from the wording of the NLES question that the instrument does not measure problem gambling prevalence. It asks respondents if gambling has …*been a problem for you, your family or close friends during the last year*. Therefore, the NLES gambling problem item measures the reach or extent of gambling problems throughout peoples' social and family networks. **It is not an individual measure of problem gambling prevalence**. This broader conceptualisation of gambling-related harm is consistent with the Australian definition of problem gambling which states "problem gambling is characterised by difficulties in limiting money and/or time spent on gambling which leads to adverse consequences for the gambler, others, or for the communities" (Neal, Delfabbro and O'Neil 2005).

Characteristics of the CALD population

Descriptive statistics are presented in Chapter 2 highlighting differences between the 2002 and 2006 CALD and non-CALD populations using data from the GSS. This information can be used to help contextualise the findings from the analyses carried out in Chapter 4.

Approximately three-quarters of the 2002 and 2006 adult CALD population lived in New South Wales (NSW) and Victoria (VIC), compared with just fewer than 60% of the adult non-CALD population. In 2002, the CALD population was over-represented in older age groups, but these differences were less apparent in 2006. The CALD population tended to live in multi-family households, which translated into higher levels of household crowding compared with the non-CALD population for both 2002 and 2006. The CALD population was also more likely to be living in couple with children households and less likely to be living in lone person and couple without children households. Markers of socioeconomic status revealed that the CALD population, while having higher levels of education, were also more likely to be earning less income and be unemployed. However, the CALD population were also less likely to report financial stress in the 12 months preceding the surveys. The CALD population were less likely to participate in social activities including attendance and participation in sports, attending café/bars, participating in arts and craft groups and other recreational activities. However, they were more likely to participate in religious activities.

The descriptive statistics comparing the CALD and non-CALD populations highlight differences across demographic, socioeconomic and social connectedness variables, which all point to the CALD population exhibiting a range of protective factors in relation to developing gambling problems.

Literature review: CALD population and problem gambling

Over the last four decades, particularly since the dismantling of the 'White Australia' policy, immigrant intake has been characterised by a great diversity of origins. A gradual proportionate shift away from the traditional countries of origin to Asian, Pacific (including New Zealand) and African countries of origin has occurred. Australia operates a sophisticated immigration program, with migrants who have university or trade qualifications and speak English well being the preferred settlers. In 2007–08, this group, commonly referred to as skilled migrants, represented nearly 70 per cent of the annual immigration program, which is reflected in the descriptive statistics of the 2002 and 2006 CALD population presented in Chapter 2. Australian and international research (Chapter 3) has pointed to cultural and more universal (socioeconomic) factors that may be conducive to taking up gambling and developing problem gambling in immigrant-born communities and those with an immigrant background. For example, cultural factors considered in the initiation and maintenance of gambling include: a) adherence to cultural values; b) acculturation and c) culturally-determined help seeking behaviours.

Explanations for gambling in immigrant communities seem to have been mostly sought in their failed and/or complicated cultural adjustment to the host country. Ethical attitudes towards gambling, acceptable gambling behaviours and perceptions about how gambling problems should be addressed engrained in the mother cultures are believed to continue influencing gambling behaviour and help seeking behaviour after immigration has taken place. Australian and international research has found that problem gamblers with immigrant backgrounds are a minority in their communities. The impact of successful adaptation to Australia on the gambling patterns of immigrants appears to have been much less explored in the research. The Australian literature has proposed that a successful adaptation could either increase or reduce the likelihood of developing problem gambling in immigrant communities (protect immigrants from developing problem gambling). It may be that acculturation represents a proximate cause for gambling problems (or lack of), and that other cultural

characteristics precede acculturation in the causal chain leading to a person developing gambling problems.

The analyses included in Chapter 4 of this report provide baseline data on the CALD population and their experience of gambling problems in social and family networks. It provides information on whether particular population groups within the CALD population experience gambling problems at higher or lower levels than the non-CALD population. It also provides information on the prevalence of negative life events (e.g. gambling problems, alcohol problems, trouble with police, etc.) for the CALD population and the co-occurrence of different negative events with reported gambling problems.

Results: Analyses of reported gambling problems and negative life events

Estimates of gambling problems and other Negative Life Events Scale (NLES) items

- Gambling problem estimates for the CALD population showed a statistically significant decrease between 2002 (3.3%) and 2006 (1.3%).
- Gambling problem estimates were significantly lower in the CALD population (1.3%) compared with the non-CALD population (3.5%) in 2006, while no difference was observed in 2002 (3.5% and 3.3% respectively).
- Estimates for NLES items abuse or violent crime and losing a job also showed significant drops between the 2002 and 2006 surveys for the CALD population.
- Chronic illness, death of a family member, not having a job and divorce or separation consistently ranked in the top four stressors for both the CALD and non-CALD population in 2002 and 2006.
- The CALD population reported significantly lower estimates than the non-CALD population for all, except two NLES items for both 2002 (being abused or in a violent crime, and other stressor) and 2006 (not able to get a job, and other stressor) surveys.
- Mental illness (3.2% to 4.7%) and chronic illness (17.3% to 20.3%) were the only NLES items to show a statistically significant increase between 2002 and 2006 for the CALD population.

Inter-relationship between gambling problems and other NLES item

The CALD population showed variation in the inter-relationships between NLES items between 2002 and 2006.

- For the 2002 CALD population, gambling problems were most likely to co-occur with divorce or separation, and knowing someone in a serious accident. This group of items represents escapism (through gambling) associated with personal loss and emotional pain.
- For the 2006 CALD population, gambling problems were most likely to co-occur with mental illness.
- The non-CALD population had a consistent set of inter-relationships between NLES items in 2002 and 2006.
    - Gambling problems were most likely to co-occur with abuse or violent crime, witness to violence, alcohol and/or drug problems, and police trouble. This group of items represent factors associated with social transgressions.
- The differences observed for the CALD and non-CALD population in inter-relationships between NLES items indicate that the life experiences are somewhat different for the

CALD population and may reflect different coping mechanisms associated with re-location, and also different (lower) exposure to negative life events or stressors, particularly in relation to social transgressions.

Correlates of reported gambling problems

- For the 2002 CALD population, no CALD-related variables had a significant association with reported gambling problems. However, moderate statistically significant associations were observed for:
    - people born in Australia who did not speak English at home reporting more gambling problems (6.1%),
    - people born overseas who spoke English at home reporting less gambling problems (2.5%), and
    - people who came from south-west Asian language regions reporting more gambling problems (7.8%).
- When adjusting for socio-demographic, socioeconomic, health and social connection characteristics of the population, no 2002 CALD variables were significantly associated with reported gambling problems.
- For the 2006 CALD population, there were statistically significant associations with gambling problems for:
    - people born overseas and not speaking English at home reporting fewer gambling problems (1.3%),
    - people who came from south/south-east/eastern Asian language regions reported less gambling problems (0.5%),
    - people not speaking English well reported less gambling problems (1.0%), and
    - people born in Oceania/New Zealand reported more gambling problems (6.4%).
- When adjusting for socio-demographic, socioeconomic, health and social connection characteristics of the population, being born overseas and not speaking English at home was still significantly associated with reporting fewer gambling problems, while being born in Oceania/New Zealand was also significantly associated with reporting more gambling problems.

Summary of findings and issues for consideration

Findings and issues for consideration
2002 analyses
There is little evidence to suggest that the CALD population as a whole experiences higher (or lower) levels of gambling problems than the non-CALD population.
Some evidence to suggest that CALD sub-populations originating from south-west Asian speaking language regions experience more gambling problems.
The CALD population experiences lower levels of negative life events (or life stressors) compared with the non-CALD population.
Gambling problems are associated with divorce & separation, death of a family member, and knowing someone in a serious accident.
2006 analyses
Strong evidence to suggest that the CALD population as a whole experiences significantly lower levels of gambling problems than the non-CALD population.
Some evidence to suggest that CALD sub-populations originating from south-west Asian speaking language

regions experience more gambling problems.
Strong evidence to suggest that CALD sub-populations originating from Oceania and New Zealand experience significantly higher levels of gambling problems.
The CALD population experiences lower levels of negative life events (or life stressors) compared with the non-CALD population and the 2002 CALD population.
Gambling problems are associated with one other negative life event, namely mental illness.
Literature review
Australia's CALD population comes from a diversity of regions, religions and backgrounds, with immigration policy over the last 30 years increasing the proportion of skilled and English literate migrants, to approximately 70% in recent years.
Specific cultural beliefs and universal factors (e.g. low socioeconomic status) are conducive to taking up gambling and developing problems.
Important cultural factors to consider with regards to problem gambling include adherence to cultural values, acculturation, and culturally-determined help seeking behaviours.
Problem gambling within the CALD population represents only a minor problem. However, some research has found problem gambling to be more severe (e.g. gambling for higher stakes) for some CALD sub-populations. There is also evidence to suggest that gambling participation rates are lower in some CALD sub-populations than in the general community.
Other comments and conclusions
Our analyses do not support the view that gambling problems in the CALD population are higher than the non-CALD population, although certain sub-populations may evidence higher rates.
2002 data shows that the CALD population reported gambling problems in conjunction with negative life events; death, accident, and separation. Since the nature of these negative life events do not support reverse causation where gambling problems appear first and causes these negative events, it is likely that gambling is employed as a coping strategy against them.
The decline in reported gambling problems in the 2006 CALD population saw this strategy disappear and problem gambling became associated with mental health issues rather than coping against negative life events.
In both 2002 and 2006 the non-CALD population reported gambling problems as part of a cluster of social transgression behaviour, whereas this is not a feature of reported gambling problems in the CALD populations in either timeframe. Hence there are important qualitative differences in the underlying motivations of problem gambling and the role it plays in CALD and non-CALD populations.
The significant decline in reported gambling problems in the CALD population in 2006 may be especially associated with a range of protective socioeconomic and social connectedness factors.
The correlational nature of the study makes it difficult to infer some aspects of causation in that changes between epochs may be due to the changed circumstances of the populations or they may reflect a changed CALD population due to the intervening intake of new migrants.
There are important data (e.g. non-specific CALD survey being analysed and subsequent small sample size for this group) and instrument (e.g. range of variables available for analysis) issues that limit the conclusions that can be drawn from existing data sources, creating an opportunity for review and reform.

Chapter 1: Introduction

1.1 Purpose of the report

This report addresses priority area 5 identified by GRA, 'the nature of gambling and associated risks across different Culturally and Linguistically Diverse Communities (CALD)'. National data from the Australian Bureau of Statistics (ABS) was analysed to reveal those primary explanatory variables (language and country of birth) and secondary variables (socio-demographic and socioeconomic) that are correlated with reported gambling problems. Where data permitted, comparisons were made between individual CALD populations and the Anglo-English speaking population with regards to reported gambling problems. This determined those risk factors that differentiate the populations in terms of vulnerability to gambling-related harm.

In conceptualising gambling problems, it is important to differentiate between the 'individual problem gambler' (and associated prevalence estimates in the population) and gambling-related problems in the population. The analyses contained in the report refer to the latter which can be conceptualised as the extent to which gambling-related problems affect individuals *and* their social and family networks. Therefore, the analyses address the following research questions using 2002 and 2006 General Social Survey (GSS) data:

1. Does the CALD population experience gambling problems amongst social and family networks at higher levels than the non-CALD population in Australia?
2. Does the CALD population experience other life stressors at higher levels than the non-CALD population in Australia?
3. Are there differences between the CALD and non-CALD populations in the inter-relationships between gambling problems and other NLES items?
4. Is being a member of the CALD population significantly associated with reported gambling problems after taking into account other significant predictors of the reported gambling problems in the general population?

1.2 Outline of the report

Chapter 2 first defines the CALD population as conceptualised when using ABS surveys. It then presents descriptive statistics for the CALD and non-CALD populations from the 2002 and 2006 GSSs. Distributions are presented for demographic, socioeconomic, social connectedness and culture-related variables for the CALD and non-CALD populations. Significant differences between CALD and non-CALD populations are assessed using rate ratios (RR) and 95% confidence intervals (CIs). Additional tables comparing descriptive variables between the 2002 and 2006 CALD populations are included in the Appendix.

Chapter 3 first provides a brief summary of immigration policy and changes in ethnic composition of the Australian population between 1954 and 2006. Second, it reviews gambling-related literature for the CALD population. This chapter and Chapter 2 provide background context to the analyses in Chapter 4 and the subsequent discussion of the findings in Chapter 5.

Chapter 4 presents statistical analyses of ABS survey data from the 2002 and 2006 GSSs. It describes the data sets used and the definition of gambling problems as they are conceptualised by the Negative Life Events Scale (NLES) used in ABS surveys (the NLES is

a scale aimed at measuring emotional and social well-being). This chapter first presents estimates for gambling problems and other NLES items for the CALD and non-CALD populations and statistical differences. Inter-relationships between NLES items are then reported based upon factor analyses of the NLES items (including gambling problems) for the CALD and non-CALD populations using 2002 and 2006 GSS data.

Lastly, multivariable models are presented to determine if CALD status has a significant association with gambling problems, after adjustment for other significant predictors of gambling problems in the population. Because the GSS is not a CALD-specific survey, the sample size within States and Territories is small and estimates were unable to be produced for the CALD population at this level. Furthermore, readers are advised to look at the size of the standard errors associated with the estimate of reported gambling problems. The standard error of the estimate provides the lower and upper limits for the estimate and indicates that there is a 67% chance that the true estimates falls within these bounds. Where these standard errors are greater than 30%, the estimate should be interpreted with caution.

Chapter 5 discusses the results presented in Chapter 4 in light of the contextual information gleaned from the literature review in Chapter 3 and the descriptive statistics on the CALD and non-CALD populations outlined in Chapter 2. This chapter also outlines limitations (caveats) of the analysis and definitional issues associated with the CALD concept.

Chapter 6 identifies key findings of this piece of research and puts forward issues for consideration associated with each finding.

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Chapter 2: Demographic, social and economic characteristics of CALD and non-CALD populations for 2002 and 2006

2.1 Introduction

This chapter presents descriptive statistics comparing the CALD and non-CALD populations for each of the 2002 and 2006 GSSs. For a description of the survey methods see the methods section of Chapter 4 and relevant ABS technical manuals (ABS 2003; 2007). Differences between the CALD and non-CALD populations (and the 2002 and 2006 CALD populations) were determined using rate ratios and 95% confidence intervals. This is simply a ratio between the percentages for the populations being compared. Two examples are now provided.

Example 1: If 50% of the CALD population has brown eyes, and 40% of the non-CALD population has brown eyes, then the following calculation gives the rate ratio between CALD and non-CALD:

> 50/40 = 1.25 or brown eye colour is 25% (absolute of [1-1.25] x 100) higher in the CALD population compared with the non-CALD population.

Example 2: If 40% of the CALD population has brown eyes, and 50% of the non-CALD population has brown eyes, then the following calculation gives the rate ratio between CALD and non-CALD:

> 40/50 = 0.80 or brown eye colour is 20% (absolute of [1-0.80] x 100) lower in the CALD population compared with the non-CALD population.

2.1.1 Defining the CALD population using Australian Bureau of Statistics surveys

The CALD population is defined as people who are born overseas **and** do not speak English at home. Table 2.1 lists the possible categories of resident that may be derived from the 2002 and 2006 GSS data. When grouped by birthplace (overseas or Australia) and language spoken at home (English or not English), the CALD population makes up 13.0% of the total adult population in 2002 and this increases to 13.3% of the population in 2006. However, people who are not classified as CALD by this definition may still reflect attributes of the CALD population. For example, 3% of people born in Australia stated that they did not speak English at home, while just fewer than 15% of people were born overseas, but stated that they did speak English at home. Unfortunately, the 2002 and 2006 GSSs did not collect information on whether people spoke a second or third language fluently, which would provide further information with which to define the CALD population more precisely.

Table 2.1 Distribution of CALD population and CALD-related variables for 2002 and 2006

CALD variables	2006 % (SE)	2002 % (SE)
Birthplace and language groupings		
Non-CALD		
Australia & English at home	68.7 (0.7)	69.4 (0.5)
Australia & not English	3.1 (0.3)	3.0 (0.2)
Overseas & English at home	14.8 (0.3)	14.6 (0.4)
CALD		
Overseas & not English	13.3 (0.5)	13.0 (0.4)

CALD variables	2006 % (SE)	2002 % (SE)
	100.0	**100.0**
CALD status		
Non-CALD population	86.7 (0.5)	87.0 (0.4)
CALD population	13.3 (0.5)	13.0 (0.4)
Total adult population (%)	**100.0**	**100.0**
Total adult population (N)	**15,307,066**	**14,503,315**

The CALD concept itself, although having an intuitive appeal, has inherent complexities that are not well captured by the definition as applied to ABS data. As a conceptual tool, the CALD definition may be less useful than alternative, more specific measures, such as the characteristics and timing of different immigration waves. The literature review in Chapter 3 also demonstrates the lack of consistency in defining the CALD population and from the outset readers need to be aware that different definitions for CALD are used in the reviewed studies.

2.2 Language and country of origin

Table 2.2 lists those variables used in the identification of the CALD population as well as variables collected as part of the GSS which also relate to cultural and linguistic diversity. The distributions of the variables for the 2002 and 2006 CALD population appear in parallel columns and rate ratios and 95% confidence intervals are provided in the final column to determine statistically significant differences between the two surveys (bolded RRs indicate a statistically significant difference). Between 2002 and 2006 there was a small increase in the percentage of the CALD population that spoke northern European languages, while there were decreases in speakers of eastern and southern European languages. Increases were also apparent in the number of Asian language speakers. There was a small increase in the percentage of the CALD population reporting that they speak English very well. There was a large decrease in the percentage of the CALD population that were born in European countries, which were made up by increases in people born in Africa or the Middle East, and Asian countries including India.

Table 2.2 Distribution of ethnicity variables and comparison of the 2002 and 2006 CALD populations

Culture and language variables	2002 CALD % (SE)	2006 CALD % (SE)	Rate ratio[1] (95% CI)
Main language spoken			
North European	4.8 (0.7)	6.3 (0.7)	**1.31 (1.07-1.56)**
South European	25.6 (1.6)	19.3 (1.6)	**0.75 (0.67-0.83)**
East European	15.9 (1.0)	11.0 (1.4)	0.69 (0.54-0.84)
SW Asian central	9.4 (1.0)	10.3 (1.4)	1.10 (0.91-1.28)
South Asian	9.2 (0.9)	9.9 (1.0)	**1.08 (1.02-1.13)**
SE Asian	11.9 (1.2)	14.9 (1.8)	**1.25 (1.09-1.42)**
East Asian	18.5 (1.3)	23.3 (1.8)	**1.26 (1.18-1.34)**
Other language	4.6 (0.7)	4.9 (0.9)	1.07 (0.85-1.28)
Level in spoken English			
Very well	35.9 (1.6)	38.4 (2.0)	**1.07 (1.01-1.13)**
Well	38.7 (1.5)	38.0 (2.1)	0.98 (0.91-1.06)
Not well	23.0 (1.7)	20.8 (1.3)	**0.90 (0.83-0.97)**
None	2.4 (0.5)	2.8 (0.6)	**1.17 (1.05-1.28)**
Region of birth			
Europe	40.8 (1.8)	32.4 (2.3)	**0.79 (0.71-0.88)**

Culture and language variables	2002 CALD % (SE)	2006 CALD % (SE)	Rate ratio[1] (95% CI)
Africa/Middle East	11.5 (0.9)	14.1 (1.5)	**1.23 (1.05-1.40)**
North/South/East Asia	30.9 (1.5)	38.1 (2.1)	**1.23 (1.17-1.30)**
India/Central Asia	7.8 (0.9)	8.7 (1.1)	1.12 (1.00-1.23)
New Zealand/Oceania	4.5 (0.8)	3.7 (0.8)	0.82 (0.62-1.02)
Americas and not stated	4.6 (0.7)	2.9 (0.7)	**0.63 (0.40-0.86)**
Year of arrival			
2001-2006 / 2002[2] (recent)	5.1 (0.8)	16.9 (1.6)	**3.31 (2.50-4.13)**
1991-2000 (medium)	26.8 (1.8)	23.0 (1.7)	**0.86 (0.81-0.91)**
Before 1991 (long term)	68.1 (1.9)	60.2 (1.8)	**0.88 (0.87-0.90)**
Total	**100.0**	**100.0**	**-**
N (weighted population)	1,891,353	2,034,595	-
Australia	**13.0 (0.4)**	**13.3 (0.5)**	

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 Rate ratio 2006 estimate to 2002 estimate

2 Recent = 2001–2002 in the 2002 GSS and Recent = 2001–2006 in the 2006 GSS

2.3 Demographic characteristics

2.3.1 CALD 2002 versus non-CALD 2002

The distribution of demographic variables for the 2002 CALD and non-CALD populations is presented in Table 2.3. Compared with the non-CALD population, *the 2002 CALD population was over-represented* in the following variables:

- Living in NSW (RR 1.28, 95% CI 1.25 to 1.32) and VIC (RR 1.44, 1.39 to 1.49)
- Older population for 35–44 years (RR 1.07, 1.01 to 1.13), 45–54 years (RR 1.09, 1.02 to 1.15), and 55 years and over (RR 1.19, 1.15 to 1.23)
- Married (RR 1.10, 1.08 to 1.11)
- Crowding (see note below Table 2.3 for categories of crowding): most crowded (RR 1.41, 1.32 to 1.50) and 3rd quartile (RR 1.17, 1.14 to 1.20)
- Two-family households (RR 3.25, 2.63 to 3.87)

Compared with the non-CALD population, *the 2002 CALD population was under-represented* in the following variables:

- Living in SA (RR 0.72, 0.57 to 0.86), WA (RR 0.79, 0.68 to 0.91) and TAS (RR 0.19, 0.00 to 0.62)
- Younger population: 18–24 years (RR 0.77, 0.68 to 0.86) and 25–34 years (RR 0.75, 0.70 to 0.81)
- Not married (RR 0.83, 0.80 to 0.86)
- Crowding: 1st quartile (RR 0.69, 0.60 to 0.78), and 2nd quartile (RR 0.78, 0.75 to 0.81)
- Lone person households (RR 0.69, 0.58 to 0.81)

Table 2.3 Distribution of demographic variables by CALD status: **2002 GSS**

Demographic variables	2002 CALD % (SE)	2002 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2006 CALD % (SE)
State/Territory				
NSW	41.8 (1.9)	32.6 (0.3)	**1.28 (1.25-1.32)**	42.1 (2.0)
VIC	34.4 (1.6)	23.9 (0.3)	**1.44 (1.39-1.49)**	34.4 (1.5)
QLD	7.9 (1.0)	20.2 (0.2)	**0.39 (0.33-0.45)**	9.1 (1.0)
SA	5.8 (0.6)	8.1 (0.1)	**0.72 (0.57-0.86)**	5.6 (0.5)
WA	8.0 (0.6)	10.1 (0.1)	**0.79 (0.68-0.91)**	6.5 (0.7)

Demographic variables	2002 CALD % (SE)	2002 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2006 CALD % (SE)
TAS	0.5 (0.1)	2.7 (0.0)	**0.19 (0.00-0.62)**	0.5 (0.1)
NT	0.4 (0.0)	0.8 (0.0)	0.50 (0.00-1.96)	0.5 (0.0)
ACT	1.2 (0.1)	1.7 (0.0)	0.71 (0.02-1.39)	1.3 (0.1)
Gender				
Male	49.9 (1.4)	49.4 (0.2)	1.01 (0.99-1.03)	48.7 (2)
Female	50.1 (1.4)	50.6 (0.2)	0.99 (0.97-1.01)	51.3 (2)
Age (years)				
18-24	10.4 (1.0)	13.5 (0.1)	**0.77 (0.68-0.86)**	10.6 (1.0)
25-34	15.6 (1.1)	20.7 (0.2)	**0.75 (0.70-0.81)**	18.3 (1.3)
35-44	21.4 (1.4)	20.0 (0.2)	**1.07 (1.01-1.13)**	19.8 (1.1)
45-54	19.6 (1.3)	18.0 (0.2)	**1.09 (1.02-1.15)**	18.2 (1.7)
55 or more	33.0 (1.8)	27.7 (0.3)	**1.19 (1.15-1.23)**	33.1 (1.9)
Marital status				
Not married	30.4 (1.5)	36.5 (0.6)	**0.83 (0.80-0.86)**	31.8 (1.3)
Married	69.6 (1.5)	63.5 (0.6)	**1.10 (1.08-1.11)**	68.2 (1.3)
Crowding[2] quartiles				
Least crowded	9.0 (0.8)	13.0 (0.4)	**0.69 (0.60-0.78)**	13.2 (1.2)
2nd quartile	27.5 (1.2)	35.3 (0.5)	**0.78 (0.75-0.81)**	16.6 (1.4)
3rd quartile	45.9 (1.6)	39.2 (0.6)	**1.17 (1.14-1.20)**	33.5 (2.0)
Most crowded	17.6 (1.0)	12.5 (0.5)	**1.41 (1.32-1.50)**	36.7 (1.8)
Household type				
One-family	81.2 (1.4)	79.7 (0.5)	1.02 (1.00-1.03)	79.2 (1.8)
Two-family	5.2 (1.0)	1.6 (0.2)	**3.25 (2.63-3.87)**	6.6 (1.0)
Mixed & group/share	4.6 (0.9)	5.7 (0.3)	0.81 (0.60-1.01)	5.6 (1.4)
Lone person	9.0 (0.8)	13.0 (0.4)	**0.69 (0.60-0.78)**	8.6 (0.9)
Family type				
Couple with children	52.6 (1.8)	42.5 (0.6)	**1.24 (1.16-1.31)**	nc
Single parent	8.4 (0.7)	8.7 (0.3)	0.97 (0.82-1.11)	nc
Couple no children	24.3 (1.3)	29.7 (0.5)	**0.82 (0.74-0.90)**	nc
Lone person	9.0 (0.8)	13.0 (0.4)	**0.69 (0.58-0.81)**	nc
Other type	5.8 (0.8)	6.2 (0.2)	0.94 (0.69-1.18)	nc
Total	**100.0**	**100.0**	**-**	**100.0**
N (weighted population)	**1,891,353**	**12,611,962**	**-**	**2,034,595**
Australia	**13.0 (0.4)**	**87.0 (0.4)**	**14,503,315**	**13.3 (0.5)**

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 Rate ratio 2002 CALD to 2002 non-CALD

2 2006 crowding are quartiles of persons per bedroom, while in 2002 Least crowded: one person per dwelling, 2nd quartile: two persons per dwelling, 3rd quartile: three to four persons per dwelling, and Most crowded: five more persons per dwelling

nc = Data item not comparable between 2002 and 2006 surveys

2.3.2 CALD 2006 versus non-CALD 2006

The distribution of demographic variables for the 2006 CALD and non-CALD populations is presented in Table 2.4. Compared with the non-CALD population *the 2006 CALD population was over-represented* in the following variables:

- Living in NSW (RR 1.31, 1.19 to 1.43) and VIC (RR 1.45, 1.33 to 1.57)
- Married (RR 1.07, 1.05 to 1.10)
- Crowding most crowded (RR 1.61, 1.49 to 1.73)
- Two-family households (RR 4.40, 3.78 to 5.02)
- Family type couple with children (RR 1.18, 1.08 to 1.29), and other type (RR 1.38, 1.18 to 1.58)

Compared with the non-CALD population *the 2006 CALD population was under-represented* in the following variables:

- Living in QLD (RR 0.44, 0.34 to 0.53), SA (RR 0.70, 0.58 to 0.82), WA (RR 0.64, 0.50 to 0.77), TAS (RR 0.19, 0.11 to 0.26), NT (RR 0.63, 0.55 to 0.70), and ACT (RR 0.81, 0.70 to 0.93)
- Aged 18 to 24 years (RR 0.82, 0.67 to 0.96)
- Not married (RR 0.88, 0.86 to 0.90)
- Least crowded houses (RR 0.66, 0.55 to 0.78), and 2nd crowding quartile (RR 0.62, 0.52 to 0.72)
- Lone person households (RR 0.65, 0.52 to 0.78)
- Couples with no children (RR 0.71, 0.64 to 0.78) and lone person (RR 0.65, 0.52 to 0.78) family types

Table 2.4 Distribution of demographic variables by CALD status: **2006 GSS**

Demographic variables	2006 CALD % (SE)	2006 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2002 CALD % (SE)
State/Territory				
NSW	42.1 (2.0)	32.1 (0.3)	**1.31 (1.19-1.43)**	41.8 (1.9)
VIC	34.4 (1.5)	23.7 (0.2)	**1.45 (1.33-1.57)**	34.4 (1.6)
QLD	9.1 (1.0)	20.9 (0.2)	**0.44 (0.34-0.53)**	7.9 (1.0)
SA	5.6 (0.5)	8.0 (0.1)	**0.70 (0.58-0.82)**	5.8 (0.6)
WA	6.5 (0.7)	10.2 (0.1)	**0.64 (0.50-0.77)**	8.0 (0.6)
TAS	0.5 (0.1)	2.7 (0.0)	**0.19 (0.11-0.26)**	0.5 (0.1)
NT	0.5 (0.0)	0.8 (0.0)	**0.63 (0.55-0.70)**	0.4 (0.0)
ACT	1.3 (0.1)	1.6 (0.0)	**0.81 (0.70-0.93)**	1.2 (0.1)
Gender				
Male	48.7 (2)	49.4 (0.3)	0.99 (0.91-1.06)	49.9 (1.4)
Female	51.3 (2)	50.6 (0.3)	1.01 (0.94-1.09)	50.1 (1.4)
Age (years)				
18-24	10.6 (1.0)	13.0 (0.2)	**0.82 (0.67-0.96)**	10.4 (1.0)
25-34	18.3 (1.3)	18.4 (0.2)	0.99 (0.86-1.13)	15.6 (1.1)
35-44	19.8 (1.1)	19.5 (0.2)	1.02 (0.91-1.12)	21.4 (1.4)
45-54	18.2 (1.7)	18.3 (0.3)	0.99 (0.82-1.17)	19.6 (1.3)
55 or more	33.1 (1.9)	30.9 (0.3)	1.07 (0.95-1.19)	33.0 (1.8)
Marital status				
Not married	31.8 (1.3)	36.3 (0.5)	**0.88 (0.86-0.90)**	30.4 (1.5)
Married	68.2 (1.3)	63.7 (0.5)	**1.07 (1.05-1.10)**	69.6 (1.5)
Crowding quartiles				
Least crowded	13.2 (1.2)	19.9 (0.5)	**0.66 (0.55-0.78)**	9.0 (0.8)
2nd quartile	16.6 (1.4)	26.9 (0.6)	**0.62 (0.52-0.72)**	27.5 (1.2)
3rd quartile	33.5 (2.0)	30.3 (0.5)	1.11 (0.98-1.23)	45.9 (1.6)
Most crowded	36.7 (1.8)	22.8 (0.7)	**1.61 (1.49-1.73)**	17.6 (1.0)
Household type				
One-family	79.2 (1.8)	79.0 (0.4)	1.00 (0.96-1.05)	81.2 (1.4)
Two-family	6.6 (1.0)	1.5 (0.2)	**4.40 (3.78-5.02)**	5.2 (1.0)
Mixed & group/share	5.6 (1.4)	6.2 (0.3)	0.90 (0.47-1.34)	4.6 (0.9)
Lone person	8.6 (0.9)	13.3 (0.3)	**0.65 (0.52-0.78)**	9.0 (0.8)
Family type[2]				
Couple with children	36.7 (1.8)	31.0 (0.5)	**1.18 (1.08-1.29)**	nc
Single parent	4.6 (0.7)	4.7 (0.2)	0.98 (0.70-1.26)	nc
Couple no children	21.3 (1.2)	30.0 (0.8)	**0.71 (0.64-0.78)**	nc
Lone person	8.6 (0.9)	13.3 (0.3)	**0.65 (0.52-0.78)**	nc
Other type	28.8 (2.3)	20.9 (0.6)	**1.38 (1.18-1.58)**	nc
Total	**100.0**	**100.0**	**-**	**100.0**
N (weighted population)	**2,034,595**	**13,272,471**	**-**	1,891,353

Demographic variables	2006 CALD % (SE)	2006 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2002 CALD % (SE)
Australia	**13.3 (0.5)**	**86.7 (0.5)**		**13.0 (0.4)**

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 2006 CALD to 2006 non-CALD Rate ratio (95% confidence interval)

2 Variable categories changed between 2002 and 2006 so estimates are not comparable

2.4 Socioeconomic status

2.4.1 CALD 2002 versus non-CALD 2002

The distribution of socioeconomic variables for the 2002 CALD and non-CALD populations is presented in Table 2.5. Compared with the non-CALD population *the 2002 CALD population was over-represented* in the following variables:

- House owners with no mortgage (RR 1.04, 1.01 to 1.07)
- Degree or higher (RR 1.28, 1.21 to 1.35), and Year 11 or 12 (RR 1.06, 1.01 to 1.10)
- Full-time study (RR 1.98, 1.59 to 2.37)
- Unemployed (RR 1.38, 1.07 to 1.69), and not in the labour force (RR 1.36, 1.26 to 1.46)
- Lowest and 2nd lowest personal income quintiles (RR 1.65, 1.60 to 1.70, and 1.09, 1.03 to 1.16)
- Lowest and 2nd lowest household equivalised income quintiles (RR 1.51, 1.44 to 1.58, and 1.17, 1.10 to 1.24)
- Main source of income non-government (RR 1.21, 1.17 to 1.25)
- Couldn't raise $2000 in emergency (RR 1.83, 1.74 to 1.91)
- No cash flow problems in last year (RR 1.09, 1.07 to 1.11)
- No access to motor vehicle (RR 1.98, 1.90 to 2.07)

Compared with the non-CALD population *the 2002 CALD population was under-represented* in the following variables:

- House owners with a mortgage (RR 0.92, 0.88 to 0.95)
- Part-time study (RR 0.54, 0.38 to 0.70)
- Employed full-time (RR 0.77, 0.74 to 0.79) and part-time (RR 0.76, 0.70 to 0.82)
- Personal income 3rd (RR 0.88, 0.82 to 0.94), 4th (RR 0.76, 0.70 to 0.81) and highest (5th) income quintile (RR 0.56, 0.50 to 0.62)
- Household equivalised income 4th (RR 0.91, 0.85 to 0.98) and highest income quintile (RR 0.52, 0.46 to 0.57)
- Main source of income government (RR 0.91, 0.89 to 0.94)
- Cash flow problems last 12 months: one (RR 0.72, 0.59 to 0.85) and two or more (RR 0.59, 0.49 to 0.69)
- Has access to a motor vehicle (RR 0.85, 0.83 to 0.87)

Table 2.5 Distribution of socioeconomic variables by CALD status: **2002 GSS**

Socioeconomic status Variables	2002 CALD % (SE)	2002 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2006 CALD % (SE)
Tenure type				
Owner no mortgage	39.6 (1.6)	38.0 (0.6)	**1.04 (1.01-1.07)**	37.4 (2.2)
Owner mortgage	32.0 (1.7)	34.9 (0.6)	**0.92 (0.88-0.95)**	31.5 (2.2)
Renter	26.1 (1.8)	25.2 (0.6)	1.04 (0.99-1.08)	29.1 (1.9)
Other type	2.3 (0.5)	1.9 (0.2)	1.21 (0.60-1.82)	2.0 (0.5)

Socioeconomic status Variables	2002 CALD % (SE)	2002 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2006 CALD % (SE)
Highest qualification				
Degree or higher	20.8 (1.6)	16.2 (0.5)	**1.28 (1.21-1.35)**	27.8 (1.8)
Advanced Diploma	7.6 (0.8)	7.9 (0.3)	0.96 (0.82-1.11)	8.7 (1.4)
Certificate1-4	11.7 (1.2)	18.2 (0.5)	**0.64 (0.58-0.71)**	9.2 (1.2)
Year 11or 12	26.3 (1.3)	24.9 (0.5)	**1.06 (1.01-1.10)**	26.6 (1.7)
Year 10 or less	33.6 (1.7)	32.8 (0.6)	1.02 (0.99-1.06)	27.7 (1.9)
Study status				
Full-time study	10.3 (1.2)	5.2 (0.3)	**1.98 (1.59-2.37)**	8.9 (1.3)
Part-time study	3.8 (0.6)	7.0 (0.3)	**0.54 (0.38-0.70)**	4.6 (0.8)
Not studying	85.9 (1.2)	87.9 (0.3)	0.98 (0.95-1.00)	86.5 (1.7)
Labour force status				
Employed full-time	36.1 (1.7)	46.9 (0.5)	**0.77 (0.70-0.84)**	39.1 (1.8)
Employed part-time	14.6 (1.4)	19.2 (0.5)	**0.76 (0.62-0.90)**	16.1 (1.4)
Unemployed	5.1 (0.8)	3.7 (0.2)	1.38 (0.98-1.78)	4.9 (0.9)
Not in the labour force	38.3 (1.6)	28.1 (0.5)	**1.36 (1.26-1.46)**	35.2 (1.3)
Studying (and NILF[2])	5.9 (0.8)	2.1 (0.2)	**2.81 (2.28-3.34)**	4.7 (1.0)
Personal income quintiles				
Lowest quintile	36.1 (1.7)	21.9 (0.4)	**1.65 (1.60-1.70)**	37.4 (1.8)
2nd quintile	19.6 (1.5)	17.9 (0.5)	**1.09 (1.03-1.16)**	16.6 (1.5)
3rd quintile	18.4 (1.6)	20.9 (0.4)	**0.88 (0.82-0.94)**	22.0 (1.9)
4th quintile	14.8 (1.0)	19.6 (0.5)	**0.76 (0.70-0.81)**	11.7 (1.0)
Highest quintile	11.1 (1.1)	19.7 (0.5)	**0.56 (0.50-0.62)**	12.3 (1.5)
Household equivalised income				
Lowest quintile	25.7 (1.4)	17.0 (0.6)	**1.51 (1.44-1.58)**	26.2 (1.8)
2nd quintile	19.6 (1.2)	16.8 (0.5)	**1.17 (1.10-1.24)**	16.0 (1.9)
3rd quintile	18.0 (1.3)	17.3 (0.5)	1.04 (0.97-1.11)	17.5 (1.5)
4th quintile	16.9 (1.4)	18.5 (0.6)	**0.91 (0.85-0.98)**	13.2 (1.0)
Highest quintile	11.6 (0.9)	22.5 (0.6)	**0.52 (0.46-0.57)**	11.6 (1.1)
Unknown income	8.2 (1.3)	7.9 (0.4)	1.04 (0.89-1.18)	15.5 (1.6)
Main source of income				
Non-government	64.7 (1.7)	70.9 (0.5)	**1.21 (1.17-1.25)**	68.9 (1.6)
Government	35.3 (1.7)	29.1 (0.5)	**0.91 (0.89-0.94)**	31.1 (1.6)
Raise $2000				
Can't raise	23.0 (1.5)	12.6 (0.4)	**1.83 (1.74-1.91)**	20.0 (1.8)
Can raise $2000	73.4 (1.5)	85.0 (0.4)	**0.86 (0.85-0.88)**	77.0 (2.0)
Don't know	3.6 (0.5)	2.5 (0.2)	1.44 (0.98-1.90)	3.1 (0.6)
Cash flow problems				
No cash flow problems	86.4 (1.2)	79.0 (0.5)	**1.09 (1.07-1.11)**	86.4 (1.2)
One problem	6.7 (0.9)	9.3 (0.3)	**0.72 (0.59-0.85)**	7.2 (1.0)
Two or more problems	6.9 (0.8)	11.7 (0.4)	**0.59 (0.49-0.69)**	6.3 (0.7)
Access to Motor vehicle				
Has car	73.6 (1.5)	86.7 (0.4)	**0.85 (0.83-0.87)**	75.2 (1.8)
No car	26.4 (1.5)	13.3 (0.4)	**1.98 (1.90-2.07)**	24.8 (1.8)
Total	**100.0**	**100.0**	**-**	**100.0**
N (weighted population)	**1,891,353**	**12,611,962**	**-**	**2,611,962**
Australia	**13.0 (0.4)**	**87.0 (0.4)**	**14,503,315**	**-**

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 Rate ratio 2002 CALD to 2002 non-CALD

2 NILF = Not in the labour force

2.4.2 CALD 2006 versus non-CALD 2006

Table 2.6 presents the distribution of socioeconomic variables for the 2006 CALD and non-CALD populations. Compared with the non-CALD population *the 2006 CALD population was over-represented* in the following variables:

- Renters (RR 1.155, 1.02 to 1.29)
- Degree or higher (RR 1.43, 1.27 to 1.59), and Years 11 and 12 (RR 1.16, 1.02 to 1.30)
- Full-time study (RR 2.07, 1.55 to 2.59)
- Unemployed (RR 1.75, 1.17 to 2.33), and not in the labour force (RR 1.33, 1.22 to 1.43)
- Lowest personal income quintile (RR 1.71, 1.59 to 1.83)
- Lowest household equivalised income quintile (RR 1.74, 1.52 to 1.95)
- Main source of income government (RR 1.19, 1.08 to 1.31)
- Can't raise $2000 (RR 1.67, 1.41 to 1.93)
- No cash flow problems in last 12 months (RR 1.06, 1.03 to 1.08)
- No access to a car (RR 2.03, 1.79 to 2.27)

Compared with the non-CALD population *the CALD population was under-represented* in the following variables:

- Owner with a mortgage (RR 0.86, 0.74 to 0.97)
- Certificate I to IV (RR 0.49, 0.36 to 0.61)
- Part-time study (RR 0.65, 0.44 to 0.86)
- Employed full-time (RR 0.81, 0.74 to 0.88), and part-time (RR 0.84, 0.71 to 0.98)
- Fourth (RR 0.59, 0.49 to 0.68), and highest personal income quintiles (RR 0.64, 0.49 to 0.79)
- Fourth (RR 0.72, 0.62 to 0.82), and highest household equivalised income quintiles (RR 0.58, 0.48 to 0.69)
- Main source of income non-government (RR 0.93, 0.89 to 0.97)
- Can't raise $2000 (RR 0.89, 0.85 to 0.94)
- Two or more cash flow problems in 12 months (RR 0.60, 0.48 to 0.72)
- Have access to a car (RR 0.86, 0.82 to 0.90)

Table 2.6 Distribution of socioeconomic variables by CALD status: **2006 GSS**

Socioeconomic status Variables	**2006 CALD % (SE)**	**2006 Non-CALD % (SE)**	**Rate ratio[1] (95% CI)**	**2002 CALD % (SE)**
Tenure type				
Owner no mortgage	37.4 (2.2)	35.6 (0.7)	1.05 (0.94-1.16)	39.6 (1.6)
Owner mortgage	31.5 (2.2)	36.8 (0.7)	**0.86 (0.74-0.97)**	32.0 (1.7)
Renter	29.1 (1.9)	25.2 (0.7)	**1.15 (1.02-1.29)**	26.1 (1.8)
Other type	2.0 (0.5)	2.4 (0.3)	0.83 (0.48-1.19)	2.3 (0.5)
Highest qualification				
Degree or higher	27.8 (1.8)	19.4 (0.6)	**1.43 (1.27-1.59)**	20.8 (1.6)
Advanced Diploma	8.7 (1.4)	8.2 (0.3)	1.06 (0.74-1.39)	7.6 (0.8)
Certificate1-4	9.2 (1.2)	18.9 (0.5)	**0.49 (0.36-0.61)**	11.7 (1.2)
Year 11or 12	26.6 (1.7)	22.9 (0.5)	**1.16 (1.02-1.30)**	26.3 (1.3)
Year 10 or less	27.7 (1.9)	30.5 (0.6)	0.91 (0.79-1.03)	33.6 (1.7)
Study status				
Full-time study	8.9 (1.3)	4.3 (0.3)	**2.07 (1.55-2.59)**	10.3 (1.2)
Part-time study	4.6 (0.8)	7.1 (0.4)	**0.65 (0.44-0.86)**	3.8 (0.6)
Not studying	86.5 (1.7)	88.6 (0.5)	0.98 (0.94-1.01)	85.9 (1.2)
Labour force status				
Employed full-time	39.1 (1.8)	48.0 (0.7)	**0.81 (0.74-0.88)**	36.1 (1.7)
Employed part-time	16.1 (1.4)	19.1 (0.6)	**0.84 (0.71-0.98)**	14.6 (1.4)
Unemployed	4.9 (0.9)	2.8 (0.2)	**1.75 (1.17-2.33)**	5.1 (0.8)
Not in the labour force	35.2 (1.3)	28.2 (0.4)	**1.25 (1.16-1.33)**	38.3 (1.6)
Studying (and NILF[2])	4.7 (1.0)	1.9 (0.2)	**2.47 (1.58-3.37)**	5.9 (0.8)
Personal income quintiles				
Lowest quintile	37.4 (1.8)	21.9 (0.7)	**1.71 (1.59-1.83)**	36.1 (1.7)
2nd quintile	16.6 (1.5)	18.2 (0.5)	0.91 (0.76-1.07)	19.6 (1.5)
3rd quintile	22.0 (1.9)	20.7 (0.6)	1.06 (0.89-1.23)	18.4 (1.6)

Socioeconomic status Variables	2006 CALD % (SE)	2006 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2002 CALD % (SE)
4th quintile	11.7 (1.0)	20.0 (0.4)	**0.59 (0.49-0.68)**	14.8 (1.0)
Highest quintile	12.3 (1.5)	19.2 (0.5)	**0.64 (0.49-0.79)**	11.1 (1.1)
Household equivalised income				
Lowest quintile	26.2 (1.8)	15.1 (0.4)	**1.74 (1.52-1.95)**	25.7 (1.4)
2nd quintile	16.0 (1.9)	15.6 (0.4)	1.03 (0.79-1.26)	19.6 (1.2)
3rd quintile	17.5 (1.5)	15.9 (0.5)	1.10 (0.93-1.27)	18.0 (1.3)
4th quintile	13.2 (1.0)	18.3 (0.6)	**0.72 (0.62-0.82)**	16.9 (1.4)
Highest quintile	11.6 (1.1)	19.9 (0.5)	**0.58 (0.48-0.69)**	11.6 (0.9)
Unknown income	15.5 (1.6)	15.2 (0.6)	1.02 (0.83-1.21)	8.2 (1.3)
Main source of income				
Non-government	68.9 (1.6)	73.9 (0.4)	**0.93 (0.89-0.97)**	64.7 (1.7)
Government	31.1 (1.6)	26.1 (0.4)	**1.19 (1.08-1.31)**	35.3 (1.7)
Raise $2000				
Can't raise	20.0 (1.8)	12.0 (0.5)	**1.67 (1.41-1.93)**	23.0 (1.5)
Can raise $2000	77.0 (2.0)	86.3 (0.5)	**0.89 (0.85-0.94)**	73.4 (1.5)
Don't know	3.1 (0.6)	1.7 (0.2)	**1.82 (1.27-2.37)**	3.6 (0.5)
Cash flow problems				
No cash flow problems	86.4 (1.2)	81.6 (0.5)	**1.06 (1.03-1.08)**	86.4 (1.2)
One problem	7.2 (1.0)	8.0 (0.4)	0.90 (0.67-1.13)	6.7 (0.9)
Two or more problems	6.3 (0.7)	10.5 (0.5)	**0.60 (0.48-0.72)**	6.9 (0.8)
Access to Motor vehicle				
Has car	75.2 (1.8)	87.8 (0.5)	**0.86 (0.82-0.90)**	73.6 (1.5)
No car	24.8 (1.8)	12.2 (0.5)	**2.03 (1.79-2.27)**	26.4 (1.5)
Total	**100.0**	**100.0**	**-**	**100.0**
N (weighted population)	**2,034,595**	**13,272,471**	**15,307,066**	**-**
Australia	**13.3 (0.5)**	**86.7 (0.5)**	**15,307,066**	**-**

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 Rate ratio 2006 CALD to 2006 non-CALD

2 NILF = Not in the labour force

2.5 Social connectedness and health

2.5.1 CALD 2002 versus non-CALD 2002

The distribution of social connectedness variables for the 2002 CALD and non-CALD populations is shown in Table 2.7. Compared with the non-CALD population *the 2002 CALD population was over-represented* in the following variables:

- Non-participation/non-attendance over last 12 months in:
  - adult education/special interest group (RR 1.06, 1.04 to 1.07)
  - restaurant/café/bar/social club (RR 2.23, 2.17 to 2.29)
  - non-participated/non-attended sports or physical activity (RR 1.74, 1.71 to 1.77)
  - arts/craft group (RR 1.05, 1.04 to 1.07)
  - leisure/culture/recreation activity (RR 1.91, 1.80 to 2.01)
  - sport/physical activity attendance (RR 1.54, 1.51 to 1.56)
  - sport/physical activity participation (RR 1.54, 1.50 to 1.57)
- Participation/attendance over last 12 months in:
  - Religious/church group (RR 1.89, 1.84 to 1.95)
- No support if need help (RR 2.37, 2.16 to 2.58)
- Good, fair or poor self-assessed health status (RR 1.13, 1.09 to 1.18; RR 1.37, 1.26 to 1.48; RR 1.56, 1.29 to 1.82 respectively)

Compared with the non-CALD population *the 2002 CALD population was under-represented* in the following variables:

- Participation/attendance over last 12 months in:
  - adult education/special interest group (RR 0.71, 0.63 to 0.78)
  - restaurant/café/bar/social club (RR 0.74, 0.73 to 0.76)
  - participated/attended sports or physical activity (RR 0.53, 0.51 to 0.55)
  - arts/craft group (RR 0.92, 0.90 to 0.95)
  - leisure/culture/recreation activity (RR 0.89, 0.88 to 0.91)
  - sport/physical activity attendance (RR 0.50, 0.48 to 0.52)
  - sport/physical activity participation (RR 0.73, 0.71 to 0.74)
- Non-participation/non-attendance over last 12 months in:
  - Religious/church group (RR 0.76, 0.75 to 0.78)
- Get support if need help (RR 0.93, 0.91 to 0.94)
- Excellent and very good self-assessed health status (RR 0.90, 0.86 to 0.95; and RR 0.79, 0.76 to 0.82 respectively)

Table 2.7 Distribution of social connectedness variables by CALD status: **2002 GSS**

Social connectedness and health variables	2002 CALD % (SE)	2002 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2006 CALD % (SE)
Social activities last 12 months				
Recreation/cultural/multicultural				
None	83.8 (1.3)	83.1 (0.4)	1.01 (0.99-1.02)	84.3 (1.3)
Participated in	16.2 (1.3)	16.9 (0.4)	0.96 (0.89-1.03)	15.7 (1.3)
Adult education/special interest group				
None	88.5 (0.8)	83.7 (0.3)	**1.06 (1.04-1.07)**	nc
Participated in	11.5 (0.8)	16.3 (0.3)	**0.71 (0.63-0.78)**	nc
Church or religious				
None	60.4 (1.5)	79.1 (0.5)	**0.76 (0.75-0.78)**	69.2 (1.7)
Participated in religion	39.6 (1.5)	20.9 (0.5)	**1.89 (1.84-1.95)**	30.8 (1.7)
Restaurant/cafe/bar/social club				
None	38.6 (1.5)	17.3 (0.5)	**2.23 (2.17-2.29)**	88.3 (1.4)
Attended	61.4 (1.5)	82.7 (0.5)	**0.74 (0.73-0.76)**	11.7 (1.4)
Sports/physical activity				
None	67.4 (1.9)	38.8 (0.7)	**1.74 (1.71-1.77)**	81.3 (1.7)
Participate/attended/watched	32.6 (1.9)	61.2 (0.7)	**0.53 (0.51-0.55)**	18.7 (1.7)
Arts/craft group				
None	61.5 (1.6)	58.3 (0.6)	**1.05 (1.04-1.07)**	nc
Visited	38.5 (1.6)	41.7 (0.6)	**0.92 (0.90-0.95)**	nc
Leisure/culture/recreation last 12 months				
None	20.2 (1.2)	10.6 (0.5)	**1.91 (1.80-2.01)**	18.7 (1.3)
Attended	79.8 (1.2)	89.4 (0.5)	**0.89 (0.88-0.91)**	81.3 (1.3)
Sport/physical activity attendance last 12 months				
None	74.3 (1.5)	48.4 (0.6)	**1.54 (1.51-1.56)**	73.3 (2.1)
Attended	25.7 (1.5)	51.6 (0.6)	**0.50 (0.48-0.52)**	26.7 (2.1)
Sport/physical activity participate last 12 months				
None	51.7 (1.5)	33.6 (0.7)	**1.54 (1.50-1.57)**	48.6 (2.3)
Participated	48.3 (1.5)	66.4 (0.7)	**0.73 (0.71-0.74)**	51.4 (2.3)
Support if need help				
No support	12.1 (1.0)	5.1 (0.3)	**2.37 (2.16-2.58)**	13.5 (0.8)
Support	87.9 (1.0)	94.9 (0.3)	**0.93 (0.91-0.94)**	86.5 (0.8)
Self assessed health				
Excellent	23.4 (1.3)	25.9 (0.5)	**0.90 (0.86-0.95)**	20.9 (1.6)
Very good	27.3 (1.6)	34.6 (0.6)	**0.79 (0.76-0.82)**	30.5 (1.6)
Good	27.8 (1.3)	24.5 (0.5)	**1.13 (1.09-1.18)**	28.5 (1.6)
Fair	14.8 (1.1)	10.8 (0.3)	**1.37 (1.26-1.48)**	13.5 (1.3)

Social connectedness and health variables	2002 CALD % (SE)	2002 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2006 CALD % (SE)
Poor	6.7 (1.0)	4.3 (0.2)	**1.56 (1.29-1.82)**	6.6 (0.8)
Total	**100.0**	**100.0**	**-**	**100.0**
N (weighted population)	1,891,353	2,611,962	**-**	**2,034,595**
Australia	**13.0 (0.4)**	**87.0 (0.4)**	**14,503,315**	**13.3 (0.5)**

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 Rate ratio 2006 CALD to 2006 non-CALD

nc = non-comparable due to different wording in question between 2002 and 2006

2.5.2 CALD 2006 versus non-CALD 2006

The distribution of social connectedness variables for the 2006 CALD and non-CALD populations is shown in Table 2.8. Compared with the non-CALD population *the 2006 CALD population was over-represented* in the following variables:

- Non-participation/non-attendance over last 12 months in:
  - adult education/special interest group (RR 1.33, 1.24 to 1.41)
  - restaurant/café/bar/social club (RR 1.12, 1.09 to 1.15)
  - non-participated/non-attended sports or physical activity (RR 1.28, 1.24 to 1.33)
  - arts/craft group (RR 1.12, 1.10 to 1.13)
  - leisure/culture/recreation activity (RR 1.82, 1.59 to 2.04)
  - sport/physical activity attendance (RR 1.67, 1.63 to 1.71)
  - sport/physical activity participation (RR 1.35, 1.24 to 1.46)
- Participation/attendance over last 12 months in:
  - Recreational/cultural/multicultural activity (RR 7.14, 6.61 to 7.66)
  - Religious/church group (RR 1.71, 1.55 to 1.87)
- No support if need help (RR 2.41, 2.29 to 2.53)
- Fair or poor self-assessed health status (RR 1.25, 1.03 to 1.47; RR 1.53, 1.24 to 1.83 respectively)

Compared with the non-CALD population *the 2006 CALD population was under-represented* in the following variables:

- Participation/attendance over last 12 months in:
  - adult education/special interest group (RR 0.86, 0.84 to 0.89)
  - restaurant/café/bar/social club (RR 0.55, 0.42 to 0.68)
  - participated/attended sports or physical activity (RR 0.51, 0.42 to 0.60)
  - arts/craft group (RR 0.40, 0.30 to 0.51)
  - leisure/culture/recreation activity (RR 0.91, 0.88 to 0.93)
  - sport/physical activity attendance (RR 0.48, 0.40 to 0.55)
  - sport/physical activity participation (RR 0.80, 0.74 to 0.87)
- Non-participation/non-attendance over last 12 months in:
  - Recreational/cultural/multicultural activity (RR 0.86, 0.84 to 0.89)
  - Religious/church group (RR 0.84, 0.80 to 0.88)
- Get support if need help (RR 0.92, 0.90 to 0.94)
- Very good self-assessed health status (RR 0.87, 0.79 to 0.96)

Table 2.8 Distribution of social connectedness variables by CALD status: **2006 GSS**

Social connectedness and health variables	2006 CALD % (SE)	2006 Non-CALD % (SE)	Rate ratio[1] (95% CI)	2002 CALD % (SE)
Social activities last 12 months				
Recreation/cultural/multicultural				
None	84.3 (1.3)	97.8 (0.2)	**0.86 (0.84-0.89)**	83.8 (1.3)
Participated in	15.7 (1.3)	2.2 (0.2)	**7.14 (6.61-7.66)**	16.2 (1.3)
Adult education/special interest group				
None	42.5 (1.6)	32.0 (0.6)	**1.33 (1.24-1.41)**	nc
Participated in	57.5 (1.6)	68.0 (0.6)	**0.85 (0.80-0.89)**	nc
Church or religious				
None	69.2 (1.7)	82.0 (0.5)	**0.84 (0.80-0.88)**	60.4 (1.5)
Participated in religion	30.8 (1.7)	18.0 (0.5)	**1.71 (1.55-1.87)**	39.6 (1.5)
Restaurant/cafe/bar/social club				
None	88.3 (1.4)	78.7 (0.5)	**1.12 (1.09-1.15)**	38.6 (1.5)
Attended	11.7 (1.4)	21.3 (0.5)	**0.55 (0.42-0.68)**	61.4 (1.5)
Sports/physical activity				
None	81.3 (1.7)	63.4 (0.6)	**1.28 (1.24-1.33)**	67.4 (1.9)
Participate/attended/watched	18.7 (1.7)	36.6 (0.6)	**0.51 (0.42-0.60)**	32.6 (1.9)
Arts/craft group				
None	93.4 (0.9)	83.7 (0.4)	**1.12 (1.10-1.13)**	nc
Visited	6.6 (0.9)	16.3 (0.4)	**0.40 (0.30-0.51)**	nc
Leisure/culture/recreation last 12 months				
None	18.7 (1.3)	10.3 (0.3)	**1.82 (1.59-2.04)**	20.2 (1.2)
Attended	81.3 (1.3)	89.7 (0.3)	**0.91 (0.88-0.93)**	79.8 (1.2)
Sport/physical activity attendance last 12 months				
None	73.3 (2.1)	44.0 (0.6)	**1.67 (1.58-1.75)**	74.3 (1.5)
Attended	26.7 (2.1)	56.0 (0.6)	**0.48 (0.40-0.55)**	25.7 (1.5)
Sport/physical activity participate last 12 months				
None	48.6 (2.3)	36.1 (0.8)	**1.35 (1.24-1.46)**	51.7 (1.5)
Participated	51.4 (2.3)	63.9 (0.8)	**0.80 (0.74-0.87)**	48.3 (1.5)
Support if need help				
No support	13.5 (0.8)	5.6 (0.3)	**2.41 (2.29-2.53)**	12.1 (1.0)
Support	86.5 (0.8)	94.4 (0.3)	**0.92 (0.90-0.94)**	87.9 (1.0)
Self assessed health				
Excellent	20.9 (1.6)	23.6 (0.6)	0.89 (0.76-1.01)	23.4 (1.3)
Very good	30.5 (1.6)	34.9 (0.5)	**0.87 (0.79-0.96)**	27.3 (1.6)
Good	28.5 (1.6)	26.3 (0.7)	1.08 (0.98-1.19)	27.8 (1.3)
Fair	13.5 (1.3)	10.8 (0.4)	**1.25 (1.03-1.47)**	14.8 (1.1)
Poor	6.6 (0.8)	4.3 (0.3)	**1.53 (1.24-1.83)**	6.7 (1.0)
Total	**100.0**	**100.0**	**-**	**100.0**
N (weighted population)	**2,034,595**	**13,272,471**	**-**	**1,891,353**
Australia	**13.3 (0.5)**	**86.7 (0.5)**	**15,307,066**	**13.0 (0.4)**

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 Rate ratio 2006 CALD to 2006 non-CALD

nc = non-comparable due to different wording in question between 2002 and 2006

2.6 Chapter summary

This chapter presented information on ethnicity, demographics, socioeconomic status, social connectedness and health for the CALD and non-CALD populations using data from the 2002 and 2006 GSSs. The following summarises key differences between the CALD and non-CALD populations, and the 2002 and 2006 CALD populations.

- Approximately three-quarters of the 2002 and 2006 adult CALD population lived in NSW and VIC compared with just fewer than 60% of the adult non-CALD population.

- In 2002, the CALD population was over-represented in older age groups, but these differences were less apparent in 2006.
- The CALD population was more likely to be living in crowded households compared with the non-CALD population, and this was consistent between 2002 and 2006.
- Consistent with the crowding data, the CALD population was more likely to be living in multi-family households in both 2002 and 2006 surveys compared with the non-CALD population.
- The CALD population was more likely to be living in households as a couple with children and less likely to be living in lone person and couple with no children households than the non-CALD population in 2002 and 2006.
- Compared with the non-CALD population, the CALD population was:
  - better educated,
  - less likely to be employed (higher unemployment),
  - more likely to be renters,
  - on lower personal and household incomes,
  - less likely to report financial stress.
- The CALD population was more likely to participate in religious activities, while for all other items relating to social connectedness they were less likely to participate (e.g. café/bars, arts and crafts, and other recreational activities).

Chapter 3: Gambling and CALD populations literature review

3.1 Introduction

Having now provided a statistical overview of the characteristics of the CALD population, this chapter reviews the recent Australian and international literature on problem gambling in populations with immigrant backgrounds. It needs to be noted that there is a considerable degree of flexibility in defining these populations for research purposes, of which the Australian term 'CALD' is but one. In line with the Australian and international approach to investigating problem gambling, this chapter makes references to studies (where appropriate) on other health issues in the immigrant communities, particularly substance abuse, which have been shown to frequently co-occur with gambling problems.

3.2 Immigration policy overview and changes in ethnic composition of Australian population

3.2.1 Immigration policy development and changes in ethnic composition

Australia is one of the most diverse countries in the world. The 2006 Census has revealed that 23.9% of the population was born overseas, up from 23.1% at the 2001 Census (Department of Immigration and Citizenship (DIAC) 2009c). One important trend in immigration, commenced in the 1970s and assisted by the demise of the 'White Australia Policy', has been the gradual proportionate shift away from the European countries of origin to Asian, Pacific (including New Zealand) and African countries of origin (Castles, Foster, Iredale and Withers 1998, pp16–17; Hugo 2009, pp33–34; Khoo 2003, p161).

Table 3.1 illustrates changes in the composition of the Australian population by major countries of birth between 1954 and 2006. Despite numerical growth, the proportion of people born in the United Kingdom (UK) within the total overseas-born population has fallen from 36% (1981 Census) to 23% at June 2006. Those born in more traditional countries of origin such as Italy, Greece and the Netherlands have numerically decreased due to ageing and the number of deaths exceeding net gains from more recent inflows. Ethnic groups that have grown include the New Zealand-born. At the 1981 Census they represented 5.4% of all overseas-born but by June 2006 had come to represent 9.6% of all overseas-born in Australia. The Indian-born population increased nearly four-fold from 41,000 at the 1981 Census to 153,600 at 30 June 2006. The China-born have increased eight-fold from 25,200 (1981 Census) to 203,100 (30 June 2006). The Vietnam-born have also recorded an increase from 40,700 (1981 Census) to 180,400 (30 June 2006). Despite this numerical growth, the latter two groups represented each only around 4% of the overseas-born population in 2006 (ABS 2008). Most recently the growth in the Asian-born population in Australia has accelerated. In 2008, there were 310,000 Chinese-born Australians and nearly 240,000 Indian-born (ABS 2009). Table 3.1 reveals that most of the numerical growth in the Asian-born Australians has occurred in the five years prior to the 2006 Census, thus they are recently arrived immigrants.

At the 2006 Census more than 90% of the Chinese and Indian-born residents lived in capital cities. Sydney was home to 53% of the Chinese population and 36% of the Indian population. Melbourne had another 26% of the Chinese residents and 34% of the Indian-born. These two immigrant groups were also highly educated. The Chinese-born were almost twice as likely to have a Bachelor degree or above than the Australian-born and the Indian-born were almost three times as likely (ABS 2009).

Their high levels of education correspond to findings from the 2002 and 2006 GSSs shown in Tables 2.5 and 2.6 in Chapter 2. They reflect the skilled migration selection criteria which are geared towards tertiary-educated individuals.

Table 3.1 Main countries of birth, Australian population 1954–2006

	'000						
Country of birth	**1954** [1]	**1961** [1]	**1971** [1]	**1981** [1]	**1996** [2]	**2001** [2]	**2006** [2]
United Kingdom [3]	664.2	755.4	1,081.3	1,075.8	1,164.1	1,126.9	1,153.3
New Zealand	43.4	47	74.1	160.7	315.1	394.1	476.7
Italy	119.9	228.3	288.3	275	259.1	238.5	220.5
China [4]	10.3	14.5	17.1	25.2	121.1	157	203.1
Vietnam	na	na	na	40.7	164.2	169.5	180.4
India	12	14.2	28.7	41	84.8	103.6	153.6
Philippines	0.2	0.4	2.3	14.8	102.7	112.2	135.6
Greece	25.9	77.3	159	145.8	141.8	132.5	125.8
South Africa	6	7.9	12.2	26.5	61.7	86.9	118.8
Germany	65.4	109.3	110	109.3	120.8	117.5	114.9
Malaysia	2.3	5.8	14.4	30.5	83	87.2	103.9
Netherlands	52	102.1	98.6	95.1	95.3	91.2	87
Lebanon	3.9	7.3	23.9	49.4	77.6	80	86.6
Hong Kong (SAR of China)	1.6	3.5	5.4	15.3	77.1	75.2	76.3
Total overseas-born	1,285.8	1,778.3	2,545.9	2,950.9	4,258.6	4,482.1	4,956.9
Australian-born	7,700.1	8,729.4	10,173.1	11,388.8	14,052.1	14,931.2	15,648.6
Total population [5]	**8,986.5**	**10,508.2**	**12,719.5**	**14,516.9**	**18,310.7**	**19,413.2**	**20,605.5**

NOTES:
1 Census counts
2 Estimated resident population at 30 June
3 Includes Ireland in 1954, 1961 and 1971
4 Excludes SARs and Taiwan Province
5 Includes country of birth 'Not stated' and 'At sea'
na = not available
Source: ABS 2008

3.2.2 English language ability of Australian CALD population

At the 2006 Census, 16.2% (3,208,900 people) of the Australian population reported speaking a language other than English at home. Of these, 2,591,660 people (80.8%) said that they spoke English 'very well' or 'well'. Those who 'did not speak English well' or 'did not speak English at all' represented 17.5% of that population (561,413 people). There were also 55,698 speakers of Indigenous languages (DIAC 2009c, pp8–9).

3.2.3 Australian immigration entry criteria

Australia operates migration (skilled, business and family streams) and humanitarian (refugee and special humanitarian streams) programs. The current entry criteria for the skilled and business migrants are likely among the strictest in the world. Since the 1980s skilled and business migrants have been sought by successive Australian Governments. The requirements for the skilled migration were sharpened in 2007 and 2010, particularly with regards to skills and English language proficiency (Minister for Immigration and Citizenship (MIAC) 2007; 2010). These migrants are expected to speak English well and if concessional language criteria apply (English language ability may be lower than normally required), safeguards exist to ensure that they achieve fluency in English after they arrive. They are also required to have formal post-school (university or trade) qualifications. Humanitarian, refugee and certain family stream entrants are eligible for free English language tuition classes up to 510 hours, or until they achieve 'functional' English, whichever occurs first.

In 2007–08, 15% of participants were dependants of skilled migrants, 56% were family stream entrants and 28% were humanitarian entrants (DIAC 2009c). The high proportion of the family stream entrants may reflect the fact that this migration stream is numerically the second largest after the skilled (and business) migration stream. In 2007–08, the skilled stream visas (68.4%, or 108,540) dominated the annual migration program. The family stream visas contributed 31.4%, or 49,870 people. Humanitarian entrants normally represent the smallest component of the annual immigrant intake. Accordingly, in 2007–08, only 13,014 humanitarian visas were granted (DIAC 2009c).

All prospective migrants to Australia undergo a rigorous health screening "to minimise public health and safety risks to the Australian community; contain public expenditure on health and community services … and maintain access of Australian residents to health and community services" (DIAC 2009a, p1). Although no questions about gambling habits are specifically asked, prospective migrants must answer questions about any diseases they have ever had (for example drug and/or alcohol addiction) and doctors conducting health tests must assess their mental health status (DIAC 2009b). If prospective migrants meet the principal criteria for entry (for example, speak English very well) but fail to meet the so called 'public interest criteria' (medical[1] and character checks), their visa application is usually refused (Vrachnas, Boyd, Bagaric and Dimopoulos 2008, p150).

3.3. Gambling and CALD populations

To date, research in problem gambling in Australia has tended to focus on specific ethnic communities (Loo, Raylu and Oei 2008), on particular geographic locations (Brozovic-Basic 2005; Cultural Partners Australia 2000; The Ethnic Communities' Council of NSW 1999) or both (Chui and O'Connor 2006). In multi-ethnic societies such as Australia and other major English-speaking countries, non-Caucasian ethnicity has been found to be a risk factor for gambling-related harm (Raylu and Oei 2004; Clarke, Abbott, Tse, Townsend, Kingi and Manaia 2006a; Gibbs Van Brunschot 2000). This research has pointed to several factors conducive to gambling, which may be a) uniquely related to the minority status experience and b) to more universal circumstances (e.g. low income status) relevant to gambling among ethnic groups and the general community alike. For the purposes of this report, it is useful to refer to three cultural variables that have been found to be important in the initiation and maintenance of mental health and substance-related issues (De-la-Rosa, Vega and Radisch 2000; Escobar, Nervi and Gara 2000; Westermeyer 1999; Loue 1998), and which have been considered in the context of initiation and maintenance of gambling. These variables are a) adherence to cultural values; b) acculturation, and c) culturally-determined help seeking behaviours (Oei and Raylu 2009; Raylu and Oei 2004).

3.3.1 Cultural values and beliefs

In social science, culture encompasses all that is socially rather than biologically transmitted. Thus, culture is a general term for the symbolic and learnt aspects of human society (Scott and Marshall 2005, pp132–133). It encompasses traditions, social practices, customs and laws of a group of people. It refers to an intentional world of conceptions, evaluations, judgements, goals and other mental representations embodied in socially inherited institutions, practices, myths, artefacts, technologies, arts forms, texts and modes of discourse. These inherited concepts, evaluations, judgements and goals condition members' thinking, through which

[1] The *Migration Regulations 1994* make an exception for the protection visa applicants. They need to undergo the medical test but do not need to pass it. Vrachnas, Boyd, Bagaric and Dimopoulos 2008, p150.

they build their lives and with respect to which they give substance to their minds and directed actions. Thus, culture can affect one's cognitive development, values, beliefs, identity and attitudes (Shweder 1991).

Cultural norms, practices and beliefs related to gambling can be passed to an individual in different ways. The social learning perspective, which proposes that such norms and beliefs are socially transmitted is often invoked (Bandura 1986). For example, the transfer can occur via the behaviour of the immediate family members and/or other respected community members who are perceived as role models. It can also occur if the role models show their approval of gambling, or share an oral or written history, which accepts it (Raylu and Oei 2004). Studies of the role of familial influence on gambling focus upon parental/caregiver gambling and they have found correlations between problem and/or pathological gambling of the offspring and parents' gambling (Ladouceur and Mireault 1988; Lesieur, Cross, Frank, Welch, White, Rubenstein, Moseley and Mark 1991; Lesieur and Heineman 1988; Oei and Raylu 2007; Teo, Mythily, Anantha and Winslow 2007; Toneatto and Brennan 2002). Gupta and Derevensky (1997) have shown that children who gamble do so predominantly with parents, other family members and friends and that the home is the most preferred location for gambling. These authors concluded that an early onset of gambling is seriously influenced by the gambling behaviour of family and peers. Gupta and Derevensky (1997) interpret the decreasing proportion of children who 'fear being caught gambling' as they become older as stemming from tacit parental consent to an acceptable activity and pastime. Such correlations between parental approval of gambling and children's gambling concur with findings from studies that have linked parental approval of smoking and their children's (young adults') smoking (Kestilä, Koskinen, Martelin, Rahkonen, Pensola, Pirkola, Patja and Aromaa 2006; Murray, Kiryluk, and Swan 1985). By contrast, parental disapproval of substance use appears to discourage its initiation by youth (Catalano, Morrison, Wells, Gillmore, Iritani and Hawkins 1992) and perceived parental disapproval of gambling reduces chances of experiencing gambling problems by youth (Wickwire, Whelan, Meyers and Murray 2007).

The ethics of gambling varies between cultures. It may range from total abstinence as in some Muslim groups, to qualified endorsement in European and American societies and to relatively high participation levels among the Chinese (Raylu and Oei 2004). In line with social learning theory, if in a patriarchal family configuration the head of the family gambles regularly, then this may increase the likelihood that other family members, particularly children, will gamble. It has been suggested that children in the Chinese culture may be particularly exposed to gambling and parental approval of gambling (Raylu and Oei 2004). Gambling among the Chinese has been particularly linked to excessive gambling among fathers (Oei and Raylu 2007). Similar conclusions have also been drawn from another Australian study, which aggregated results from several ethnic groups (sample was dominated by Caucasians not further defined) and has shown that fathers' gambling cognitions and gambling behaviour contributed more to a child's gambling behaviour than did mothers' (Oei and Raylu 2004).

Positive attitudes towards gambling have been linked to a tendency to take risks (Kassinove 1998) and sensation seeking has been found to be higher among pathological gamblers (Sáez-Abad and Bertolín-Guillén 2008). The Cultural Partners Australia (2000) study has revealed that in the Chinese, Vietnamese and Korean communities gambling was often pursued to 'try one's luck' and involved games of chance at casinos and clubs. Gambling features prominently particularly in Chinese history (Clark 1990) and the Chinese are often perceived to be serious gamblers.

Cultural values and beliefs, when applied to gambling, can sustain this activity. Although attempts to predict gambling outcomes based on superstitious beliefs has been recognised as a common cognitive error in the development and maintenance of gambling problems (Oei, Lin and Raylu 2008), superstitious thinking has been reported more often in the Chinese than in Western culture (Tsang 2004). Papineau (2005) provides an overview of the Chinese cultural concepts of destiny, fate and luck and suggests that they may result in beliefs about winning that insidiously sustain gambling among the Chinese.

In a study comparing gambling cognitions of Chinese and Caucasian groups in Brisbane, the Chinese participants were found to have significantly higher illusion of control and an elevated perceived inability to stop gambling than the Caucasians (Oei, Lin and Raylu 2008). This illusion of control develops from linking superstitions with gambling outcomes, which in turn result in false beliefs about winning. This has been shown to be particularly prominent among male Chinese gamblers. The behaviour of family and peers and the media additionally fuels hopes of winning (Loo, Raylu and Oei 2008). With regards to Chinese people, it has been also suggested that gambling is integrated into their lifestyle, history and tradition. Positive societal and family attitudes towards gambling in collectivist cultures like the Chinese tend to be perceived as important and are likely to be followed, leading potentially to initiation and maintenance of gambling (Oei and Raylu 2007; Raylu and Oei 2004). A recent study by Oei and Raylu (2009) of individuals with Chinese parentage in Brisbane, Australia, has showed a positive correlation between adherence to Asian cultural values and gambling behaviour.

Cultural values and beliefs passed on through generations may also influence preferences for particular forms of gambling. For example, it has been suggested that the Chinese are particularly familiar with and fond of dice and cards games, which in turn may attract them to casinos (Loo, Raylu and Oei 2008). Such culture-specific preferences concur with findings from other studies that have established that different cultural groups perceive functions of gambling differently and that they prefer different gambling products and services (Cultural Partners Australia 2000; The Ethnic Communities' Council of NSW 1999). For example, the latter study which compared patterns, preferences and impacts of gambling on gamblers, their families and members of their cultural groups in Sydney (nine were studied) has revealed that betting on racing was particularly popular with southern European groups (Croatian and Macedonian language speakers) while Asian groups (Chinese, Vietnamese and Korean language speakers) and Croatians preferred casino gaming. Southern Europeans also enjoyed playing club poker machines (Spanish and Macedonian language speakers) and card games (Greek and Italian language speakers; also Arabic language speakers) (The Ethnic Communities' Council of NSW 1999).

This study has also shown how attitudes and motivations to gamble differed among these groups. For example, Vietnamese language speakers identified gambling as a means of quickly earning money rather than a social activity, which for many has become more important than their social life. For Arabic language speakers gambling was typically a form of individual entertainment and escapism from the daily lives and was associated with shame. For Chinese speakers, gambling was a regular social activity. They did not perceive it as a form of escapism, but embraced it as a form of celebration and entertainment. Speakers of Italian and Croatian identified gambling as one form of individual entertainment (bar the Italian card players). Greek language speakers perceived gambling as an enjoyable social activity, and it appears that it did not take priority over family and friends.

In contrast, Macedonian language speakers did not perceive gambling as a social activity and preferred to play alone. They were attracted to gambling by the possibility of a big win and the easy form of entertainment which it provided (The Ethnic Communities' Council of NSW 1999).

- In sum, adherence to cultural norms, values, beliefs and practices may influence gambling behaviour in cultural communities. According to the social learning perspective, perceptions about gambling are socially transmitted. Their transfer may occur via observing role models in the family and/or community.
- Gambling in the Chinese community and other ethnic communities in Australia has been linked particularly to the influence of gambling fathers. This link between the gambling habits of parents and the children taking up the same habit resembles findings from studies that have linked smoking behaviours of parents and children.
- The preferences for gambling products differ among cultural groups and include all types of gambling, though preferences are seen for certain games. Gambling is believed to be heavy in some communities of Asian origin. For example, among the Chinese it is thought to arise from superstitious thinking engrained in the Chinese culture, which fuels false hopes of winning and sustains the behaviour.
- The ethical perception of gambling varies among cultures from total abstinence in some Muslim groups to a controlled endorsement in the European-derived cultures and permission in the Chinese culture.

3.3.2 Acculturation

Immigrants and refugees who are undergoing a process of acculturation to their new country may experience socioeconomic stress (Beattie, Blaszczynski, Maccallum and Joukhador 1999). A minority group status, lack of language or other marketable skills are thought to represent common stressors which may be conducive to taking up gambling (Scull and Woolcock 2005; Varma and Siris 1996). This notion is akin to earlier research which has proposed that experiencing conflict about one's place in society, especially in connection with feelings of shame and self-doubt regarding one's ethnic identity, may lead to gambling (Kaplan 1985).

Members of ethnic or cultural groups that may have been sensationalised by the media for their alleged links to crime, possibly harassed by police as well as encountering hostility in the labour market could continue to experience a sense of non-belonging to mainstream society (Jakubowicz 2009; White 2007). The above mentioned stressors are recognised as potential contributors to developing a spectrum of coping behaviours valorising and empowering those subjected to real or perceived marginalisation. In immigration studies it has been observed that one such outlet for second generation minority youth could be to join or form a gang (White 2007). In gambling studies, the experience and/or of racism and discrimination, as well as unmet financial expectations, particularly when one wishes to send money to family overseas or achieve wealth or overcome family financial hardship, have been factors linked to gambling (Brozovic-Basic 2005; Raylu and Oei 2004; Scull and Woolcock 2005).

Besides stress, other experiences which may reflect difficulties in adaptation such as a sense of isolation, boredom, anxiety and depression (Cultural Partners Australia 2000; Scull and Woolcock 2005) have been shown to motivate and maintain gambling behaviour

(Blaszczynski, McConaghy and Frankova 1990; Dickerson, Hinchy and Fabre 1987; Grant and Kim 2002; Griffiths 1995; The Ethnic Communities' Council of NSW 1999). Poor English language skills among some Non-English Speaking Background (NESB) communities in Australia have been found to contribute to social isolation and boredom and sometimes last for considerable periods of time after arrival in Australia. Gambling may offer an outlet to deal with these adverse effects of immigration. When one does not have sufficient language skills to socialise with the wider community as is sometimes the case of the older generation of immigrants, and culturally appropriate alternative activities are lacking, gambling may become an attractive option and even a group activity for various NESB communities. Wide availability and easy access to gambling venues, a lack of gambling controls and a friendly atmosphere are additional pull factors (Brozovic-Basic 2005; Scull and Woolcock 2005).

It is possible though, as revealed by Ellenbogen, Gupta and Derevensky in their (2007) study of gambling amongst high school students in Quebec, that an increased risk of taking up gambling and developing gambling problems affects only a minor proportion of the linguistically-diverse individuals with an immigrant background who may be experiencing difficulties in the acculturation process. In Australia, it has been similarly suggested that people with problem gambling are indeed in the minority in many CALD communities; for example, those who gamble for higher stakes (Cultural Partners Australia 2000). More recently, a greater severity of gambling problems was confirmed in Australia for individuals with Chinese parentage compared to Caucasian Australians (Oei, Lin and Raylu 2008). In a New Zealand study, serious gambling problems as manifested by losing control were confirmed for Maori, Tongans and Pakeha populations (Clarke, Tse, Abbott, Townsend, Kingi and Manaia 2006b). However, although problems may manifest as more severe within some CALD sub-populations, there is evidence in Australia to suggest that overall gambling participation rates are lower in these groups than in the general community (Cultural Partners Australia 2000).

More universal factors found in the general community such as low income, unemployment and low socioeconomic status have also been linked to problem gambling (Hraba and Lee 1995; Productivity Commission 1999; Shepherd, Ghodse and London 1998; Young, Stevens and Morris 2008). Sometimes they are found among the immigrant and refugee populations and hence may offer an additional explanation for their problem gambling. The 2002 and 2006 GSSs descriptive statistics in this report reveal that the CALD populations were over-represented in terms of lower income, unemployment and/or not in the labour force. So, the CALD population captured in the two GSSs were not purely ‘low socioeconomic status’ in that they were both overrepresented in low income and overrepresented in higher level off education (Tables 2.5 and 2.6).

In short, as observed by Raylu and Oei (2004), it is difficult to distinguish between the role played in problem gambling by cultural and socioeconomic variables. Other universal factors predisposing individuals to problem gambling, such as individual personality and biological aspects (Blaszczynski and Nower 2002) may also interact with cultural variables (Raylu and Oei 2004).

Although the above review suggests that difficulties in the acculturation process may contribute to gambling and/or developing problem gambling, almost paradoxically, under some circumstances successful adaptation to the host culture may be also be conducive to the development of problem gambling. Raylu and Oei (2004) have proposed that if an immigrant

from a culture with low acceptance and practice of gambling, or one where gambling is culturally controlled, adopts a culture where gambling is accepted and practiced, then this may encourage them to gamble. This concurs with findings from other studies, which have established links between increased acculturation and higher levels of substance abuse (tobacco) (Kim, Ziedonis and Chen 2007; Sabogal, Otero-Sabogal, Perez-Stable, Marin and Marin 1989). By contrast, a study of the Brisbane Chinese community has revealed that those who have successfully adapted were less likely to have gambling problems. It was suggested that successful adaptation could represent a protective factor (Oei and Raylu 2009). Until now, many studies have linked gambling among cultural groups to risk factors and difficulties in acculturation. Intuitively, it is natural to link harmful habits with individual difficulties and/or harmful habits in other spheres of life. But the contrasting impacts of successful acculturation on gambling among some cultural groups suggest that successful adjustment to the norms and culture of the new country should be given equal consideration in future studies.

- In summary, there appears to be a tendency in the research to seek explanations for gambling and problem gambling in cultural communities in the difficulties they encounter in acculturation.
- Socioeconomic factors have been identified as capable of stressing immigrants while they are adjusting to their new environment, and this may contribute to this group taking up gambling and developing problems associated with it. Personal factors such as a lack of marketable skills, experiences of isolation, boredom and depression may also play a role.
- Importantly though, it is possible that problem gamblers, for example those who gamble for higher stakes, represent only minor proportions in their communities. Some problem gamblers with an immigrant background may display characteristics common in the wider problem gambler population such as living on a low income or being unemployed. The analyses in the next chapter shed more light on the characteristics of people reporting gambling problems.
- Although some immigrants may experience problem gambling, Australian research also suggests that overall participation rates in gambling in many CALD groups are lower than in the general community.
- While problematic acculturation offers some explanation for CALD groups developing problem gambling, future studies need to account for preceding (confounding) factors that may predispose or protect members of these groups from developing gambling problems.

3.3.3 Culturally-determined help seeking behaviours

The literature has identified three obstacles that members of immigrant communities may experience when they need help to overcome problem gambling. The first of these is that they may be reluctant to seek professional help because of the stigma associated with ‘public’ disclosure, shame and cultural resistance to verbalising their problems in support groups or in front of an unknown counsellor (Loo, Raylu and Oei 2008; Scull and Woolcock 2005; The Ethnic Communities' Council of NSW 1999). The second major obstacle is that professional services may not be accessed because of a lack of awareness of their availability. This may be compounded by insufficient English language ability to access information about them (Scull and Woolcock 2005). Considering that prior to the 2007 and 2010 changes to the skilled migration criteria the English language requirement had been set at communicative and/or higher level, then it would appear that fewer recent migrants should face communication

problems when accessing counselling services. Although studies of gambling among immigrant communities tend to seek their representative cross-sections, the recent changes in the migration criteria suggest that future studies may need to better integrate immigration policy outcomes as influenced by these adjustments. With regards to insufficient language ability, it could be useful to disaggregate immigrant cohorts by their year and category of arrival (skilled, family, refugee) so that the impact of immigration selection criteria (such as enhanced English language requirement for skilled immigrants) can be captured and strategies to support culturally diverse problem gamblers better tailored to their needs. Such an approach would be suited to community-specific studies.

A third obstacle may be the perception that mainstream services are culturally and linguistically inappropriate (Blaszczynski, Huynh, Dumlao and Farrell 1998; Cultural Partners Australia 2000; Scull and Woolcock 2005). Many culturally diverse clients may not be familiar with the concept of professional counselling in the first place and the way it is practiced in Australia may be inappropriate for them. Specifically, these services are based upon the Anglo-Australian concept of individualism, autonomy and personal responsibility with minimal understanding of collectivist systems of values where the family/community rather than the individual is the core unit. As a consequence, a mismatch occurs when clients are given options rather than concrete directions which some cultural groups may expect (Gabb 2001; Scull and Woolcock 2005). An additional complication is the tendency of such mainstream services to quickly focus on the problem at hand. In some cultures an indirect approach to discussing problem gambling in the broader context of financial management may be more sensitive. It is important to stress that a lack of cultural sensitivity may result in many clients not returning for further sessions (Scull and Woolcock 2005).

Matters often mentioned in the context of improving cultural sensitivity of mainstream services include the availability of bilingual counsellors and/or interpreters, and the need to ensure service confidentiality. Other strategies to increase the outreach of services and their cultural sensitivity include community education in the first language (newspapers, radio, seminars, workshops and so forth), which also transmits messages aimed at overcoming negative perceptions of counselling; education of traditional community figures who may be approached for help; education of mainstream counsellors about cultural issues when bilingual professionals and/or interpreters are unavailable and provision of telephone counselling in appropriate languages to overcome the sense of shame and losing face when admitting to problem gambling (Cultural Perspectives Pty Ltd 2005; Scull and Woolcock 2005).

It should also be noted that acculturation and personal openness potentially interact with help seeking behaviours. Raylu and Oei (2004) propose that individuals who have acculturated more, that is, they display attitudes similar to those prevailing in their host country, are more likely to have adopted help seeking attitudes of this rather than the origin country. Results of a recent Australian study (Oei and Raylu 2009) have showed that Australian Chinese who had low interpersonal openness were more likely to exhibit problematic gambling. Since self-disclosure in psychotherapy is considered essential for a successful therapy (Jourard 1964), it was suggested that telephone counselling, self-help groups or self-help books could be beneficial to this group (Oei and Raylu 2009).

- There are three key culturally-determined impediments to seeking professional help to address problem gambling:

1. The resistance to help seeking may be linked to the avoidance of shame of 'public' disclosure.
2. The lack of awareness about the availability of counselling services, which may be further compounded by insufficient English language ability to access the relevant information.
3. Migrants may be reluctant to turn to professional help if they believe that such services do not cater to clients such as them. An example of this perceived 'inappropriateness' may be providing options whereas in some cultures specific directions are a norm.

- Multi-pronged education and information initiatives such as telephone counselling to overcome the 'losing face' concern or employment of bilingual counsellors and/or interpreters are the proposed solutions to increase use of these services by immigrants in need of such support.

3.3.4 Limitation of research instruments and research focus

Although research in problem gambling in CALD populations is relatively recent, it has already provided a wealth of information. There is an ongoing discussion among academics about the merits of various research methods, which likely partially reflects the short history of research in this domain. Quantitative studies frequently use the South Oaks Gambling Screen (SOGS) (Blaszczynski, Huynh, Dumlao and Farrell 1998; Oei and Raylu 2009) or modified versions of the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (DSM-IV) (Clarke, Abbott, Tse, Townsend, Kingi and Manaia 2006a; Ellenbogen, Gupta, and Derevensky 2007). Complementary instruments such as the Asian Values Scale (AVS) may also be used as in Oei and Raylu (2009). Some studies have used more than one screen in the same survey (Stevens and Young 2006; Wenzel, McMillen, Marshall and Ahmed 2004; Young and Stevens 2008). Some concerns have been raised about the adequacy of using the SOGS and the Chinese version of DSM-IV to study gambling in the Chinese communities. These measurement scales have been developed using Western samples and have not been validated amongst Chinese populations (Blaszczynski, Huynh, Dumlao and Farrell 1998; Loo, Raylu and Oei 2008). It could be argued that they might need to be validated in other communities originating from Asia with identified problem gambling, and not just Chinese communities.

Other issues related to reliability of data are the possible generation of false positives from SOGS and the imperative to translate the questionnaires back and forth to ensure consistency of the semantics (Blaszczynski, Huynh, Dumlao and Farrell 1998; Loo, Raylu and Oei 2008). In practice, such questionnaires are generally only translated from English to another relevant language (Blaszczynski, Huynh, Dumlao and Farrell 1998; Ellenbogen, Gupta and Derevensky 2007), and the proposal to "mirror" validate scales through bidirectional translation is uncommon, if ever practiced.

Studies have also been hampered by practical barriers such as recruitment difficulties and low response/participation rates (Blaszczynski, Huynh, Dumlao and Farrell 1998; Scull and Woolcock 2005). Cultural inadequacy of some survey questions has also been reported as they were difficult for the respondents to relate to (The Ethnic Communities' Council of NSW 1999). The majority of relevant studies have been based on samples of convenience and non-random samples (however, see Welte, Barnes, Wieczorek, Tidwell and Parker 2002 for an example of a random, representative sample), and such methods do not permit generalisation

about the extent of problem gambling and/or pathological gambling across the communities in question. Indeed there is a need to conduct more studies using representative samples (Loo, Raylu and Oei 2008; Papineau 2005) and to conduct longitudinal studies (Clarke, Tse, Abbott, Townsend, Kingi and Manaia 2006b; Scull and Woolcock 2005) to increase response rates, geographic scope, improve data quality and generalizability of results.

Concentration of cultural groups in large metropolitan areas such as Sydney, Melbourne, Brisbane, Auckland, or Montréal has given researchers relatively 'easy' access to them, but this has only yielded results relevant to the groups settled there. A report commissioned by the Department of Justice Victoria (Cultural Perspectives Pty Ltd 2005) is an example of a study where results generalise to the whole jurisdiction. While both city-specific and state-wide research is valuable, it appears that research into gambling problems amongst CALD populations in regional areas has not yet been undertaken in Australia. In this context, it may be noted that since the mid-1990s the Australian Federal Government in cooperation with State/Territory Governments has been pursuing a policy of regional dispersal of skilled and business migrants. Since 2005–06, each year around one-third of the skilled and business visa grants have been made to migrants destined to regions (DIAC 2009c). Some humanitarian entrants have also been settled in regions. As a result, regional populations in Australia have recently become more ethnically and culturally diverse and some chain migration may follow. This reality should not be overlooked by future research.

A further research limitation is the bundling of responses from locally-born and foreign-born residents (international students) from specific cultural groups together (for example in a study of the Chinese community by Oei and Raylu (2009). Although in this particular study all participants have self-identified as 'Chinese residents', the two groups have likely experienced different acculturation processes. Aggregated results may mask inter-group differences and similarities, a limitation that the authors acknowledged. Furthermore, research on gambling patterns among Chinese language speakers tends to aggregate results for communities originating from different countries that have had different socioeconomic, political and migratory experiences (Blaszczynski, Huynh, Dumlao and Farrell 1998; Papineau 2005). Results may also be simplified for other groups. For example, the Ethnic Communities' Council of NSW (1999) study aggregated responses from Christian and Muslim Arabic language speakers although the attitude towards gambling in the two religions is different, as well as within Christianity. In these types of research it would be beneficial to select target groups, for example according to the refugee status, place of birth or religion, to ensure factors are not masked by within sample variation.

While gender and age are common variables used in the studies reported above, they seem not to have represented the particular focus of the research. Studies of gambling patterns among immigrant youth, such as that by Ellenbogen, Gupta and Derevensky (2007), examine particular age group and/or gender characteristics, but cross-generational studies would enormously add to the current state of knowledge and help to better tailor intervention and counselling strategies. This could be particularly relevant in the Australian context given that regular and/or problem gambling has been identified in older and working age groups in some CALD communities (Brozovic-Basic 2005; Scull and Woolcock 2005; Cultural Partners Australia 2000).

Temporary international mobility for both work and study has become a permanent feature (and an encouraged one) of immigration programs in many countries around the world such as Australia, New Zealand and Canada.

The reviewed studies have been restricted to permanently settled populations (except for Oei and Raylu (2009)), where international students may have been included in the sample as a choice of convenience. This unfortunately does not reflect the population and social dynamics at the community level. Temporary residents in particular may acutely experience some of the stressors mentioned above and have no immediate social and financial support in Australia. The on-going focus on the situation and experience of international students in Australia provides one illustration of this (Babacan, Pyke, Bhathal, Gill, Grossman and Bertone 2010). Hence, surveying temporary populations for the prevalence of gambling problems could be considered in future research. This would contribute to informing policy decisions regarding support for these temporary residents. All in all, future studies of gambling patterns in CALD communities in Australia could better incorporate and be informed by the impact of immigration policy on the population and social dynamics at the community level.

3.4 Chapter summary

- Over the last four decades, particularly since the dismantling on the 'White Australia' policy, immigrant intake has been characterised by a great diversity of origins. A gradual proportionate shift away from the traditional countries of origin to Asian, Pacific (including New Zealand) and African countries of origin has been observed.
- Australia operates a sophisticated immigration program. Skilled migrants are the preferred settlers and in 2007–08 this group represented nearly 70% of the annual immigration program.
- Australian and international research has pointed to cultural and more universal factors (e.g. socioeconomic) that may be conducive to taking up gambling and developing problem gambling in immigrant-born communities and those with an immigrant background.
- Cultural factors considered in initiation and maintenance of gambling include: a) adherence to cultural values; b) acculturation; and c) culturally-determined help seeking behaviours.
- Explanations for gambling in immigrant communities seem to have been mostly sought in their failed and/or complicated cultural adjustment to the host country. Ethical attitudes towards gambling, acceptable gambling behaviours and perceptions about how gambling problems should be addressed are all engrained in mother cultures and are believed to continue influencing gambling behaviour and help seeking behaviour after immigration has taken place.
- Australian and international research has suggested that problem gamblers with immigrant backgrounds might represent a minority in their communities. This may reflect that for some CALD sub-populations' participation rates in gambling activities are lower than in the general community.
- The impact of successful adaptation to Australia on the gambling patterns of immigrants appears to have been much less explored. The Australian literature has proposed that a successful adaptation could either increase or reduce the likelihood of developing problem gambling in immigrant communities (protect immigrants from developing problem gambling).
- The literature review identifies depression, stress and anxiety as precursors and factors contributing to the maintenance of problem gambling in CALD populations. The analyses in the next Chapter will go some way to identifying what types of stressors are associated

with members of the CALD population reporting gambling problems for themselves, family or a close friend.

- The mixed findings with regard to the CALD population being at greater or lesser risk of developing gambling problems may be a result of differing methodologies, different ethnic backgrounds of the CALD group being studied, and differing circumstances from which the immigrants came. The analyses in the following Chapter will assess whether the CALD population as a whole are more likely to report gambling problems. It will also identify if any sub-groups (demographic, country of birth, etc.) of the CALD population are at higher risk of reporting gambling problems.

Chapter 4: CALD and non-CALD analyses of gambling problems

4.1 Introduction

This chapter presents the results of three analyses. It was intended to report estimates of gambling problems at the State and Territory levels for the CALD populations, but these could not be presented due to inadequate sample sizes leading to unacceptably high standard errors surrounding the estimates (standard errors were greater than 30% of the State and Territory estimates for reported gambling problems). Discussion and interpretation of these results can be found in Chapters 5 and 6.

- First, estimates of reported gambling problems and other items in the NLES for the 2002 and 2006 CALD and non-CALD populations are presented and significant differences determined using the rate ratio (95% CI) of the CALD to non-CALD population. Significant differences between the 2002 and 2006 CALD population are also presented.
- Second, factor analyses of the 12 items in the NLES for the 2002 and 2006 CALD and non-CALD populations are presented to determine inter-relationships between reported gambling problems and other NLES items (i.e. clustering of NLES items based on respondents' reporting of negative life events).
- Finally, associations between reported gambling problems and CALD status (and related variables) are presented while controlling for socio-demographic, socioeconomic and social connectedness variables that were also significantly associated with reported gambling problems.

Essentially, the analyses address the following research questions using 2002 and 2006 GSS data:

1. Does the CALD population experience gambling problems amongst social and family networks at higher levels than the non-CALD population in Australia?
2. Does the CALD population experience other life stressors at higher levels than the non-CALD population in Australia?
3. Are there differences between the CALD and non-CALD populations in the inter-relationships between gambling problems and other NLES items?
4. Is being a member of the CALD population significantly associated with reported gambling problems after taking into account other significant predictors of the reported gambling problems in the general population?

4.2 Methods

4.2.1 ABS data sources and survey design

The full details of sample design, collection methods, and data quality for the GSSs have been reported elsewhere (ABS 2003; 2007). Therefore, only a summary is provided here. The 2002 and 2006 GSSs employed a stratified multistage area sample, with a scope that included all people aged 15 years and over in non-remote areas of Australia. The GSS is a general population survey conducted every four years and forms part of the ABS social survey

program. For the current analyses, only data from people aged 18 years and over were used because respondents under the age of 18 years were not administered the NLES module.

4.2.2 Measuring gambling problems using the Negative Life Events Scale (NLES)

The NLES is a regular survey module used by the ABS in social and health surveys and is designed to measure individuals' emotional and social wellbeing (ESWB). The NLES module was developed for use with the Aboriginal and Torres Strait Islander population, with the specific purpose of comparing ESWB between the Indigenous and non-Indigenous populations of Australia (ABS 2004).

The NLES asks respondents *have any of these things* [list of "stressors" or "negative life events"] *been a problem for you or your family or friends during the last year?* Respondents then answer 'yes' or 'no' to a list of 12 "stressors" or negative life events namely:

- gambling problem;
- divorce or separation;
- death of family member or close friend;
- serious illness or disability;
- close friend of family in a serious accident;
- alcohol or drug related problems;
- not able to get a job;
- lost job, made redundant, sacked;
- witness to violence; victim of abuse or violent crime;
- trouble with the police; and
- mental illness.

When used in Aboriginal and Torres Strait Islander surveys, four additional stressors are included:

- member of family sent to jail/currently in jail;
- overcrowding at home;
- pressure to fulfil cultural responsibilities; and
- discrimination/racism.

It is apparent from the wording of the NLES question that the instrument does not measure problem gambling prevalence. It asks respondents if gambling has …*been a problem for you, your family or close friends during the last year*. Therefore, the NLES gambling problem item measures the reach or extent of gambling problems throughout peoples' social and family networks. This is not an individual measure of problem gambling. This broader conceptualisation of gambling-related harm is consistent with the Australian definition of problem gambling which states "problem gambling is characterised by difficulties in limiting money and/or time spent on gambling which leads to adverse consequences for the gambler, others, or for the communities" (Neal, Delfabbro and O'Neil 2005).

4.2.3 Statistical analyses

All analyses were carried out using Stata 8.2©, which was accessed remotely via the ABS web portal known as the Remote Access Data Laboratory or RADL (ABS 2006). Ethics approval was not required for this research as the analyses of ABS data constitutes secondary

use. However, strict confidentiality protocols adhered to by the ABS under the *Census and Statistics Act, 1905* ensure confidentiality of survey respondents.

4.2.3.1 Comparison of NLES items: CALD and non-CALD populations

Estimates of NLES items were generated using the 2002 and 2006 GSS Confidentialised Unit Record File (CURF) accessed via the RADL. Statistical differences were determined by calculating rate ratios with 95% confidence intervals. A rate ratio of one indicates that the two estimates being compared were the same; while a rate ratio above one indicates one is higher and the converse for a rate ratio below one. A significant difference between two estimates is determined by whether the 95% confidence interval overlaps one. Rate ratios with 95% confidence intervals were calculated between the CALD and non-CALD populations for 2002 and 2006, and between the 2006 and 2002 CALD populations.

4.2.3.2 State/Territory estimates of reported gambling problems

Estimates of reported gambling problems for respondents, their friends and family for the CALD population could not be produced at the State/Territory with the level of accuracy required for meaningful interpretation. Specifically, relative standard errors for all States and Territories, except NSW were over 50% of the estimate. *As a general rule of thumb, the ABS does not report estimates with relative standard errors greater than 30%.*

4.2.3.3 Inter-relationships between NLES items

Factor analysis (principal component factor method) was used to identify inter-relationships between the 12 NLES items. Principal components analysis identifies clusters of variables which help identify the essential structure of a scale. In other words, the method can tell us which NLES items are more likely to be answered in the same way (or in other words, whether they are more likely to co-occur as reported stressors). It does this by reducing the number of variables of the scale (initially 12 NLES items) to generally two or three-factors or primary dimensions. The decision on the number of factors to retain is based on a number of criteria including interpretability, the output from scree plots and the principle of retaining factors with Eigen-values greater than one (Everitt and Dunn 2001). An orthogonal rotation was applied to the retained factors to improve interpretability of the factors. While a tetrachoric correlation matrix would have been preferred to a standard correlation matrix for use in the factor analyses, the former was not possible due to the weighting system used by the ABS as well as the limitations of the statistical package used by RADL. All factor analyses were carried out using weighted data. Estimates, standard errors and rate ratios are also presented for NLES items.

4.2.3.4 Independent correlates of reported gambling problems

The variable for reported gambling problems is a dichotomous outcome measure and is therefore suited to logistic regression modelling. Because of the small percentage of the CALD population reporting gambling problems, we were unable to run separate models for the CALD and non-CALD groups.

The approach taken was first to assess unadjusted associations between all variables related to CALD status (region of birth, year of arrival, language region, proficiency in English and the CALD variable itself). We next developed multivariable models without CALD-related variables using the following steps. First, unadjusted associations between explanatory variables and reported gambling problems were assessed (using logistic regression).

Explanatory variables showing a significant ($p \leq 0.05$) association with gambling problems were then assessed for collinearity to ensure the assumptions associated with logistic regression modelling were maintained. Where two or more explanatory variables were significantly correlated, these were first entered into a separate model and variables remaining significant were retained for the next stage of the analytic strategy.

Next, significant explanatory variables were entered simultaneously into a multivariable logistic regression model and backward elimination carried out with removal of variables set at $p>0.05$. Lastly, CALD-related variables were added separately to the models which allowed us to assess whether any CALD-related variables exerted an independent effect (i.e. independent of other variables in the model) on reported gambling problems. The survey replicate methods (SVR) commands were used to analyse data (Winter 2008) and CIs were calculated using the Jack Knife (jk1) method and adjusted for the survey design.

4.3 Results

All data presented in this chapter comes from the 2002 and 2006 GSSs. For discussion of the findings and conclusions see Chapters 5 and 6. Odds ratios with 95% CIs are used to determine the effect size of a variables' relationship to reported gambling problems for logistic regression models. The interpretation of the odds ratio is similar to a rate ratio with regards to the ratio being greater than or less than one indicating a positive or negative association between two categories of the same variable or two different variables (see example in Chapter 2). Odds ratios in this Chapter express the direction and size of the association between the explanatory variable (for example age) and the outcome (reported gambling problems). The important difference between a rate ratio and an odds ratio is that a rate ratio is a ratio of one probability (or percentage) to another, while an odds ratio is a ratio of the relative odds of two events.

4.3.1 Estimates of NLES items for CALD and non-CALD populations

Figures 4.1 to 4.4 present estimates of NLES items comparing the CALD and non-CALD populations for 2002 and 2006 (see also Table 4.1). Table 4.2 presents RRs that provide information on statistically significant differences between CALD and non-CALD for 2002 and 2006, and between CALD for 2002 and 2006.

Four items, namely chronic illness, death of family member, no job and divorce consistently ranked in the top four reported NLES items for the CALD and non-CALD populations in 2002 and 2006. In 2002, 3.3% of the CALD population reported gambling problems compared with 3.5% in the non-CALD population. However, in 2006, only 1.3% of the CALD population reported gambling problems, while the non-CALD estimate remained steady at 3.5%. The drop in reported gambling problems between 2002 and 2006 for the CALD population was statistically significant (RR 0.39, 95% CI 0.20 to 0.59), as was the difference between CALD and non-CALD estimates in 2006 (RR 0.37, 0.16 to 0.59).

All except two NLES items were reported at statistically significant lower levels for the CALD population compared with the non-CALD population for 2002 and 2006 (Table 4.2). In addition to the significant drop in reported gambling problems for the CALD population between 2002 and 2006, the following items also showed significant drops: abuse or violent crime (RR 0.54, 0.22 to 0.85), and losing a job (RR 0.63, 0.41 to 0.85).

The following items showed a significant increase between 2002 and 2006 for the CALD population: chronic illness (RR 1.17, 1.11 to 1.23) and mental illness (RR 1.47, 1.14 to 1.80). For the non-CALD population comparing 2006 and 2002 estimates, the items lost job (RR 0.91, 0.87 to 0.95) and not able to get a job (RR 0.88, 0.86 to 0.91) decreased significantly, while police trouble (RR 1.23, 1.13 to 1.32), chronic illness (RR 1.13, 1.10 to 1.16), serious accident (RR 1.15, 1.07 to 1.22), death of a family member (RR 1.06, 1.04 to 1.09), and mental illness (RR 1.31, 1.24 to 1.38) had significant increases in reporting.

Between the 2002 and 2006 CALD population there was no change in the number of negative life events being reported, and there was a slight decrease in the non-CALD population for people reporting no negative life events, and a small increase in people reporting three stressors (Table 4.2).

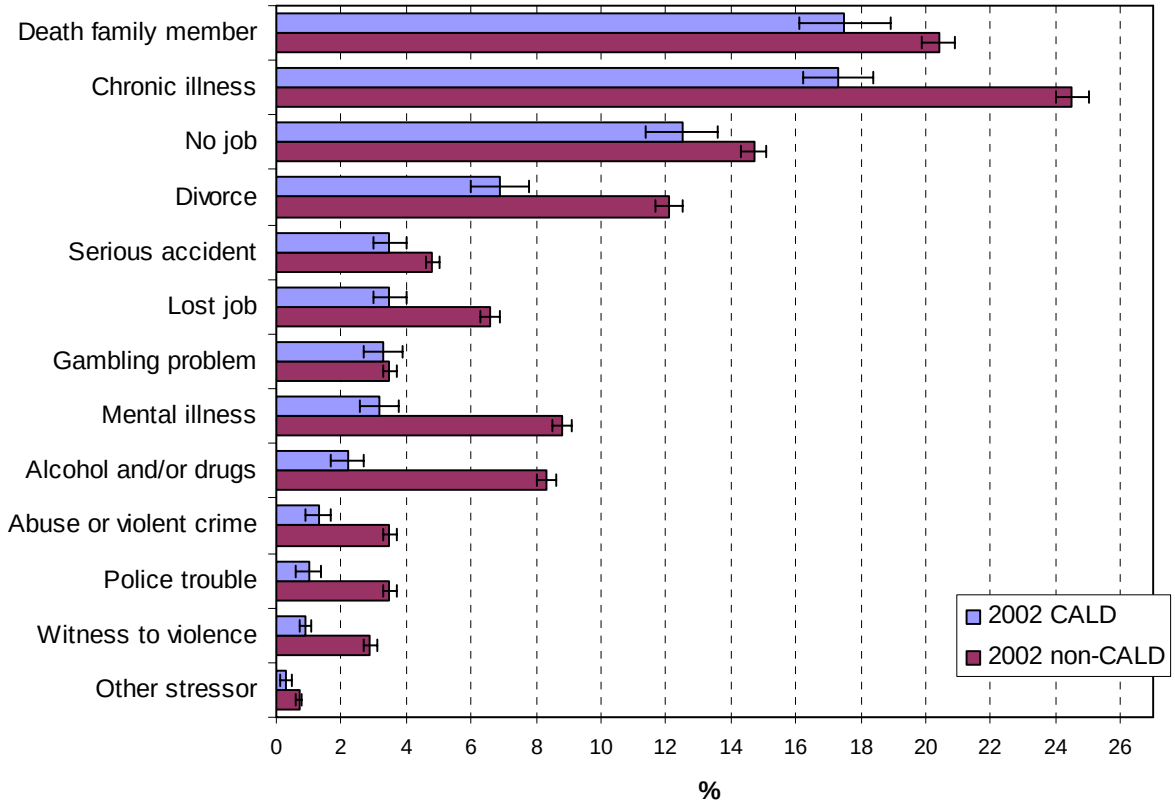

Figure 4.1 NLES item estimates (standard errors) by CALD status for 2002

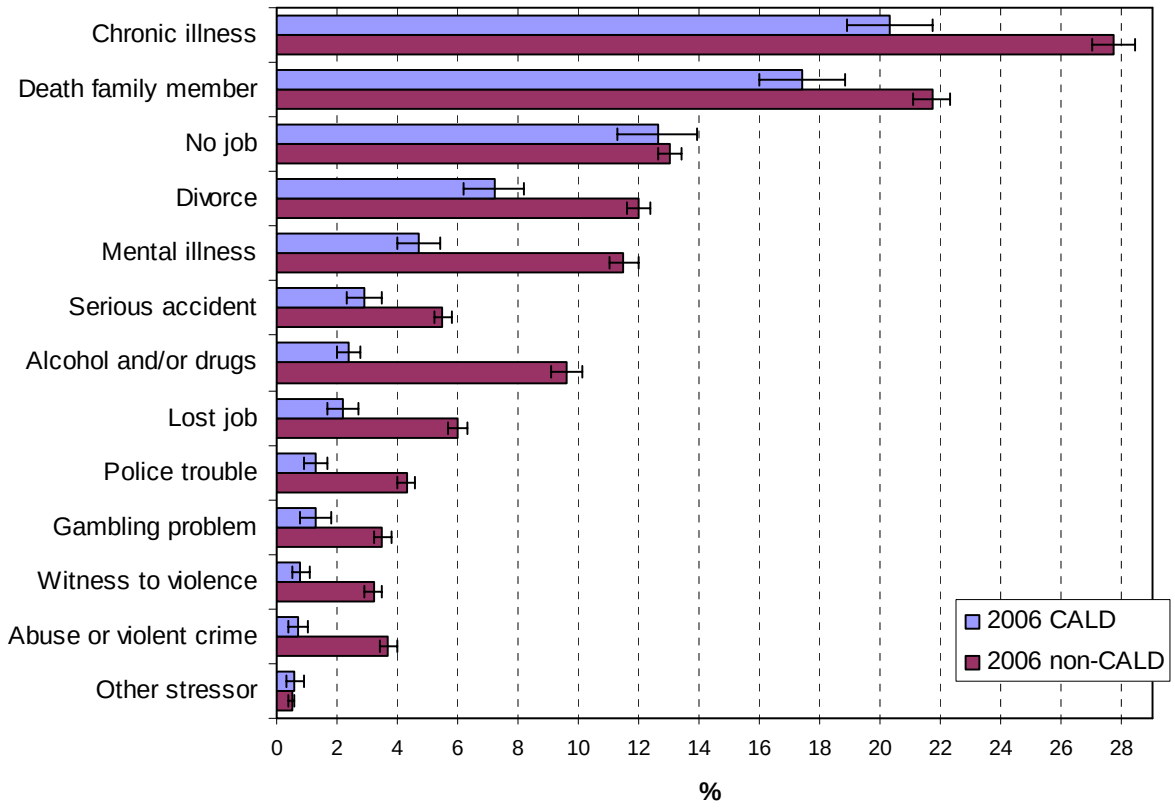

Figure 4.2 NLES item estimates (standard errors) by CALD status for 2006

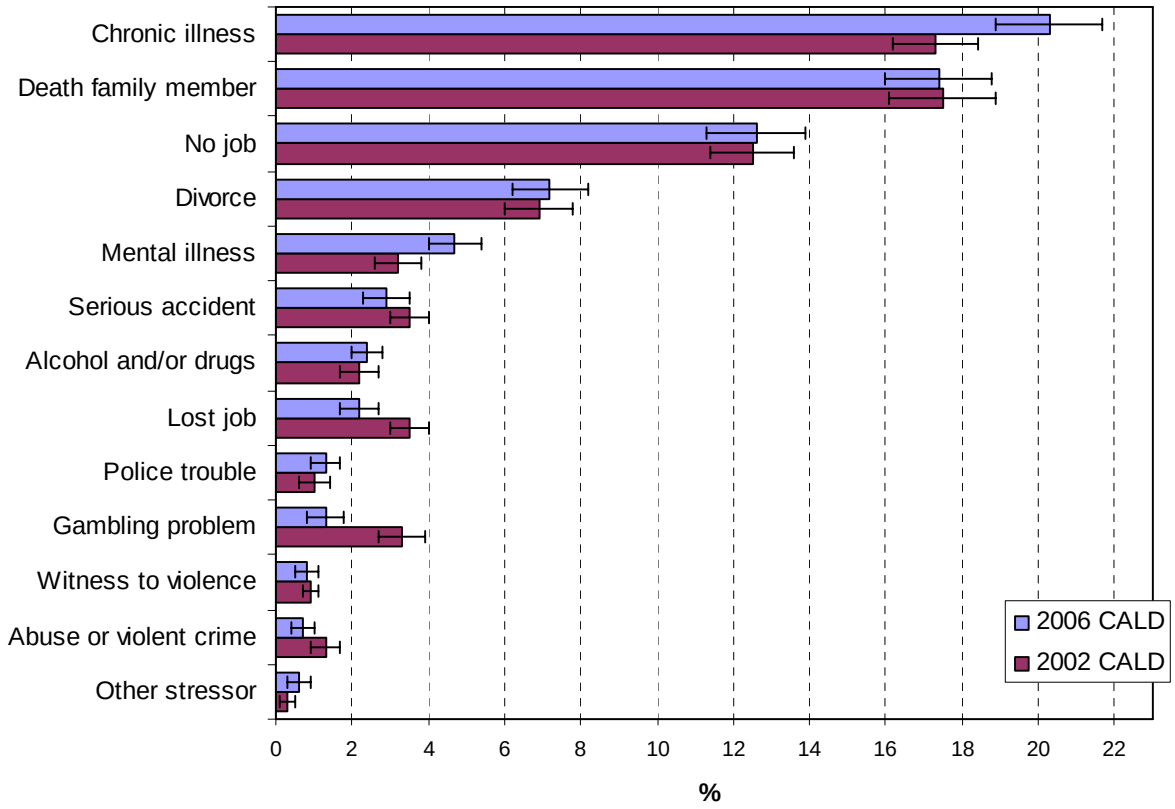

Figure 4.3 NLES item estimates (standard errors) for the 2002 and 2006 CALD population

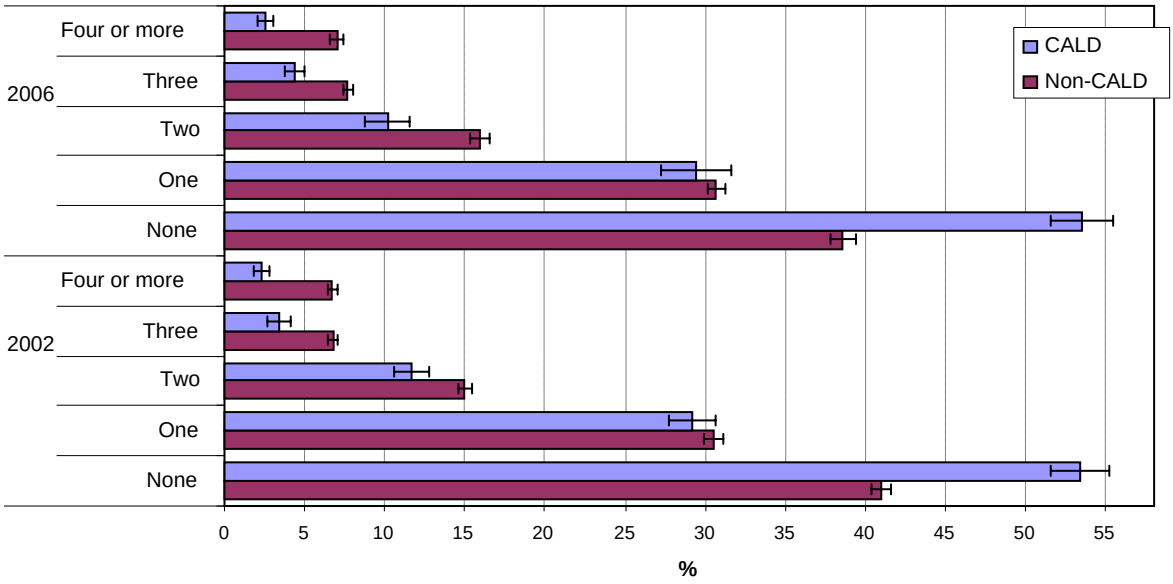

Figure 4.4 Estimates (standard errors) for number of NLES items reported by CALD status for 2002 and 2006

Table 4.1 NLES item estimates by CALD status for 2002 and 2006

NLES items	2006 CALD % (SE)	2006 Non-CALD % (SE)	2002 CALD % (SE)	2002 Non-CALD % (SE)
Being abused or in violent crime	0.7 (0.3)	3.7 (0.3)	1.3 (0.4)	3.5 (0.2)
Witness to violence	0.8 (0.3)	3.2 (0.3)	0.9 (0.2)	2.9 (0.2)
Alcohol and/or drug problems	2.4 (0.4)	9.6 (0.5)	2.2 (0.5)	8.3 (0.3)
Police trouble	1.3 (0.4)	4.3 (0.3)	1.0 (0.4)	3.5 (0.2)
Gambling problem	1.3 (0.4)	3.5 (0.3)	3.3 (0.6)	3.5 (0.2)
Lost job	2.2 (0.5)	6.0 (0.3)	3.5 (0.5)	6.6 (0.3)
Not able to get a job	12.6 (1.3)	13.0 (0.4)	12.5 (1.1)	14.7 (0.4)
Divorce or separation	7.2 (1.0)	12.0 (0.4)	6.9 (0.9)	12.1 (0.4)
Chronic illness	20.3 (1.4)	27.7 (0.7)	17.3 (1.1)	24.5 (0.5)
Serious accident close friend/family	2.9 (0.6)	5.5 (0.3)	3.5 (0.5)	4.8 (0.2)
Death family member	17.4 (1.4)	21.7 (0.6)	17.5 (1.4)	20.4 (0.5)
Mental illness	4.7 (0.7)	11.5 (0.5)	3.2 (0.6)	8.8 (0.3)
Other stressor	0.6 (0.3)	0.5 (0.1)	0.3 (0.2)	0.7 (0.1)
Number of stressors reported				
None	53.5 (2.0)	38.6 (0.8)	53.4 (1.8)	41.0 (0.6)
One	29.4 (2.2)	30.7 (0.6)	29.2 (1.5)	30.5 (0.6)
Two	10.2 (1.4)	15.9 (0.6)	11.7 (1.1)	15.0 (0.4)
Three	4.4 (0.6)	7.7 (0.3)	3.4 (0.7)	6.8 (0.3)
Four or more	2.6 (0.5)	7.0 (0.4)	2.3 (0.5)	6.7 (0.3)

Table 4.2 Rate ratios (95% CIs) comparing CALD and non-CALD populations for 2002 and 2006

NLES items	2006 CALD : Non-CALD Rate ratio (95% CI)	2002 CALD : Non-CALD Rate ratio (95% CI)	2006:2002 CALD : CALD Rate ratio (95% CI)	2006:2002 Non-CALD : Non-CALD Rate ratio (95% CI)
Being abused or in violent crime	**0.19 (0.03-0.35)**	**0.37 (0.15-0.59)**	**0.54 (0.22-0.85)**	1.06 (0.94-1.18)
Witness to violence	**0.25 (0.07-0.43)**	**0.31 (0.18-0.44)**	0.89 (0.36-1.42)	1.10 (0.97-1.24)
Alcohol and/or drug problems	**0.25 (0.17-0.33)**	**0.27 (0.15-0.38)**	1.09 (0.76-1.42)	**1.16 (1.07-1.24)**
Police trouble	**0.30 (0.12-0.48)**	**0.29 (0.06-0.51)**	1.30 (0.65-1.95)	**1.23 (1.13-1.32)**
Gambling problem	**0.37 (0.16-0.59)**	0.94 (0.62-1.26)	**0.39 (0.20-0.59)**	1.00 (0.87-1.13)
Lost job	**0.37 (0.21-0.53)**	**0.53 (0.39-0.67)**	**0.63 (0.41-0.85)**	**0.91 (0.87-0.95)**
Not able to get a job	0.97 (0.78-1.16)	**0.85 (0.71-0.99)**	1.01 (0.90-1.11)	**0.88 (0.86-0.91)**
Divorce or separation	**0.60 (0.44-0.76)**	**0.57 (0.43-0.71)**	1.04 (0.95-1.14)	0.99 (0.98-1.00)
Chronic illness	**0.73 (0.64-0.83)**	**0.71 (0.62-0.79)**	**1.17 (1.11-1.23)**	**1.13 (1.10-1.16)**
Serious accident close friend/family	**0.53 (0.32-0.73)**	**0.73 (0.53-0.92)**	0.83 (0.08-1.58)	**1.15 (1.07-1.22)**
Death of a family member	**0.80 (0.68-0.92)**	**0.86 (0.73-0.99)**	0.99 (0.85-1.13)	**1.06 (1.04-1.09)**
Mental illness	**0.41 (0.29-0.52)**	**0.36 (0.23-0.50)**	**1.47 (1.14-1.80)**	**1.31 (1.24-1.38)**
Other stressor	1.20 (0.12-2.28)	**0.43 (0.01-0.98)**	2.00 (0.27-3.73)	**0.71 (0.52-0.91)**
Number of stressors				
None	**1.39 (1.30-1.47)**	**1.30 (1.22-1.38)**	1.00 (0.97-1.03)	**0.94 (0.91-0.97)**
One	0.96 (0.82-1.09)	0.96 (0.87-1.05)	1.01 (0.90-1.11)	1.01 (1.00-1.01)
Two	**0.64 (0.48-0.81)**	**0.78 (0.64-0.92)**	0.87 (0.70-1.04)	1.06 (1.00-1.12)
Three	**0.57 (0.43-0.72)**	**0.50 (0.30-0.70)**	1.29 (0.90-1.69)	**1.13 (1.09-1.18)**
Four or more	**0.37 (0.24-0.51)**	**0.34 (0.20-0.49)**	1.13 (0.91-1.36)	1.04 (0.97-1.12)

NOTE: **Bold** font indicates statistically significant difference ($p \leq 0.05$)

4.3.2 Inter-relationships between NLES items for CALD and non-CALD populations

Tables 4.3 and 4.4 show rotated factor structures for the CALD and non-CALD populations for 2002 and 2006. First, focussing on the 2002 CALD population (Table 4.3), the 12 NLES items were summarised in four factors, with just over 44% of the variation accounted for by these factors.

The four groupings of items were: 1) gambling problems, death of a family member, divorce, and serious accident; 2) abuse or violent crime, witness to violence, and police trouble; 3) mental illness, alcohol and or drugs problems, and chronic illness; and 4) lost job and not able to get a job.

A three-factor solution adequately summarised the inter-relationships between the 12 NLES items for the 2002 non-CALD population, with nearly 39% of the variation explained. Three clear groupings of items could be inferred from the factor structure. These were: 1) abuse or violent crime, witness to violence, alcohol and or drugs, police trouble and gambling problems (which also had moderate loading on factor 2); 2) lost job, not able to get a job, and divorce or separation; and 3) chronic illness, death of a family member, serious accident. Mental illness did not load above 0.40 on any factor and its highest loading was on factor 2, which would link it to the economic vulnerability and relationship breakdown factor.

Table 4.3 Rotated factor loadings for 12 NLES items for **2002** CALD and non-CALD populations

	2002 CALD				2002 Non-CALD		
NLES items	**F1**	**F2**	**F3**	**F4**	**F1**	**F2**	**F3**
Being abused or in violent crime	0.18	**0.72**	-0.09	-0.11	**0.71**	-0.02	0.03
Witness to violence	-0.04	**0.54**	0.12	0.13	**0.71**	0.00	0.10
Alcohol and/or drug problems	-0.06	0.34	**0.58**	0.09	**0.53**	0.37	0.00
Police trouble	-0.09	**0.52**	0.09	0.13	**0.63**	0.12	-0.01
Gambling problem	**0.70**	0.13	0.04	-0.10	0.35	0.24	0.08
Lost job	0.06	-0.11	0.01	**0.81**	0.00	**0.72**	0.03
Not able to get a job	0.00	0.24	0.02	**0.65**	0.07	**0.71**	0.05
Divorce or separation	**0.55**	0.18	0.07	0.24	0.28	0.33	0.11
Chronic illness	0.13	0.03	**0.52**	0.04	-0.01	0.17	**0.63**
Death family member	**0.60**	-0.08	-0.10	0.17	0.05	0.02	**0.63**
Serious accident close friend/family	**0.44**	-0.17	0.34	0.00	0.13	-0.07	**0.57**
Mental illness	0.03	-0.13	**0.73**	-0.03	0.23	0.36	0.18
Rotated Eigen-values	1.42	1.37	1.30	1.23	1.95	1.49	1.18
Cumulative variance	*11.8%*	*23.3%*	*34.1%*	*44.4%*	*16.3%*	*28.7%*	*38.6%*

NOTE: Loadings ≥ 0.40 in **bold** font

Table 4.4 shows the rotated factor structures for the 2006 CALD and non-CALD populations. The factor structure for the 2006 CALD population, while being summarised in four factors (46% of variation explained) as with 2002 NLES items, groups NLES items differently to that observed in 2002. The four groupings are: 1) abuse or violent crime, witness to violence, police trouble, and alcohol and or drugs; 2) no job, lost job, police trouble, and alcohol and or drugs; 3) divorce, chronic illness, death of a family member, and serious accident; and 4) gambling problem and mental illness.

Table 4.4 Rotated factor loadings for 12 NLES items for **2006** CALD and non-CALD populations

	2006 CALD				2006 Non-CALD		
NLES items	**F1**	**F2**	**F3**	**F4**	**F1**	**F2**	**F3**
Being abused or in violent crime	**0.66**	-0.11	0.04	0.09	**0.71**	-0.06	0.11
Witness to violence	**0.62**	-0.08	0.19	0.00	**0.66**	0.08	0.13
Alcohol and/or drug problems	**0.43**	**0.43**	0.05	0.16	**0.60**	0.29	0.07
Police trouble	**0.60**	**0.43**	-0.13	0.02	**0.64**	0.09	-0.06
Gambling problem	0.13	-0.04	-0.07	**0.81**	**0.46**	0.27	-0.18
Lost job	-0.12	**0.64**	0.01	0.15	0.02	**0.78**	0.05
Not able to get a job	0.06	**0.72**	0.10	-0.10	0.13	**0.73**	0.07
Divorce or separation	0.25	0.13	**0.45**	-0.02	0.27	0.30	0.09
Chronic illness	-0.11	0.07	**0.57**	0.34	0.01	0.12	**0.58**
Death family member	-0.16	0.17	**0.53**	-0.11	0.01	0.06	**0.60**
Serious accident close friend/family	0.29	-0.06	**0.61**	-0.10	0.15	0.03	**0.47**
Mental illness	-0.19	0.20	0.24	**0.55**	0.25	0.08	**0.47**
Rotated Eigen-values	1.62	1.42	1.31	1.17	2.10	1.42	1.22
Cumulative variance	*13.5%*	*25.4%*	*36.3%*	*46.1%*	*17.5%*	*29.4%*	*39.5%*

NOTE: Loadings ≥ 0.40 in **bold** font

The 2006 non-CALD population had a similar pattern of item groupings to that observed in 2002, with three factors clearly identified that summarised just less than 40% of the variation in the 12 NLES items. The three groupings identified were: 1) abuse or violent crime, witness to violence, alcohol and or drugs, police trouble and gambling problems (which also had moderate loading on the second factor); 2) lost job, not able to get a job, and divorce or separation (moderate loading); and 3) chronic illness, death of a family member, serious accident, and mental illness.

Table 4.5 summarises and labels factors according to clustering of NLES items for the CALD and non-CALD populations. The naming scheme is an inductive process that looks for a thematic label to encapsulate the common issue captured by all items loading on a factor. For example, Factor 1 in the 2002 CALD factor analysis (Table 4.3) loaded gambling problem, divorce or separation, death of a family member and serious accident close/friend family. Gambling problem had a loading of 0.70 and as the highest loading it has greatest importance in the factor naming. Hence, gambling for the 2002 CALD sample is related to personal grief/trauma/loss from divorce, death or accident. It is therefore reasonable to assume that in this sample, gambling is pursued more as an escape from difficult personal circumstances.

Table 4.5 Factor labels for the CALD and non-CALD populations for 2002 and 2006

Population and factor meanings
2002 CALD
Group 1: **Gambling-related** escapism due to personal loss/grief/trauma
Group 2: Social transgressions relating to violence
Group 3: Mental illness related to chronic illness or alcohol/drug abuse
Group 4: Economic vulnerability
2006 CALD
Group 1: Social transgressions relating to violence & alcohol/drug abuse
Group 2: Economic vulnerability and alcohol/drug abuse
Group 3: Health-related relationship breakdown
Group 4: Mental illness associated with **gambling problems**
2002 and 2006 CALD
Group 1: Social transgressions including **gambling problems**
Group 2: Income related relationship breakdown
Group 3: Grief and trauma

NOTE: See Tables 4.3 and 4.4 for items in each group

4.3.3 Correlates of gambling problems for CALD and non-CALD populations

First, unadjusted associations (odds ratios (OR) and 95% CIs) between reported gambling problems and the CALD status variable and ethnicity-related variables (for 2002 and 2006) are reported. Second, multivariable models for the general population are presented and the CALD status variable and other ethnicity-related variables are added to the model to determine whether these variables have a significant adjusted association with reported gambling problems. It was not possible to produce multivariable models using only the CALD population due to the small samples size, as confidence intervals were unacceptably high, therefore producing unreliable estimates and no statistical significance.

4.3.3.1 Unadjusted associations between CALD variables and gambling problems

Table 4.6 presents unadjusted odds ratios and 95% confidence intervals (OR, 95% CI) and the percentage reporting gambling problems for respondents, family or friends for the CALD status variable and other variables related to ethnicity. Caution should be taken when interpreting odds ratios and percentage of reported gambling problems in this table as some of these estimates have relative standard errors greater than 30%. None of the CALD variables had a statistically significant association with reported gambling problems in 2002. However, the variable combining country of birth and language spoken at home was only marginally non-significant (p=0.080) and indicated that people born overseas who spoke English at home reported fewer gambling problems (OR 0.69, 0.51 to 0.93) than people born in Australia who speak English at home. The variable indicating what language region the respondent came from indicated that people who spoke a southern or western Asian language reported more gambling problems (OR 2.41, 1.10 to 5.27).

In 2006, the CALD status variable had a statistically significant negative ($p \leq 0.05$) association with reported gambling problems (OR 0.38, 0.21 to 0.68). That is, being a member of the CALD population in 2006 was associated with reporting fewer gambling-related problems for themselves, family and friends. The variable that combines country of birth and language spoken at home also identifies the CALD group (born overseas and does not speak English at home) as being associated with fewer gambling problems (OR 0.40, 0.23 to 0.72). Still looking at this variable, people born in Australia who did not speak English at home category reported more gambling problems at a marginally non-significant level (OR 2.14, 0.95 to 4.85), compared with people born in Australia who speak English at home. People who spoke south/south-east/eastern Asian languages reported significantly fewer gambling problems (OR 0.14, 0.04 to 0.54) compared with people who spoke English at home. Lastly, people who were born in New Zealand or Oceania reported higher levels of gambling-related problems (OR 2.16, 1.04 to 4.49).

Table 4.6 Unadjusted associations between reported gambling problems and CALD-related variables

	2002		2006	
	OR (95% CI)	Reported gambling problems % (SE)	OR (95% CI)	Reported gambling problems % (SE)
CALD status				
Non-CALD	(p=0.758) 1.00	3.5 (0.2)	(p=0.002) 1.00	3.5 (0.3)
CALD	0.94 (0.64-1.39)	3.3 (0.6)	**0.38 (0.21-0.68)**	1.3 (0.4)
CALD population				
Country of birth and language				
Australia and English at home	(p=0.080) 1.00	3.6 (0.2)	(p=0.017) 1.00	3.3 (0.2)
Australia and not English at home	1.74 (0.85-3.59)	6.1 (1.7)	2.14 (0.95-4.85)	6.7 (2.4)
Overseas and English at home	**0.69 (0.51-0.93)**	**2.5 (0.4)**	1.13 (0.71-1.80)	3.7 (0.7)
Overseas and not English at home[1]	0.92 (0.61-1.38)	3.3 (0.6)	**0.40 (0.23-0.72)**	1.3 (0.4)
Language region[2]				
Australia	(p=0.252) 1.00	3.4 (0.2)	(p=0.067) 1.00	3.3 (0.2)
North European	0.52 (0.01-41.2)	1.8 (1.6)	1.72 (0.37-7.97)	5.6 (3.2)
South/East European	1.39 (0.73-2.64)	4.6 (1.2)	0.94 (0.44-1.97)	3.1 (1.0)
South-west Asian	**2.41 (1.10-5.27)**	**7.8 (2.6)**	0.65 (0.17-2.45)	2.2 (1.2)
South/South-east/East Asian	0.45 (0.19-1.09)	1.6 (0.6)	**0.14 (0.04-0.54)**	**0.5 (0.2)**
Other language region	1.70 (0.51-5.71)	5.6 (2.8)	2.87 (0.79-10.4)	9.0 (4.5)
Proficiency in English				
Speaks English at home	(p=0.334) 1.00	3.4 (0.2)	(p=0.015) 1.00	3.3 (0.2)
Very well	1.38 (0.84-2.26)	4.6 (0.9)	1.15 (0.64-2.07)	3.8 (1.0)
Well/not well/none	0.92 (0.58-1.46)	3.1 (0.7)	**0.30 (0.14-0.65)**	**1.0 (0.4)**
Region of birth[2]				
Australia	(p=0.531) 1.00	3.7 (0.2)	1.34 (0.91-1.97)	3.4 (0.3)
Europe	0.73 (0.45-1.18)	2.7 (0.6)	0.71 (0.48-1.04)	2.4 (0.4)
Africa/Middle East	0.95 (0.44-2.07)	3.5 (1.3)	0.84 (0.36-1.99)	2.7 (1.1)
North/South/East Asia	0.53 (0.22-1.28)	2.0 (0.8)	0.61 (0.23-1.60)	2.0 (0.8)
India/North/West Asia	0.49 (0.04-5.69)	1.9 (1.4)	ne	0.4 (0.4)
New Zealand/Oceania	1.35 (0.73-2.50)	4.9 (1.3)	**2.16 (1.04-4.49)**	**6.4 (2.0)**
Americas/not stated	0.85 (0.18-3.98)	3.2 (1.9)	0.29 (0.02-4.15)	1.0 (0.7)
Time in Australia				
Born in Australia	(p=0.354) 1.00	3.7 (0.2)	(p=0.266) 1.00	3.4 (0.3)
Recent (2001-2002/2006)	0.64 (0.10-3.95)	2.4 (1.6)	0.66 (0.22-2.02)	2.3 (1.1)
Medium (1991-2000)	0.61 (0.29-1.27)	2.3 (0.7)	1.22 (0.67-2.22)	4.1 (1.1)
Long-term (before 1991)	0.82 (0.58-1.16)	3.0 (0.5)	0.65 (0.41-1.03)	2.2 (0.4)

NOTE: **Bold** font indicates statistically significant difference ($p \leq 0.05$)

1 This category is the same as the CALD group

2 For 2006 data, the small sample size restricted the bivariate analysis and odds ratios for Region of Birth are calculated for individual regions. That is, the reference category is all other regions including Australia

ne = Not able to be estimated due to small sample size for this group

4.3.3.2 Multivariable logistic regression model for reported gambling problems: 2002

Table 4.7 presents the multivariable adjusted models for reported gambling problems in the 2002 total adult population in Australia aged 18 and over. Model 1 contains no variables relating to CALD status and is the base model. The previous analysis (Table 4.6) has revealed that the country of birth and language combination (p=0.080) and language region (p=0.252) had the strongest association with reported gambling problems. These variables were then entered into model 1 separately and are presented in Models 2 and 3.

In both models 2 and 3, the association between the CALD-related variables and reported gambling problems is weakened after controlling for other variables related to gambling problems. Specifically, the negative association between being born overseas and speaking English at home and reported gambling problems weakened considerably (OR 0.74, 0.54 to 1.01), when adjusting for other variables (State/Territory of residence, age, tenure type, cash

flow problems, social participation, being a victim of physical or threatened violence and self-assessed health). Similarly for the language region variable, the positive association between speaking a south-west Asian language and reported gambling problems was weakened (OR 2.17, 0.94 to 5.00). The inclusion of the CALD variables did not change the significance or magnitude of the effect sizes (measured by odds ratios) for other variables in models 2 and 3.

Table 4.7 Multivariable models for 2002 reported gambling problems

Explanatory variables	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Reported gambling problems % (SE)
Country of birth and language				
Australia and English at home	na	(p=0.170) 1.00	na	3.6 (0.2)
Australia and not English at home	na	1.64 (0.78-3.46)	na	6.1 (1.7)
Overseas and English at home	na	0.74 (0.54-1.01)	na	2.5 (0.4)
Overseas and not English at home	na	1.12 (0.74-1.70)	na	3.3 (0.6)
Language region				
Australia	na	na	(p=0.262) 1.00	3.4 (0.2)
North European	na	na	0.70 (0.01-51.2)	1.8 (1.6)
South/East European	na	na	1.82 (0.93-3.57)	4.6 (1.2)
South-west Asian	na	na	2.17 (0.94-5.00)	7.8 (2.6)
South/South-east/East Asian	na	na	0.49 (0.21-1.14)	1.6 (0.6)
Other language region	na	na	1.32 (0.39-4.50)	5.6 (2.8)
State/Territory				
WA	1.00	1.00	1.00	1.4 (0.2)
NSW	**3.27 (2.21-4.83)**	**3.16 (2.13-4.68)**	**3.24 (2.17-4.83)**	4.1 (0.4)
VIC	**3.02 (2.03-4.51)**	**2.88 (1.91-4.35)**	**2.90 (1.91-4.41)**	3.7 (0.4)
QLD	**2.13 (1.36-3.35)**	**2.12 (1.35-3.31)**	**2.16 (1.38-3.40)**	3.1 (0.4)
SA	**2.76 (1.84-4.14)**	**2.71 (1.80-4.07)**	**2.75 (1.83-4.12)**	3.5 (0.5)
NT	**1.93 (1.19-3.12)**	**1.85 (1.13-3.04)**	**1.93 (1.18-3.13)**	3.2 (0.6)
ACT	**2.81 (1.88-4.21)**	**2.76 (1.83-4.14)**	**2.79 (1.86-4.19)**	3.7 (0.5)
TAS	**2.05 (1.37-3.09)**	**2.04 (1.36-3.06)**	**2.12 (1.41-3.20)**	2.7 (0.4)
Age (years)				
18-24	1.64 (0.82-3.27)	1.52 (0.76-3.05)	1.65 (0.82-3.30)	4 (0.6)
25-34	**2.51 (1.47-4.28)**	**2.36 (1.37-4.08)**	**2.53 (1.48-4.31)**	5.6 (0.5)
35-44	**1.91 (1.04-3.53)**	1.84 (0.99-3.42)	**1.91 (1.04-3.53)**	4.1 (0.5)
45-54	1.58 (0.93-2.70)	1.55 (0.90-2.65)	1.59 (0.93-2.72)	3.0 (0.4)
55 or more	1.00	1.00	1.00	1.5 (0.3)
Tenure type				
Owner - no mortgage	1.00	1.00	1.00	1.7 (0.3)
Owner - with mortgage	1.67 (0.99-2.84)	**1.74 (1.03-2.94)**	**1.75 (1.03-2.99)**	4.0 (0.4)
Renter	**1.95 (1.22-3.10)**	**2.05 (1.30-3.26)**	**2.10 (1.33-3.32)**	5.6 (0.4)
Other	0.50 (0.15-1.72)	0.52 (0.15-1.81)	0.56 (0.16-1.93)	1.0 (0.5)
Cash flow problems				
No cash flow problems	1.00	1.00	1.00	2.7 (0.2)
One problem	1.26 (0.87-1.81)	1.24 (0.86-1.80)	1.22 (0.85-1.76)	4.4 (0.6)
Two or more problems	**2.12 (1.41-3.19)**	**2.10 (1.40-3.15)**	**2.05 (1.34-3.11)**	8.7 (1.1)
Social participation last 3 months				
No attendance	1.00	1.00	1.00	2.5 (0.4)
Attends café/bar/club	**1.56 (1.15-2.12)**	**1.62 (1.18-2.21)**	**1.62 (1.18-2.24)**	3.7 (0.2)
Physical or threatened violence				
Not a victim	1.00	1.00	1.00	3.0 (0.2)
Victim	**1.92 (1.39-2.66)**	**1.94 (1.40-2.70)**	**1.95 (1.40-2.72)**	8.1 (0.9)
Self assessed health				
Excellent	1.00	1.00	1.00	2.6 (0.4)
Very good	1.46 (0.97-2.19)	1.48 (0.98-2.22)	1.49 (0.99-2.23)	3.7 (0.3)
Good	**1.65 (1.02-2.69)**	**1.65 (1.02-2.68)**	**1.69 (1.04-2.75)**	3.8 (0.5)
Fair	1.54 (0.90-2.64)	1.55 (0.90-2.66)	1.56 (0.92-2.67)	3.1 (0.5)
Poor	**3.24 (1.69-6.20)**	**3.26 (1.70-6.27)**	**3.12 (1.66-5.87)**	5.5 (1.2)

NOTE: **Bold** font indicates statistically significant difference ($p \leq 0.05$)

4.3.3.3 Multivariable logistic regression model for 2006 reported gambling problems

Table 4.8 presents the multivariable adjusted models for reported gambling problems in the 2006 total adult population in Australia aged 18 and over. Three models are presented that include CALD-related variables in the 2006 analysis. Model 4 includes the proficiency in English language variable, which became marginally non-significant (p=0.069) after adjusting for other significant variables (State/Territory of residence, age, cash flow problems, social participation, being a victim of physical or threatened violence and self-assessed health). Similarly, when the combination variable of country of birth and language spoken at home was added to the multivariable model, it became marginally non-significant (p=0.064). However, these variables do indicate that not speaking English at home (OR 0.53, 0.30 to 0.95) and not speaking English very well (OR 0.39, 0.18 to 0.85) are associated with fewer reported gambling problems.

Model 6 is the final multivariable adjusted model for reported gambling problems with all variables in this model significant at $p \leq 0.05$. It includes the CALD status variables and the region of birth variable, born in New Zealand or Oceania (along with state/territory, age, cash flow problems, social participation, victim of physical or threatened violence and self-assessed health). It demonstrates that being a member of the CALD population was associated with fewer reported gambling problems (OR 0.47, 0.26 to 0.85), while being born in New Zealand or Oceania was associated with higher levels of reported gambling problems (OR 2.13, 1.00 to 4.52).

Table 4.8 Multivariable models for 2006 reported gambling problems

Explanatory variables	Model 4 OR (95% CI)	Model 5 OR (95% CI)	Model 6 OR (95% CI)	Reported gambling problems % (SE)
CALD status				
CALD	na	na	**0.47 (0.26-0.85)**	1.3 (0.4)
Non-CALD	na	na	(p=0.015) 1.00	3.5 (0.3)
Country of birth and language				
Australia and English at home	na	(p=0.064) 1.00	na	3.3 (0.2)
Australia and not English at home	na	1.58 (0.64-3.87)	na	6.7 (2.4)
Overseas and English at home	na	1.48 (0.92-2.37)	na	3.7 (0.7)
Overseas and not English at home	na	**0.53 (0.30-0.95)**	na	1.3 (0.4)
Region of birth				
New Zealand/Oceania	na	na	**2.13 (1.00-4.52)**	6.4 (2.0)
Any other country (incl. Australia)	na	na	(p=0.049) 1.00	3.1 (0.2)
Proficiency in English language				
Speaks at home	(p=0.069) 1.00		dropped	3.3 (0.2)
Very well	1.01 (0.53-1.93)		dropped	3.8 (1.0)
Well/not well/none	**0.39 (0.18-0.85)**		dropped	1.0 (0.4)
State/Territory				
WA	1.00	1.00	1.00	1.5 (0.4)
NSW	**2.45 (1.28-4.68)**	**2.58 (1.35-4.92)**	**2.39 (1.27-4.51)**	3.3 (0.5)
VIC	**2.45 (1.33-4.52)**	**2.60 (1.44-4.69)**	**2.45 (1.34-4.47)**	3.2 (0.5)
QLD	**2.34 (1.35-4.07)**	**2.45 (1.41-4.23)**	**2.31 (1.32-4.02)**	3.6 (0.5)
SA	**2.59 (1.48-4.53)**	**2.70 (1.54-4.73)**	**2.66 (1.52-4.67)**	3.6 (0.5)
NT	**2.64 (1.60-4.36)**	**2.65 (1.61-4.36)**	**2.57 (1.57-4.22)**	4.5 (0.6)
ACT	**3.09 (1.70-5.64)**	**3.26 (1.79-5.92)**	**3.14 (1.73-5.69)**	4.3 (0.5)
TAS	1.79 (0.92-3.48)	**1.93 (1.01-3.71)**	1.87 (0.96-3.67)	2.4 (0.4)
Age (years)				
18-24	**1.81 (1.09-3.00)**	**1.90 (1.12-3.21)**	**1.84 (1.12-3.05)**	4.0 (0.9)
25-34	**2.70 (1.66-4.41)**	**2.83 (1.68-4.75)**	**2.71 (1.66-4.45)**	4.3 (0.6)
35-44	**2.64 (1.60-4.36)**	**2.70 (1.61-4.53)**	**2.64 (1.62-4.30)**	4.0 (0.4)
45-54	**2.55 (1.40-4.62)**	**2.59 (1.41-4.73)**	**2.54 (1.40-4.63)**	3.7 (0.7)
55 or more	1.00	1.00	1.00	1.3 (0.2)
Cash flow problems				
No cash flow problems	1.00	1.00	1.00	2.3 (0.2)
One problem	1.62 (0.98-2.69)	1.62 (0.97-2.70)	1.63 (0.98-2.72)	4.8 (1.0)
Two or more problems	**2.39 (1.61-3.57)**	**2.39 (1.61-3.55)**	**2.40 (1.61-3.59)**	8.6 (1.0)
Social participation last 12 months				
Sport and recreation	**1.35 (1.04-1.74)**	**1.36 (1.05-1.76)**	**1.40 (1.08-1.80)**	4.0 (0.4)
No sport and recreation	1.00	1.00	1.00	2.7 (0.2)
Social participation last 12 months				
Arts and crafts	**1.51 (1.01-2.25)**	**1.53 (1.03-2.27)**	**1.55 (1.04-2.31)**	4.5 (0.7)
No arts and crafts	1.00	1.00	1.00	2.9 (0.3)
Physical or threatened violence				
Victim	**2.91 (2.13-3.98)**	**2.94 (2.16-4.01)**	**2.99 (2.18-4.10)**	9.8 (1.0)
Not a victim	1.00	1.00	1.00	2.4 (0.2)
Self assessed health				
Excellent	1.00	1.00	1.00	2.5 (0.5)
Very good	1.12 (0.68-1.87)	1.13 (0.68-1.88)	1.11 (0.67-1.84)	2.7 (0.3)
Good	**1.64 (1.03-2.59)**	**1.66 (1.04-2.63)**	**1.62 (1.02-2.58)**	4.0 (0.5)
Fair	1.73 (0.90-3.33)	1.75 (0.90-3.40)	1.71 (0.89-3.29)	3.5 (0.8)
Poor	1.98 (0.94-4.17)	1.96 (0.93-4.15)	1.92 (0.92-4.02)	4.1 (1.1)

NOTE: **Bold** font indicates statistically significant difference ($p \leq 0.05$)

4.4 Chapter summary

Estimates of NLES items

- Estimates of gambling problems for the CALD population showed a statistically significant decrease between 2002 (3.3%) and 2006 (1.3%).

- Estimates of gambling problems were significantly lower for the CALD population (1.3%) compared with the non-CALD population (3.5%) in 2006, while no difference was observed in 2002.
- Estimates for NLES items abuse or violent crime and losing a job also showed significant decreases between the 2002 and 2006 surveys for the CALD population.
- Chronic illness, death of a family member, not having a job and divorce or separation consistently ranked in the top four stressors for both the CALD and non-CALD population in 2002 and 2006.
- The CALD population reported significantly lower estimates than the non-CALD population for all, except two NLES items for 2002 (not able to get a job and other stressor) and 2006 (being abused or in a violent crime and other stressor) surveys.
- Mental illness (3.2% to 4.7%) and chronic illness (17.3% to 20.3%) were the only NLES items to show a statistically significant increase between 2002 and 2006 for the CALD population.

Inter-relationships between gambling problems and other NLES items

- The non-CALD population had a consistent set of inter-relationships between NLES items in 2002 and 2006.
    - Gambling problems were most likely to co-occur with abuse or violent crime, witness to violence, alcohol and/or drug problems, and police trouble. This group of items represents factors associated with social transgressions.
- The CALD population showed variation in the inter-relationships between NLES items between 2002 and 2006.
    - For the 2002 CALD population gambling problems were most likely to co-occur with divorce or separation, and knowing someone in a serious accident. This group of items represents escapism (through gambling) associated with personal loss and emotional pain.
    - For the 2006 CALD population gambling problems were most likely to co-occur with mental illness.
- The differences observed for the CALD and non-CALD population in inter-relationships between NLES items indicate that the life experiences are somewhat different for the CALD population and may reflect different coping mechanisms associated with re-location, and also different (lower) exposure to negative life events or stressors, particularly in relation to social transgressions.

Correlates of reported gambling problems

- For the 2002 CALD population, no CALD-related variables had a statistically significant association with reported gambling problems. However, there were moderately significant associations for people born in Australia who did not speak English at home reporting more gambling problems (6.1%), as well as people born overseas who spoke English at home who reported less gambling problems (2.5%), and people who came from south-west Asian language regions reporting more gambling problems (7.8%).
- When adjusting for socio-demographic, socioeconomic, health and social connection characteristics of the population, no 2002 CALD variables had a statistically significant association with reported gambling problems.

- For the 2006 CALD population, being born overseas and not speaking English at home was associated with fewer reported gambling problems. Respondents who came from south, south-east and eastern Asian language regions reported less gambling problems (0.5%) than those born in other regions. Those not speaking English well reported less gambling problems (1.0%), while people born in Oceania/New Zealand reported more gambling problems (6.4%).
- After adjusting for socio-demographic, socioeconomic, health and social connection characteristics of the population in the 2006 models, being born overseas and not speaking English at home was still significantly associated with reporting fewer gambling problems, while being born in Oceania/New Zealand was associated with reporting significantly more gambling problems.

Chapter 5: Discussion

5.1 Caveats to the analyses

The analyses contained in this report, while providing an overall picture of reported gambling problems amongst the CALD population of Australia, also raised a number of issues and questions regarding the CALD concept and how to operationalise it in population surveys. First, the composition of CALD population is not stable over time due to the changing circumstances in which people immigrate to Australia. There are three primary reasons for this:

1) Australia has substantially increased its skilled immigrant intake to lessen the effects of the skills shortage in the job market;

2) the stability of various countries around the world from which migrants move to Australia is more often than not in a state of flux, changes substantially over time and is dependent on circumstances outside of the control of Australian immigration policy; and

3) the small size of the CALD population in Australia may lead to non-random selection of this population group in ABS surveys. Therefore, comparisons between the 2002 and 2006 and future surveys must be viewed with caution.

In addition, the definition used to identify the CALD population excludes approximately 18% of the adult population that could also be considered part of the CALD population (see Table 2.1). For example, 3% of the adult population were born in Australia *and* do not speak English at home – these people were not included in the CALD population derived from the survey data used in this report. Furthermore, some 13% of adults were born overseas *and* spoke English at home, of which an unknown percentage of these people would be multi-lingual and would very likely exhibit characteristics of the CALD population as defined for this report.

Furthermore, the CALD population is not homogenous; therefore from a statistical viewpoint it is not a clearly identifiable population. Within the CALD population there will be people of different religions, from different countries and from differing circumstances (e.g. skilled migrants, refugees from war torn countries). These factors lead to the CALD population, as a grouped entity being heterogeneous, which means that issues that may be occurring for various segments within this population may remain obscured.

In terms of data quality and quantity, the GSSs have limited information on gambling and associated concepts (e.g. belief in luck, frequency of gambling, game preferences, and time and money spent gambling). This hindered the research teams' ability to dig deeper into the gambling habits and potential problems associated with gambling by members of the CALD population. The small sample sizes associated with sub-populations within the CALD population also gave rise to unacceptably high standard errors associated with estimates of reported gambling problems for States and Territories. Some suggestions are offered for research in Chapter 6 that will enable a more detailed picture of gambling and associated problems within CALD populations.

5.2 Gambling problems and other Negative Life Events in the CALD population

In the 2002 analyses no difference was found between estimates of reported gambling problems for the CALD and non-CALD populations. However, in 2006 the CALD population reported less gambling problems (1.3%) than the non-CALD population (3.5%). This could be largely attributable to a number of protective factors identified in the descriptive statistics provided in Chapter 2 (e.g. higher participation in religious activities, less attendance at sporting events and bars/clubs/cafes, higher percentage of the population with a degree or higher), which were consistent with findings from the literature review (Chapter 3). Effectively, the reduction in reported gambling problems may reflect changes in immigration intake over the intervening four years (i.e. more skilled/educated) (DIAC 2009c), but it may also reflect inadequate sampling of the CALD population resulting in a different sample of the CALD population being selected between the two survey periods.

The 2006 finding suggests that being a member of the CALD population is protective with regards to experiencing gambling-related problems. When looking at the whole suite of NLES items, there is a pattern emerging that the CALD population reported nearly all of the 'stressors' at statistically significant lower levels than the non-CALD population. This point is noteworthy given that stressors relating to social transgressions (being abused/victim of violent crime, witness to violence, alcohol and/or drug problems, and police trouble) were most strongly associated with gambling problems in the factor analysis for the non-CALD population. Other studies have also shown this to hold true for the total Australian population and the Indigenous population by remoteness (Stevens and Young 2009b), and for the total Northern Territory Indigenous population (Stevens and Young 2009a).

The 2002 CALD population also exhibited different inter-relationships between gambling problems and other stressors to what was observed in the non-CALD population. Reported gambling problems were more closely associated with divorce or separation, death of a family member, and close friend/family in a serious accident (see Table 4.3). Of note, the 2006 CALD population showed a different pattern of associations between NLES items to the 2002 CALD population (and the 2006 non-CALD population), with gambling problems most closely associated with mental illness.

In brief, for the 2002 CALD population, problem gambling appeared to be a response or outcome of personal grief and trauma while for the 2006 CALD population this response was not evident. Instead, for the 2006 CALD population problem gambling was associated with mental health. Of even greater interest is the stability of the non-CALD NLES factor structure in that for both 2002 and 2006, problem gambling is part of a constellation of social transgression items for the non-CALD population. Hence, the CALD and non-CALD populations are not just different in prevalence of reported gambling problems but qualitatively different in the role that problem gambling plays in their lives and as a response to negative life events.

However, alternative explanations also exist. As has been alluded to previously, the survey was not designed to target the CALD population, and it may be that the CALD sample in 2006 reflects a different group to that sampled in 2002. The other possibility is that the profile of the immigration intake has changed over the period of the surveys and the change in patterns of inter-relationships between NLES items reflects a real change in the profile of the CALD population. There has been a greater emphasis on skilled migration in recent years (DIAC 2009c) and it may be that the more recent intake of immigrants has characteristics that

place them at a lower risk of developing gambling problems, compared with immigration waves in decades past.

It is not possible to assign causation from the 2002 factor analysis linking gambling problems to divorce/separation, knowing someone in a serious accident and death of a family member, and similarly linking gambling problems with mental illness in 2006. Although the research literature links gambling problems with mental illness in both the CALD and general populations, causation may differ along demographic and cultural characteristics (Blaszczynski, McConaghy and Frankova 1990; Brozovic-Basic 2005; Cultural Partners Australia 2000; Loo, Raylu and Oei 2008; Raylu and Oei 2004; Scull and Woolcock 2005). A cross-sectional association has also been observed in a South Australia gambling prevalence survey between problem gamblers who spoke a language other than English and poor mental health as measured by the Kessler 10 scale (Gill, Dal Grande and Taylor 2006). More and less acculturation into the mainstream culture by immigrants has been shown to be associated with problem gambling (Scull and Woolcock 2005; Raylu and Oei 2004; Oei and Raylu 2009), though none of the variables relating to length of time in Australia included in the analyses contained in this report were associated with gambling problems (see next section for more discussion on this point).

In explaining the 2002 inter-relationships between gambling problems and other NLES items, we do not know whether divorce or separation preceded the gambling problems or vice versa. We can only speculate as to why the two NLES items relating to grief and trauma (knowing someone in a serious accident and death of a family member) were correlated with gambling problems. Associations have been reported between post traumatic stress disorder (PTSD) and problem gambling (Biddle, Hawthorne, Forbes and Coman 2005), and it may be that a percentage of the CALD population have immigrated from stressful environments leading to PTSD and gambling may be being used as a form of escapism for this group. Oei, Lin and Raylu (2008) found a significant correlation between depression scales for both anxiety and stress, while Clarke, Tse, Abbott, Townsend, Kingi and Manaia (2007) found that problems gamblers who became non-problem gamblers showed a reduction in daily stressors. So it may be that a combination of long term and daily experiences of stress leads to gambling as a way to ‘escape’ problems. Indeed, it has been shown that people who gamble to escape problems (e.g. divorce or separation, serious accident and death of a family member) were at the highest risk of developing gambling problems (Nelson, Gebauer, LaBrie and Shaffer 2009).

5.3 The relationship between CALD status and reported gambling problems

In the analysis of the 2002 data relating to gambling problems and the CALD population there were no significant associations between being a member of the CALD population (as defined for the purposes of this report) and reported gambling problems for individuals, their friends or family. Additionally, no other CALD-related variables had a statistically significant association with reported gambling problems. However, the 2006 analysis revealed that being a member of the CALD population was protective for those respondents reporting gambling problems and this association remained significant after controlling for other variables (State/Territory, age, financial stress, participation in sports and arts/craft, being a victim of physical or threatened violence, and self-assessed health) that were significantly associated with reported gambling problems.

The literature review noted that there were problem gamblers within some CALD sub-populations, but they were likely in the minority in their respective communities (Loo, Raylu and Oei 2008; Clarke, Tse, Abbott, Townsend, Kingi and Manaia 2006b; Cultural Partners

Australia 2000). However, gambling participation rates have also been found to be lower amongst some CALD sub-populations compared with the general community (Cultural Partners Australia 2000). The descriptive statistics in Chapter 2 indicated that in 2006 the CALD population was more likely to be unemployed and have lower incomes, which are both risk factors associated with problem gambling (Hraba and Lee 1995; Shepherd, Ghodse and London 1998; Young, Stevens and Morris 2008). But, they were also more likely to have a Degree or higher, which is protective of developing problems associated with gambling (Productivity Commission 1999).

Problems with acculturation for immigrants have also been shown to be associated with problem gambling in CALD communities (Scull and Woolcock 2005; Brozovic-Basic 2005), though in the current analysis there were no significant associations between year of arrival and reported gambling problems. Another possibility explaining the lower levels of problem gambling seen in the CALD population may relate to actually not being able to speak English and therefore not attending places where gambling facilities are available. In nearly all examples of descriptive variables relating to social connectedness, the CALD population had lower participation, except for attending church or religious activities (which is protective of problem gambling). So, if the CALD population does not attend bars/clubs, then they have limited access to Electronic Gaming Machines (EGMs), which have been shown in Australia to be the most risky activity with regards to developing gambling problems (Productivity Commission 2009). The large numbers of new highly educated migrants may not have had time to be cultured into this form of gambling, which may also explain lower levels of reported gambling problems. Unfortunately, the GSS is a general population survey and does not contain information on types of gambling activity, so it is only possible to speculate as to what activities are preferred by the CALD population. Furthermore, many recent immigrants have been encouraged to live in regional locations (DIAC 2009c) and it may be that accessibility to gambling opportunities is limited (physically and socially), leading to lower levels of participation in gambling. This could translate into a lower percentage of this group developing problems associated with gambling. In addition, lower participation in gambling may lead to lower average time and money spent gambling, which may in turn lead to lower levels of problem gambling. This is known as the consumption model, where the average amount consumed of a product increases with the percentage of the population that use the product (Lund 2009).

With regards to sub-populations within the CALD population, people who immigrated from countries in Oceania or from New Zealand exhibited significantly higher levels of reported gambling problems (6.4%, see Table 4.6). This remained significant after controlling for other variables retained in the multivariable model including being a member of the CALD population. This finding is consistent with research in New Zealand, where Pacific Islanders and Maori populations have been found to have levels of problem gambling four times higher than the general New Zealand population after accounting for age differences (Clarke, Abbott, Tse, Townsend, Kingi and Manaia 2006a; Abbott 2001; Ministry of Health 2009). There was some evidence to suggest that sub-populations of the CALD population coming from language regions located in south-west Asia experienced gambling problems at higher rates in the 2002 analysis, though this finding was not present in the 2006 analysis. This may again reflect the inadequate sampling design to capture minority population groups, and is always problematic when using data arising from a general purpose survey.

Significantly, the definition of the CALD population used for the current analyses excluded people born in Australia, who did not speak English at home, yet there was some evidence to

suggest that this group experienced higher levels of gambling problems for themselves, family or friends. The combination variable of birth country and language spoken at home showed this group to have higher levels of reported gambling problems in both 2002 (6.1%) and 2006 (6.7%) than the non-CALD population (3.5% and 3.5% respectively), though the elevated levels were marginally non-significant. This group represents a small percentage of the Australian adult population (3%, see Table 2.1), which would partly contribute to the non-significance of the association between reported gambling problems and being a member of the CALD population. This finding highlights the subjective nature of 'CALD' as a label for use in research and policy. For example, if this group of non-English speaking Australians were included in the CALD population used in this analysis, it is possible that the finding that being in the CALD population is protective may not have been observed. More nuanced studies of ethnic groups within the CALD population are required to gain a better understanding of which groups are more at risk of developing gambling problems.

Chapter 6: Conclusions and issues for consideration

6.1 Key findings and issues for consideration

The following table summarises key findings from the literature review and analyses of the 2002 and 2006 GSSs, and provides links to issues for consideration regarding key findings.

Table 6.1 Key findings and issues for consideration

Findings and issues for consideration
2002 analyses
There is little evidence to suggest that the CALD population as a whole experiences higher (or lower) levels of gambling problems than the non-CALD population.
Some evidence to suggest that CALD sub-populations originating from south-west Asian speaking language regions experience more gambling problems.
The CALD population experiences lower levels of negative life events (or life stressors) compared with the non-CALD population.
Gambling problems are associated with divorce & separation, death of a family member, and knowing someone in a serious accident.
2006 analyses
Strong evidence to suggest that the CALD population as a whole experiences significantly lower levels of gambling problems than the non-CALD population.
Some evidence to suggest that CALD sub-populations originating from south-west Asian speaking language regions experience more gambling problems.
Strong evidence to suggest that CALD sub-populations originating from Oceania and New Zealand experience significantly higher levels of gambling problems.
The CALD population experiences lower levels of negative life events (or life stressors) compared with the non-CALD population and the 2002 CALD population.
Gambling problems are associated with one other negative life event, namely mental illness.
Literature review
Australia's CALD population comes from a diversity of regions, religions and backgrounds, with immigration policy over the last 30 years increasing the proportion of skilled and English literate migrants, to approximately 70% in recent years.
Specific cultural beliefs and universal factors (e.g. low socioeconomic status) are conducive to taking up gambling and developing problems.
Important cultural factors to consider with regards to problem gambling include adherence to cultural values, acculturation, and culturally-determined help seeking behaviours.
Problem gambling within the CALD population represents only a minor problem. However, some research has found problem gambling to be more severe (e.g. gambling for higher stakes) for some CALD sub-populations. There is also evidence to suggest that gambling participation rates are lower in some CALD sub-populations than in the general community.
Other comments and conclusions
Our analyses do not support the view that gambling problems in the CALD population are higher than the non-CALD population, although certain sub-populations may evidence higher rates.
2002 data shows that the CALD population reported gambling problems in conjunction with negative life events; death, accident, and separation. Since the nature of these negative life events do not support reverse causation where gambling problems appear first and causes these negative events, it is likely that gambling is employed as a coping strategy against them.
The decline in reported gambling problems in the 2006 CALD population saw this strategy disappear and problem gambling became associated with mental health issues rather than coping against negative life events.
In both 2002 and 2006 the non-CALD population reported gambling problems as part of a cluster of social transgression behaviour, whereas this is not a feature of reported gambling problems in the CALD populations in either timeframe.

Hence there are important qualitative differences in the underlying motivations of problem gambling and the role it plays in CALD and non-CALD populations.
The significant decline in reported gambling problems in the CALD population in 2006 may be especially associated with a range of protective socioeconomic and social connectedness factors.
The correlational nature of the study makes it difficult to infer some aspects of causation in that changes between epochs may be due to the changed circumstances of the populations or they may reflect a changed CALD population due to the intervening intake of new migrants.
There are important data (e.g. non-specific CALD survey being analysed and subsequent small sample size for this group) and instrument (e.g. range of variables available for analysis) issues that limit the conclusions that can be drawn from existing data sources, creating an opportunity for review and reform.

6.2 Further research required

Future studies on Australia's CALD populations will require more targeted approaches. Perhaps a more effective future strategy is to carefully measure the characteristics of different immigration waves and/or populations to help identify their relationships to different forms of gambling behaviour. These characteristics may include for example not just country of origin and language spoken at home, but exposure to violence and trauma, social position in their country of origin, English proficiency and skills/qualifications, refugee status, forms of economic participation in Australia and level of social integration as well as the usual battery of demographics measures. The specificity of these and other measures are more likely to help identify both risk and protective factors for gambling-related harm and the various ways that such groups gamble, as well as where and when and to what purpose and for what motivation these groups gamble. What is required is more targeted research identifying which CALD populations are more vulnerable to problem gambling and more generally, identify the risk factors that may predispose people regardless of there cultural background. More targeted research may involve identifying people within venues, rather than using population based surveys to monitor trends at a coarse level.

Appendix

Table A.1 Distribution of demographic variables for 2002 and 2006 CALD population

Demographic variables	2006 CALD % (SE)	2002 CALD % (SE)	Rate ratio[1] (95% CI)
State/Territory			
NSW	42.1 (2.0)	41.8 (1.9)	1.01 (0.98-1.03)
VIC	34.4 (1.5)	34.4 (1.6)	1.00 (0.97-1.03)
QLD	9.1 (1.0)	7.9 (1.0)	**1.15 (1.01-1.29)**
SA	5.6 (0.5)	5.8 (0.6)	0.97 (0.87-1.06)
WA	6.5 (0.7)	8.0 (0.6)	**0.81 (0.69-0.94)**
TAS	0.5 (0.1)	0.5 (0.1)	1.00 (0.00-2.52)
NT	0.5 (0.0)	0.4 (0.0)	**1.25 (1.21-1.29)**
ACT	1.3 (0.1)	1.2 (0.1)	1.08 (0.92-1.25)
Gender			
Male	48.7 (2.0)	49.9 (1.4)	0.98 (0.92-1.03)
Female	51.3 (2.0)	50.1 (1.4)	1.02 (0.97-1.08)
Age (years)			
18-24	10.6 (1.0)	10.4 (1.0)	1.02 (0.98-1.06)
25-34	18.3 (1.3)	15.6 (1.1)	**1.17 (1.15-1.19)**
35-44	19.8 (1.1)	21.4 (1.4)	**0.93 (0.86-0.99)**
45-54	18.2 (1.7)	19.6 (1.3)	0.93 (0.81-1.05)
55 or more	33.1 (1.9)	33.0 (1.8)	1.00 (0.97-1.04)
Marital status			
Not married	31.8 (1.3)	30.4 (1.5)	1.05 (0.99-1.10)
Married	68.2 (1.3)	69.6 (1.5)	0.98 (0.96-1.00)
Persons per bedroom quartiles			
Lowest crowding	13.2 (1.2)	9.0 (0.8)	**1.47 (1.41-1.52)**
2nd Quartile	16.6 (1.4)	27.5 (1.2)	**0.60 (0.52-0.69)**
3rd Quartile	33.5 (2.0)	45.9 (1.6)	**0.73 (0.66-0.80)**
Highest crowding	36.7 (1.8)	17.6 (1.0)	**2.09 (1.97-2.20)**
Household type			
One-family	79.2 (1.8)	81.2 (1.4)	0.98 (0.95-1.00)
Two-family	6.6 (1.0)	5.2 (1.0)	1.27 (0.97-1.56)
Mixed & group/share	5.6 (1.4)	4.6 (0.9)	1.22 (0.85-1.59)
Lone person	8.6 (0.9)	9.0 (0.8)	0.96 (0.85-1.06)
Family type			
Couple with children	36.7 (1.8)	52.6 (1.8)	nc
Single parent	4.6 (0.7)	8.4 (0.7)	nc
Couple no children	21.3 (1.2)	24.3 (1.3)	nc
Lone person	8.6 (0.9)	9.0 (0.8)	nc
Other type	28.8 (2.3)	5.8 (0.8)	nc
Total	**100.0**	**100.0**	
N (weighted population)	2,034,595	1,891,353	
Australia	**13.3 (0.5)**	**13.0 (0.4)**	

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 Rate ratio 2006 estimate to 2002 estimate

nc = Data item not comparable between 2002 and 2006 surveys

Table A.2 Distribution of socioeconomic variables for the 2002 and 2006 CALD population

Socioeconomic status variables	2006 CALD % (SE)	2002 CALD % (SE)	Rate ratio[1] (95% CI)
Tenure type			
Owner no mortgage	37.4 (2.2)	39.6 (1.6)	0.94 (0.87-1.02)
Owner mortgage	31.5 (2.2)	32.0 (1.7)	0.98 (0.90-1.07)
Renter	29.1 (1.9)	26.1 (1.8)	**1.11 (1.07-1.16)**
Other type	2.0 (0.5)	2.3 (0.5)	0.87 (0.66-1.08)
Education			
Degree or higher	27.8 (1.8)	20.8 (1.6)	**1.34 (1.23-1.45)**
Advanced Diploma	8.7 (1.4)	7.6 (0.8)	1.14 (0.87-1.42)
Cert1-4	9.2 (1.2)	11.7 (1.2)	**0.79 (0.66-0.91)**
Year 11or 12	26.6 (1.7)	26.3 (1.3)	1.01 (0.93-1.09)
Year 10 or less	27.7 (1.9)	33.6 (1.7)	**0.82 (0.75-0.90)**
Labour force status			
Employed full-time	39.1 (1.8)	36.1 (1.7)	**1.08 (1.06-1.10)**
Employed part-time	16.1 (1.4)	14.6 (1.4)	**1.10 (1.02-1.19)**
Unemployed	4.9 (0.9)	5.1 (0.8)	0.96 (0.78-1.14)
Not in labour force	39.9 (1.7)	44.1 (1.8)	**0.90 (0.88-0.93)**
Personal income quintiles			
Lowest quintile	37.4 (1.8)	36.1 (1.7)	**1.04 (1.02-1.06)**
2nd quintile	16.6 (1.5)	19.6 (1.5)	**0.85 (0.77-0.93)**
3rd quintile	22.0 (1.9)	18.4 (1.6)	**1.20 (1.17-1.22)**
4th quintile	11.7 (1.0)	14.8 (1.0)	**0.79 (0.71-0.87)**
Highest quintile	12.3 (1.5)	11.1 (1.1)	1.11 (0.95-1.26)
Household equivalised income			
Lowest quintile	26.2 (1.8)	25.7 (1.4)	1.02 (0.94-1.10)
2nd quintile	16.0 (1.9)	19.6 (1.2)	**0.82 (0.65-0.98)**
3rd quintile	17.5 (1.5)	18.0 (1.3)	0.97 (0.88-1.06)
4th quintile	13.2 (1.0)	16.9 (1.4)	**0.78 (0.73-0.83)**
Highest quintile	11.6 (1.1)	11.6 (0.9)	1.00 (0.89-1.11)
Unknown income	15.5 (1.6)	8.2 (1.3)	**1.89 (1.44-2.34)**
Main source of income			
Non-government	68.9 (1.6)	35.3 (1.7)	**1.06 (1.04-1.09)**
Government	31.1 (1.6)	64.7 (1.7)	**0.88 (0.85-0.91)**
Raise $2000			
Can't raise	20.0 (1.8)	23.0 (1.5)	**0.87 (0.76-0.98)**
Can raise $2000	77.0 (2.0)	73.4 (1.5)	**1.05 (1.02-1.08)**
Don't know	3.1 (0.6)	3.6 (0.5)	0.86 (0.63-1.09)
Cash flow problems			
No cash flow problems	86.4 (1.2)	86.4 (1.2)	1.00 (0.99-1.01)
One problem	7.2 (1.0)	6.7 (0.9)	1.07 (1.00-1.15)
2 or more	6.3 (0.7)	6.9 (0.8)	**0.91 (0.85-0.97)**
Access to Motor vehicle			
Has car	75.2 (1.8)	73.6 (1.5)	1.02 (1.00-1.05)
No car	24.8 (1.8)	26.4 (1.5)	0.94 (0.86-1.02)
Total	**100.0**	**100.0**	
Australia	**13.3 (0.5)**	**13.0 (0.4)**	1.02 (0.98-1.07)
N (weighted population)	2,034,595	1,891,353	

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 Rate ratio 2006 estimate to 2002 estimate

Table A.3 Distribution of social connectedness variables for the 2002 and 2006 CALD population

Social connectedness and health variables	2006 CALD % (SE)	2002 CALD % (SE)	Rate ratio[1] (95% CI)
Social activities last 3/12 months[2]			
Recreation or cultural			
None	84.3 (1.3)	83.8 (1.3)	1.01 (1.00-1.01)
Participated in	15.7 (1.3)	16.2 (1.3)	0.97 (0.93-1.01)
Adult education/special interest group[3]			
None	42.5 (1.6)	88.5 (0.8)	nc
Participated in	57.5 (1.6)	11.5 (0.8)	nc
Church or religious			
None	69.2 (1.7)	60.4 (1.5)	**1.15 (1.14-1.15)**
Participated in religion	30.8 (1.7)	39.6 (1.5)	**0.78 (0.72-0.84)**
Restaurant/cafe/bar			
None	88.3 (1.4)	38.6 (1.5)	nc
Attended	11.7 (1.4)	61.4 (1.5)	nc
Sports/physical activity			
None	81.3 (1.7)	67.4 (1.9)	**1.21 (1.16-1.25)**
Participate/attended/watched	18.7 (1.7)	32.6 (1.9)	**0.57 (0.50-0.65)**
Museum/gallery/library			
None	93.4 (0.9)	61.5 (1.6)	nc
Visited	6.6 (0.9)	38.5 (1.6)	nc
Leisure/culture/recreation last 12 months			
None	18.7 (1.3)	20.2 (1.2)	**0.93 (0.86-0.99)**
Attended	81.3 (1.3)	79.8 (1.2)	**1.02 (1.01-1.03)**
Sport/recreational physical activity last 12 months			
None	73.3 (2.1)	74.3 (1.5)	0.99 (0.95-1.03)
Attended	26.7 (2.1)	25.7 (1.5)	1.04 (0.93-1.15)
Sport/recreational physical activity last 12 months			
None	48.6 (2.3)	51.7 (1.5)	0.94 (0.87-1.01)
Participated	51.4 (2.3)	48.3 (1.5)	1.06 (1.00-1.13)
Support if need help			
No support	13.5 (0.8)	12.1 (1.0)	1.12 (0.99-1.24)
Support	86.5 (0.8)	87.9 (1.0)	0.98 (0.97-1.00)
Self assessed health			
Excellent	20.9 (1.6)	23.4 (1.3)	**0.89 (0.80-0.99)**
Very good	30.5 (1.6)	27.3 (1.6)	**1.12 (1.06-1.17)**
Good	28.5 (1.6)	27.8 (1.3)	1.03 (0.96-1.09)
Fair	13.5 (1.3)	14.8 (1.1)	0.91 (0.80-1.02)
Poor	6.6 (0.8)	6.7 (1.0)	0.99 (0.82-1.15)
Total	**100.0**	**100.0**	
N (weighted population)	2,034,595	1,891,353	
Australia	**13.3 (0.5)**	**13.0 (0.4)**	

NOTE: Percentages may not add to 100% due to rounding

Bold font indicates the RR (95% CI) is statistically significant ($p \leq 0.05$)

1 Rate ratio 2006 estimate to 2002 estimate

2 Last 3 months for 2002 GSS and last 12 months for 2006 GSS

3 Adult education not included in 2002

nc = Data item not comparable between 2002 and 2006 surveys

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