Drinking patterns, drinking in partnerships and informal social controls on drinking in New Zealand

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Abstract

**Background:** National surveys have been used to measure alcohol consumption patterns and some aspects of alcohol related harm, but do not tell us much about the role of alcohol in social networks. Understanding the drinking patterns of intimate partners and social influences on drinking may help us understand alcohol’s contribution to satisfaction, disorder, and violence in families.

**Aim:** To describe 1. Patterns of drinking in the adult population, by key demographic characteristics; 2. Similarities and differences in drinking between intimate partners; 3. The experience of informal social controls on drinking.

As this research relies on survey data, an important aspect of the work was to assess the impact of incomplete response on the findings.

**Methods:** Data were collected in a cross-sectional nationally representative survey of 18 – 70 year olds, conducted in 2007 as part of Gender, Alcohol and Culture: an International Study (GENACIS). This postal survey of a sample from the combined electoral roll used a questionnaire designed by the International Research Group on Gender and Alcohol (IRGGA) adapted for New Zealand conditions. Standard descriptive statistics have been used, along with logistic regression models to estimate associations between variables while controlling for confounders. Potential non-response bias was investigated by comparing known characteristics of respondents and non-respondents, comparing early, intermediate and late respondents, and comparing key findings with other national surveys of alcohol use.

**Results:** The survey had a response rate of 49.5%. Men, people of Maori ethnicity, people living in high deprivation areas, and young adults were less likely to respond to the survey.
Late respondents were more like non-respondents in terms of demographics and more likely to be binge drinkers, suggesting binge drinking was underestimated in the survey.

Most of the sample were current drinkers (12 month prevalence 89.6%), and prevalence of drinking decreased with age. Men were more likely to be identified as binge drinkers, along with the youngest age group, those of Maori descent, people classified as never married and people living in the most deprived areas.

Most intimate partnerships (86%) differed in drinking frequency by less than 2 points, and 58% of partnerships differed in typical quantity per occasion by only 1-5 drinks. The more time couples spent drinking together the more concordant they were for both drinking frequency and quantity of alcohol per occasion. Higher concordance for alcohol per occasion was associated with higher reporting of happiness with the relationship.

Pressure to drink less, came most commonly from family and spouses, rather than friends, workmates or health professionals. Binge drinkers of both sexes, and young men in general, were the most likely groups to have experienced this type of pressure.

Pressure to drink more was most common in the youngest age group (60.1%), and decreased with age. Binge drinkers were most likely to experience pressure to drink more of all drinker status groups (OR=2.7 relative to lifetime abstainers).

**Conclusions:** This study provides new insights into drinking patterns by gender and relationship status. It provides information about drinking within relationships and what informal controls are operating. This helps identify groups and situations at higher risk of alcohol-related harm. However, longitudinal research would be required to reveal whether the associations identified in this study might be causal, and where appropriate interventions might be focused.
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1. Introduction

Alcohol consumption substantially contributes to the global burden of disease, although the relationship between alcohol consumption and health status is complex. Alcohol consumption can contribute to both acute events (mostly injury) and chronic health outcomes, and may also have beneficial effects on health. Both the amount and pattern of consumption have been shown to have causal associations with over 60 negative health outcomes[1]. The Global Burden of Disease project quantified the contribution of alcohol to global mortality and disability. Findings from this study suggest that alcohol was responsible for 4% of DALY’s (disability adjusted life years) and 3% of global mortality in the year 2000, an increase from the finding of 1.9% mortality in a similar 1990 study [2].

There is considerable research concerning the negative effects of alcohol on health. A review of research into major risk factors for the global and regional burden of disease found alcohol to be consistently among the leading causes of death and disability through both injury and chronic health conditions in both developed and developing regions [3].

Alcohol consumption patterns in New Zealand and some aspects of alcohol-related harm have been measured using nationally representative surveys over the past few decades, with the most recent published data from 2008 [4]. In 2005, “The burden of death, disease and disability due to alcohol in New Zealand” was published, summarising the health benefits and harms of alcohol at a population level for Maori and non-Maori in New Zealand [5]. It found that approximately 1000 alcohol-attributable deaths occurred each year, with half being due to injury, a quarter to cancer and a quarter to other chronic diseases.

Studies of this nature do not capture the impact of alcohol on social functioning in New Zealand. Of particular concern is the role that alcohol may play in family violence and dysfunction but there has been little research on alcohol use in intimate partnerships.
Understanding the similarities and differences in drinking between men and women and between partners is a first step in understanding alcohol’s contribution to satisfaction and disorder in families.

A further aspect of drinking culture in New Zealand which remains unexplored and may be relevant to attempts to reduce alcohol-related harm is the role that partners, friends and families play in influencing drinking patterns, so-called “informal social controls on drinking”. The drinking habits and attitudes toward drinking of one’s close associates are very important influences on an individual’s use of alcohol. Pressures to drink more or drink less are conveyed through verbal and non verbal signals from friends and family and can take place both in situations when alcohol is present and absent (for example when a group is discussing someone’s problem drinking). What a person’s peers believe to be appropriate when it comes to alcohol consumption in various different social settings plays a role the way we drink [6].

The New Zealand Law Commission is in 2009-10 conducting a comprehensive review of the law of the sale and supply of liquor in New Zealand in an attempt to create more effective policy to reduce the burden of alcohol on New Zealand society. The review shows that New Zealand is traditionally a heavy drinking culture and that this drinking culture has both financial and social costs. While alcohol used in moderation can enhance social interactions, and “promote sociability, friendship, entertainment, fun [and] relaxation” misuse of alcohol can cause intoxication, toxicity and dependence [7]. As well as acute and chronic health issues, alcohol is associated with crime and antisocial behaviours. These are a large burden on the country’s resources through the costs for medical treatment and legal services, such as the police and court systems to deal with alcohol related crime. The report describes alcohol as having become a “serious source of social problems in New Zealand” and argues that the
current legislation is largely ineffective in policing hazardous use of alcohol and alcohol related harms [7, 8]. For these reasons it is important that research into both drinking patterns in New Zealand and the social factors which shape those behaviours attempts to elucidate the pathways to alcohol related harm. It is hoped that this work will aid the identification of strategies to reduce harm and also the barriers that prevent strategies from being effective.

Better understanding is needed about drinking patterns and how those patterns can lead to harm, particularly within families. This research uses the data from the recent study; Gender, Alcohol and Culture: an International Study (GENACIS) to describe current alcohol consumption patterns by age, gender and marital status as well as examining the differences and similarities between respondents and their partner’s consumption patterns. This project also aims to examine informal social controls on drinking, that is, the role that partners, friends and families play in influencing drinking patterns. As there is very little of this type of information in New Zealand we hope it will contribute to finding ways to influence drinking patterns to reduce alcohol related harm.

The role of the candidate

The candidate was not involved in the design of the survey or the collection of the survey data used in the thesis. She was involved in the cleaning of the survey data, developing the research questions for the thesis and constructing the analysis plan. She recoded data, developed new indicators, and conducted all of the analyses in the thesis, with advice from statistician Dr. Ari Samaranayaka and her supervisors.
2. Literature Review

2.1 Measures of drinking

Much past research about alcohol and its effects measured the average volume of alcohol consumed – whether at an individual or population level. In individuals this has usually employed an estimate of average consumption based on a measure of quantity of drinking and a measure of frequency of drinking: per day, per week or per year. However in the past 15-20 years there has been an increasing recognition of the need to characterise drinking patterns as well as volume consumed [9]. Drinking pattern refers to the frequency of drinking and the typical quantities consumed per occasion, as well as variables such as the frequency of drinking to intoxication, drinking with meals, and other factors which modify the effect of average consumption on health and social outcomes.

While the volume of alcohol alone may be sufficient for consideration of the toxic effects of high volumes of alcohol on chronic diseases, there are many other health conditions related to alcohol that are affected by the way it is consumed, i.e. the pattern of drinking. These include conditions related to intoxication, particularly injury, which account for more than 70% of all years of life lost due to drinking in New Zealand. The putative benefits of drinking for cardiovascular health and diabetes are also thought to result from frequent light to moderate drinking [5, 10].

Alcohol research over the last two decades has begun to improve the way drinking is measured, measuring volume as well as frequency of drinking, volume per drinking occasion and frequency of risky drinking. There has also been more interest in the social impacts of alcohol use and harm to others, which are closely linked to pattern of drinking as well as volume of alcohol consumed. The demographic characteristics and personality types of people who are likely to drink, who people drink with, who influences people’s drinking and
the harms of certain patterns of drinking are all important factors to be considered in trying to understand how to reduce the health and social impacts of alcohol [9, 11].

While there has been a move towards measuring drinking patterns there is little consistency in measures used. For example, the definition and way to measure and/or classify hazardous drinking varies between studies. Some research uses the term *binge drinking* for episodes of heavy consumption, while other groups refer to this type of drinking pattern as hazardous drinking, risky drinking or heavy episodic drinking. There is also disagreement over what pattern of drinking is hazardous. For example, the 2004 Health Behaviours study and the 2007/08 New Zealand Drug and alcohol use survey (07/08 NZDAU) both used the term “drinking large amounts of alcohol”, the Health Behaviours survey defined this as men having six or more standard drinks or women having four or more standard drinks on one drinking occasion at least once a month, while the 07/08 NZDAU survey used the same drink number cut offs but reported the frequency with which those limits were exceeded in the previous 12 months [4, 12].

Alcohol can also affect health via dependence (see figure 1) and there are some measures of drinking patterns that incorporate elements of dependence.
One of the most common measures of hazardous and harmful drinking is the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT is an instrument designed under the auspices of the World Health Organisation that screens for harmful and hazardous drinking and can help in screening for alcohol dependence. The test measures frequency, quantity and frequency of drinking large amounts of alcohol, how alcohol impacts on day to day life and also includes questions measuring symptoms of alcohol dependence and acute harms from drinking [14].

2.2 Alcohol consumption trends in New Zealand

*Aggregate data:*

The World Health Organisation (WHO) carries out surveillance of the amount of alcohol for sale and amount of alcohol consumed both at an individual country level and a global level.
The WHO Global Status Report on Alcohol (2004) examined the trends in alcohol consumption from 1961 to 2001. Globally there was an increase in alcohol consumption until the early 1980’s at which time consumption decreased slightly and remained steady at approximately 5.1 litres of pure alcohol per capita for most of the 1990’s before increasing by approximately 10% between 1998 and the present. Consumption was made up of close to equal proportions of wine, beer and spirits. The authors noted that this steady state may have been due to increases in some countries and decreases in others. During this time New Zealand followed a similar pattern but the per capita volume of alcohol consumed was much higher than the global average [10, 15].

**FIGURE 2:** Volume of pure alcohol available for consumption in New Zealand per head of population aged 15 years and over 1992-2008 [16].

The above figure shows the volume of pure alcohol available for consumption in New Zealand per head of population aged 15 years and over from 1992 until 2008. It is obvious from the figure that the amount of alcohol available for consumption has steadily increased since the late 1990’s [16].

Summary data of alcohol consumption like this are useful but, do not take into account subgroups of drinkers or drinking patterns, and so survey data are important. Survey data
also provide information needed to understand who is drinking, who they are drinking with, how much and how often they drink. Hazardous drinkers can be identified and characterised [10].

*Survey data:*

One aim of this project was to describe the current alcohol consumption patterns in the New Zealand population. An understanding of the drinking patterns of New Zealanders in the past will provide some context in which to interpret our findings. This section of the literature review focuses on studies of alcohol consumption in the adult population of New Zealand conducted in the last 15 years.

The Alcohol and Public Health Research Unit (APHRU) at the University Of Auckland carried out national surveys of drinking using a Computer Assisted Telephone Interviewing (CATI) system in 1995 and 2000. The 1995 survey randomly selected a sample from the New Zealand population aged 14-65 years, and had a response rate of 76% (n= 4232). Respondents were interviewed about their drinking behaviours. It was found that 89% of men and 85% of women were drinkers (defined as having consumed alcohol in the last 12 months) with men consuming 73% of the total alcohol consumed by the sample. Abstainers fell into two categories: those who had never consumed alcohol and those who had not consumed alcohol or had stopped drinking in the preceding 12 months. Only 9% of the total sample reported having never consumed alcohol, and when 14-19 year olds were excluded that dropped to 7%. There was also a small group of abstainers (7% of sample) who had drunk in their lifetime but not in the last 12 months or who had stopped within the last 12 months. While the prevalence of drinking showed little variation across age groups (with the exception of the youngest group – 14-15 year olds) the median volumes consumed peaked for both men and women at ages 20-24. The study also examined the frequency of alcohol
consumption and men had a peak median frequency of 206 occasions per year at age 20-24, which decreased before climbing to a similar level again at ages 50-56. Women’s drinking patterns followed a similar trend with a peak drinking frequency at ages 20-24, a decrease and then slight increase from 40 years onwards, although the increase was smaller than that seen in men and was still below the peak in young women [17].

The APHRU survey was repeated in 2000 and results were compared with the 1995 survey to monitor changes [18]. The prevalence of drinking in men and women was slightly decreased in the 2000 survey, with 88% of men and 83% of women being drinkers. There was, however, an increase in the proportion of the group’s total consumption being consumed by women. Changes were also observed in the amount of alcohol being consumed: both men and women consumed a greater volume of alcohol in all age groups and the peak volume occurred in the 18-19 year olds. Among women the frequency of drinking also increased, from 126 to 136 occasions per year. The frequency of drinking by age peaked among 18-19 year olds. Among men the frequency did not change and the peak frequency was still found among 20-24 year olds, although, there were increases in frequency in the youngest age group (14-15 year olds).

APHRU also carried out national household surveys of drug use in 1998, 2001, 2003 and 2006. While these focused more on illicit drugs, the surveys included questions on alcohol consumption. These surveys used the CATI system to interview randomly selected samples of 15-45 year olds. The lifetime prevalence of alcohol use increased from 87.6% in 1998 to 89.5% in 2006. However, the prevalence of alcohol use in the last 12 months remained stable across all four surveys [19, 20]. A report on the trends across all four waves concluded that there was mixed evidence of an increase in alcohol consumption, however it highlighted the steady increase in the total volume of alcohol available for consumption in New Zealand.
since 1998, which reached its highest recorded level in 2006 and stated that increased lifetime prevalence of alcohol consumption was likely to be a result of a range of environmental factors including change in attitudes towards alcohol, the lowering of the minimum purchase age (in 1999) as well as the liberalisation of advertising and lessening limitations on where alcohol could be served/sold.

The Alcohol Advisory Council of New Zealand (ALAC) has also carried out its own surveys of alcohol consumption in recent years. “The Way We Drink” was a report on the findings of a survey completed in 2005 in two groups: young people aged 12 – 17 years and adults aged 18+ years. In 2003 a survey had been conducted using similar methods to the 2005 survey. From 2006 they were replaced by a survey that questioned respondents about drinking on 4 separate occasions over the year. Unfortunately all of these ALAC surveys had low response rates which makes the prevalence estimates unreliable [21].

The Ministry of Health conducts regular New Zealand Health Surveys (NZHS) that aim to be representative of New Zealanders aged 15 years and over who are living in permanent private dwellings. The 1996/97 NZHS was a face to face survey that used the Alcohol Use Disorders Identification test (AUDIT) to assign a score to each respondent [22]. A score of eight or greater is indicative of hazardous drinking. The findings were that 18.5% of the adults in the sample had not had any alcohol in the last year; almost two-thirds were current non hazardous drinkers (AUDIT score < 8), leaving 17.3% with AUDIT scores of eight or more (hazardous drinkers). Men were much more likely than women to be hazardous drinkers (25% versus 10%). Younger age groups had the highest proportion of hazardous drinkers. The prevalence among 15-24 year old men was 40%.

The proportion of people consuming alcohol at least four times a week increased steadily with age and once again showed a marked gender difference: men aged 65+ had the biggest
proportion of people with this frequency of drinking. Typical occasion quantity showed the opposite pattern to frequency: 15-24 year olds had the greatest proportion of people drinking five or more drinks on a typical drinking occasion and this proportion steadily decreased with age.

The 2002/2003 version of the survey found a 12 month prevalence of alcohol consumption in the sample of 83.5%, and it also showed an increase in the proportion of both men and women with hazardous consumption patterns (27.1% and 11.4% respectively). Once again the greatest proportion of respondents with a hazardous score was in the 15-24 year age group [23]. In the 2006/07 survey over 20% of the adult drinkers had an AUDIT score of eight or greater compared to 17.3% in 1996. However, as shown in figure 3, when the prevalence was age-adjusted it was found that there was no statistically significant change in the prevalence of hazardous drinking for adults between 1996/97 and 2006/07 [24].

**FIGURE 3:** Hazardous drinking in the last 12 months, among past-year drinkers aged 16-64 years, by gender, 1996/97, 2002/03 and 2006/07 (age standardised prevalence) [4].
The Ministry of Health commissioned the *New Zealand Health Behaviours Survey – Alcohol Use* conducted in 2004. This examined drinking patterns in the New Zealand population more thoroughly than the NZHS, as well as attitudes toward alcohol, and reports of alcohol-related harms. The survey took a sample from all 12-65 year olds living in private residences in New Zealand and used a CATI system to interview respondents (59% response rate). The 12 month prevalence of alcohol consumption was estimated at 81.2% overall. It was estimated that 15.4% of the population consumed alcohol on seven or more occasions per week on average in the past year, 16.2% drank 4 to 6 times per week and 38.2% 1 to 3 times per week. There were large age differences in frequency measures: 18-24 year olds drank much less frequently than 55-65 year olds among whom 25% consumed alcohol on seven or more occasions per week. A quarter (24.7%) of the respondents consumed what was considered a large amount (more than six standard drinks for a man and more than four standard drinks for a woman) on a typical drinking occasion, and this peaked among 18-24 year olds at 50%. From the age of 18 the proportion of drinkers consuming large amounts on a typical occasion or a large amount at least once a week decreased with age [12].

The *2007/08 New Zealand Alcohol and Drug Use survey* is the most recent nationally representative survey carried out by the Ministry of Health. This survey took a sample of 16-64 years olds and collected data in face to face interviews, with a response rate of 60%. The 12 month prevalence of alcohol consumption was similar to that of the 2004 Health behaviours survey at 85.2%. As in previous surveys men were more likely to have consumed alcohol in the last 12 months than women (88.4% and 82.7% respectively). The 12 month prevalence of drinking large amounts of alcohol (more than 6 drinks for men and more than four drinks for women per drinking occasion) at least once a week was 12.6% and men were more likely than women to be identified in this group, as were people aged 18-24 years old compared to all other age groups [4].
These surveys found lifetime prevalence of alcohol consumption was between 87 and 96% and the 12 month prevalence between 81 and 89%. While some of the differences in these estimates may be due to bias and flaws in the survey design or implementation it is clear that a large majority of the New Zealand adult population currently consume or have previously consumed alcohol, and that the proportion of current drinkers in the population has remained fairly constant or may have increased. There was mixed evidence of an increase in both the volume and frequency of consumption of alcohol across all the surveys. Information on hazardous drinking patterns indicated that there was a significant proportion of the population (approximately 20%) who have a hazardous consumption pattern. In all of the studies 18 – 24 year olds were the heaviest consumers of alcohol.

2.3 Gender differences in Alcohol Consumption

The gender difference in drinking behaviour has been described as “one of the few universal gender differences in human social behaviour”, though there is considerable variation in the size of this gap [25]. Studies of alcohol consumption in populations around the world have found that in nearly all cases men are more often drinkers, drink more often and consume larger quantities of alcohol than women, although there are exceptions in certain population groups (e.g. University students and sports people) [26, 27]. There is no definitive explanation for why such a difference exists and why the gap varies so much between societies.

Some studies suggest that the gap is due to biological differences between men and women that result in women being more vulnerable to the effects of alcohol. However the biological difference is relatively small and could not, by itself, explain large differences in drinking behaviour, or why women do not simply drink smaller quantities per occasion [28]. While
biology may play a role in gendered drinking behaviour there must also be a social or cultural aspect to the difference in behaviour.

Differences in cultural norms and gendered drinking patterns can reveal how a society defines gender roles, helping us to understand how, and eventually why, some societies encourage men and women to act differently [29]. These gender norms mean that women and men have different motivations to drink and experience different consequences from their drinking. In the majority of cultures drinking alcohol is linked to masculinity and thus drinking heavily is celebrated as a show of stamina and manliness. Conversely, cultural norms generally restrict women’s drinking and female displays of intoxication are frowned upon. Hazardous consumption of alcohol by women has normally been discouraged or concealed as this behaviour is seen as mismatched with their traditional domestic roles [28].

If, as the evidence suggests, the gender difference is the result of cultural gender roles we would expect in more recent times that men and women’s drinking behaviours would become more similar as the traditional female role in society has changed. In many societies women are no longer confined to traditional gender roles; it has become common in many societies for a woman to choose not to have children in order to focus on her career or to balance both family and a professional life. As women have more readily entered the workplace and started to compete in what was previously a male dominated area we would expect the gap between male and female behaviour would narrow as gender roles are redefined [30].

The idea that women will take up the negative behaviours of men as they become more like them in other respects led to what has become known as the convergence hypothesis. This convergence is hypothesized to occur in several ways. Firstly in a time of increasing alcohol consumption women’s alcohol use could increase disproportionately to men’s or in times
where alcohol use is stable or decreasing, men’s drinking could decline more than women’s [31].

A study by Neve et al. aimed to examine whether gender convergence had occurred in the Netherlands by using data from six general population alcohol use surveys conducted between 1958 and 1993. The Netherlands was chosen as a good subject for this type of research as the 6 surveys covered a time where there had been vast changes in alcohol consumption, with a 300% increase of per capita alcohol consumption from 1960-1980, coupled with dramatic social change with regard to the position of women in society. The study found that there was no gender convergence for the measures of abstinence or weekly heavy drinking. Some evidence of convergence of drinking patterns was found in the 1980s but the authors note that this was seen in women aged 40 and older and not in the young women where it had been expected [31].

Ahlström et al (2001) examined gender differences in drinking in nine European countries [32]. Data from surveys conducted in the Czech Republic, Finland, France, Germany, Italy, The Netherlands, Scotland, Sweden and Switzerland in the late 1980’s showed that women’s consumption of alcohol was closely tied to the men’s pattern of drinking in each country, and there didn’t appear to be any evidence of gender convergence. Men were more likely to be current drinkers and drink larger quantities more frequently. This study showed the complexity of the relationship between gender and drinking. Educational level, age, marital status and having children all showed an association with shaping gender roles that influenced individuals’ motivations to drink. A later study of 14 European countries found similar patterns [33]. There was a large gender gap in all countries though the size varied. The gender gap was largest for heavy episodic drinking. There was a gender difference in consumption of different types of alcoholic beverages, with the gap being most pronounced
for beer and spirits, which were more commonly drunk by men, but very little difference in the quantity or frequency of wine consumed. No systematic gender differences by age group were found for drinking overall, although the frequency of heavy episodic drinking in young men and women was much more alike than in older age groups. In a study conducted by Bloomfield et al (2001), the authors found evidence of gender convergence in Finland but not in Germany, the Netherlands or Switzerland [34]. The absence of convergence in the other three nations was thought to be due to the two surveys examined being too close together or because there had been little change in the drinking culture in those countries while there was significant change in Finland. Of note was the finding that there was convergence of mean consumption but not for levels of what was considered hazardous drinking.

In the United States there have been some studies showing a closing gap between men and women’s drinking patterns. In order to illustrate the closing gap over time Keyes et al. divided the participants of the 2001-2002 National Epidemiological Survey on Alcohol and Related Conditions into four birth cohorts and took several measures of alcohol consumption from each [35]. The results showed that for all measures the gender difference decreased with descending birth cohorts. The most interesting finding was that binge drinking decreased in men in the youngest cohort but markedly increased in women in the younger cohorts, possibly reflecting changes in societal expectations and gender roles.

Evidence of gender convergence around the world is mixed but this is to be expected due to gender differences being so closely tied to cultural norms. In New Zealand comparisons of the data from the 1995 and 2000 National Drinking Surveys showed significant gender convergence for different measures of consumption in different age groups [36]. The quantity of alcohol consumed on a typical occasion showed gender convergence in 20-39
year olds while the gender gap appeared to be closing among 40-49 year olds for frequency of consumption, and there was an overall decrease in the gender gap for the 20-49 years age group. Contrary to what was seen in Finland, the New Zealand comparisons also showed gender convergence of hazardous drinking (defined in this study as six or more drinks on one occasion for women and eight or more for men) [36]. The convergence appears due to women’s increasing alcohol consumption rather than changes in men’s. Alongside the changes in drinking patterns there is evidence of a change in the role of women in New Zealand between the two surveys which supports the idea presented by Holmilla et al (2005) and Wilsnack et al (2000) that drinking behaviour and gender differences in drinking behaviours are related to cultural ideas of gender roles [28, 29]. A qualitative study of drinking norms in New Zealand suggests that women are redefining gender roles [37]. Women were found to be challenging traditional ideas of femininity and were mimicking drinking behaviours typically exhibited by men (i.e. regular binge drinking and drinking beer). They were also feminising these masculine behaviours, for example, drinking beer from a glass rather than a bottle or can.

2.4 Alcohol and Partnerships

Most research into the effect of marriage on alcohol consumption has shown that marriage is protective against the development of unhealthy alcohol use. Married people drink less and experience fewer alcohol-related negative consequences than their single peers and this phenomenon is now often referred to as the marriage effect [38-40]. In most cases an individual’s alcohol consumption begins to decrease during the courtship period and steadily decreases for both men and women into the first year of marriage before stabilizing [41]. There is mixed evidence of the role of drinking in cases of divorce, with single and divorced
individuals having higher levels of consumption and alcohol abuse problems in some studies, while others showed changes in consumption patterns occurring within the marriage before separation or divorce [38-40]. While the marriage effect is now widely accepted, of more interest to researchers now is what causes it.

Bogart et al (2005) hypothesized that the marriage effect was due to partners being forced to take on a more traditional adult role after marriage which results in lifestyle changes including changes in health related behaviours, like alcohol consumption, in order to fulfil the expectations of these new roles [42]. To test this hypothesis the researchers used data from a sample of women who were selected from the RAND Adolescent/Young Adult Panel, a longitudinal study that recruited participants at age 13 and followed them until age 29. There were 1,138 women selected for this study, all of whom responded to all four surveys (at ages 13, 18, 23 and 29), provided complete marital status information at ages 23 and 29 and were not married at age 18. Each survey also collected information about alcohol use and other factors such as education, religiosity and academic orientation. Using the marital status information provided at ages 23 and 29 participants were classified as: early married (first married before age 20), later married (first married after age 20) and never married. There was no difference in drinking level at age 18 between the three marital status groups. However, at age 29, women who had married, especially those who had married later, were less likely to report recent alcohol use, to be regular heavy episodic drinkers, or to have experienced negative alcohol related consequences even when adjusting for sociodemographic characteristics and for adolescent behaviour measures such as teenage alcohol use [42].

Miller-Tutzauer et al (1991) examined the marriage effect by analysing data from the Youth cohort of the National Longitudinal Study of Labour Market Experience conducted by the
U.S Departments of Labour and Defence [41]. The cohort was divided into four marital status cohorts: stably single, stably married, married in the last year (3rd) of the study and married in the second year of the study. Analysis of the drinking habits of each cohort showed that the stably single group had the highest level of alcohol consumption throughout the study and the stably married group the lowest. Of most interest was the change in drinking pattern for the transitioning cohorts. Measurements taken the year before marriage in these groups showed alcohol consumption to be already decreasing towards the stably married level, a decrease which continued into the marriage for the first year before stabilizing.

While there is a large body of research on the marriage effect, the impact of cohabitation on alcohol consumption has been less often examined. However, an analysis from Gender, Alcohol and Culture: an International Study (GENACIS) examined differences between married and cohabiting people aged 24-32 in 10 European countries. Plant et al (2008) showed that single people drank more than both the married and cohabiting groups in the study. In general, cohabiters were similar in drinking patterns to married subjects in their frequency of drinking but married individuals consumed less on each drinking occasion. The authors noted that cohabitation has become far more commonplace in recent times in Europe and in some European countries cohabitation is more common than marriage. Countries that more readily accepted cohabitation as the norm showed smaller differences between cohabiting and married couples [43].

The marriage effect is just one way that alcohol consumption has been seen to be affected by relationships. Couples often display concordant health behaviours and health status [44, 45]. Several theories have been offered as an explanation for this concordance. The first, assortative mating, is the idea that people are more likely to marry and form marriage like
partnerships with people who have similar backgrounds, attitudes and behaviours as themselves [44]. Secondly, the *shared resource hypothesis* suggests that when people form these relationships they share the same environment and are thus exposed to the same social and financial conditions which can impact on health behaviours and therefore health outcomes [45]. A third theory put forward is that of *social control*: the idea that one partner will try to control the choices and behaviours of the other in order to maintain the partner’s health [44].

Meyler et al (2007) conducted a review of 103 studies on health concordance in couples who were married or living in a marriage-like relationship, including alcohol consumption. They found that research into concordance of drinking was uncommon and the evidence that was available was mixed in relation to whether there was concordance of this behaviour [44].

A study of female Australian twins and their partners tested the theory of assortative mating with regard to cigarette smoking and alcohol consumption. Using twins allowed for examination of differences due to genetics or environments. Women who were regular users or dependant on alcohol were more likely to marry men with similar drinking patterns [46].

Similar results were found in a study by Leonard and Das Eiden (1999) that examined alcohol consumption in 500 couples over the year preceding and through the first year of their marriage. Findings supported the theory that individuals choose partners with similar behaviours to their own, with most couples having similar consumption patterns in the year before their marriage. However, an interesting finding from this research was the possible existence of an “influence process” where the male’s drinking influenced that of female partners in the year before marriage [47].

While a lot of the research focused on concordance of drinking patterns in newlyweds, Graham & Braun (1999) studied this trend in older couples as it was hypothesized that
substance use in these couples would be highly concordant due to the long time spent in a shared environment [48]. The results showed the couples were highly concordant for the frequency and overall volume of alcohol consumed as well as several other substances including caffeine.

Another important group to examine for concordance of drinking patterns is problem drinkers. A study of 5000 women from the National Longitudinal Survey of Youth in the United States of America looked for associations between having a problem drinking spouse, having a problem drinking parent and the subject being a problem drinker. Women identified as problem drinkers in this sample were twice as likely to marry a man who was a problem drinker compared to non-drinking women in the same sample [49].

Clearly marital status plays a role in determining individuals’ drinking patterns and drinking patterns play a part in selecting a partner, but these are complex relationships. Convergence of alcohol use in marriage-like relationships is likely to be affected by many factors other than marital status, including socioeconomic level, educational level and norms of the person’s social network [50, 51]. Further research needs to be conducted into concordance among cohabiting couples, as the bulk of research into alcohol and intimate partnerships has focused on married couples or couples transitioning into marriage.

The role of drinking patterns within relationships is an important area of research as a large proportion of negative relationship events are associated with alcohol. For example, a study by Leadley et al (2000) showed certain drinking patterns within relationships were associated with intimate partner violence [52]. It has also been observed that couples who consumed similar levels of alcohol were more likely to have higher levels of marital satisfaction than those with discrepant patterns. This held true even for couples where both people had alcohol dependence [53, 54]. Alcohol was part of many couples’ socialization
and couples who consumed the majority of their alcohol together or within the same social
group had the highest level of marital satisfaction [53]. Other studies, for example Leadley et
al (2000), found that discrepant drinking patterns within partnerships increased the
likelihood that the couple experienced intimate partner violence (IPV). Discrepant drinking
couples were found to be 3.5 times more likely to experience alcohol-related relationship
problems [52].

The size of the burden of alcohol-related intimate partner violence at a population level makes further understanding of the dynamics of partnership drinking of interest in terms of possible interventions. In New Zealand, a recent study suggests that in 2004 15% of physical and 22% of sexual assaults where the perpetrator was drinking involved a spouse or a partner [55].

2.5 Informal Social Controls on Drinking

The most obvious controls on drinking are the laws regulating the sale and consumption of alcohol, sometimes referred to as institutional controls, which are put in place by the government and enforced by the police and the liquor licensing authorities. Drinking is also strongly influenced informally by the rest of society, via descriptive and injunctive norms in a range of social setting including family and peers [56].

There is a relationship between how we drink, how much we think we should be drinking and what our family and friends’ views on drinking are [57]. Two types of norms are thought to affect our drinking behaviour: descriptive norms, our perceptions of others’ drinking behaviour, and injunctive norms, which help individuals decide what drinking patterns and behaviours are appropriate [58].
These informal influences by our social groups are collectively called informal controls on drinking. They are expressed through verbal and non-verbal cues and can apply upward or downward pressure on a person’s drinking. Some acts aimed at influencing alcohol consumption are conscious while others are unconscious and/or habitual, and are referred to as peer pressure [6]. Informal controls can be separated into three categories: overt offers of alcohol and goading (or in the case of pressure to drink less, persuading or nagging someone to reduce their drinking), modelling, and social norms [59]. Overt offers of alcohol can range from a polite offer of a drink to extreme pressure or demands to drink. Commanding or teasing others in order to make them drink more would be considered goading. Modelling is simply the performance of drinking behaviour in the presence of a peer, family member or other individual. Social norms are the often unspoken beliefs about what is expected and what is appropriate in certain situations [59].

The drinking behaviour of individuals tends to change along with that of their social groups and the informal controls they are exposed to. Galanter (1981) attempted to explain why people adhere to group norms when they become part of a new social setting by questioning two religious groups about group cohesiveness, mental well-being, alcohol consumption and compliance with group norms [56]. The study found that there was a positive relationship between a person’s well-being and both the sense of group cohesiveness and their adherence to group norms. This was shown in the reduction of alcohol intake in line with the beliefs of each religion as people joined the groups.

Individuals are subject to social norms that begin to determine their drinking behaviour from a young age. It appears that institutional controls on alcohol are only partially effective in controlling alcohol use amongst many adolescents, with a lot of health and social problems related to alcohol concentrated in a group who legally should not be able to purchase alcohol.
themselves [8]. An understanding of what informal social controls are important in
determining drinking behaviour in this group may provide another potential avenue for
prevention. A review of the literature revealed a substantial body of research examining the
importance of informal social controls in young people who are just starting to form their
drinking patterns. Studies showed that drinking behaviours amongst adolescents varied
according to: their own standards, the drinking behaviour and standards of their peer group
and family as well as community norms [60]. For example, a study of 4941 American high
school seniors found that the students’ own standards had the largest association with their
drinking behaviour followed closely by peer group influences [60]. Past research indicated
that the norms of parents had the greatest association with levels of alcohol use in childhood
and then these norms were overridden by peer group norms in adolescence [61]. Rooney
suggests that the reason for self standards having more influence than those of peers or
parents is that parental, community and peer standards are incorporated into those self
standards during this process of finding independence and identity [60].

There has been some New Zealand research into who influences individual drinking, mostly
focused on influences in childhood and adolescence. The Dunedin Multidisciplinary Health
and Development Study followed a cohort born in Dunedin in 1972-3 at ages one, three,
five, seven, nine, 11, 13, 15, 18, 21, 26 and 32. In a study of the cohort at ages nine, 11, 13,
15 and 18 Casswell (1996) found that parents’ drinking behaviour and attitudes predicted
participants’ drinking behaviour. Between ages nine and 15, children who had parents who
were abstainers or infrequent drinkers were more likely to themselves be abstainers, as were
children whose mothers drank only small quantities of alcohol. By age 15 the participants’
peer groups, which had previously not influenced drinking, became a greater influence than
parents, and participants were much more aware of their peer groups’ attitudes towards
alcohol use. This was particularly illustrated in adolescent men who had a significantly
reduced level of alcohol use if they had female friends who disliked drinking [62]. Two other studies using the Dunedin study data also supported this finding that children generally imitated the behaviour of their same sex parents playing (although mother’s frequency of drinking influenced men and women) and became more influenced by peers in adolescence. Parents who were themselves moderate drinkers and had a positive attitude towards alcohol tended to have children who went on to use alcohol. The amount a child or adolescent drank was also associated with how supportive their parents were of their drinking. The more supportive they were, the more likely the child would have easy access to alcohol and thus, the more they would drink [63], [64]. By age 15 the influence of parents on drinking was now mediated by the participant’s own point of view as well as that of their peer group [64].

Bahr et al (1995) discussed social learning theory and social control theory in relation to adolescent drinking behaviour. Social learning theory states that “deviant behaviour is influenced by the associations one has with attitudes or behaviour patterns that either promote (‘reinforce’) or proscribe (‘punish’) such behaviour” [65]. Given that the most important relationships for most adolescents are those with their parents and close friends, it follows that having a parent or peer who uses alcohol will often result in the adolescent acquiring a favourable attitude to drinking. Social control theory suggests that deviant behaviour is natural and it is the bonds we form with both individuals and society that stop us from breaking the rules and carrying out this deviant behaviour, and as two important bonds for adolescents are to their parents and education it follows that individuals with a strong bond to their parents or who are heavily involved in their education are less likely to start drinking [65].

Many other studies highlight the important role informal controls play in drinking among young adults both through the experience of overt offers of alcohol (peer pressure) and
adherence to the social norms of an alcohol using group or individual [66-69]. Some other key findings by Wilks (1989) also showed that for men the biggest predictors of alcohol use were their perception of both parents’ drinking and their fathers’ actual drinking, while their own norms predicted what they drank and in what quantities. For women the strongest predictors of alcohol use were how much they believed their best friend drank and what their best friends’ alcohol norms were, while men’s drinking behaviour was most strongly associated with their fathers’ drinking, with no effect of their mothers’ drinking habits [67].

In their study of group affiliations and alcohol use, Selnow & Crano (1986) reach similar conclusions to those of Wilks (1989) but suggested that adolescents who take part in ad hoc social gatherings with peers are more likely to have peers who drink alcohol while adolescents with membership of formal organized groups are less likely to be users of alcohol and other drugs [67, 68]. This could be as a result of organised teen social groups having group norms and/or a code of conduct that discourage deviant behaviour which group members are likely to adhere to, while ad hoc social groups are likely to have very different group norms to follow.

In a study of 15-25 year-olds in a province of the Netherlands, Oostveen et al (1996) examined which types of social influence were associated with heavy drinking [70]. The authors divided social influence into two types: situational social influences which included direct social pressure to drink and the importance of socializing, and cognitive social influences such as modelling and social norms. They found that the three most important influences were social norms of the family and peers, the importance to the adolescent of socializing, and modelling of peers’ drinking. This contradicted the hypothesis that direct situational influences would be more strongly associated with the occurrence of heavy drinking than cognitive factors [70].
The effect of different types of informal controls on university students is also of interest as for many this is a period when parents are less and less involved in influencing behaviour while peer influence becomes more important. Reviewing the research about informal controls in university students shows that, as with adolescents, peers influence risky drinking habits directly through modelling and direct social norms [59, 71].

Group norms are strong influences on drinking behaviour for adolescents and university students, but less is known about whether these social controls continue to have a similar effect throughout adulthood. Most research on informal social controls in adults concerns the role of one’s spouse on drinking behaviour [6, 51].

Informal social controls may also be important in getting individuals, who are perceived by their peers to be problem drinkers, to seek professional help or enter a treatment program [72, 73]. However, experiences of informal social controls are important for all drinkers not just problem drinkers. Room et al (1991) compared responses from three national surveys conducted in America and found that the experience of pressures from friends and family to drink less was very common. By the third survey in 1990 over 30% of respondents who were current drinkers indicated that they had been the subject of concern or pressure to cut down on their drinking by family and friends in their lifetimes, with half of this group having experienced this informal social control in the last year [74].

A 1996 study in Ontario, Canada, on family responses to alcohol and tobacco use showed that 14% of ever-drinkers in the survey had been the subject of familial concern about their drinking, while 8% had been approached by their friends about their drinking behaviour. These figures were much lower than the proportion of smokers who reported a friend or family member saying something about their smoking [75].
As well as influences from family and peer groups, social norms in the workplace can play a role in changing a person’s drinking patterns. One study that compared two organizational cultures in the same industry found that while both groups had similar overall consumption there were significant differences with regard to work-related drinking [76]. These differences were shown to be associated with different social norms between the two organisational structures.

On a country level, Hemstrom (2002) used data from Finland, Sweden, Germany, the United Kingdom, France and Italy to test for differences in the proportion of people who reported having attempted to influence someone to drink less [77]. Differences between countries were modest even though they varied in their customary drinking habits. The proportion of respondents who reported having tried to influence family, friends and work mates to drink less in the last year ranged from 28.1% in France to 37.8% in Italy. There were larger country differences for men than women, with Italian men having a very high probability of pressuring family, friends, neighbours and workmates to drink less compared to men in the other countries in the study. In all countries friends were the most common target of informal social controls on drinking. This study gave an indication of informal social controls by using reports from people on their attempts to influence others’ drinking but it didn’t include measures of the proportion of people who report having been the subject of these social pressures.

While there is evidence to suggest that informal social controls play a role in individual drinking patterns, especially in adolescence, we know little about which parties play the most significant role in shaping the drinking behaviour of adults. In particular there is no previous research examining the experience of informal social controls in New Zealand adults.
3. Aims and Methods

This study aimed to examine alcohol consumption patterns in New Zealand and some of the influences that shape them. The specific objectives were to:

1. Describe patterns of drinking in the New Zealand adult population and examine the differences in alcohol use by key demographic characteristics.

2. Describe the similarities and differences in drinking patterns between intimate partners.

3. Describe the experience of informal social controls on drinking by New Zealand adults.

As this research relies on survey data, an important aspect of this work was to assess the degree to which incomplete response may have biased the findings. This analysis of non-response bias is presented before the primary objectives in the methods, results and discussion chapters.

The data for this study were collected as part of the New Zealand arm of a multinational collaborative project: Gender, alcohol and culture: an international study (GENACIS). The first section of this chapter provides a brief description of the sampling and data collection procedures used by the investigators in GENACIS, and the following sections give a more detailed account of the methods used for the analysis in this thesis.

3.1 Methods for GENACIS survey data collection

3.1.1 Design of the study

This was a cross-sectional survey of a nationally representative sample of New Zealand residents aged 18-80 years, who were on the combined (General plus Maori) electoral roll in
2007. It was conducted using a postal questionnaire that was completed by the respondent and mailed back to the investigators in a reply-paid envelope.

3.1.2 Questionnaire

The questionnaire was based on the core GENACIS questionnaire that was developed by the International Research Group on Gender and Alcohol (IRGGA). This core questionnaire was developed so that surveys being conducted in a wide range of countries would have measures that were directly comparable, along with country-specific items. Initially the expanded core questionnaire was obtained from GENACIS and was adapted to suit New Zealand. These adaptations included modification of some of the terms used (for example to describe intimate partners), the addition of appropriate ethnicity categories, and reformatting so that it could be self-administered.

The questionnaire contained 100 items and took about 20-30 minutes to complete. It covered the following areas: demographic information, social networks, respondent’s alcohol consumption, drinking contexts, drinking consequences, intimate relations and sexuality, violence and victimization, and health and lifestyle. A copy of the questionnaire is included in appendix D.

3.1.3 Distribution and collection of questionnaires

Ethical approval for data collection was given by the University of Otago Human Ethics Committee in January 2007. A copy of the combined electoral roll was obtained in March 2007 and, once all international addresses were removed, 4000 names and addresses of electors aged 18-70 were randomly selected for the postal questionnaire.
The construction of a questionnaire and the ease with which it can be completed and returned are both important determinants of whether a sample member responds. The sensitivity of the topics covered and the perception of confidentiality also affect people’s willingness to participate. There has been specific research to identify other factors that increase response. Contact before the sending of the questionnaire, follow up contacts, the sending of second copies of the questionnaire, and small incentives are all shown to increase the odds of response in postal surveys [78, 79]. These factors were considered when designing the recruitment procedure for this survey.

The first contact with the participants was an introductory letter sent 16 April 2007. The letter outlined the aims of the study and informed recipients that they would soon be sent a questionnaire. The letter also contained contact details (an 0800 number, email addresses and postal address) for the study team and asked recipients to make contact if they had any questions about the study, or if they did not want to participate.

The full questionnaire with a cover letter and an information sheet was sent two weeks later (2nd May), with a request that recipients contact the study organisers if they did not wish to participate. As a small token of the research team’s appreciation for recipients’ consideration of the request to participate, a tea bag was sent out with each questionnaire. Previous trials have shown that the inclusion of token incentives increases participation. A tea bag was chosen as Bell Tea offered them as ‘sponsorship’ [78].

On 28th May a reminder letter was sent to all sample members who had not yet responded to the survey asking them to return their completed questionnaire, contact the research team for a replacement, or to decline. If sample members failed to respond by 25th June they were sent a second questionnaire and letter. Copies of letters and the information sheet are included in appendices A, B, C, E and F.
At the beginning of November the study team used Yellow Pages Data Solutions to get a phone number for sample members who had still not responded to the survey, by matching their name and electoral roll address with landline telephone listings. Where it was possible to find a telephone number three attempts were made to contact that sample member by phone and replacement questionnaires were sent out if necessary.

Of the original sample of 4000 people 1924 completed questionnaires were returned, 110 people were found to be ineligible and 1966 people were considered ‘non-respondents’. Non-respondents included people who declined to participate, those whose unopened questionnaires were sent back marked “Return to Sender” and people for whom there was no evidence of contact.

**TABLE 1: Timeline of GENACIS data collection**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application for use of electoral roll</td>
<td>February – 5 March 2007</td>
</tr>
<tr>
<td>Electoral roll list received</td>
<td>6 March 2007</td>
</tr>
<tr>
<td>Sample extracted</td>
<td>29 March 2007</td>
</tr>
<tr>
<td>Questionnaire development</td>
<td>February – April 2007</td>
</tr>
<tr>
<td>Introductory letter</td>
<td>16 April 2007</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>2 May 2007</td>
</tr>
<tr>
<td>Reminder letter</td>
<td>28 May 2007</td>
</tr>
<tr>
<td>Second Questionnaire</td>
<td>25 June 2007</td>
</tr>
<tr>
<td>Matching of addresses to landline numbers</td>
<td>1-2 November 2007</td>
</tr>
<tr>
<td>Telephone follow-up</td>
<td>November-December 2007</td>
</tr>
</tbody>
</table>
3.2 Assessment of non response bias

Response rates for epidemiological surveys of drug and/or alcohol use in the general population show a steadily decreasing trend regardless of the mode of administration (postal, telephone, face-to-face) [80]. Studies with low response rates may produce prevalence estimates that are biased by selective non-response. That is, the chance that someone will participate in the survey may be related to the parameter being measured, for example drinking pattern. A review of the alcohol survey literature has in some cases shown that non-respondents were heavier drinkers on average than respondents; others showed that non-respondents were more often abstainers than respondents, and in some cases both heavy drinkers and abstainers were over-represented among non-respondents [81].

Lin and Schaeffer (1995) proposed the continuum of resistance model as an explanation for survey response behaviour. In this model the likelihood of response by sample members is related to the amount of effort expended by the researchers in order to elicit a response. This model suggests that those participants for whom the most time and effort are required to elicit a response (the “late respondents”) are more similar to non-respondents than are early respondents. This model gives rise to three ways to estimate non-response bias in this study [82].

3.2.1 Comparison of respondents with non-respondents, and with the whole target population

Given that alcohol use is strongly associated with demographic variables such as age, gender and socioeconomic status, comparing distributions of these characteristics between respondents and non-respondents gives an indication of the extent to which non-response
may be selective. This is only possible where the sampling frame contains information that can be used for comparison in the absence of a survey response.

In this study, all ineligible participants were removed from the database and the remaining sample members were coded as either a respondent or non-respondent. Approximate age was calculated for both groups from the one year age bands given in the electoral roll. Sex, Maori descent and New Zealand Deprivation Index score (a measure of area deprivation where 1 represents areas in the decile with the least deprivation and 10 the most deprivation) were also obtained for both groups from the electoral roll. Distributions of these demographic characteristics were compared using the Pearson chi squared test for statistical independence.

In assessing whether non-response is likely to have created substantial bias in the results, we also compared those who took part in the study with the target population. That is, how well the respondents represent the population from which they were drawn. Therefore the comparisons were also made between the respondents and the whole population in the eligible age range.

### 3.2.2 Comparison of early and intermediate respondents with late respondents

The second analysis was a comparison of early, intermediate and late respondents. The determination of categories was non-arbitrary, relating to the effort required to elicit a response rather than the mere latency of response. Early respondents were those whose questionnaires arrived in the survey office before the first reminder was sent, intermediates were those whose questionnaires arrived before the posting of the second questionnaire, and late respondents were those whose questionnaires arrived after the second questionnaire was
sent. These three groups were compared on current drinker status (yes/no) and binge status (yes/no).

Current drinkers were defined as those respondents who had consumed alcohol in the last 12 months – determined by their answer to the following question:

<table>
<thead>
<tr>
<th>33A. In the last 12 months how often did you usually have any beverage containing alcohol – whether it was wine, beer, spirits, RTDs (pre-mixed drinks such as Vodka Cruisers, KGBs, etc.) or any other drink?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Everyday or nearly every day</td>
</tr>
<tr>
<td>□ 3-4 times per week</td>
</tr>
<tr>
<td>□ 1-2 times per week</td>
</tr>
<tr>
<td>□ 1-3 times per month</td>
</tr>
<tr>
<td>□ 7-11 times in the last 12 months</td>
</tr>
<tr>
<td>□ 3-6 times in the last 12 months</td>
</tr>
<tr>
<td>□ 2 times in the last 12 months</td>
</tr>
<tr>
<td>□ Once in the last 12 months</td>
</tr>
<tr>
<td>□ Never in the last 12 months</td>
</tr>
</tbody>
</table>

Those who were not current drinkers were for this first analysis classified as “abstainers”.

Another group of interest were those who reported drinking large quantities of alcohol on a regular basis. This pattern of drinking is of interest because of its association with increased risk for all types of alcohol related problems. There is some controversy over what to call this pattern of drinking and how to define it. Binge drinking is often a label given to this type of behaviour and has become a popular term in the media. However, there is some disagreement over whether binge is an appropriate description given its past usage by other clinical fields [83]. Most of the disagreement stems from there being no universal cut off for the amount of alcohol that needs to be consumed, or the length of time in which it is consumed to be considered a binge. Some clinicians use the term binge to refer to prolonged drinking bouts, sometimes lasting for weeks, exhibited by people with alcohol dependence. Weschler argues though, that this is not the only, or the most common use of the term and that “in other contexts, binge carries no requirement that the behaviour be carried out over
such a long period of time” [83]. Some journals now insist on using the term *heavy episodic drinking* but this term also has no clear definition of amount of alcohol or length of drinking occasion. The five/four measure is widely accepted as a good measure of binge drinking. First suggested as simply a five drink measure for both genders by Cahalan et al in 1969 as a good threshold for measuring the social harms associated with drinking it was referred to as binge drinking in 1984 by O’Malley et al [83, 84]. It eventually became defined as: consumption of five or more drinks for men or four or more drinks for women. While this is a widely used measure in alcohol literature there are still other cut offs in terms of quantity consumed, and how often this pattern appears in an individual before they are considered to be a binge drinker. For the purposes of this thesis binge drinking was the term used and this group were defined as those who drank more than four drinks in a single drinking occasion, at least monthly. This information was gathered from the following question, with the area sectioned off in the dotted lines showing the answers that categorised a respondent as a binge drinker.
34A. Think of all kinds of alcoholic drinks combined, that is, any combination of cans, bottles, or glasses of beer; glasses of wine; or drinks containing liquor or spirits of any kind. During the last 12 months, how often did you have the following number of drinks in a single day?

<table>
<thead>
<tr>
<th>Daily or almost daily</th>
<th>3-4 times per week</th>
<th>1-2 times per week</th>
<th>1-3 times per month</th>
<th>2-11 times in the last year</th>
<th>3-6 times in the last year</th>
<th>Twice in the last year</th>
<th>Once in the last year</th>
<th>Never in the last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 or more drinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-19 drinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-11 drinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-7 drinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-4 drinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 drinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1 drink</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The demographic characteristics of late respondents were also compared with non-respondents to test the hypothesis arising from Lin and Schaeffer’s (1995) continuum of resistance model, i.e. that late respondents better resemble non-respondents than early/intermediate respondents [82]. Where sample members had missing information they were excluded from that particular analysis. In all cases this group was less than 5% of the total respondents. Pearson chi squared tests were used to test for statistical significance of observed differences between the groups.

3.2.3 Comparison of key findings with recent national surveys of alcohol use

Comparisons of key drinking variables were made with the 2004 New Zealand Health Behaviours survey – Alcohol use, and the most recent national survey of alcohol use (the 2007/08 New Zealand Drug and Alcohol Use Survey). The 2004 survey had a response rate of 59% and the 2007/08 survey had a response rate of 60%. Both used different sampling
and data collection methods. There are therefore a number of potential explanations for
disagreement – other than true differences – between the findings of the two studies. For
comparison of levels of binge drinking, a new binge drinking variable was calculated from
the GENACIS data, by classifying binge drinkers as people who had more than 4 drinks at
least once a week, to make the numbers more comparable. From the comparisons of early,
intermediate and late respondents, drinking behaviours prevalence estimates were calculated
for the population, as if the non-respondents had responded (and were like the late
respondents) and compared to these national studies also.

3.3 Patterns of drinking

The GENACIS survey collected both demographic information and information on drinking
behaviours and associated events. Comparing key measures from the questions on drinking
with demographic measures allows us to characterise drinking patterns in the New Zealand
adult population.

3.3.1 Demographic information

This thesis aimed to examine drinking by gender, age, ethnicity, NZDep and marital status.
The following questions are those that were presented to obtain demographic information:
1. Are you: □ Male
   □ Female

2. What is your date of birth?

   □ □ □ □  □
   Day / Month / Year

4. Which ethnic group(s) do you belong to? Please tick all boxes that apply

   □ New Zealand European  □ Tongan
   □ Maori  □ Niuean
   □ Samoan  □ Chinese
   □ Cook Island Maori  □ Indian
   □ Other – Please specify

6A. What is your marital status?

   □ Married/Civil union, living with spouse
   □ Living with a partner/de facto
   □ Widowed
   □ Divorced
   □ Married but separated
   □ Never married

For these analyses ethnicity was further categorized into: European, Asian, Maori, Pacific and Other as per the Statistics New Zealand and New Zealand Health Information Service guidelines on coding of ethnicity [85, 86]. The birth date provided by each respondent was used to calculate their age at the time of the survey. For respondents with missing information on their date of birth (n=27) the one year age band obtained with their name and
address from the electoral roll was used to assign an approximate value for age. Where information on any of the demographic variables was missing those respondents were excluded for that particular analysis; in all cases this group was less than 5% of the total sample.

### 3.3.2 Drinking variables

Current drinkers were defined as those respondents who had consumed alcohol in the last 12 months, using the question outlined in section 3.2.2.

Those who were identified as not having had a drink in the last 12 months were further categorized as either a former drinker or a lifetime abstainer based on their responses to the following questions:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>48A. Did you ever have a drink of any beverage containing alcohol?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48B. How old were you when you began drinking, more than just a sip or taste?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Years old</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48C. Was there ever a time when your drinking caused any problems in your life (for example, problems with family, health, or work, or with the law or the police)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Heavy drinking episodes and high total volumes are linked to harmful health and social outcomes. For current drinkers, we characterised binge drinkers as those who drank more
than four drinks in a single drinking occasion, 1-3 times per month, using the question shown in section 3.2.2.

A measure of the average number of alcoholic drinks per year was calculated for all current drinkers using the information from question 33a and the following question about frequency:

35A. On those days when you had any kind of beverage containing alcohol, how many drinks did you usually have per day?

Current drinkers who had missing information for question 33a, 35a or both (n=95) were excluded from these calculations. The median of this measure was then calculated for both men and women.

Participants were given the following diagram to ensure all questions regarding quantities of alcohol were answered using the definition of a standard drink in New Zealand. A standard drink in New Zealand is one that contains 10 grams of absolute (pure) alcohol.

What’s a standard drink?

- One glass, stubby or can of beer (330mLs)
- One small glass of wine (100mLs)
- A double measure of spirits (30mLs)
- A pre-mixed drink/RTD (e.g. Cruiser, Stoli) = approx 1.5 drinks
- A 750mL bottle of beer = 2.5 drinks
- A jug of beer = 3 drinks
- A 750mL bottle of wine = 7.5 drinks
3.3.3 Comparison of demographic and drinking variables

The prevalence of current drinkers, former drinkers and abstainers was calculated for each level of the following variables: gender, age group, ethnicity, NZDep and marital status, and 95% confidence intervals were calculated. For each of the 27 participants who had not provided a date of birth an approximate age was calculated from the one year age bands given in the electoral roll, to allocate them to an age group. Where there were missing data on marital status (n=39), ethnicity (n=5) or NZDep (n=32) these individuals were excluded for the prevalence estimate pertaining to that demographic variable. In all cases the excluded group constituted no more than 2% of the total sample.

In order to examine the characteristics of binge drinkers, all current drinkers were classified as a binge drinker or a non binge drinker using information from question 34a. This was possible for 1638 of the 1723 current drinkers while 85 participants had missing data for that question and were thus excluded from analyses of binge drinkers. A measure of binge drinkers as a proportion of the total sample population was calculated but for all other analyses of binge drinking prevalence used current drinkers as the denominator. The prevalence of binge drinking was calculated for each level of the following variables: gender, age, ethnicity, NZDep and marital status. Confidence intervals were calculated for each prevalence value. For both of the above analyses Pearson chi squared tests were performed to test for the statistical significance of differences in prevalence between the levels of each demographic variable. Where the frequency expected under the assumption of independence was less than five for one or more categories, a Fishers exact test was used, or categories were collapsed and the ordinary Pearson chi squared test was applied.

Logistic regression models were used to estimate the effect of marital status (Married/civil union, living with partner/de facto, widowed or divorced or married but separated and never
married) on being identified as a binge drinker. Effects were estimated in terms of odds ratios and confidence intervals. A second analysis calculated odds ratios while controlling for age, and sex.

### 3.3.4 Gender and drinking patterns

Patterns of drinking and how they differ between men and women is of particular interest. For this reason a section of the analysis of patterns of drinking was devoted to gender and drinking patterns. A measure of the average number of alcoholic drinks per year was presented separately for men and women (calculated for all current drinkers using the information from question 33a and 35a). The prevalence of current drinkers in men and women was calculated for each level of the following variables: age, marital status, NZDep. The prevalence of current drinkers identified as binge drinkers was also calculated by age, marital status and NZDep for both men and women. Confidence intervals were calculated for each prevalence value.

An overall measure of binge drinkers as a proportion of the total sample population was also calculated for both sexes.

### 3.4 Drinking in Intimate Partnerships

As well as collecting information about the lifestyles and drinking behaviours of the respondents, the GENACIS survey also collected some information about the drinking pattern of the partners of those respondents who identified themselves as having a partner. Respondents were classified as having an intimate partner according to their answers to the following questions:
6A. What is your marital status?

- Married/Civil union, living with spouse
- Living with a partner/de facto
- Widowed
- Divorced
- Married but separated
- Never married

Those who did not self identify as married/civil union, living with a spouse or living with a partner or de facto were then asked:

9. Among the people you now know, is there someone with whom you have a very close romantic relationship?

- Yes
- No

Respondents who identified themselves as being married/civil union, living with a spouse, living with a partner or in a close romantic relationship were also asked the sex of their partner which could be compared to the sex of the respondent in order to allow for separate analyses of same sex couples. The length of the relationship was determined by the following questions:

6B. In what year did that happen? (marriage, civil union, move in together, widowed, divorced or separated)

Or

10. How long have you been involved with this person?

- Years
- Months
Once the relationship type and length had been established, measures of frequency and quantity of alcohol per occasion for the respondent were compared to those provided by the respondent about their partner. The questions used to measure frequency and quantities per occasion were:

**33A.** In the last 12 months how often did you usually have any beverage containing alcohol – whether it was wine, beer, spirits, RTDs (pre-mixed drinks such as Vodka Cruisers, KGBs, etc.) or any other drink?

- □ Everyday or nearly every day
- □ 3-4 times per week
- □ 1-2 times per week
- □ 1-3 times per month
- □ 7-11 times in the last 12 months

**51A.** Thinking back over the last 12 months, about how many drinks did your spouse/partner/girlfriend/boyfriend drink any alcoholic beverages (spirits, wine, beer, etc.)?

- □ Everyday or nearly every day
- □ 3-4 times per week
- □ 1-2 times per week
- □ 1-3 times per month
- □ 7-11 times in the last 12 months

**35A.** On those days when you had any kind of beverage containing alcohol, how many drinks did you usually have per day?

- □ Drinks

**51B.** Thinking back over the last 12 months, about how many drinks would your spouse/partner/girlfriend/boyfriend have on a typical day when he/she drank. Please think of all kinds of alcohol combined.

- □ Drinks
The frequency questions were recoded to calculate a measure of how different the respondents were from their intimate partners with regard to frequency. Recoding was carried out as follows for both respondent and partners:

Every day or nearly every day: 4

Once a month to four times a week: 3

Three to eleven times in the last 12 months: 2

One to two times in the last 12 months: 1

Never in the last 12 months: 0

An indicator was constructed that reflected the differences in partners’ scores, as shown in table 2.

**TABLE 2: Indicator showing differences in frequency of alcohol use between partners**

<table>
<thead>
<tr>
<th>Abstainers</th>
<th>A</th>
<th>Both abstainers (i.e. both had a frequency of 0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concordant</td>
<td>0</td>
<td>Both current drinkers and had the same frequency number</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>The two frequency numbers were only one number apart</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>The two frequency numbers were two numbers apart</td>
</tr>
<tr>
<td>Most discordant</td>
<td>3</td>
<td>The two frequency numbers were three or more numbers apart</td>
</tr>
</tbody>
</table>

This discordance measure was examined by relationship length, and the age, ethnicity and NZDep of the respondent. The difference in quantity per occasion between intimate partners was also examined by relationship length, age, ethnicity and NZDep.
A measure of how much time the respondent spent drinking with their partner was calculated using the following question:

**38. How often in the last 12 months have you had a drink when you were with the following person? Think of all the times that apply for each person.**

- **a. With your spouse or partner**
  - Daily or almost daily
  - 1-2 times per week
  - 7-11 times in the last year
  - 1-2 times in the last year
  - Never in the last year
  - 3-4 times per week
  - 1-3 times per month
  - 3-6 times in the last year

Some of the above categories were collapsed to allow for further analysis. This was compared with the measures of frequency and quantity per occasion difference between partners to determine whether consuming most of your alcohol with your intimate partner was associated with concordant drinking patterns. Similarly the association between concordance in drinking and happiness with the relationship was examined using the following question.

**54. Please circle the number that best describes how happy you are with your relationship with your current spouse/partner/boyfriend/girlfriend**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely unhappy</td>
<td></td>
<td></td>
<td></td>
<td>Extremely happy</td>
</tr>
</tbody>
</table>

For the above analyses Pearson chi squared tests were used to determine the statistical significance of any associations. Where frequency expected under the assumption of
independence is less than 5, for one or more categories, a Fishers exact test was used, or categories were collapsed and the appropriate statistical test was applied.

3.5 Informal social controls on drinking

Respondents who were identified as current drinkers were asked the following question about whether they had experienced pressure to drink less or cut down on their drinking by any of the listed people.

47. During the last 12 months, have any of the following persons attempted to influence your drinking so that you would drink less or cut down on your drinking?

<table>
<thead>
<tr>
<th>Source of Pressure</th>
<th>No</th>
<th>Yes, once or twice</th>
<th>Yes, more than twice</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Your spouse/partner/girlfriend/boyfriend?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b. Your child or children?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c. Some other female family member?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. Some other male family member?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>e. Someone at your work or at school?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>f. A female friend or acquaintance?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>g. A male friend or acquaintance?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>h. A doctor or health worker?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Each answer was recoded for each source of pressure; answering in either of the yes columns was coded as having experienced pressure from the source in question, an answer of no or N/A was considered to indicate that no pressure had been experienced.
An overall prevalence of having experienced pressure to drink less from any source was calculated and examined in relation to demographic characteristics. Pearson chi squared or Fishers exact tests were used to determine statistical significance of observed differences.

As the numbers reporting experiences of pressure were quite small for some categories, the questions about children and those about male and female family members were collapsed into one variable showing pressure from any family member. Prevalence of experiencing pressure from each of the sources was also calculated.

Logistic regression models were used to estimate the effect of having experienced this type of pressure from each source on binge drinker status. Effects were estimated in terms of odds ratios and confidence intervals. Separate models were used for men and women and a second analysis calculated odds ratios while controlling for age, ethnicity and NZDep.

All respondents, regardless of their drinking status, were asked the following question about having experienced pressure to drink more from various sources.

<table>
<thead>
<tr>
<th>49. During the last 12 months, have any of the following people influenced you to drink or drink more because he/she drinks more than you do?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Your spouse/partner/girlfriend/boyfriend?</td>
</tr>
<tr>
<td>b. Your child or children?</td>
</tr>
<tr>
<td>c. Some other female family member?</td>
</tr>
<tr>
<td>d. Some other male family member?</td>
</tr>
<tr>
<td>e. Someone at your work or at school?</td>
</tr>
<tr>
<td>f. A female friend or acquaintance?</td>
</tr>
<tr>
<td>g. A male friend or acquaintance?</td>
</tr>
</tbody>
</table>
Each answer was recoded for each source of pressure in the same manner as was used for the question about pressure to drink less.

An overall prevalence of having experienced pressure to drink more from any source was calculated and examined in relation to demographic characteristics. Pearson chi squared or Fishers exact tests were used to determine statistical significance of observed differences.

As in the previous analyses on pressure to drink less, some similar categories were collapsed into one pressure source (child, male family member and female family member were combined into a family category).

Logistic regression models were used to estimate the effect of drinker status (lifetime abstainer, former drinker, current drinker or current binge drinker) on having experienced this type of pressure from each source. Effects were estimated in terms of odds ratios and confidence intervals. Separate models were used for men and women and a second analysis calculated odds ratios while controlling for age, ethnicity and NZDep.
4. Results

4.1 Assessment of non-response bias

The overall response rate for this survey was 49.5% (1924 respondents/3890 eligible sample members).

4.1.1. Comparison of respondents with non-respondents, and with the whole eligible sample

Table 3 presents the demographic comparisons between the respondents and non-respondents. Statistically significant differences in the distribution of demographics were shown between the two groups (p-values of <0.05). Women were over-represented among respondents (55.9% vs. 47.8%), while Maori (10.4% vs. 19.5%) and 18-44 year-olds were under-represented (46.8% vs. 61.9%). Under-representation of younger adults was most marked in the 18-24 year age group. People from wealthier areas - indicated by a low New Zealand Deprivation Index (NZDep) score - were also over-represented among respondents: 48.6% of the sample had an NZDep score from 1-4 compared to only 36.2% of non-respondents.

Table 4 shows the demographic comparisons of the respondents and the total eligible sample (respondents + non-respondents). Women were over-represented in the respondents (55.9% vs. 51.8%), while Maori (10.4% vs. 15.0%) and 18-34 year olds (24.4% vs. 31.9%) were under-represented. People from poorer areas - indicated by a high NZDep score – were under-represented in the respondents with 29.8% with an NZDep score of 7 – 10 compared to 37.2% of the total eligible sample.
TABLE 3: Demographic Distribution in the Respondents and Non-respondents

<table>
<thead>
<tr>
<th>Variable**</th>
<th>% Respondents (n=1924)*</th>
<th>% Non-Respondents (n=1966)*</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>44.1</td>
<td>52.2</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Women</td>
<td>55.9</td>
<td>47.8</td>
<td></td>
</tr>
<tr>
<td>NZ Dep</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>13.2</td>
<td>8.9</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>2</td>
<td>12.4</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>11.8</td>
<td>9.6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>12.1</td>
<td>9.0</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>11.0</td>
<td>9.2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>9.7</td>
<td>9.8</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>8.9</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>7.3</td>
<td>10.9</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>8.0</td>
<td>11.2</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>5.6</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td>Maori Descent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10.4</td>
<td>19.5</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>No</td>
<td>89.6</td>
<td>80.5</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>8.5</td>
<td>14.6</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Years</td>
<td>25-34</td>
<td>24.6</td>
<td></td>
</tr>
<tr>
<td>Years</td>
<td>35-44</td>
<td>22.7</td>
<td></td>
</tr>
<tr>
<td>Years</td>
<td>45-54</td>
<td>19.5</td>
<td></td>
</tr>
<tr>
<td>Years</td>
<td>55-64</td>
<td>13.6</td>
<td></td>
</tr>
<tr>
<td>Years</td>
<td>65-70</td>
<td>4.9</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages do not always add to 100% ** Where there was missing data for a demographic variable those individuals were excluded from that analysis
TABLE 4: Demographic Distribution in the Respondents and total eligible sample

<table>
<thead>
<tr>
<th>Variable**</th>
<th>% Respondents n=1924* (95% confidence interval)</th>
<th>Target Population n=3890* (95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>44.1 (41.9, 46.4)</td>
<td>48.2 (46.6, 47.8)</td>
</tr>
<tr>
<td>Women</td>
<td>55.9 (53.6, 58.1)</td>
<td>51.8 (50.2, 53.4)</td>
</tr>
<tr>
<td>NZ Dep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>13.2 (11.7, 14.8)</td>
<td>11.0 (10.0, 12.0)</td>
</tr>
<tr>
<td>2</td>
<td>12.4 (11.0, 14.0)</td>
<td>10.7 (9.8, 11.8)</td>
</tr>
<tr>
<td>3</td>
<td>11.8 (10.4, 13.4)</td>
<td>10.7 (9.8, 11.7)</td>
</tr>
<tr>
<td>4</td>
<td>12.1 (10.6, 13.6)</td>
<td>10.5 (9.5, 11.5)</td>
</tr>
<tr>
<td>5</td>
<td>11.0 (9.6, 12.5)</td>
<td>10.1 (9.2, 11.1)</td>
</tr>
<tr>
<td>6</td>
<td>9.7 (8.4, 11.1)</td>
<td>9.8 (8.9, 10.8)</td>
</tr>
<tr>
<td>7</td>
<td>8.9 (7.7, 10.3)</td>
<td>9.5 (8.6, 10.4)</td>
</tr>
<tr>
<td>8</td>
<td>7.3 (6.2, 8.6)</td>
<td>9.1 (8.2, 10.0)</td>
</tr>
<tr>
<td>9</td>
<td>8.0 (6.8, 9.4)</td>
<td>9.6 (8.7, 10.6)</td>
</tr>
<tr>
<td>10</td>
<td>5.6 (4.6, 6.7)</td>
<td>9.0 (8.2, 10.0)</td>
</tr>
<tr>
<td>Maori Descent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10.4 (9.1, 11.8)</td>
<td>15.0 (13.9, 16.1)</td>
</tr>
<tr>
<td>No</td>
<td>89.6 (88.2, 90.9)</td>
<td>85.0 (83.9, 86.1)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>8.5 (7.3, 9.9)</td>
<td>11.6 (10.6, 12.6)</td>
</tr>
<tr>
<td>25-34</td>
<td>15.9 (14.2, 17.6)</td>
<td>20.3 (19.0, 21.6)</td>
</tr>
<tr>
<td>35-44</td>
<td>22.4 (20.6, 24.3)</td>
<td>22.6 (21.3, 23.9)</td>
</tr>
<tr>
<td>45-54</td>
<td>25.7 (23.7, 27.7)</td>
<td>22.6 (21.3, 23.9)</td>
</tr>
<tr>
<td>55-64</td>
<td>21.0 (19.1, 22.8)</td>
<td>17.2 (16.0, 18.4)</td>
</tr>
<tr>
<td>65-70</td>
<td>6.6 (5.5, 7.8)</td>
<td>5.8 (5.0, 6.5)</td>
</tr>
</tbody>
</table>

*Due to rounding percentages do not always add to 100% ** Where there was missing data for a demographic variable those individuals were excluded from that analysis
4.1.2. Comparison of early and intermediate respondents with late respondents

There were 1349 early (70%), 362 intermediate (19%) and 204 late (11%) respondents. Nine respondents could not be categorised by response time as they had no information on the date that their questionnaire was received.

Table 5 shows the results of comparing the demographics of non-respondents with early, intermediate and late respondents. With the exception of the proportion of people in each NZDep decile it is apparent that late respondents are most like non-respondents.
TABLE 5: Comparison of demographic characteristics across response groups

<table>
<thead>
<tr>
<th>Variable**</th>
<th>% Non respondents (n=1966)*</th>
<th>% Early respondents (n=1349)*</th>
<th>% Intermediate respondents (n=362)*</th>
<th>% Late respondents (n=204)*</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>52.2</td>
<td>42.0</td>
<td>46.7</td>
<td>53.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Women</td>
<td>47.8</td>
<td>58.0</td>
<td>53.3</td>
<td>47.0</td>
<td></td>
</tr>
<tr>
<td>NZDep</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>8.9</td>
<td>13.8</td>
<td>12.0</td>
<td>10.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>2</td>
<td>9.1</td>
<td>12.3</td>
<td>13.7</td>
<td>10.9</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9.6</td>
<td>11.9</td>
<td>10.5</td>
<td>13.4</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9.0</td>
<td>12.6</td>
<td>10.3</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>9.2</td>
<td>11.6</td>
<td>9.4</td>
<td>9.9</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>9.8</td>
<td>8.7</td>
<td>14.0</td>
<td>9.0</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10.0</td>
<td>9.4</td>
<td>8.0</td>
<td>7.4</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>10.9</td>
<td>6.6</td>
<td>8.6</td>
<td>9.9</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>11.2</td>
<td>7.4</td>
<td>8.8</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>12.4</td>
<td>5.7</td>
<td>4.8</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Maori descent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>80.5</td>
<td>90.7</td>
<td>89.2</td>
<td>83.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Yes</td>
<td>19.5</td>
<td>9.3</td>
<td>10.8</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24 Years</td>
<td>14.6</td>
<td>7.6</td>
<td>9.4</td>
<td>12.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>24-34 Years</td>
<td>24.6</td>
<td>14.3</td>
<td>16.0</td>
<td>25.0</td>
<td></td>
</tr>
<tr>
<td>34-44 Years</td>
<td>22.7</td>
<td>21.7</td>
<td>25.1</td>
<td>23.0</td>
<td></td>
</tr>
<tr>
<td>45-54 Years</td>
<td>19.5</td>
<td>26.1</td>
<td>27.1</td>
<td>20.1</td>
<td></td>
</tr>
<tr>
<td>55-64 Years</td>
<td>13.6</td>
<td>22.5</td>
<td>18.5</td>
<td>15.7</td>
<td></td>
</tr>
<tr>
<td>65-70 Years</td>
<td>4.9</td>
<td>7.8</td>
<td>3.9</td>
<td>3.9</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages do not always add to 100%  ** Where there was missing data for a demographic variable those individuals were excluded from that analysis
Table 6 shows that late respondents, who were current drinkers, were more likely to be identified as binge drinkers than early and intermediate respondents. The continuum of resistance model proposes that late respondents will better resemble non-respondents than early/intermediate respondents. As shown in table 5 the late respondents are, as expected according to the model, most like non-respondents with regards to demographics, and given that alcohol is strongly associated with these variables we can assume that non-respondents would have similar drinking behaviour to late respondents. Thus our results are likely to underestimate the proportion of binge drinkers.

**TABLE 6: Drinking characteristics of early intermediate and late response groups**

<table>
<thead>
<tr>
<th>Variable**</th>
<th>% Early (n=1349)*</th>
<th>% Intermediate (n=362)*</th>
<th>% Late (n=204)*</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18.7</td>
<td>21.9</td>
<td>31.5</td>
<td>0.001</td>
</tr>
<tr>
<td>No</td>
<td>81.3</td>
<td>78.2</td>
<td>68.5</td>
<td></td>
</tr>
<tr>
<td>Current Drinker</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>90.1</td>
<td>88.4</td>
<td>87.8</td>
<td>0.422</td>
</tr>
<tr>
<td>No</td>
<td>9.9</td>
<td>11.6</td>
<td>12.3</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages do not always add to 100% ** Where there was missing data for a variable those individuals were excluded from that analysis
4.1.3. Comparison of key findings with most recent national surveys of alcohol use

Table 7 compares the main measures of drinking patterns in GENACIS with the New Zealand Health Behaviours survey – Alcohol Use 2004 (HBS2004), the 2007/08 New Zealand Drug and Alcohol Use survey (07/08NZDAUS) and prevalence estimates calculated assuming the non-respondents had the same prevalence of current drinks and binge drinkers as late respondents[4], [12].

<table>
<thead>
<tr>
<th>Measure</th>
<th>New Zealand Health Behaviours Survey – Alcohol use 2004</th>
<th>2007/08 New Zealand Drug and Alcohol use Survey</th>
<th>GENACIS estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 month prevalence of drinking</td>
<td>81.2%</td>
<td>85.2%</td>
<td>89.6%</td>
</tr>
<tr>
<td>12 month prevalence of drinking for men</td>
<td>82.5%</td>
<td>88.4%</td>
<td>89.5%</td>
</tr>
<tr>
<td>12 month prevalence of drinking for women</td>
<td>78.4%</td>
<td>82.7%</td>
<td>89.6%</td>
</tr>
<tr>
<td>12 month prevalence of drinking in Maori</td>
<td>74.2%</td>
<td>85.0%</td>
<td>86%</td>
</tr>
<tr>
<td>12 month prevalence of drinking in non Maori</td>
<td>81.3%</td>
<td>N/A</td>
<td>90%</td>
</tr>
<tr>
<td>Prevalence of binge drinking</td>
<td>14.7%</td>
<td>12.6%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Prevalence of binge drinking in women</td>
<td>11.1%</td>
<td>11.4%</td>
<td>7.9%</td>
</tr>
<tr>
<td>Prevalence of binge drinking in men</td>
<td>19.7%</td>
<td>16.9%</td>
<td>16.1%</td>
</tr>
</tbody>
</table>
There were some differences in the calculation of these measures between the three studies. Firstly, both the 2007/08NZDAU and the HBS2004 included a younger sample than the 18-70 year old GENACIS sample; 16-64 year olds and 12-65 year olds respectively. Secondly, the definition of binge drinking varied. The 2007/08NZDAUS and the HBS2004 both used the term “drinking large amounts of alcohol”. HBS2004 defined this as men having six or more standard drinks or women having four or more standard drinks on one drinking occasion at least once a week, while the 2007/08NZDAUS used the same drink number cut offs for men and women but measured the frequency with which that limit had been exceeded in the last 12 months. For the purposes of the above comparison table the prevalence measure used for the 2007/08NZDAUS was that of drinking large amounts of alcohol ‘at least weekly’. GENACIS defined “binge drinkers” as anyone who drank more than four drinks on one drinking occasion at least once a month but for the purposes of this comparison a new binge definition was created that classified people who had more than 4 drinks at least once a week as binge drinkers [12].

When an estimate of prevalence of current drinking and binge drinking (using the new binge drinking definition discussed above) was calculated for the GENACIS sample, assuming the non-respondents would have the same drinking pattern as late respondents, it showed that if this assumption were true, the GENACIS results underestimate the prevalence of binge drinkers and overestimate the prevalence of current drinkers.

Overall the analysis of non response showed that there were differences in the distribution of demographic characteristics between the respondents and the non respondents. The data suggested the study sample under-represents men, people of Maori ethnicity, low NZDep and people from the younger age groups. Comparisons early, intermediate and late respondents showed that the three response groups were significantly different in terms of
demographics and some drinking behaviours, with late respondents more likely to be identified as binge drinkers. Following the continuum of resistance model and assuming late respondents are most like non-respondents, it is likely that the study underestimates the prevalence of binge drinking. Comparisons of the GENACIS data with two national studies of alcohol use (with slightly better response rates) and an estimate of prevalence of current drinkers and binge drinkers, if non-respondents had the same drinking patterns as late respondents, also shows that it is likely that this study overestimates the prevalence of current drinkers and underestimates the prevalence of binge drinkers.
4.2 Patterns of drinking

Of 1924 respondents 1723 (89.6%) were current drinkers, 108 (5.6%) were former drinkers and 93 (4.8%) were lifetime abstainers. The median number of drinks per year for women in the study was 156 (interquartile range: 27-365) while for men it was 312 (interquartile range: 78-730), exactly twice as much as women. The three younger age groups shared a median number of drinks per year of 156. The number of drinks per year steadily increased over the three older age groups: 45-54 years: 182 drinks, 55-64 years: 234 drinks and 65-70 years: 364 drinks.

The median was the preferred summary statistic as the data were skewed, for example, the mean for men and women were significantly higher than the median at 532.9 and 303.8 respectively.

The overall prevalence of people identified as binge drinkers in the total study population was 17.6%.

Table 8 shows the prevalence of current drinkers, former drinkers and abstainers across 6 key demographic measures. Of particular interest was drinker status across age, ethnicity and NZDep. The two youngest age groups had similar levels of each of the three drinker groups, while the 35-44 year old age group had the highest prevalence of current drinkers (92%) of all six age groups. The prevalence of current drinkers steadily decreased from this point with 65-70 year olds having the lowest prevalence of current drinkers (82.9%) and the highest prevalence of lifetime abstainers (10.5%).
TABLE 8: Prevalence of Current drinkers, former drinkers and lifetime abstainers by demographic characteristics

<table>
<thead>
<tr>
<th>Variable (n)**</th>
<th>Current %* (95% confidence interval)</th>
<th>Former %* (95% confidence interval)</th>
<th>Lifetime abstainer %* (95% confidence interval)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men (849)</td>
<td>89.5 (87.3, 91.5)</td>
<td>6.4 (4.8, 8.2)</td>
<td>4.1 (2.9, 5.7)</td>
<td>0.212</td>
</tr>
<tr>
<td>Women (1075)</td>
<td>89.6 (87.6, 91.4)</td>
<td>5.0 (3.8, 6.5)</td>
<td>5.4 (4.1, 6.9)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24 (141)</td>
<td>91.5 (85.6, 95.5)</td>
<td>5.0 (2.0, 10.0)</td>
<td>3.6 (1.2, 8.1)</td>
<td>0.057</td>
</tr>
<tr>
<td>25-34 (292)</td>
<td>90.4 (86.4, 93.5)</td>
<td>6.5 (3.9, 10.0)</td>
<td>3.1 (1.4, 5.8)</td>
<td></td>
</tr>
<tr>
<td>35-44 (424)</td>
<td>92.0 (89.0, 94.4)</td>
<td>4.3 (2.5, 6.6)</td>
<td>3.8 (2.2, 6.1)</td>
<td></td>
</tr>
<tr>
<td>45-54 (504)</td>
<td>89.7 (86.7, 92.2)</td>
<td>5.4 (3.6, 7.7)</td>
<td>5.0 (3.2, 7.2)</td>
<td></td>
</tr>
<tr>
<td>55-64 (411)</td>
<td>88.1 (84.5, 91.0)</td>
<td>6.6 (4.4, 9.4)</td>
<td>5.4 (3.4, 8.0)</td>
<td></td>
</tr>
<tr>
<td>65-70 (152)</td>
<td>82.9 (76.0, 88.5)</td>
<td>6.6 (3.2, 11.8)</td>
<td>10.5 (6.1, 16.5)</td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/Civil union (1156)</td>
<td>88.6 (86.6, 90.4)</td>
<td>6.1 (4.8, 7.6)</td>
<td>5.4 (4.1, 6.8)</td>
<td>0.118</td>
</tr>
<tr>
<td>Living with a partner/de facto (237)</td>
<td>95.0 (91.3, 97.4)</td>
<td>3.0 (1.2, 6.0)</td>
<td>2.1 (0.7, 4.9)</td>
<td></td>
</tr>
<tr>
<td>Widowed, Divorced or married but separated (235)</td>
<td>90.3 (85.3, 94.1)</td>
<td>4.6 (2.1, 8.5)</td>
<td>5.1 (2.5, 9.2)</td>
<td></td>
</tr>
<tr>
<td>Never Married (296)</td>
<td>88.2 (83.9, 91.6)</td>
<td>7.1 (4.4, 10.6)</td>
<td>4.7 (2.6, 7.8)</td>
<td></td>
</tr>
<tr>
<td>Maori Descent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (200)</td>
<td>86 (80.4, 90.5)</td>
<td>8.5 (5.0, 13.3)</td>
<td>5.5 (2.8, 9.6)</td>
<td>0.147</td>
</tr>
<tr>
<td>No (1724)</td>
<td>90 (88.4, 91.3)</td>
<td>5.3 (4.3, 6.4)</td>
<td>4.8 (3.8, 5.9)</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European (1587)</td>
<td>92.5 (91.1, 93.7)</td>
<td>4.5 (3.6, 5.7)</td>
<td>3 (2.2, 3.9)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Asian (106)</td>
<td>62.3 (52.3, 71.5)</td>
<td>14.2 (8.1, 22.3)</td>
<td>23.6 (15.9, 32.8)</td>
<td></td>
</tr>
<tr>
<td>Maori (174)</td>
<td>84.5 (78.2, 89.5)</td>
<td>9.8 (5.8, 15.2)</td>
<td>5.8 (2.8, 10.3)</td>
<td></td>
</tr>
<tr>
<td>Other (52)</td>
<td>71.2 (56.9, 82.9)</td>
<td>7.7 (2.1, 18.5)</td>
<td>21.2 (11.1, 34.7)</td>
<td></td>
</tr>
<tr>
<td>NZDep</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 (484)</td>
<td>93.0 (90.3, 95.1)</td>
<td>3.5 (2.1, 5.6)</td>
<td>3.5 (2.1, 5.6)</td>
<td>0.005</td>
</tr>
<tr>
<td>3-4 (452)</td>
<td>90.3 (87.2, 92.8)</td>
<td>5.3 (3.4, 7.8)</td>
<td>4.4 (2.7, 6.8)</td>
<td></td>
</tr>
<tr>
<td>5-6 (392)</td>
<td>89.8 (86.4, 92.6)</td>
<td>6.6 (4.4, 9.6)</td>
<td>3.6 (2.0, 5.9)</td>
<td></td>
</tr>
<tr>
<td>7-8 (307)</td>
<td>88.6 (84.5, 92.0)</td>
<td>6.2 (3.8, 9.5)</td>
<td>5.2 (3.0, 8.3)</td>
<td></td>
</tr>
<tr>
<td>9-10 (257)</td>
<td>82.9 (77.7, 87.3)</td>
<td>8.2 (5.1, 12.2)</td>
<td>9.0 (5.8, 13.1)</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages do not always add to 100%. **Where there was missing data for a demographic variable those individuals were excluded from that analysis.
Figure 4 shows the prevalence of current drinkers, former drinkers and lifetime abstainers by ethnic group. Europeans had the highest prevalence of current drinkers at 92.5%, with those of Asian ethnicity having the lowest (62.3%). This group also had the highest prevalence of lifetime abstainers (23.6%).

**FIGURE 4: Prevalence of current drinkers, former drinkers and lifetime abstainers by ethnic group**

Figure 5 shows the prevalence of current drinkers, former drinkers and lifetime abstainers by NZDep score. The prevalence of current drinker’s decreases steadily across the quintiles from 93.0% for NZDep 1-2 down to 82.9% for NZDep 9-10 (most deprived areas).

**FIGURE 5: Prevalence of current drinkers, former drinkers and lifetime abstainers by NZDep score**

*NZDep1-2: Least deprived / wealthier area. NZDep9-10: Most deprived / poorer area.*
### Table 9: Prevalence of current drinkers identified as binge drinkers by demographic characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Prevalence of binge drinkers %* (95% confidence interval)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Men (735)</td>
<td>27.9 (24.7, 31.3)</td>
<td></td>
</tr>
<tr>
<td>Women (903)</td>
<td>14.7 (12.5, 17.2)</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>18-24 (128)</td>
<td>48.4 (39.5, 57.4)</td>
<td></td>
</tr>
<tr>
<td>25-34 (255)</td>
<td>29.8 (24.3, 35.8)</td>
<td></td>
</tr>
<tr>
<td>35-44 (377)</td>
<td>19.6 (15.7, 24.0)</td>
<td></td>
</tr>
<tr>
<td>45-54 (430)</td>
<td>19.5 (15.9, 23.6)</td>
<td></td>
</tr>
<tr>
<td>55-64 (336)</td>
<td>8.9 (6.1, 12.5)</td>
<td></td>
</tr>
<tr>
<td>65-70 (112)</td>
<td>10.7 (5.7, 18.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Married/Civil union (966)</td>
<td>13.7 (11.6, 16.0)</td>
<td></td>
</tr>
<tr>
<td>Living with partner/de facto (220)</td>
<td>30.0 (24.0, 36.5)</td>
<td></td>
</tr>
<tr>
<td>Widowed/Divorced/Married but separated (165)</td>
<td>19.4 (13.7, 26.3)</td>
<td></td>
</tr>
<tr>
<td>Never Married (253)</td>
<td>38.3 (32.2, 44.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Maori Descent</strong></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Yes (158)</td>
<td>30.4 (23.3, 38.2)</td>
<td></td>
</tr>
<tr>
<td>No (1480)</td>
<td>19.6 (17.6, 21.7)</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>European (1407)</td>
<td>19.6 (17.5, 21.7)</td>
<td></td>
</tr>
<tr>
<td>Asian (58)</td>
<td>10.3 (3.9, 21.2)</td>
<td></td>
</tr>
<tr>
<td>Maori (133)</td>
<td>35.3 (27.3, 44.1)</td>
<td></td>
</tr>
<tr>
<td>Pacific (29)</td>
<td>27.6 (12.7, 47.2)</td>
<td></td>
</tr>
<tr>
<td>Other (7)</td>
<td>14.3 (0.4, 57.9)</td>
<td></td>
</tr>
<tr>
<td><strong>NZDep</strong></td>
<td></td>
<td>0.010</td>
</tr>
<tr>
<td>1-2 (427)</td>
<td>16.6 (13.2, 20.5)</td>
<td></td>
</tr>
<tr>
<td>3-4 (400)</td>
<td>24.0 (19.9, 28.5)</td>
<td></td>
</tr>
<tr>
<td>5-6 (332)</td>
<td>18.4 (14.4, 23.0)</td>
<td></td>
</tr>
<tr>
<td>7-8 (258)</td>
<td>20.9 (16.1, 26.4)</td>
<td></td>
</tr>
<tr>
<td>9-10 (195)</td>
<td>27.2 (21.1, 34.0)</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages do not always add to 100% **Where there was missing data for a demographic variable those individuals were excluded from that analysis

Table 9 shows the prevalence of binge drinkers across the same 6 demographic variables used in table 8. Men were much more likely to be binge drinkers than women (27.9% versus
Respondents of Maori descent were also more likely to be classified as binge drinkers (30.4%) compared to those of Non-Maori descent (19.6%). The prevalence of binge drinking decreased with increasing age from 48.4% in 18-24 year olds to 8.9% in 55-64 year olds.

FIGURE 6: Prevalence of binge drinking by marital status

Figure 6 shows the prevalence of binge drinking by marital status. There were statistically significant differences in the level of binge drinking across the four marital status categories. The never married group had the highest prevalence of binge drinking (38.3%) while the married/civil union group had the lowest (13.7%).

Table 10 shows the results of a logistic regression model. Overall, it shows that all marital groups were more likely to be identified as binge drinkers compared to those identified as married or in a civil union. Those who had never married were much more likely to be identified as binge drinkers, however, when adjusted for age and sex the odds of people in this group being identified as binge drinkers was very similar to those for the living with a partner group and the widowed, divorced or separated group.
TABLE 10: Odds of being identified as a binge drinker by marital status. Logistic regression analysis

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Unadjusted OR (95% Confidence interval)</th>
<th>Adjusted OR* (95% Confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married/Civil union</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Living with a partner/de facto</td>
<td>2.7 (1.9, 3.8)</td>
<td>2.1 (1.5, 3.0)</td>
</tr>
<tr>
<td>Widowed, divorced or married but separated</td>
<td>1.5 (1.0, 2.3)</td>
<td>2.1 (1.3, 3.2)</td>
</tr>
<tr>
<td>Never Married</td>
<td>3.9 (2.9, 5.4)</td>
<td>2.2 (1.5, 3.2)</td>
</tr>
</tbody>
</table>

*adjusted for age and sex.

There were also significant differences in the prevalence of binge drinking across ethnic groups. Figure 7 shows these prevalence estimates. Maori had the highest prevalence of binge drinking 35.4%, which was over three times that of Asians (10.3%).

FIGURE 7: Prevalence of binge drinking by ethnicity
As seen in Figure 8, with the exception of the NZDep 3-4 group, there was a trend of increasing prevalence of binge drinkers as NZDep score increased (from 16.6% in NZDep 1-2 to 27.2% in NZDep 9-10).

A large majority of the New Zealand population are current drinkers (12 month prevalence of 89.6%), with similar levels in men and women. Those of European ethnicity had the highest levels of current drinkers compared to all other ethnicities. The youngest age groups had the highest prevalence of current drinkers of all age groups, and the most deprived areas had the lowest prevalence of current drinkers across NZDep scores. Men were much more likely to be identified as binge drinkers, as were those in the youngest age group, those of Maori descent and those in the most deprived areas.
4.2.1 Gender and drinking patterns

The median number of drinks per year for women in the study was 156 (interquartile range: 27-365) while for men it was 312 (interquartile range: 78-730), exactly twice as much as women.

The prevalence of men identified as binge drinkers from all men in the study sample was 24.2%, while 12.4% of all women in the study sample were binge drinkers.

**TABLE 11: Prevalence of Current drinkers by age, marital status and NZDep for men and women**

<table>
<thead>
<tr>
<th>Variable**</th>
<th>Current %* (95% confidence interval)</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>87.8 (77.5, 94.6)</td>
<td>94.7 (86.9, 98.5)</td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>90.3 (83.7, 94.9)</td>
<td>90.5 (85.0, 94.5)</td>
<td></td>
</tr>
<tr>
<td>35-44</td>
<td>94.4 (89.9, 97.3)</td>
<td>90.2 (85.8, 93.6)</td>
<td></td>
</tr>
<tr>
<td>45-54</td>
<td>89.3 (84.4, 93.0)</td>
<td>90.0 (85.9, 93.3)</td>
<td></td>
</tr>
<tr>
<td>55-64</td>
<td>87.1 (81.4, 91.6)</td>
<td>88.9 (84.0, 92.7)</td>
<td></td>
</tr>
<tr>
<td>65-70</td>
<td>84.7 (74.3, 92.1)</td>
<td>81.2 (71.0, 89.1)</td>
<td></td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/Civil union</td>
<td>88.7 (85.6, 91.2)</td>
<td>88.5 (85.8, 90.9)</td>
<td></td>
</tr>
<tr>
<td>Living with a partner/de facto</td>
<td>94.1 (87.6, 97.8)</td>
<td>95.6 (90.6, 98.4)</td>
<td></td>
</tr>
<tr>
<td>Widowed, Divorced or married but separated</td>
<td>91.8 (81.9, 97.3)</td>
<td>89.6 (83.2, 94.2)</td>
<td></td>
</tr>
<tr>
<td>Never Married</td>
<td>87.7 (81.2, 92.5)</td>
<td>88.7 (82.5, 93.3)</td>
<td></td>
</tr>
<tr>
<td><strong>NZDep</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>94.1 (89.9, 96.9)</td>
<td>92.2 (88.4, 95.0)</td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>88.6 (83.5, 92.5)</td>
<td>91.7 (87.5, 94.9)</td>
<td></td>
</tr>
<tr>
<td>5-6</td>
<td>87.9 (82.4, 92.3)</td>
<td>91.3 (86.8, 94.7)</td>
<td></td>
</tr>
<tr>
<td>7-8</td>
<td>88.8 (82.2, 93.6)</td>
<td>88.4 (82.7, 92.8)</td>
<td></td>
</tr>
<tr>
<td>9-10</td>
<td>86.7 (79.5, 92.4)</td>
<td>79.9 (72.4, 86.1)</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages do not always add to 100% **Where there was missing data for a demographic variable those individuals were excluded from that analysis
Table 11 shows the prevalence of current drinkers by age, marital status and NZDep for men and women. For both men and women the group identified as living with a partner/de facto had the highest prevalence of current drinkers. The group identified as having the highest NZDep score (least deprived) also had the highest prevalence of current drinkers for men and women, 94.1% and 92.2% respectively.

![Bar chart showing prevalence of current drinkers by age and sex](chart.png)

**FIGURE 9: Prevalence of current drinkers by age and sex**

As shown in figure 9 the prevalence of current drinkers was similar for men and women at ages 25-34 years and 45-54 years. For the youngest age group it appears women had a much higher prevalence of current drinkers while in 35-44 year olds and 65-70 year olds men had a much higher prevalence.

Table 12 shows the prevalence of binge drinkers in men and women by age, marital status and NZDep. For all levels of each demographic variable men had a higher prevalence of binge drinkers than women.
## TABLE 12: Proportion of current drinkers identified as binge drinkers by age, marital status and NZDep for men and women

<table>
<thead>
<tr>
<th>Variable**</th>
<th>Prevalence of binge drinkers %* (95% confidence interval)</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>62.1 (48.4, 74.5)</td>
<td>37.1 (25.9, 49.5)</td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>36.7 (27.7, 46.5)</td>
<td>24.7 (17.9, 32.5)</td>
<td></td>
</tr>
<tr>
<td>35-44</td>
<td>26.1 (19.5, 33.5)</td>
<td>14.6 (10.2, 20.1)</td>
<td></td>
</tr>
<tr>
<td>45-54</td>
<td>28.6 (22.2, 35.6)</td>
<td>12.4 (8.6, 17.3)</td>
<td></td>
</tr>
<tr>
<td>55-64</td>
<td>14.1 (9.1, 20.5)</td>
<td>4.4 (1.9, 8.6)</td>
<td></td>
</tr>
<tr>
<td>65-70</td>
<td>17.2 (8.6, 29.4)</td>
<td>3.7 (0.5, 12.7)</td>
<td></td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/Civil union</td>
<td>19.5 (15.9, 23.5)</td>
<td>8.7 (6.4, 11.4)</td>
<td></td>
</tr>
<tr>
<td>Living with partner/de facto</td>
<td>39.0 (29.1, 49.5)</td>
<td>23.2 (16.1, 31.6)</td>
<td></td>
</tr>
<tr>
<td>Widowed/Divorced/Married but separated</td>
<td>32.7 (20.3, 47.1)</td>
<td>13.3 (7.6, 20.9)</td>
<td></td>
</tr>
<tr>
<td>Never Married</td>
<td>44.0 (35.1, 53.1)</td>
<td>32.8 (24.8, 41.7)</td>
<td></td>
</tr>
<tr>
<td><strong>NZDep</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>22.5 (16.7, 29.3)</td>
<td>12.2 (8.4, 17.0)</td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>33.0 (26.2, 40.3)</td>
<td>16.5 (11.8, 22.1)</td>
<td></td>
</tr>
<tr>
<td>5-6</td>
<td>25.7 (18.9, 33.5)</td>
<td>12.5 (8.1, 18.2)</td>
<td></td>
</tr>
<tr>
<td>7-8</td>
<td>27.8 (19.9, 37.0)</td>
<td>15.4 (9.9, 22.4)</td>
<td></td>
</tr>
<tr>
<td>9-10</td>
<td>33.0 (23.6, 43.4)</td>
<td>21.8 (14.2, 31.1)</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages do not always add to 100% **Where there was missing data for a demographic variable those individuals were excluded from that analysis

Figure 10 shows the prevalence of binge drinkers by age and sex. From this figure it is clear there is a substantial difference in the prevalence of binge drinkers between men and women. For all age groups men had a higher prevalence of binge drinkers, this difference was the most dramatic in the youngest age group.
Overall these findings show that men appear to drink more than women. Men had a higher median number of drinks per year and had a much higher prevalence of binge drinkers, especially in the youngest age group. However the prevalence of current drinkers by age and sex shows that in the youngest age group women have a higher prevalence while in 35-44 year olds and the oldest age group men had a higher prevalence of current drinkers.
4.3 Drinking in Intimate Partnerships

Of 1924 respondents, 1156 were married in a civil union, or living with a spouse (60.1%), 237 were living with a partner/de facto (12.3%) and another 146 respondents indicated they had a non-cohabiting close romantic relationship with someone (7.6%). Where there was missing information about frequency or quantity per occasion for either the respondent or their intimate partner those couples were excluded from that analysis. Of the 1539 respondents who were identified as being in a couple 1466 were in heterosexual relationships, 11 were in same sex relationships and 81 couples were of unknown sexual orientation.

Partners’ drinking frequencies were summarised as A=both abstainers, 0=frequency score the same, 1=frequency score differed by 1, 2=frequency differed by 2, 3=frequency differed by 3 or more.

Figure 11 shows the distribution of difference in the frequency of drinking alcohol in the three types of couples. All three couple types showed a similar pattern with the highest prevalence for each couple type in frequency difference level 0.

![FIGURE 11: Prevalence of frequency difference levels by couple type](image-url)
FIGURE 12: Prevalence of frequency difference levels by couple’s sexual orientation

Figure 12 shows the distribution of the level of difference in the frequency of drinking alcohol by sexual orientation. As with couple type, all three groups have the highest prevalence in frequency difference level 0.

Table 13 shows the prevalence of difference in frequency levels across NZDep, age, ethnicity and relationship length. The youngest age group (18-24 years) had the highest prevalence of concordant drinking patterns (61.5%) of all age groups. People in the ‘other’ ethnic category had the highest prevalence of the most discrepant drinking score (16.8%) compared to the other ethnic groups.
TABLE 13: Prevalence of frequency difference indicators by demographic characteristics

<table>
<thead>
<tr>
<th>Variable **</th>
<th>A</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (n=1451)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-34</td>
<td>4.0</td>
<td>61.5</td>
<td>22.3</td>
<td>8.8</td>
<td>3.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>35-44</td>
<td>3.1</td>
<td>56.4</td>
<td>28.0</td>
<td>7.8</td>
<td>4.7</td>
<td></td>
</tr>
<tr>
<td>45-54</td>
<td>3.1</td>
<td>53.7</td>
<td>31.4</td>
<td>6.4</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>55-64</td>
<td>5.4</td>
<td>46.2</td>
<td>30.4</td>
<td>7.7</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td>65-70</td>
<td>9.5</td>
<td>35.2</td>
<td>39.1</td>
<td>6.7</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity (n=1448)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European</td>
<td>2.8</td>
<td>55.3</td>
<td>30.6</td>
<td>6.4</td>
<td>4.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Maori</td>
<td>7.8</td>
<td>46.1</td>
<td>27.0</td>
<td>8.7</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>15.9</td>
<td>33.6</td>
<td>15.0</td>
<td>18.7</td>
<td>16.8</td>
<td></td>
</tr>
<tr>
<td><strong>NZDep (n=1426)</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>1.6</td>
<td>56.1</td>
<td>31.1</td>
<td>6.5</td>
<td>4.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>3-4</td>
<td>2.4</td>
<td>58.9</td>
<td>27.2</td>
<td>4.2</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>5-6</td>
<td>4.6</td>
<td>48.2</td>
<td>32.8</td>
<td>10.2</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>7-8</td>
<td>8.2</td>
<td>46.2</td>
<td>29.3</td>
<td>8.7</td>
<td>7.7</td>
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</tr>
<tr>
<td>9-10</td>
<td>8.7</td>
<td>48.3</td>
<td>23.3</td>
<td>10.5</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td><strong>Relationship length (n=1209)</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-2 Years</td>
<td>2.5</td>
<td>62.0</td>
<td>22.8</td>
<td>10.1</td>
<td>2.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>3-10 Years</td>
<td>2.9</td>
<td>52.5</td>
<td>30.3</td>
<td>6.3</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td>11-20 Years</td>
<td>4.1</td>
<td>53.3</td>
<td>28.9</td>
<td>8.7</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>21-30 Years</td>
<td>3.5</td>
<td>54.6</td>
<td>30.1</td>
<td>8.3</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>31-40 Years</td>
<td>5.4</td>
<td>48.9</td>
<td>30.4</td>
<td>3.8</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>41-50 Years</td>
<td>11.7</td>
<td>31.9</td>
<td>35.1</td>
<td>8.5</td>
<td>12.8</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages may not always add to 100%. **Where there was missing data for a demographic variable that pair was excluded from the analysis
TABLE 14: Distribution of difference in quantity per occasion by demographic characteristics

<table>
<thead>
<tr>
<th>Variable **</th>
<th>0 drinks (%)*</th>
<th>1-5 drinks (%)*</th>
<th>6 or more drinks (%)*</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (n=1234)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>22.2</td>
<td>46.3</td>
<td>31.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>25-34</td>
<td>29.4</td>
<td>59.8</td>
<td>10.9</td>
<td></td>
</tr>
<tr>
<td>35-44</td>
<td>38.7</td>
<td>55.8</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>45-54</td>
<td>35.6</td>
<td>59.5</td>
<td>4.9</td>
<td></td>
</tr>
<tr>
<td>55-70</td>
<td>37.4</td>
<td>57.4</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Ethnicity (n=1231)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European</td>
<td>36.4</td>
<td>58.0</td>
<td>5.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Maori</td>
<td>23.6</td>
<td>48.3</td>
<td>28.1</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>34.4</td>
<td>59.0</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>NZDep (n=1212)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>37.5</td>
<td>59.5</td>
<td>3.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>3-4</td>
<td>39.9</td>
<td>54.2</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>5-6</td>
<td>34.0</td>
<td>56.9</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>7-8</td>
<td>31.3</td>
<td>60.1</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td>9-10</td>
<td>25.2</td>
<td>59.3</td>
<td>15.7</td>
<td></td>
</tr>
<tr>
<td>Relationship length (n=1032)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-2 Years</td>
<td>30.8</td>
<td>58.2</td>
<td>11.0</td>
<td>0.004</td>
</tr>
<tr>
<td>3-10 Years</td>
<td>41.3</td>
<td>50.5</td>
<td>8.3</td>
<td></td>
</tr>
<tr>
<td>11-20 Years</td>
<td>37.4</td>
<td>58.3</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>21-30 Years</td>
<td>36.4</td>
<td>59.0</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>31-50 Years</td>
<td>38.9</td>
<td>56.6</td>
<td>4.5</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages may not always add to 100%. **Where there was missing data for a demographic variable that pair was excluded from the analysis.
Table 14 shows how different intimate partners are in the number of drinks they consume per occasion across the same demographic variables as table 9. Maori had the largest prevalence of a 6 or more drink difference between partners (28.1%) compared to Europeans (5.6%). Also, the shortest relationships (those that we categorised into the 0-2 year relationship length group) had the highest prevalence of the most discrepant number of drinks (11.0%). This prevalence appears to decrease as relationship length increases.

![Graph showing prevalence of frequency difference indicator by number of drinking occasions with partner](image)

**FIGURE 13: Prevalence of frequency difference indicator by number of drinking occasions with partner**

There was a statistically significant relationship between how different partners’ drinking frequencies were compared to how much time couples spent drinking together (p<0.001). Figure 13 above shows that couples with the most discrepant drinking frequencies (indicated by a frequency difference score of 3) were the most likely to have spent none of their drinking time with their partner (30.8%), while those couples in which the partners had the same drinking frequency were the most likely to have spent the most time drinking together (63.1%).
There was a statistically significant relationship between the number of drinking occasions respondents had with their intimate partners and the difference in the number of drinks per occasion between partners ($p<0.001$). As shown in Figure 14, couples with the biggest difference in the number of drinks per occasion were most likely to spend none of their drinking time with their partner (5.1%).

The data also showed a statistically significant association between reported happiness within a relationship and the difference in the number of drinks consumed per drinking occasion. As shown in Figure 15, couples with a greater difference in the number of drinks consumed per occasion were more likely to report being unhappy or extremely unhappy within their relationship.
occasion between partners (p<0.001). As shown in figure 15, the less discrepant the amount of alcohol consumed in a relationship the more likely that the respondent reported their level of happiness in their relationship as happy/extremely happy. Of couples who had no difference in the number of drinks consumed per occasion 87.5% reported being happy/extremely happy in their relationship compared to only 71.7% in those whose number of drinks per occasion differed by between 6 or more drinks.

The majority of intimate partnerships, no matter their classification (by orientation or relationship type), had the same frequency score and differed by only one to five drinks per occasion. The more time couples spent drinking together the more concordant they were for both frequency and quantity per occasion. There also appears to be a relationship between the relationship between how happy the respondent reported being in their relationship and how concordant their partnership was with regards to the number of drinks consumed per occasion.
4.4 Informal social controls on drinking

4.4.1 Pressure to drink less

Table 15 shows the prevalence of having experienced pressure to drink less from any source by sex, age, NZDep score and ethnicity. Men were much more likely to have experienced pressure to drink less than women (21.0% versus 10.5%). The youngest age group (18-24 year olds) had the highest prevalence of having been pressured to drink less (25.8%) of all age groups.

When pressure to drink less was categorised by the source of pressure, the following was found: 157 people had been pressured by their spouse, 109 by their family, 7 by their workmates, 24 by female friends, 18 by male friends and 51 by a doctor or health worker.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Prevalence (%)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>10.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Men</td>
<td>21.0</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24 Years</td>
<td>25.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>25-34 Years</td>
<td>15.9</td>
<td></td>
</tr>
<tr>
<td>35-44 Years</td>
<td>15.9</td>
<td></td>
</tr>
<tr>
<td>45-54 Years</td>
<td>16.9</td>
<td></td>
</tr>
<tr>
<td>55-64 Years</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>65-70 Years</td>
<td>8.4</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>10.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>European</td>
<td>13.7</td>
<td></td>
</tr>
<tr>
<td>Maori</td>
<td>29.3</td>
<td></td>
</tr>
<tr>
<td>Pacific</td>
<td>22.2</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td><strong>NZDep score</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>13.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>3-4</td>
<td>16.3</td>
<td></td>
</tr>
<tr>
<td>5-6</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>7-8</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td>9-10</td>
<td>24.8</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages may not always add to 100%*
Table 16 shows the association of binge drinking with pressure to drink less from specific sources. Logistic regression modelling was used to adjust for demographic variables (age, ethnicity and NZDep). Separate analyses are presented for men and women and 95% confidence intervals are given for each odds ratio.

**TABLE 16: Association of binge drinking and pressure to drink less. Logistic regression models**

<table>
<thead>
<tr>
<th>Source of pressure</th>
<th>Unadjusted OR (95% confidence interval)</th>
<th>Adjusted OR* (95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>None</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Any</td>
<td>4.8 (3.3, 7.0)</td>
<td>5.9 (3.7, 9.3)</td>
</tr>
<tr>
<td>Spouse</td>
<td>2.7 (1.8, 4.1)</td>
<td>4.3 (2.3, 7.9)</td>
</tr>
<tr>
<td>Family</td>
<td>7.9 (4.3, 14.8)</td>
<td>8.9 (5.0, 16.1)</td>
</tr>
<tr>
<td>Workmate</td>
<td>1.3 (0.1, 14.6)</td>
<td>11.7 (1.1, 131.1)</td>
</tr>
<tr>
<td>Female friend</td>
<td>9.2 (2.5, 33.6)</td>
<td>10.6 (3.1, 36.9)</td>
</tr>
<tr>
<td>Male friend</td>
<td>6.3 (1.9, 20.6)</td>
<td>6.0 (0.8, 43.2)</td>
</tr>
<tr>
<td>Doctor</td>
<td>10.0 (4.5, 22.4)</td>
<td>4.7 (1.7, 13.0)</td>
</tr>
</tbody>
</table>

*adjusted for age, ethnicity (European, Maori, Other) and NZDep score (1-2, 3-4, 5-6, 7-8, 9-10).

Overall there was a statistically significant relationship between experience of pressure to drink less from any source and being a binge drinker for both men and women. Association between being a binge drinker and having experienced pressure to drink less from a doctor was much larger for men than women. The association between pressure from one’s spouse to drink less and being a binge drinker was statistically significant for men and women even when adjusted, however it was a larger association for women. There was no statistically
significant relationship when the individual pressure source of workmate was examined; this is most likely due to there only being 7 reports of pressure from this source.

Men were more likely to have experienced pressure to drink less from any source and in general the younger a person was the more likely they were to have experienced pressure of this kind. Family and spouses were shown to be the most common source of such pressure.

4.4.2 Pressure to drink more

Table 17 shows the prevalence of having experienced pressure to drink more from any source by age, sex and ethnicity. As age increased the prevalence of having experienced pressure to drink more decreased. Maori were much more likely to have been pressured to drink more than any other ethnic group (38.4%). When pressure to drink more was categorised the following was found: 160 people had been pressured by their spouse, 144 by their family, 162 by their workmates, 207 by female friends and 244 by male friends.
TABLE 17: Prevalence of having experienced pressure to drink more from anyone by demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Prevalence (%)*</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>24.5</td>
<td>0.08</td>
</tr>
<tr>
<td>Men</td>
<td>28.2</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24 Years</td>
<td>60.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>25-34 Years</td>
<td>39.2</td>
<td></td>
</tr>
<tr>
<td>35-44 Years</td>
<td>28.4</td>
<td></td>
</tr>
<tr>
<td>45-54 Years</td>
<td>22.7</td>
<td></td>
</tr>
<tr>
<td>55-64 Years</td>
<td>14.9</td>
<td></td>
</tr>
<tr>
<td>65-70 Years</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>21.8</td>
<td>0.002</td>
</tr>
<tr>
<td>European</td>
<td>25.4</td>
<td></td>
</tr>
<tr>
<td>Maori</td>
<td>38.4</td>
<td></td>
</tr>
<tr>
<td>Pacific</td>
<td>15.8</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td><strong>NZDep score</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>26.1</td>
<td>0.813</td>
</tr>
<tr>
<td>3-4</td>
<td>25.7</td>
<td></td>
</tr>
<tr>
<td>5-6</td>
<td>26.0</td>
<td></td>
</tr>
<tr>
<td>7-8</td>
<td>24.6</td>
<td></td>
</tr>
<tr>
<td>9-10</td>
<td>29.2</td>
<td></td>
</tr>
</tbody>
</table>

*Due to rounding percentages may not always add to 100%
Compared with lifetime abstainers, former drinkers were less likely to report pressure to drink more (Table 18) although this finding was not statistically significant. Binge drinkers were the group most likely to be pressured to drink more but this was partly explained by demographic characteristics.

**TABLE 18: Odds of having experienced pressure to drink more from any source by drinker status. Logistic regression analysis**

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted OR (95% confidence interval)</th>
<th>Adjusted OR* (95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifetime abstainer</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Former drinker</td>
<td>0.7 (0.3, 1.9)</td>
<td>0.5 (0.2, 1.4)</td>
</tr>
<tr>
<td>Current drinker</td>
<td>1.9 (1.0, 3.7)</td>
<td>1.5 (0.8, 3.1)</td>
</tr>
<tr>
<td>Binge drinker</td>
<td>5.0 (2.6, 9.9)</td>
<td>2.7 (1.3, 5.5)</td>
</tr>
</tbody>
</table>

*adjusted for age, ethnicity (European, Maori, Other) and NZDep score (1-2, 3-4, 5-6, 7-8, 9-10).

Overall, the youngest age groups most often reported being pressured to drink more. The regression analysis of drinker status and experience of pressure to drink more indicated that binge drinkers were most likely to experience pressure to drink more of all drinker status groups (OR=2.7 relative to lifetime abstainers).
5. Discussion

5.1 Discussion of principal findings

Non response

The first objective of this thesis was to assess the degree to which incomplete response to the New Zealand GENACIS survey may have biased the data of relevance to this project. This is important because low response rates can lead to both poor generalisibility of the data and estimates and associations that are biased [4, 12]. The response rate in GENACIS was 49.5% but not all of the non responders were refusals. The total non response group also included people with whom we never made contact and those surveys that were retuned after being sent to the incorrect address. As the missing 50.5% is not all refusals this may affect the way the sample is biased if the people who refuse are different to those with whom we had no contact. We compared the demographic characteristics of non respondents and respondents to identify how selective the non-response was. The comparison suggests that men, people of Maori ethnicity, people with a high NZDep score and people in the younger age groups were less likely to respond to the survey. When respondents were grouped by the amount of time required to elicit a response and late respondents were compared with early and intermediate respondents, their demographic distribution and prevalence of binge drinking were significantly different. These findings lead one to the conclusion that if the continuum of resistance model is correct and the non-respondents are likely to have similar or perhaps more extreme drinking behaviours than late respondents that this survey would be underestimating the prevalence of binge drinking in the population. The degree of underestimation would have been 31.5% if the non-respondents had the same prevalence of binge drinking as the late respondents. However not all non-respondents were truly refusals to take part in the study, this may affect the degree of underestimation if the people who did
not receive the survey were different to the ones that refused, and less like the late respondents. Past studies using these approaches to non response bias examined a sample where non-respondents were most likely to be refusals rather than non-contacts [81]. The third approach for identifying non response bias in the data was to compare the findings from this study with similar estimates from other studies with better response rates [87]. Both the Health Behaviours Survey – Alcohol Use (2004) and the 07/08 New Zealand Drug and Alcohol Use Survey, had higher response rates although both surveyed a younger population than that in GENACIS. Using the same measure of binge drinking for all three surveys, the overall prevalence of binge drinking and the prevalence of binge drinking in women were significantly lower in GENACIS than the other surveys. This was consistent with the hypothesis that non-respondents resembled late respondents in their drinking behaviour [4, 12]. Also all surveys showed higher levels of binge drinking at younger age, so the difference in age distributions of the samples may also have contributed.

*Patterns of drinking*

The second objective of this thesis was to describe the drinking patterns of the New Zealand adult population and examine the differences in alcohol consumption by age, gender and marital status. The main measures of interest were the prevalence of current drinkers, former drinkers, lifetime abstainers and binge drinkers and the demographic composition of each of these groups.

The 12 month prevalence of current drinkers in the GENACIS data was 89.6%, while in the two most recent surveys of alcohol use in New Zealand by the Ministry of Health current drinkers were 81.2% in 2004 and 85.2% in 2007/08.
This survey produced similar patterns to those shown in past surveys for prevalence of current drinkers by ethnicity and NZDep score. The European ethnic group had highest prevalence of current drinkers and most deprived areas had lowest prevalence [4, 12].

The other main measure of drinking patterns was binge drinking. Current drinkers who were male were much more likely to be identified as a binge drinker than female current drinkers. When gender and drinking patterns were more closely examined this difference in binge drinking prevalence between men and women was consistent. At every level of each demographic characteristic men had a much higher prevalence of binge drinking than women while the prevalence of current drinking was fairly similar.

Maori had a much higher prevalence of binge drinking than non Maori. There also appeared to be associations between age, NZDep score and prevalence of binge drinking with, the prevalence of binge drinking decreasing with increasing age and increasing with increasing levels of deprivation [4, 12].

**Drinking in intimate partnerships**

There is little research into the effect of marriage or cohabiting relationships on the use of alcohol in New Zealand. The international literature suggests that marriage is protective against the development of unhealthy alcohol use and there are many theories that aim to explain this “marriage effect”. The GENACIS data showed that people who have never married had a much higher prevalence of binge drinking than any other relationship group [38-40]. A logistic regression model comparing the odds of being identified as a binge drinker with four marital status groups adjusting for age and sex shows that all marital status
groups have larger odds of being identified as a binge drinker compared to those identified as being married or in a civil union.

The GENACIS data examined concordance of both frequency and quantity per occasion in three relationship groups (married/civil union/living with spouse, living with partner/de facto or non cohabiting romantic relationship). In all three relationship groups, and in both heterosexual and same sex relationships, the largest proportion of couples fell into the group where both members of the couple had the same frequency score. For the quantity of alcohol consumed per occasion, the largest proportion of couples fell into the category in which partners differed by only one to five drinks per occasion. In order to test the hypothesis that this is due to predominantly drinking together, the number of drinking occasions spent with intimate partners was compared with the levels of concordance of frequency and quantity per occasion [45, 48]. For both frequency and quantity per occasion, less time spent drinking with the partner was associated with more discordant drinking patterns, which is consistent with the shared environment hypothesis. Some research also suggested that the more concordant a couple's drinking is the more likely the couple will have higher levels of marital satisfaction than those with discrepant drinking patterns [53, 54]. This study found that there was some association between concordance in quantity per occasion and reported happiness within the relationship. Couples that differed by six or more drinks per occasion were more likely to report being extremely unhappy or unhappy compared with couples that drank similar quantities per occasion.
Informal social controls on drinking

There is a very limited amount of research on informal social controls on drinking in New Zealand currently. However it is clear from international research that social norms and informal social controls on drinking play a substantial role in shaping people’s drinking behaviour in certain situations.

In this study, amongst current drinkers, men were much more likely to have experienced pressure to drink less than women, and the youngest age group had the highest prevalence of having experienced pressure to drink less from any source. Current drinkers were much more likely to have experienced pressure to drink less from their spouse or family than from their friends (15.4% and 2.4% respectively). This is similar to the findings of a 1996 study by Room, that showed family to be a much more common source of pressure to drink less than friends (14% versus 8%) [73]. There was an association between being a binge drinker and having experienced pressure to drink less from any source and that this held for both men and women and for all sources separately. No conclusions could be drawn for pressure from workmates as there were only seven reports of pressure from this source.

The prevalence of having experienced pressure to drink more from any source decreased with increasing age (with 18-24 year olds having the highest prevalence of 60.1%) and Maori were most likely to have experienced pressure to drink more from any source compared to all other ethnic groups. Overall binge drinkers were the group most likely to have experienced pressure to drink more. However, when the odds ratio was adjusted for age, ethnicity and NZDep score the association was much less strong.

The purpose of these analyses was to describe New Zealanders experiences of pressure on their drinking. While the data allowed estimates of prevalence of pressure and provided data
about who was experiencing more pressure and from what sources no conclusions can be drawn about the presence or direction of a causal explanation.

5.2 Strengths and weaknesses of this study

Strengths

A strength of this study is the level of detail in the information collected from each respondent, including information on drinking in partnerships and informal controls on drinking, that has not been investigated extensively in New Zealand before.

A comprehensive range of alcohol consumption measures were used, including quantity per occasion, frequency, heavy drinking occasions and beverage types. As well as this, reporting of the respondent’s partners drinking was included, and social pressures associated with drinking.

The self-completion of the questionnaire may have improved the reporting of sensitive data, although as discussed in the next section social desirability bias may still have been an issue.

Weaknesses

The cross-sectional nature of the study constrains the interpretation of associations and precludes causal inference. This type of survey can estimate the prevalence of different drinking behaviours, personal characteristics and the experiences of drinkers, and can establish where there are associations, but does not provide evidence of causal relationships. We cannot for example, establish whether people in the most deprived group (NZDep=9-10) are more likely to be binge drinkers as a result of their position of society, as a result of other
characteristics associated with low socioeconomic status, or if the direction of the relationship is the opposite and binge drinking has contributed to the low socioeconomic status.

Self-reported data may be subject to social desirability bias. Social desirability bias is a problem in all surveys collecting sensitive information or information about behaviours that are not always socially acceptable. An unknown proportion of the respondents may have under-reported their consumption of alcohol or may have been less likely to report experiencing pressure to drink less in order to minimise any judgement of their drinking behaviours.

The GENACIS survey asked respondents who identified as being in a romantic relationship to provide an estimate of their partner’s drinking frequency and average quantity per occasion. We do not know how well respondents were able to estimate their partner’s drinking levels. It is possible that respondents tended to make their intimate partners drinking more concordant with their own drinking than it actually is. This tendency may interact with variables such as gender, age, drinking level, and the quality of the relationship. If this misreporting has occurred it could mean that there is less concordant drinking in intimate partnerships in the study than reported. This could also affect the associations found between drinking concordance and the perceived level of happiness in a relationship or the amount of time spent drinking together. The current study finding suggested that the more time a couple spent drinking together the more likely it was that their drinking frequency was concordant (indicated by an indicator score of zero or one). However, if respondents have misreported their partners drinking there may prove to be no association between time spent together and concordance of drinking, this would refute the hypothesis that couples
have concordant drinking patterns due to their shared experiences and their increased amount of time spent socialising with each other in the same social environment.

The study is somewhat limited by the low response rate, which has been discussed in earlier chapters. A low response rate can result in data that has poor generalisibility due to a selective non-response bias. The non-response analysis conducted as part of this project demonstrated the likely nature of the bias resulting from incomplete response.

In addition to non response, the postal, self-completed nature of the questionnaire increased the likelihood of receiving incomplete information from respondents. The questionnaire contained many similar looking questions and in order to get respondents to answer only those questions that applied to them a system of skips was used which may have increased the number of incomplete responses and missing information.

5.3 Strengths and weaknesses compared to other studies

The GENACIS survey obtained measures that had not been a focus of previous national surveys of alcohol use. The New Zealand Health surveys, Health Behaviours survey, the New Zealand Drug and Alcohol Use Survey all focused mainly on who was drinking alcohol, how much they were drinking, where they were drinking and what alcohol related consequences were experienced. This survey made families and close relationships a target of study by measuring the patterns of drinking in intimate partnerships and the experience of pressure to drink more or drink less from several different sources. As drinking is usually a social activity and drinking behaviours may be influenced by whom one drinks with, the information gained affords insight into who is experiencing pressure to change their drinking patterns and where that pressure is coming from. It is also clear from international literature
that drinking patterns are affected by close romantic relationships and that certain drinking patterns within relationships are shown to be associated with negative consequences [52]. Understanding these dynamics may be useful for the development of potential interventions.

Most previous research on drinking patterns in intimate partnerships has focused solely on married couples. There has been some evidence that countries that readily accept cohabitation as the norm show little differences in drinking between married and cohabiting couples [43]. The findings of this survey add to the findings of Plant et al examining drinking patterns in married couples, cohabiting couples and non cohabiting couples.

A weakness of alcohol research in general is that there is some disagreement over how to measure and label drinking behaviour. This is particularly problematic when examining hazardous drinking behaviours sometimes referred to as binge drinking. Some studies use the term drinking large amounts of alcohol and define that as more than four drinks for a woman or more than six drinks for a man per drinking occasion at least once a week [4, 12]. Other studies use the AUDIT score to measure for hazardous drinking and identify people with a score of between 8 and 15 as hazardous drinkers, those with a score of between 16 and 19 as hazardous drinkers in need who made need counselling or monitoring and people with score of 20 or above as hazardous drinkers that are clearly in need of further evaluation or intervention [14]. This analysis of the GENACIS survey used two measures of binge drinking for two different analyses. To make the estimates from this analysis more comparable with the most recent national survey data, binge drinking was classified, for both men and women, as drinking more than four standard drinks in one drinking occasion at least once a week. In the analysis of patterns of drinking a new binge definition was used, where current drinkers were identified as binge drinkers if they drank more than 4 drinks per drinking occasion at least once a month. The reason for the varied measures of binge
drinking is that there has been little research into a precise cut off point for what pattern of drinking is considered hazardous or binge drinking [14].

5.4 Meaning of the study

The public health significance of alcohol-related harm is well established, and New Zealand has high levels of hazardous drinking. The social harms to people other than the drinker are less well measured than direct health effects but are known to be very considerable [55, 88, 89]. Now is a particularly interesting time to be conducting alcohol research in New Zealand as the Law Commission is currently reviewing the law on the sale and supply of liquor. The review has already established that in New Zealand we have a traditionally heavy drinking culture, and has highlighted the burden alcohol has on New Zealand society. The review makes a point of showing that while alcohol is a drug, and therefore be subject to cautious treatment, alcohol in moderation has “many positive features” which can make creating laws to police alcohol use difficult, as they need to reduce the burden of alcohol related consequences on society while still being acceptable to the majority of the population [7].

One way to inform the development of laws and other interventions that are effective in reducing the burden alcohol places on society is to understand what shapes a person’s drinking behaviour. This will allow us to identify characteristics that make people more likely to be hazardous drinkers, and to identify barriers to interventions being effective. An understanding of how relationships affect and change people’s drinking behaviour could, in this way, contribute to more effective strategies to reduce harms. This study provides the start of insights into what groups are potential targets for interventions by describing the
prevalence of binge drinking; a pattern of drinking that is known to be associated with negative outcomes, by demographics. The analysis of drinking in intimate partnerships provides some information about the dynamics within a relationship when it comes to drinking. Past research has indicated that discordance in drinking pattern between partners can lead to negative outcomes like intimate partner violence [52, 55]. Findings from the current study suggest that most couples are similar in drinking patterns and that those who are concordant in their drinking behaviour report higher levels of happiness. The findings also show that couples who spend more time drinking together were more likely to have concordant drinking patterns.

The International Research Group on Gender and Alcohol (IRGGA) designed the GENACIS survey so that the measures collected at a national level would be directly comparable to those from all the other countries taking part in the project. The findings from this study will contribute to the multinational study and this will enable research into differences between drinking behaviour between countries, why those differences might exist and even perhaps how to improve the drinking culture in particular countries.

5.5 Unanswered questions and future research

The findings on drinking in intimate partnerships were fairly consistent with international literature. These cross-sectional data showed patterns of drinking in current intimate partnerships but a longitudinal design would be needed to investigate why concordance of drinking behaviours is so common in couples, how discordant patterns develop and whether concordance is a cause or an effect of happier relationships.
Another aspect of drinking in intimate partnerships that impacts on public health is the relationship between drinking partner patterns and reports of any negative relationship events (for example intimate partner violence). The GENACIS survey collected information about alcohol-related harms and examination of the relationship between specific drinking patterns and harms will be part of multinational comparative research. Further investigations will include how drinking in intimate partnerships and informal social controls on drinking are related to harm.

A further area that has yet to be analysed from the New Zealand GENACIS data involves respondents’ attitudes towards alcohol and what is appropriate behaviour in various social situations. Comparisons of these data with GENACIS data from other countries will show if the similarities and differences between New Zealand’s drinking attitudes and others, as well as whether these attitudes are related to drinking patterns and subsequent harm.

From a methodological perspective, there is a need for development of consistent standards of measurement of patterns of drinking so that comparability of studies can be improved. This depends on refining our understanding of the dimensions of alcohol consumption that are most reliably related to health and social outcomes that we are interested in.

Longitudinal research would be required to reveal whether any of the associations identified in this study might be causal.
References


Appendix A: Introductory letter

13th April, 2007

Dear <Title> <Surname>,

We invite you to take part in a survey being carried out by researchers at the Department of Preventive and Social Medicine in the University of Otago, to find out about New Zealanders' general health and experiences with alcohol. This would involve you completing a confidential questionnaire.

Your participation will make an important contribution. Your name was one of 4000 randomly chosen from the electoral roll to make up a sample that is representative of all adults in New Zealand aged 18-70. The more of the sample chosen who agree to take part, the better the study will reflect the experience of the whole New Zealand population, and the more useful the results will be. Your experiences will contribute to understanding similarities and differences in people's drinking and health.

We will send you the questionnaire, along with a detailed information sheet, by post in about two weeks.

Please check your name and address above. If any of the information is incorrect, please let us know by email (ahs@ipru.otago.ac.nz) or free telephone call (0800 436 2247) so that we can post the questionnaire to the correct name and address.

If you do not wish to participate, we respect your decision. However, please let us know by email (ahs@ipru.otago.ac.nz) or free telephone call (0800 436 2247) so that we do not send you a questionnaire.

This study has been approved by the University of Otago Human Ethics Committee.

If you have any questions about this study, please do not hesitate to contact us and we will do all we can to help.

Sincerely,

Kimberly Cousins
Assistant Research Fellow

Sinead Connor
Senior Lecturer
Appendix B: Invitation letter

27th April, 2007

Dear <Title> <Surname>,

We are writing to ask you to complete a questionnaire for a study being carried out by researchers at the Department of Preventive and Social Medicine in the University of Otago, to find out about New Zealanders’ general health and experiences with alcohol. You may have had a letter from us already about this.

In the time it takes to have a cup of tea, you can make an important contribution to this research. Your name was randomly chosen from the electoral roll to make up a sample that is representative of all adults in New Zealand aged 18-70. The more of the sample who agree to take part, the better the study will reflect the experience of the whole New Zealand population, and the more useful the results will be. Your experiences will contribute to understanding similarities and differences in people’s drinking and health.

We have attached an information sheet which explains why the study is being carried out, and what the information will be used for. Please read it carefully.

Your confidential Alcohol and Health Questionnaire is also enclosed, along with a tea bag from the Dell Tea Company. Please complete the questionnaire and return it to us in the enclosed freepost envelope. Drinking the tea is optional.

If you do not wish to participate, we respect your decision. However, please let us know by email (uphs@ipr.uotago.ac.nz) or free telephone call (0800 436 2247), or simply return your blank or incomplete questionnaire to us, so that we do not send you any reminder letters.

If you have any questions or comments, please send an email to uphs@ipr.uotago.ac.nz or call us for free on 0800 436 2247 and we will do all we can to help.

Sincerely,

Kimberly Cousins
Assistant Research Fellow

Jennie Connor
Senior Lecturer
Appendix C: Information sheet

Alcohol and Health Study
INFORMATION SHEET FOR PARTICIPANTS

Thank you for showing an interest in this project. Please read this information sheet before deciding whether or not to participate. If you decide to participate, we thank you. If you decide not to take part, there will be no disadvantage to you and we thank you for considering our request.

What is the aim of this study?
The aim of this study is to improve our understanding of the role of alcohol in New Zealanders’ lives, and how this differs between men and women. Information about drinking patterns in New Zealand will also be compared with other countries where similar surveys have been done.

What types of participants are being sought?
We would welcome your participation if you are aged 18-70 years old. Participants have been randomly selected from the electoral rolls, so that they will be a sample of New Zealanders between 18 and 70 years of age. Both men and women are included and people from all parts of New Zealand.

What will participants be asked to do?
If you decide to take part in this study, you will be asked to simply fill out the confidential questionnaire that we have enclosed. The questionnaire should take between 20-30 minutes to complete. Answering each question is voluntary and so you may choose to leave a question unanswered if you wish.

Once you have completed the questionnaire, please return it in the enclosed Freepost envelope. Please be aware that you may decide not to take part in the study without any disadvantage to yourself of any kind.

If you decide not to take part in this study, please return your blank survey so that we do not send you a reminder letter. Alternatively, you can email us at ahs@ipru.otago.ac.nz or phone us for free at 0800 436 2247 to notify us of your decision.
Can participants change their mind and withdraw from the study?
Yes. You may withdraw from the study at any time. Just email us at ahs@ipru.otago.ac.nz or phone us for free at 0800 436 2247 to notify us of your decision.

What data or information will be collected and what use will be made of it?
The questionnaire asks about your living and working conditions, your alcohol consumption and experiences with alcohol, and also asks some questions about your close relationships and your personal health.

The information is being collected to help us understand more about how much New Zealanders drink alcohol, the contexts in which they drink, and how alcohol affects personal relationships and health.

The information is confidential and will be accessible only to the study researchers for the purposes of the research. Once the information has been collected, the participants' names will be removed so that no individuals can be identified. Your contact details will be kept confidential and stored separately from your questionnaire.

Results of this project may be published, but the information included will be summaries of information from everyone in the study and in no way be linked to any specific participant. Any published results from the study will be available to participants and the other interested people from the researchers in due course.

What if participants have any questions?
If you have any questions about this study, either now or in the future, we would be happy to hear from you. You can contact:

Kimberly Cousins or Jennie Connor
Injury Prevention Research Unit
Department of Preventive and Social Medicine
University of Otago
PO Box 913, Dunedin 9054
Freephone: 0800 436 2247
Email: ahs@ipru.otago.ac.nz

This project has been reviewed and approved by the University of Otago Human Ethics Committee [Reference number 06/171] and funded by an Otago University Research Grant. Tea bags have been donated by the Bell Tea Company.
Appendix D: GENACIS Questionnaire

Alcohol and Health Questionnaire

Thank you for taking the time to complete this survey. In this first section, we would like to find out more about who you are, where you live, and what you do.

1. Are you:
   □ 1 Male
   □ 2 Female

2. What is your date of birth?
   __ __ __ / __ __ __ / __ __
   Day / Month / Year

3. What is the highest level of education that you have received?
   □ 1 Primary school
   □ 2 High school/Secondary school: 1-3 years
   □ 3 High school/Secondary school: 3 years or more
   □ 4 Polytechnic or similar
   □ 5 University
   □ 6 Still a student
   □ 7 Other – Please specify:

4. Which ethnic group(s) do you belong to? Please tick all boxes that apply:
   □ 1 New Zealand European
   □ 2 Maori
   □ 3 Samoan
   □ 4 Cook Island Maori
   □ 5 Tongan
   □ 6 Chinese
   □ 7 Indian
   □ 8 Other – Please specify:

5A. What region do you live in?
   □ 1 Upper North Island
   □ 2 Mid North Island
   □ 3 Lower North Island
   □ 4 Upper South Island
   □ 5 Lower South Island
   □ 6 Other – Please specify:
5B. Which of these categories comes closest to the type of place where you presently live?

1. In open country but not on a farm
2. On a farm
3. In a small city or town (under 50,000)
4. In a medium-size city (50,000-250,000)
5. In a suburb near Auckland, Hamilton, Wellington, or Christchurch
6. Inner city Auckland, Hamilton, Wellington, or Christchurch

6A. What is your marital status?

1. Married/Civil union, living with spouse
2. Living with a partner/de facto
3. Widowed
4. Divorced
5. Married but separated
6. Never married

Go to Q.7

6B. In what year did that happen?
(marriage, civil union, move in together, widowed, divorced, or separated)

Go to Q.8

7. Have you ever lived with a partner in a marriage-like relationship?

1. Yes
2. No

Go to Q.9

8. How many times have you been married or lived with a partner in a marriage-like relationship?

Times

IF YOU ARE MARRIED AND LIVING WITH YOUR SPOUSE, GO TO Q.11
IF YOU ARE LIVING WITH A PARTNER, GO TO Q.11

9. Among the people you now know, is there someone with whom you have a very close romantic relationship?

1. Yes
2. No

Go to Q.10

10. How long have you been involved with this person?

Years Months

11. Is this person male or female?

1. Male
2. Female
12. **Whom do you live with?** *Please tick all that apply.*
   - [ ] 1. Spouse / partner / de facto spouse
   - [ ] 2. Children (yours or partner’s): …No. under 18: …No. 18 years or over:
   - [ ] 3. Your or your spouse’s/partner’s parents: …No:
   - [ ] 4. Other relatives: …………………No. under 18: …No. 18 years or over:
   - [ ] 5. Others: …………………No. under 18: …No. 18 years or over:
   - [ ] 6. Live on your own

13. **How many people are living in your household, including yourself?**
   - [ ] …person/people

14. **Have you ever had any children, including adopted or stepchildren?**
   - [ ] 1. Yes
   - [ ] 2. No

15. **If yes, how many of your children are still living?**
   - [ ] …child/children

**WORK EXPERIENCES**

17A. **What is/are your current occupation or occupations?**
   For example, childcare aide, maths teacher, pastry chef, dairy farmer. INCLUDE HOMEMAKER / HOUSEWIFE / HOUSEHUSBAND AS AN OCCUPATION.

17B. **In that job, what tasks or duties do you spend the most time on?**
   For example, answering phones, typing, sewing clothing, servicing and repairing cars, running a motel.

17C. **What is the main activity of the place in which you work?**
   For example, sheep farming, selling shoes, making clothes.
18. Do you have a management position?
   □ Yes, at the top level
   □ No
   □ Yes, at the medium level

19A. What best describes your present daily occupation/employment status?
   □ Working for pay
   □ Unemployed (not by choice)
   □ Student
   □ Retired
   □ Not working due to illness
   □ Parental or pregnancy leave
   □ Homemaker/housewife/househusband
   □ Voluntarily unemployed for other reasons

19B. How long have you been unemployed (not by choice)?
   □ Years
   □ Months

19C. How long have you been not working due to illness?
   □ Years
   □ Months

20. What is your present employment situation?
   □ Employed until I quit or retire
   □ Employed until I am laid off or fired
   □ Employed until the project/task/job I was hired for is finished
   □ Employed only temporarily or off-and-on/intermittently

21. Are you self-employed or are you employed by others?
   □ Self-employed
   □ Employed by others

22A. What are your present working hours in your current job(s)?
   □ 61 hours or more a week
   □ 41 - 60 hours/week
   □ 31 - 40 hours/week
   □ 21 - 30 hours/week
   □ 11 - 20 hours/week
   □ 10 hours/week

22B. Are you working one job or more than one job?
   □ More than one job
   □ One job
23. When do you usually work? *Please tick all that apply.*

- [ ] Day time
- [ ] Night time
- [ ] Evenings
- [ ] Shift work

24. Which of the following best describes the people you work with or who work alongside you?

- [ ] All or nearly all are men
- [ ] A majority are women
- [ ] A majority are men
- [ ] All or nearly all are women
- [ ] Half are women, half are men
- [ ] I work alone or by myself

25. How stressful is your work situation?

- [ ] Very stressful
- [ ] A little stressful
- [ ] Somewhat stressful
- [ ] Not at all stressful

26. What is your total household income (before tax) from all sources? By household income, we mean income earned by you and by others living with you, and any income from other sources, such as child support or pensions.

- [ ] Less than $10,000
- [ ] $10,000-$19,999
- [ ] $20,000-$39,999
- [ ] $40,000-$79,999
- [ ] $80,000-$119,000
- [ ] $120,000 or more
- [ ] Don’t know
- [ ] Don’t know

27. How much of the total household income, from all sources, do you yourself provide?

- [ ] All of it
- [ ] More than half
- [ ] About half
- [ ] Less than half
- [ ] None
SOCIAL NETWORKS

28. How many times during the last 30 days have you had informal and supportive contacts with the following people, including letters, phone calls, or e-mails?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Daily or almost daily</th>
<th>3-4 times per week</th>
<th>1-2 times per week</th>
<th>1-3 times in the last month</th>
<th>Not at all in the last month</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Your spouse/partner/ girlfriend /boyfriend</td>
<td>[ ] 5</td>
<td>[ ] 4</td>
<td>[ ] 3</td>
<td>[ ] 2</td>
<td>[ ] 1</td>
<td>[ ] 0</td>
</tr>
<tr>
<td>b. Your child/children</td>
<td>[ ] 5</td>
<td>[ ] 4</td>
<td>[ ] 3</td>
<td>[ ] 2</td>
<td>[ ] 1</td>
<td>[ ] 0</td>
</tr>
<tr>
<td>c. Other female family members</td>
<td>[ ] 5</td>
<td>[ ] 4</td>
<td>[ ] 3</td>
<td>[ ] 2</td>
<td>[ ] 1</td>
<td>[ ] 0</td>
</tr>
<tr>
<td>d. Other male family members</td>
<td>[ ] 5</td>
<td>[ ] 4</td>
<td>[ ] 3</td>
<td>[ ] 2</td>
<td>[ ] 1</td>
<td>[ ] 0</td>
</tr>
<tr>
<td>e. Someone at work</td>
<td>[ ] 5</td>
<td>[ ] 4</td>
<td>[ ] 3</td>
<td>[ ] 2</td>
<td>[ ] 1</td>
<td>[ ] 0</td>
</tr>
<tr>
<td>f. Female friends or acquaintances</td>
<td>[ ] 5</td>
<td>[ ] 4</td>
<td>[ ] 3</td>
<td>[ ] 2</td>
<td>[ ] 1</td>
<td>[ ] 0</td>
</tr>
<tr>
<td>g. Male friends or acquaintances</td>
<td>[ ] 5</td>
<td>[ ] 4</td>
<td>[ ] 3</td>
<td>[ ] 2</td>
<td>[ ] 1</td>
<td>[ ] 0</td>
</tr>
<tr>
<td>h. A doctor, counsellor, or other health worker</td>
<td>[ ] 5</td>
<td>[ ] 4</td>
<td>[ ] 3</td>
<td>[ ] 2</td>
<td>[ ] 1</td>
<td>[ ] 0</td>
</tr>
<tr>
<td>i. Others</td>
<td>[ ] 5</td>
<td>[ ] 4</td>
<td>[ ] 3</td>
<td>[ ] 2</td>
<td>[ ] 1</td>
<td>[ ] 0</td>
</tr>
</tbody>
</table>

29. How often during the last 12 months have you felt lonely?

[ ] 6 Very often
[ ] 5 Often
[ ] 4 From time to time
[ ] 3 Seldom
[ ] 2 Very seldom
[ ] 1 Never

30. Apart from your spouse/partner/girlfriend/boyfriend, how many people do you feel confident that you can talk to about an important personal problem?

[ ] 6 or more
[ ] 5
[ ] 4 4-5
[ ] 3 2-3
[ ] 2 One
[ ] 1 None

31. How far away do your most important relatives/friends live?

[ ] 5 Near me, in my own neighbourhood
[ ] 4 In the same city where I live
[ ] 3 In the same region where I live
[ ] 2 In the same country where I live
[ ] 1 In another country

32A. Are you an active member of any society or church?

[ ] 1 Yes
[ ] 2 No

32B. What is your religious preference?

[ ] 6
ALCOHOL IN YOUR LIFE

The next few questions are about drinking alcoholic beverages, such as wine, beer, and liquor, by yourself and by people you know.

Please use the guide below to help you answer some of the questions in this section.

What's a standard drink?

- One glass, snifter or can of beer (330mls)
- One small glass of wine (100mls)
- A double measure of spirits (30mls)

- A pre-mixed drink/RTD (e.g. Cruiser, Stoli) – approx 1.5 drinks
- A 750ml bottle of beer = 2.5 drinks
- A jug of beer = 3 drinks
- A 750ml bottle of wine = 7.5 drinks

If you did not drink any alcohol at all in the last 12 months (not even a sip), please tick the box below and skip to Q.48A.
YOUR DRINKING

33A. During the last 12 months, how often did you usually have any kind of beverage containing alcohol – whether it was wine, beer, spirits, RTDs (pre-mixed drinks, such as Vodka Cruisers, KGBs, etc.), or any other drink?

   □  Every day or nearly every day  □  3-6 times in the last 12 months
   □  3-4 times per week  □  2 times in the last 12 months
   □  1-2 times per week  □  Once in the last 12 months
   □  1-3 times per month  □  Never in the last 12 months  Go to Q.33E
   □  7-11 times in the last 12 months

33B. How often do you usually drink wine?

   □  Every day or nearly every day  □  3-6 times in the last 12 months
   □  3-4 times per week  □  2 times in the last 12 months
   □  1-2 times per week  □  Once in the last 12 months
   □  1-3 times per month  □  Never in the last 12 months  Go to Q.33D
   □  7-11 times in the last 12 months

33C. How many drinks would you have on a typical day when you drank wine?

   □□□ drinks

33D. How often do you usually drink beer?

   □  Every day or nearly every day  □  3-6 times in the last 12 months
   □  3-4 times per week  □  2 times in the last 12 months
   □  1-2 times per week  □  Once in the last 12 months
   □  1-3 times per month  □  Never in the last 12 months  Go to Q.33F
   □  7-11 times in the last 12 months

33E. How many drinks would you have on a typical day when you drank beer?

   □□□ drinks

33F. How often do you usually have drinks containing whisky or other spirits, or RTDs?

   □  Every day or nearly every day  □  3-6 times in the last 12 months
   □  3-4 times per week  □  2 times in the last 12 months
   □  1-2 times per week  □  Once in the last 12 months
   □  1-3 times per month  □  Never in the last 12 months  Go to Q.33H
   □  7-11 times in the last 12 months

8
33G. How many drinks would you have on a typical day when you drank whiskey or any other kinds of spirits (including RTDs)?

Drinks

The next few questions ask about how much wine, beer, and spirits you may have had during the last 12 months.

34A. Think of all kinds of alcoholic drinks combined, that is, any combination of cans, bottles, or glasses of beer; glasses of wine; or drinks containing liquor or spirits of any kind. During the last 12 months, how often did you have the following number of drinks in a single day?

<table>
<thead>
<tr>
<th>Number of Drinks</th>
<th>Daily or Almost Daily</th>
<th>3-4 Times Per Week</th>
<th>1-2 Times Per Week</th>
<th>1-3 Times Per Month</th>
<th>7-11 Times in the Last Year</th>
<th>3-6 Times in the Last Year</th>
<th>Twice in the Last Year</th>
<th>Once in the Last Year</th>
<th>Never in the Last Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 or more drinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-19 drinks</td>
<td>9 8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-11 drinks</td>
<td>9 8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-7 drinks</td>
<td>9 8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-4 drinks</td>
<td>9 8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 drinks</td>
<td>9 8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1 drink</td>
<td>9 8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

35A. On those days when you had any kind of beverage containing alcohol, how many drinks did you usually have per day?

Drinks

35B. On a typical day when you drank, about how much time would you spend drinking?

Minutes OR Hours

36. How old were you when you first began drinking, more than just a sip or a taste?

Years old
37. **Thinking back over the last 12 months**, about how often did you drink in the following circumstances? **Think of all the times that apply in each situation.** For example, having a drink with a meal in your own home should be included under both “(a) at a meal”, and “(c) in your own home.”

<table>
<thead>
<tr>
<th></th>
<th>Daily or almost daily</th>
<th>3-4 times per week</th>
<th>1-2 times per week</th>
<th>1-3 times per month</th>
<th>7-11 times in the last year</th>
<th>3-6 times in the last year</th>
<th>1-2 times in the last year</th>
<th>Never in the last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. At a meal</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
</tr>
<tr>
<td>b. At a party / celebration</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
</tr>
<tr>
<td>c. In your own home</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
</tr>
<tr>
<td>d. At a friend’s home</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
</tr>
<tr>
<td>e. At your workplace</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
</tr>
<tr>
<td>f. In a bar, pub or club</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
</tr>
<tr>
<td>g. In a restaurant</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
</tr>
</tbody>
</table>

38. **How often in the last 12 months** have you had a drink when you were with the following persons? **Think of all the times that apply for each person.** For example, having a drink with your spouse or partner and friends should be included under both “(a) with your spouse or partner,” and “(d) with friends.”

<table>
<thead>
<tr>
<th></th>
<th>Daily or almost daily</th>
<th>3-4 times per week</th>
<th>1-2 times per week</th>
<th>1-3 times per month</th>
<th>7-11 times in the last year</th>
<th>3-6 times in the last year</th>
<th>1-2 times in the last year</th>
<th>Never in the last year</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. With your spouse/partner</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>b. With a family member other than your spouse/partner</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>c. With people you work with or go to school with</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>d. With friends other than your spouse/partner</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
<tr>
<td>e. When no one happened to be with you</td>
<td>□ 8</td>
<td>□ 7</td>
<td>□ 6</td>
<td>□ 5</td>
<td>□ 4</td>
<td>□ 3</td>
<td>□ 2</td>
<td>□ 1</td>
<td>□ 0</td>
</tr>
</tbody>
</table>
39. About how often did you drink during the following time periods? Friday evening counts as the "weekend." Please choose only one answer.

<table>
<thead>
<tr>
<th></th>
<th>Daily or almost daily</th>
<th>3-4 times per week</th>
<th>1-2 times per week</th>
<th>1-3 times per month</th>
<th>7-11 times in the last year</th>
<th>3-6 times in the last year</th>
<th>1-2 times in the last year</th>
<th>Never in the last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. On a weekday before 5 p.m.</td>
<td>8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. On a weekday after 5 p.m.</td>
<td>8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. On a weekend before 5 p.m.</td>
<td>8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. On a weekend after 5 p.m.</td>
<td>8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. In the hour before you drive a car</td>
<td>8 7 6 5 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

40. During the last 12 months, how much of your drinking has been with your spouse/partner/boyfriend/girlfriend?

- [ ] 6 All or almost all occasions
- [ ] 4 Most occasions
- [ ] 3 Some occasions
- [ ] 2 A few occasions
- [ ] 1 Never
- [ ] 0 I do not have a spouse/partner/boyfriend/girlfriend/boyfriend

41. Drinking affects people in many different ways. We would like to learn what effects drinking may have for you. When you drink, how true would you say each of these statements is for you: usually true, sometimes true, or never true?

How true is it that when you drink...

<table>
<thead>
<tr>
<th>Statement</th>
<th>Usually True</th>
<th>Sometimes True</th>
<th>Never True</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. You find it easier to be open with other people?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>b. You find it easier to talk to your present partner about your feelings or problems?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>c. You feel less inhibited about sex?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>d. Sexual activity is more pleasurable for you?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>e. You feel more sexually attractive?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>f. You become more aggressive toward other people?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
DRINKING CONSEQUENCES

This section includes questions about drinking-related experiences many people have during their lifetime.

42. In the **last 12 months**, has YOUR drinking had a harmful effect...

<table>
<thead>
<tr>
<th>Question</th>
<th>No</th>
<th>Yes, once or twice</th>
<th>Yes, more than twice</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. on your work, studies or employment opportunities?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. on your housework or chores around the house?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. on your marriage/intimate relationships?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. on your relationships with other family members, including your children?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. on your friendships or social life?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. on your physical health?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. on your finances?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

43. In the **last 12 months**, have you had any of the following experiences?

<table>
<thead>
<tr>
<th>Question</th>
<th>No</th>
<th>Yes, once or twice</th>
<th>Yes, more than twice</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Have you had trouble with the law about your drinking and driving?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Have you had an illness connected with your drinking that kept you from working on your regular activities for a week or more?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Have you lost a job, or nearly lost one, because of your drinking?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Have people annoyed you by criticizing your drinking?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Has your spouse or someone you lived with threatened to leave or actually left because of your drinking?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Have you lost a friendship because of your drinking?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Have you got into a fight while drinking?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
44. How often during the last 12 months have you .......

<table>
<thead>
<tr>
<th>Daily or almost daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Less than monthly</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. drunk enough to feel the effects of the alcohol—for example, your speech was slurred and/or you had trouble walking steadily?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>b. had a headache and/or felt nauseated as a result of your drinking?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>c. taken a drink to get over any of the bad after-effects of drinking?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>d. felt sick or found yourself shaking when you cut down or stopped drinking?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>e. found that you were not able to stop drinking once you had started?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>f. failed to do what was normally expected from you because of drinking?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>g. needed a first drink in the morning to get yourself going after a heavy drinking session?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>h. had a feeling of guilt or remorse after drinking?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>i. been unable to remember what happened the night before because you had been drinking?</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

45. Have you or someone else been injured as a result of your drinking?

- 4 Yes, during the last year
- 3 Yes, but not in the last year
- 2 Never

46. Has a relative, friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?

- 4 Yes, during the last year
- 3 Yes, but not in the last year
- 2 Never
47. During the last 12 months, have any of the following persons attempted to influence your drinking so that you would drink less or cut down on your drinking?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes, once or twice</th>
<th>Yes, more than twice</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Your spouse/partner/girlfriend/boyfriend?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>b. Your child or children?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>c. Some other female family member?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>d. Some other male family member?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>e. Someone at your work or at school?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>f. A female friend or acquaintance?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>g. A male friend or acquaintance?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>h. A doctor or health worker?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
</tbody>
</table>

IF YOU HAVE DRUNK ANY ALCOHOL IN THE LAST 12 MONTHS, GO TO Q 49

48A. Did you ever have a drink of any beverage containing alcohol?
□ ☐ Yes
□ ☐ No Go to Q49

48B. How old were you when you began drinking, more than just a sip or a taste?
□ ☐ years old

48C. Was there ever a time when your drinking caused any problems in your life (for example, problems with family, health, or work, or with the law or the police)?
□ ☐ Yes
□ ☐ No

49. During the last 12 months, have any of the following people influenced you to drink or drink more because he/she drinks more than you do?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes, once or twice</th>
<th>Yes, more than twice</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Your spouse/partner/girlfriend/boyfriend?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>b. Your child or children?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>c. Some other female family member?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>d. Some other male family member?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>e. Someone at your work or at school?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>f. A female friend or acquaintance?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
<tr>
<td>g. A male friend or acquaintance?</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 0</td>
</tr>
</tbody>
</table>
50. Have you felt that any of the people on the following list ever had problems due to their own use of alcohol? For instance, these could be problems with family, health, work, or the law or the police.

<table>
<thead>
<tr>
<th></th>
<th>NO</th>
<th>YES</th>
<th>If YES, was it in the last 12 months?</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Mother</td>
<td>1</td>
<td>2</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>b. Father</td>
<td>1</td>
<td>2</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>c. Spouse/partner/girlfriend/boyfriend</td>
<td>1</td>
<td>2</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>d. Children</td>
<td>1</td>
<td>2</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>e. Other family members</td>
<td>1</td>
<td>2</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>f. Friends</td>
<td>1</td>
<td>2</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>g. Work friends/colleagues/fellow students</td>
<td>1</td>
<td>2</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

IF YOU DO NOT HAVE A SPOUSE, PARTNER, OR A GIRLFRIEND/BOYFRIEND, GO TO Q.52.

51A. Thinking back over the last 12 months, about how often did your spouse/partner/girlfriend/boyfriend drink any alcoholic beverages (spirits, wine, beer, etc.)?

8. Every day or nearly every day
7. 3-4 times per week
6. 1-2 times per week
5. 1-3 times per month
4. 7-11 times in the last 12 months
3. 3-6 times in the last 12 months
2. 1-2 times in the last 12 months
1. Never in the last 12 months

51B. Again, thinking back over the last 12 months, about how many drinks would your spouse/partner/girlfriend/boyfriend have on a typical day when he/she drank? Please think of all kinds of alcoholic beverages combined.

52. During the last 12 months, have you attempted to influence the drinking of any of the following persons so that he or she would drink less or less often?

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes, once or twice</th>
<th>Yes, more than twice</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Your spouse/partner/girlfriend/boyfriend?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>b. Your child or children?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>c. Some other female family member?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>d. Some other male family member?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>e. Someone at your work or at school?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>f. A female friend or acquaintance?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>g. A male friend or acquaintance?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
53. Below are situations that people sometimes find themselves in. For each one, please tell us how much a person in that situation should feel free to drink.

<table>
<thead>
<tr>
<th>Situation</th>
<th>No Drunk</th>
<th>1-2 Drunks</th>
<th>Feel effects, but not drunk</th>
<th>Getting drunk is sometimes all right</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. At a party, at someone else's home</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
<tr>
<td>b. As a parent, spending time with small children</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
<tr>
<td>c. For a husband having dinner out with his wife</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
<tr>
<td>d. For a wife having dinner out with her husband</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
<tr>
<td>e. For a man out at a bar with friends</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
<tr>
<td>f. For a woman out at a bar with friends</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
<tr>
<td>g. For a couple of co-workers out for lunch</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
<tr>
<td>h. When with friends at home</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
<tr>
<td>i. When getting together with friends after work before going home</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
<tr>
<td>j. When going to drive a car</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
<td>[ ] 4</td>
</tr>
</tbody>
</table>

INTIMATE RELATIONS AND SEXUALITY

IF YOU DO NOT HAVE A SPOUSE/PARTNER/GIRLFRIEND/BOYFRIEND, GO TO Q.61.

Now we have some questions about your relationship with your spouse/partner/girlfriend/boyfriend.

54. Please circle the number which best describes how happy you are with your relationship with your current spouse/partner/girlfriend/boyfriend.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely</td>
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55. Please circle the number which describes how easy it generally is for you to talk about your feelings or problems with your spouse/partner/girlfriend/boyfriend.

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56. **How do you and your present spouse/partner/girlfriend/boyfriend solve disagreements between you?**
   - 4 We almost always solve disagreements without quarrelling
   - 3 Sometimes we have short-lived quarrels or disagreements
   - 2 We often have long-lasting quarrels for different reasons
   - 1 We don’t only quarrel, we also have physical fights

57. **How often do you and your spouse/partner/girlfriend/boyfriend quarrel?**
   - 5 At least once a day
   - 4 Several times a week
   - 3 Several times a month
   - 2 Once a month or less
   - 1 Never  Go to Q.60

58. **When you and your spouse/partner/girlfriend/boyfriend quarrel, about how often has your spouse/partner/girlfriend/boyfriend been drinking?**
   - 6 All the time
   - 5 Most of the time
   - 4 More often than not
   - 3 Occasionally
   - 2 Rarely
   - 1 Never

59. **When you and your spouse/partner/girlfriend/boyfriend quarrel, about how often have you been drinking?**
   - 6 All the time
   - 5 Most of the time
   - 4 More often than not
   - 3 Occasionally
   - 2 Rarely
   - 1 Never

60. **How often have there been occasions when you were afraid of your spouse/partner/girlfriend/boyfriend?**
   - 6 All the time
   - 5 Most of the time
   - 4 More often than not
   - 3 Occasionally
   - 2 Rarely
   - 1 Never
Sometimes people's health and happiness affect their sexual feelings, and their sexual experiences affect other areas of their lives. Here are some questions about sexual experience. Please answer them as well as you can.

61. During your lifetime, has sex been . . .
   - very important to you?
   - quite important to you?
   - somewhat important to you?
   - not too important to you?
   - could have gotten along just as well without it?

62. What was your age when you first had consensual sexual intercourse?
   - years old OR I have never had consensual sexual intercourse

63. During the last 12 months, how many partners have you had sexual activity with?

VIOLENCE/VICTIMIZATION

IF YOU DO NOT HAVE A SPOUSE, PARTNER, OR GIRLFRIEND/BOYFRIEND, GO TO Q. 65.

64. During the last 12 months, how often has your spouse/partner/girlfriend/boyfriend ...

   a. insulted or sworn at you? Never 1 - 2 times 3 times or more

   b. sulked or refused to talk about a problem? Never 1 - 2 times 3 times or more

   c. stomped out of the house, room or yard? Never 1 - 2 times 3 times or more

   d. done or said something to spite you? Never 1 - 2 times 3 times or more

65. People can be physically aggressive in many ways, for example, by pushing, punching, slapping, etc. What is the most physically aggressive thing done to you during the last 2 years by someone who was or had been in a close romantic relationship with you (such as a wife, husband, boyfriend, or girlfriend)?

   - Push  - Kick  - Threaten with a weapon
   - Shove  - Beat up  - Use a weapon
   - Grab  - Throw something at you  - Other – Please specify:
   - Slap  - Hit you with an object  - No physical aggression

IF YOU HAVE NOT EXPERIENCED ANY PHYSICAL AGGRESSION FROM A SPOUSE, PARTNER, OR GIRLFRIEND/BOYFRIEND IN THE LAST 2 YEARS, GO TO Q. 74.
66. On a scale of 1 to 10, where 1 is minor aggression and 10 is life-threatening aggression, how would you rate the level of this aggressive act?

1 2 3 4 5 6 7 8 9 10
Minor aggression-----------------------------------Life-threatening aggression

The next few questions ask about how you felt after the incident, including how upset, angry and scared you were. Please circle the number along the scales that best describes how you felt.

67. On a scale from 1 to 10, where 1 is not at all upset and 10 is very upset, how upset were you just after the incident happened?

1 2 3 4 5 6 7 8 9 10
Not at all upset-----------------------------------Very upset

68. On a scale from 1 to 10, where 1 is not at all angry and 10 is very angry, how angry were you just after the incident happened?

1 2 3 4 5 6 7 8 9 10
Not at all angry-----------------------------------Very angry

69. On a scale from 1 to 10, where 1 is not at all scared and 10 is very scared, how scared were you just after the incident happened?

1 2 3 4 5 6 7 8 9 10
Not at all scared-----------------------------------Very scared

70. Did you seek medical attention from a doctor, nurse, or other health professional, either at the time that the person did this to you or in the next day or so?

1 Yes 2 No

71. Had you or the other person been drinking before this incident?

4 Both 3 You had been drinking, but your partner had not 2 Your partner had been drinking, but you had not 1 Neither

72. Was the other person in this incident your current spouse/partner/girlfriend/boyfriend?

1 Yes 2 No

73. Thinking back over the last 2 years, about how many times were any physically aggressive things done to you by your current spouse, partner, or someone with whom you have a close romantic relationship? For example, being pushed or shoved, getting beat up, or being threatened with a weapon.

4 or more times 2 Not at all 4 2-3 times 1 No relationship during this period 3 1 time
73A. Were any of these aggressive things done to you in the past 12 months by anyone in a romantic relationship with you (your spouse, partner, girlfriend/boyfriend, or someone with whom you had a close romantic relationship)?

☐ 1 Yes  ☐ 2 No

74. What is the most physically aggressive thing YOU have done during the last 2 years to someone who was or had been in a close romantic relationship with you?
☐ Push  ☐ Kick
☐ Shove  ☐ Beat up
☐ Grab  ☐ Throw something
☐ Slap  ☐ Hit with an object
☐ Punch  ☐ Threaten him/her
☐ Threaten with a weapon  ☐ Use a weapon
☐ Other – Please specify: ____________________________
☐ No physical aggression

IF YOU HAVE NOT DONE ANYTHING PHYSICALLY AGGRESSIVE TO A SPOUSE OR GIRLFRIEND/BOYFRIEND IN THE PAST 2 YEARS, GO TO Q.82

75. On a scale of 1 to 10, where 1 is very minor aggression and 10 is life-threatening aggression, how would you rate the level of this aggressive act?

1 2 3 4 5 6 7 8 9 10

Minor aggression .......................................................... Life-threatening aggression

The next few questions ask about how you felt after the incident, including how upset, angry and scared you were. Please circle the number along the scales that best describe how you felt.

76. On a scale from 1 to 10, where 1 is not at all upset and 10 is very upset, how upset were you just after the incident happened?

1 2 3 4 5 6 7 8 9 10

Not at all upset --------------------------------------------------------------- Very upset

77. On a scale from 1 to 10, where 1 is not at all angry and 10 is very angry, how angry were you just after the incident happened?

1 2 3 4 5 6 7 8 9 10

Not at all angry --------------------------------------------------------------- Very angry

78. On a scale from 1 to 10, where 1 is not at all scared and 10 is very scared, how scared were you just after the incident happened?

1 2 3 4 5 6 7 8 9 10

Not at all scared --------------------------------------------------------------- Very scared

79. Had you or the other person been drinking before this incident?

☐ 1 Both
☐ 2 You had been drinking, but your partner had not
☐ 3 Your partner had been drinking, but you had not
☐ 4 Neither
80. Was the other person in this incident your current spouse/partner/girlfriend/boyfriend?
   □ 1 Yes  □ 2 No

81. Thinking back over the last 2 years, about how many times did you do any physically aggressive things to your current spouse, partner, or someone with whom you have a close romantic relationship? For example, pushing or shoving, beating up, or threatening with a weapon.
   □ 1 1 time
   □ 2 Not at all
   □ 3 2-3 times
   □ 4 4 or more times

81A. Did you do any of these aggressive things to anyone in a romantic relationship with you in the past 12 months?
   □ 1 Yes  □ 2 No

82. Before you were 16 years old (age 15 or younger), did someone in your family try to make you do sexual things or watch sexual things?
   □ 1 Never
   □ 2 Rarely
   □ 3 Often
   □ 4 Very often

83. Before you were 16 years old (age 15 or younger), did someone other than a family member try to make you do sexual things or watch sexual things?
   □ 1 Never
   □ 2 Rarely
   □ 3 Often
   □ 4 Very often

84A. Since the age of 16 (16 or older), was there a time when someone forced you to have sexual activity that you really did not want? This might have been intercourse or other forms of sexual activity, and might have happened with spouses, lovers, or friends, as well as with more distant persons and strangers.
   □ 1 Yes  □ 2 No  Go to Q.05

84B. Was this with a spouse, partner, or someone you had a close romantic relationship with?
   □ 1 Yes  □ 2 No
HEALTH AND LIFESTYLE

Now we would like to ask you some questions about your health and your lifestyle.

85. How tall are you?
   cm OR feet inches

86. How much do you weigh?
   kg OR stone pounds

Men please go to Q.89

87. Are you currently pregnant?
   1 Yes  2 No

88. Have you given birth in the last 12 months?
   1 Yes  2 No

89. In general, how has your physical health been in the last 12 months?
   1 Excellent  2 Fair
   3 Very good  1 Poor
   4 Good

90. In general, how has your emotional/mental health been in the last 12 months?
   1 Excellent  2 Fair
   3 Very good  1 Poor
   4 Good

91. In the last 12 months, have you sought medical or other professional help related to your physical health?
   1 Yes  2 No

92. In the last 12 months, have you sought medical or other professional help related to your emotional/mental health?
   1 Yes  2 No

93. In the last 12 months, have you tried to cut down or quit drinking but were unable to do so?
   1 Yes  2 No

94A. Did you ever consider seeking help for your own drinking or alcohol-related problems?
   1 Yes  2 No  Go to Q.95
94B. If yes, did you ever receive help?
   □ 1 Yes □ 2 No   Go to Q.95

94C. If yes, did you receive help in the last 12 months?
   □ 1 Yes □ 2 No

95. In the last 12 months, have you smoked one or more cigarettes a day?
   □ 1 Yes □ 2 No

96. In the last 12 months, have you used any prescription drugs or medicines in a way other than the one prescribed?
   □ 1 Yes □ 2 No

97. In the last 12 months, have you used marijuana (pot or hashish)?
   □ 1 Yes □ 2 No

98A. In the last 12 months, have you used any other drugs, such as cocaine or crack, heroin, stimulants (such as methamphetamines or “P”), hallucinogens (such as LSD), or other drugs, such as ecstasy?
   □ 1 Yes □ 2 No

98B. In the last 12 months, have you injected any drugs, such as heroin or cocaine?
   □ 1 Yes □ 2 No

98C. In the last 12 months, have you taken any party pills or “herbal highs”?
   □ 1 Yes □ 2 No

99. About how often during the last 30 days have you spent time on some leisure time activity or interest?
   □ 5 Daily or almost every day □ 2 1-3 times in the last 30 days
   □ 4 Several times a week □ 1 Not at all during the last 30 days
   □ 3 1-2 times per week
100A. In the last 12 months, have you done any of the following activities so much that it has interfered with your everyday life? Please tick any that apply.

☐ a Gambling
☐ b Shopping
☐ c Exercising
☐ d Eating

☐ e Dieting
☐ f Sexual Activity
☐ g Using the Internet
☐ h Working

100B. In the last 12 months, did you have some sense of loss of control over any of these activities at any time? Please tick any that apply.

☐ a Gambling
☐ b Shopping
☐ c Exercising
☐ d Eating

☐ e Dieting
☐ f Sexual Activity
☐ g Using the Internet
☐ h Working

100C. In the last 12 months, have you done any of the following activities, such that they concerned you or someone close to you? Please tick any that apply.

☐ a Gambling
☐ b Shopping
☐ c Exercising
☐ d Eating

☐ e Dieting
☐ f Sexual Activity
☐ g Using the Internet
☐ h Working

This is the end of the questionnaire.

Please post your questionnaire back to us in the enclosed Freepost envelope, even if you did not complete it.

Thank you again for taking the time to complete this survey. If you have any questions relating to this survey or the study in general, please contact us and we will do our best to help you:

Free telephone: 0800 436 2247
Email: ahs@ipru.otago.ac.nz

Your general practitioner or other health care provider can give confidential advice on any issues relating to your health and wellbeing, and refer you to appropriate services as needed.

Alternatively, if you have questions or concerns about your drinking or someone else’s drinking, please contact: Alcohol Drug Helpline 0800 787 797

If you have questions or concerns about domestic violence, sexual assault and/or abuse, please contact: Victim Support 0800 VICTIM (0800 842 846)
Appendix E: 1st reminder letter

22nd May, 2007

Dear <Title> <Surname>,

About two weeks ago, we wrote inviting you to complete a confidential questionnaire as part of a survey being carried out by researchers at the University of Otago. The survey is collecting information about New Zealanders’ general health and experiences with alcohol, and your name had been randomly selected from the electoral roll. Thank you very much if you have completed the questionnaire and returned it to us.

If you have not already returned the questionnaire, we would like you to consider completing it, as we are interested in the experiences of the whole population. We value your contribution, whether or not you drink alcohol and regardless of how little or how much.

The information you provide is confidential.

If you decide to complete the questionnaire, you do not have to answer any questions that you don’t feel comfortable with. We would still appreciate your contribution. If you have any questions about the survey please email us (ahs@otago.ac.nz) or call us free (0800 436 2247).

If you no longer have the questionnaire form, or didn’t receive one, please contact us (in the same way) and we will post you one.

If you do not wish to participate, we respect your decision. If you let us know, we will endeavour not to contact you again.

Sincerely,

Kimberly Cousins  Jennie Connor
Assistant Research Fellow  Senior Lecturer

This study has been approved by the University of Otago Human Ethics Committee.
Appendix F: 2nd reminder letter

<Mailin Name>
<Mailin Address 1>
<Mailin Address 2>
<Mailin Address 3>

22nd June, 2007

Dear <Title> <Surname>,

We are writing to you because your name was randomly selected from the electoral roll to be invited to complete an anonymous questionnaire about your health and experiences with alcohol as part of our university research project. The purpose is to build up a picture of people's similarities and differences in drinking and health in the whole population. We would value your contribution, whether or not you drink any alcohol and regardless of how little or how much.

This research is being carried out in the University of Otago and the information you provide is completely confidential.

We have sent you an invitation to take part in the study previously. Thank you very much if you have already completed the questionnaire and returned it to us. An earlier letter had an error in the email contact address and we apologise if this caused any inconvenience. Our correct contact details are given below.

If you have not already returned the questionnaire, we would like you to consider completing it, as we are interested in the experiences of everyone.

When you are completing the questionnaire, you do not have to answer any questions that you don't feel comfortable with. We would still appreciate your contribution. If you have any questions about the survey please email us (ahs@ipu.otago.ac.nz) or call us free (0800 435 2247).

If you do not wish to participate, we respect your decision. If you let us know we will endeavour not to contact you again.

Sincerely,

[Signature]

Kimberly Cousins  Jennie Connor
Assistant Research Fellow  Senior Lecturer

This study has been approved by the University of Otago Human Ethics Committee.