

# Chapter 5: Alcohol Use

## Key points

- 17.3% of adults in the 1996/97 Health Survey indicated a pattern of drinking which put them at risk of future physical or mental negative effects from alcohol (AUDIT score of eight or more). People aged between 15 and 24 years, especially men, were more likely to fall into this group.
- Men were more likely than women to drink more frequently, drink more heavily on a typical day when drinking, and to drink six or more drinks on one occasion at least weekly.
- Older people tended to drink more regularly than younger people, but tended to drink less on a single occasion.
- Alcohol consumption patterns varied across ethnic groups. European/Pākehā adults were the most likely to have drunk any alcohol in the previous year, and to drink alcohol four or more times per week.
- Māori adults were most likely to indicate a hazardous pattern of drinking (AUDIT score of eight or more), to drink five or more drinks on a typical day when drinking, and to drink six or more drinks on one occasion at least weekly.
- Pacific people and people from the Other ethnic group were most likely to report not drinking any alcohol in the previous year; however, Pacific drinkers also tended to drink more on a typical day when drinking than European/Pākehā drinkers.
- People with lower family incomes, lower levels of education and those living in the most deprived areas were least likely to report drinking any alcohol in the previous year. However, these same groups were also most likely to report hazardous drinking patterns (AUDIT score of eight or more).
- Moderate drinkers tended to rate their health as better than either non-drinkers or heavier drinkers.

## Introduction

Alcohol is the most commonly used recreational drug in New Zealand (Black and Casswell 1991). In 1997, the equivalent of 8.9 litres of pure alcohol was available for consumption for every person aged over 15 years. Total consumption of alcohol has fallen by 25% since 1980, although there has been a slight increase in the last year (Ministry of Health 1998). However, total consumption per person does not provide any information on harmful drinking patterns. Episodes of heavy drinking are more likely to contribute to adverse health outcomes than small amounts of alcohol taken regularly (Kauhanen et al 1997).

Adverse effects of alcohol on health include cirrhosis and other alcoholic liver disease, pancreatitis, endocrine disorders, cardiomyopathy, gastritis, high blood pressure, haemorrhagic stroke and certain types of cancers (including cancers of the mouth, pharynx, larynx, oesophagus, breast and liver). In addition, high levels of alcohol consumption can cause mental disorders such as alcohol dependence and abuse, and other alcohol-induced disorders such as amnesia, psychosis and dementia (US Department of Health and Human Services 1997). Alcohol use during pregnancy can lead to birth defects in infants, including foetal alcohol syndrome (Leversha and Marks 1995). Alcohol use is associated with intentional and unintentional injuries and, in New Zealand, was a contributory factor to 25% of fatal motor vehicle crashes in 1997 (Ministry of Health 1998). Alcohol also plays a role in unsafe sexual practices, domestic violence and criminal offending (Anderson 1996; Fergusson et al 1996; Fergusson and Lynskey 1996; US Department of Health and Human Services 1997). Importantly, the majority of people who misuse alcohol or are alcohol-dependent do not seek help (Hornblow et al 1990).

In older people, alcohol can be protective when used in moderation for cardiovascular disease, particularly coronary heart disease (Anderson 1996; Doll 1997). Because of this, studies in industrialised countries, particularly among men, have found that older people who have a low to moderate intake of alcohol have lower mortality rates than non-drinkers or people with high alcohol intakes (Marmot and Brunner 1991; Labry et al 1992; Rehm and Sempos 1995). This is the so-called 'U-shaped curve' or 'J-shaped curve' of mortality against alcohol intake. However, for younger people and people with low absolute risks for cardiovascular disease, the adverse effects of any alcohol have been found to outweigh any protective effects (Andreasson et al 1988; Klatsky et al 1992; Doll et al 1994; Fuchs et al 1995; Anderson 1996). Apart from coronary heart disease, the evidence clearly shows that the lower the consumption of alcohol, the better the health (Anderson 1996).

To investigate drinking patterns in the 1996/97 Health Survey, the AUDIT (Alcohol Use Disorders Identification Test) questionnaire was used. The AUDIT questionnaire was developed by the World Health Organization as a screening instrument for use by health professionals to identify people at risk of developing alcohol problems (Barbor and Grant 1989). The AUDIT is a 10-item questionnaire with questions covering alcohol consumption, alcohol-related problems and abnormal drinking behaviour (Saunders et al 1993; Barbor et al 1992; see Table 21). Each question is scored between 0 and 4, and the questionnaire has a maximum possible score of 40. The higher the score, the more problematic the pattern of alcohol consumption is likely to be.

The most common cut-off used to identify 'hazardous drinking' using AUDIT is eight (Conigrave, Hall et al 1995). 'Hazardous drinking' is defined as an established pattern of drinking that carries with it a high risk of future damage to physical or mental health, but has not yet resulted in significant medical or psychiatric effects (Saunders et al 1993). Therefore, people who score eight or more on AUDIT are more likely to suffer physical, mental or social effects from alcohol than other people. For example, over a third of the people attending an accident and emergency clinic in Sydney were found to have an AUDIT score of eight or more. Of these, 61% experienced alcohol-related social problems two to three years later, compared with 10% of those with lower scores. Those who scored eight or more were also more likely to experience alcohol-related medical disorders and to be hospitalised (Conigrave, Saunders et al 1995).

The AUDIT questionnaire has not been used extensively to monitor the use of alcohol in general populations internationally. It is likely to be useful in this context, however, to identify groups within the population with potentially hazardous drinking patterns, and to track changes in drinking patterns over time, both in the whole population and in particular sub-populations within New Zealand (Fleming 1996). This is the first time AUDIT has been used in a national survey in New Zealand.

Unless otherwise stated, age- and sex-standardised rates, and 95% confidence intervals in parentheses, are given in the text. Tables at the end of this section show key standardised and unstandardised estimates. More detailed tables related to this section are available on the Ministry of Health website ([www.moh.govt.nz](http://www.moh.govt.nz)).

**Table 21:** The AUDIT questionnaire

<p>Questions on hazardous alcohol consumption</p>	<ul style="list-style-type: none"> <li>• How often do you have a drink containing alcohol? <ul style="list-style-type: none"> <li>- monthly or less; 2 to 4 times a month; 2 to 3 times a week; 4 or more times a week</li> </ul> </li> <li>• How many drinks containing alcohol do you have on a typical day when drinking? <ul style="list-style-type: none"> <li>- 1 or 2; 3 or 4; 5 or 6; 7 to 9; 10 or more</li> </ul> </li> <li>• How often do you have six or more drinks on one occasion? <ul style="list-style-type: none"> <li>- never; less than monthly; monthly; weekly; daily or almost daily</li> </ul> </li> </ul>
<p>Questions on abnormal drinking behaviour</p>	<ul style="list-style-type: none"> <li>• How often during the last year have you found that you were not able to stop drinking once you had started? <ul style="list-style-type: none"> <li>- never; less than monthly; monthly; weekly; daily or almost daily</li> </ul> </li> <li>• How often during the last year have you failed to do what was normally expected from you because of drinking? <ul style="list-style-type: none"> <li>- never; less than monthly; monthly; weekly; daily or almost daily</li> </ul> </li> <li>• How often during the year have you needed a first drink in the morning to get yourself going after a heavy drinking session? <ul style="list-style-type: none"> <li>- never; less than monthly; monthly; weekly; daily or almost daily</li> </ul> </li> </ul>
<p>Questions on problems caused by alcohol consumption and adverse effects of drinking</p>	<ul style="list-style-type: none"> <li>• How often during the last year have you had a feeling of guilt or remorse after drinking? <ul style="list-style-type: none"> <li>- never; less than monthly; monthly; weekly; daily or almost daily</li> </ul> </li> <li>• How often during the last year have you been unable to remember what happened the night before because you had been drinking? <ul style="list-style-type: none"> <li>- never; less than monthly; monthly; weekly; daily or almost daily</li> </ul> </li> <li>• Have you or someone else been injured as a result of your drinking? <ul style="list-style-type: none"> <li>- no; yes, but not in the last year; yes, during the last year</li> </ul> </li> <li>• Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down? <ul style="list-style-type: none"> <li>- no; yes, but not in the last year; yes, during the last year</li> </ul> </li> </ul>

## Results

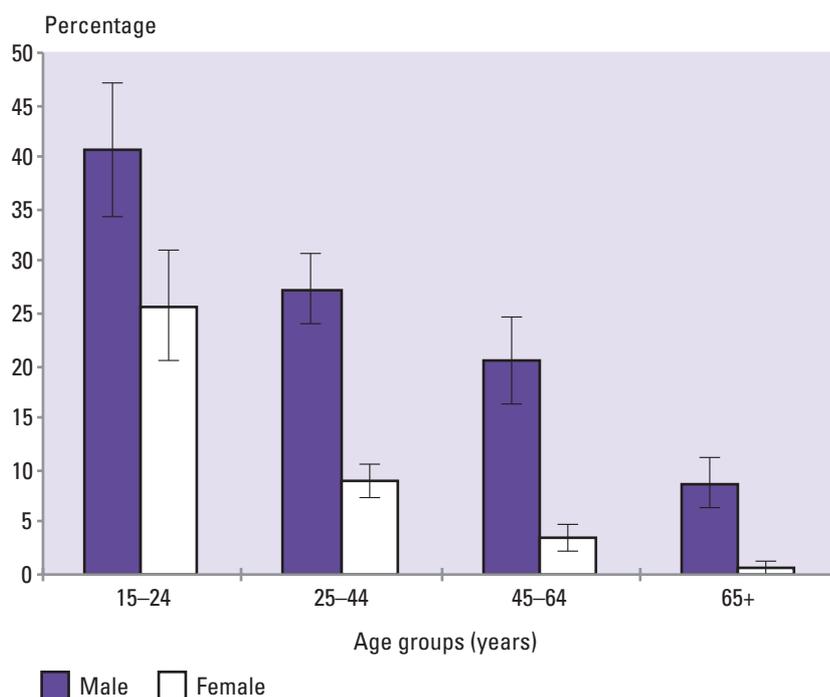
### Alcohol use

#### *Alcohol use by age and sex*

Of the adults in the 1996/97 Health Survey, 18.5% (17.3–19.7) reported that they had not had any alcohol in the previous year. Nearly two-thirds (64.2%; 62.6–65.8) reported that they did drink alcohol, but scored an AUDIT score of less than eight and so can be considered relatively safe drinkers. The remaining 17.3% (16.1–18.5) of adults had AUDIT scores of eight or more, indicating a pattern of drinking which put them at risk of future physical or mental health effects from alcohol.

There was a significant difference in AUDIT scores between males and females ( $p < 0.0001$ ). A quarter (25.5%; 23.3–27.7) of all males scored eight or more on the AUDIT questionnaire, compared with around 1 in 10 (9.5%; 8.3–10.7) females. Younger people were also much more likely to have an AUDIT score of eight or more compared with older people ( $p < 0.0001$ ; see Figure 21). This was particularly so for men aged between 15 and 24 years, among whom 40.7% (34.4–47.0) had AUDIT scores of eight or more compared with 25.8% (20.5–31.1) of women of the same age.

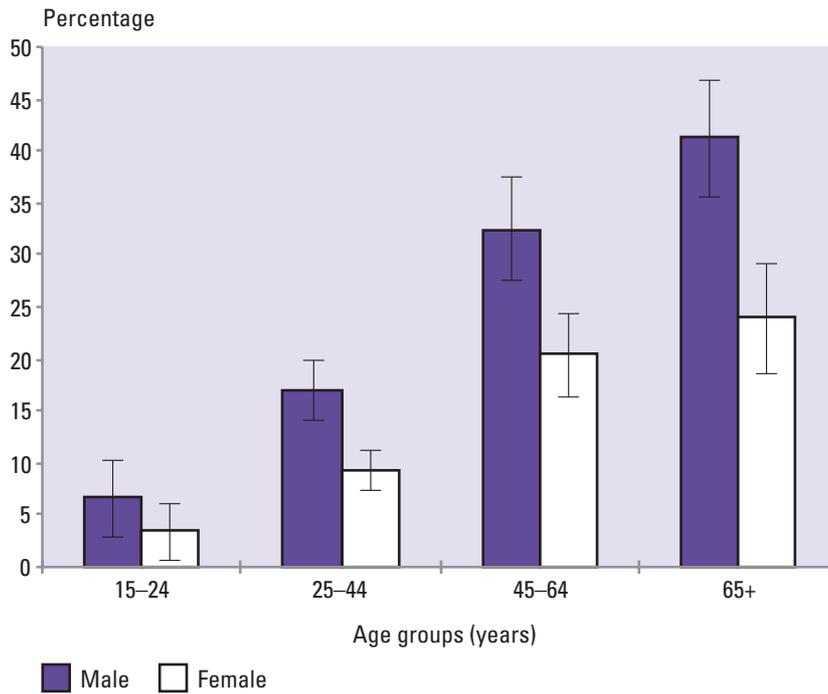
**Figure 21:** Proportion of people with a potentially hazardous drinking pattern, by age and sex



Note: Error bars indicated 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

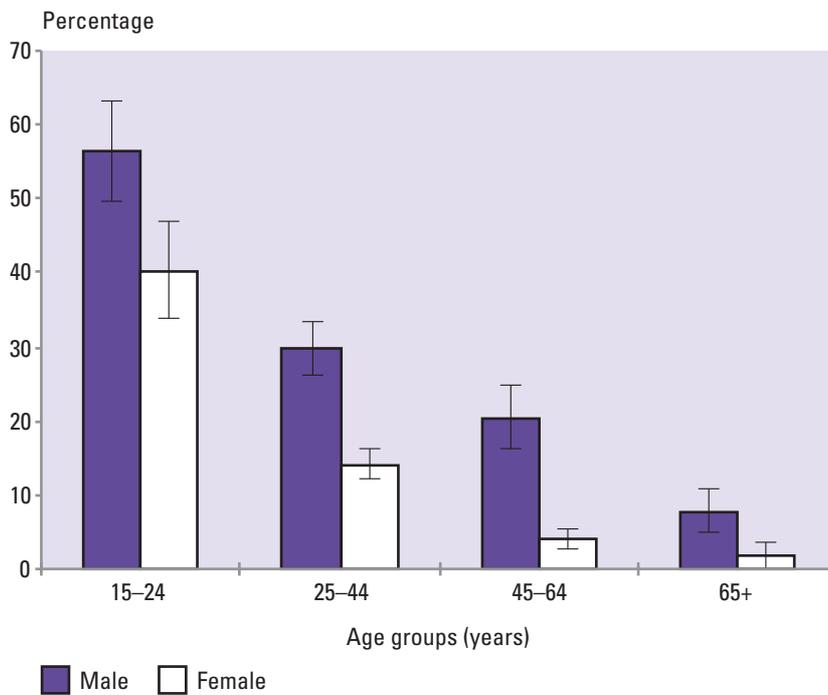
These differences in AUDIT scores were reflected in the different patterns of drinking evident between the sexes and across different age groups. Among those who reported that they drank alcohol, men were more likely than women to drink more frequently ( $p < 0.0001$ ), to drink five or more drinks on a typical day when drinking ( $p < 0.0001$ ), and to drink six or more drinks on one occasion at least weekly ( $p < 0.0001$ ). Older people drank more regularly than younger people ( $p < 0.0001$ ), but tended to drink less on a typical occasion ( $p < 0.0001$ ) and were less likely to drink six or more drinks on one occasion ( $p < 0.0001$ ; see Figures 22, 23 and 24).

**Figure 22:** Proportion of people who drink at least four times per week, by age and sex



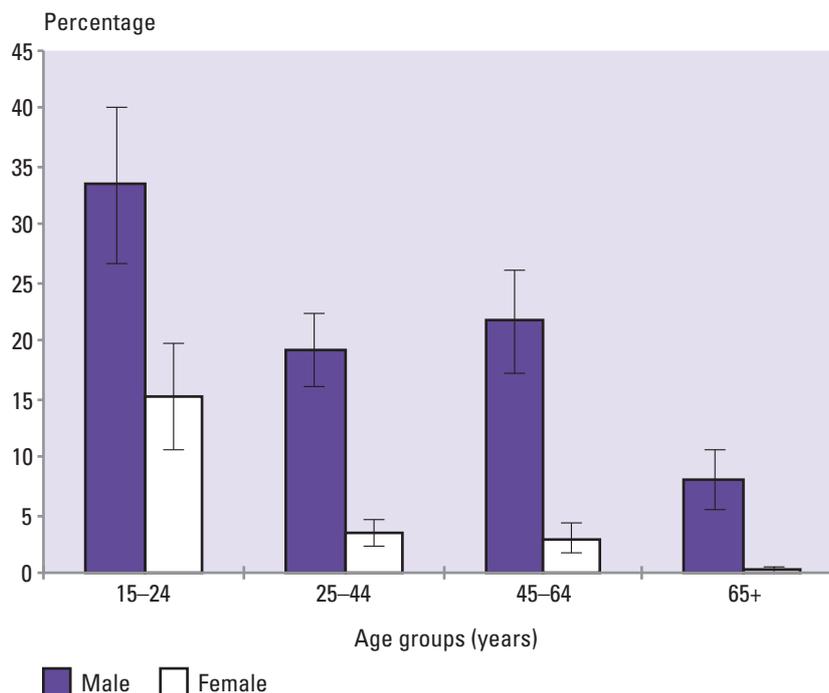
Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

**Figure 23:** Proportion of people who drink five or more drinks on a typical day when drinking, by age and sex



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

**Figure 24:** Proportion of people who drink six or more drinks on one occasion at least weekly, by age and sex



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

There are only a few studies which have used AUDIT as an instrument to identify hazardous drinking in a general population. A Finnish study, which used a higher cut-off of 11, found 22% of men and 5% of women could be classified as 'risky drinkers' (Holmila 1995). The comparable proportions in the New Zealand population from the 1996/97 Health Survey sample would be 13.4% of men and 4.5% of women.

A national postal study of Australian women found that 82% of women had drunk alcohol in the previous 12 months, and 8% had AUDIT scores of eight or more (Fleming 1996). This compares with New Zealand women, of whom 78% drank alcohol in the previous year, and 9.5% had AUDIT scores of eight or more in the 1996/97 Health Survey. Other studies have used specific sub-populations. In these studies, estimates of the prevalence of AUDIT scores of eight or more range from 30% of men and 8% of women in a sample of long-term unemployed in Norway (Claussen and Aasland 1993), to 52% of men and 17% of women in a sample of orthopaedic inpatients in Australia (Poon et al 1994).

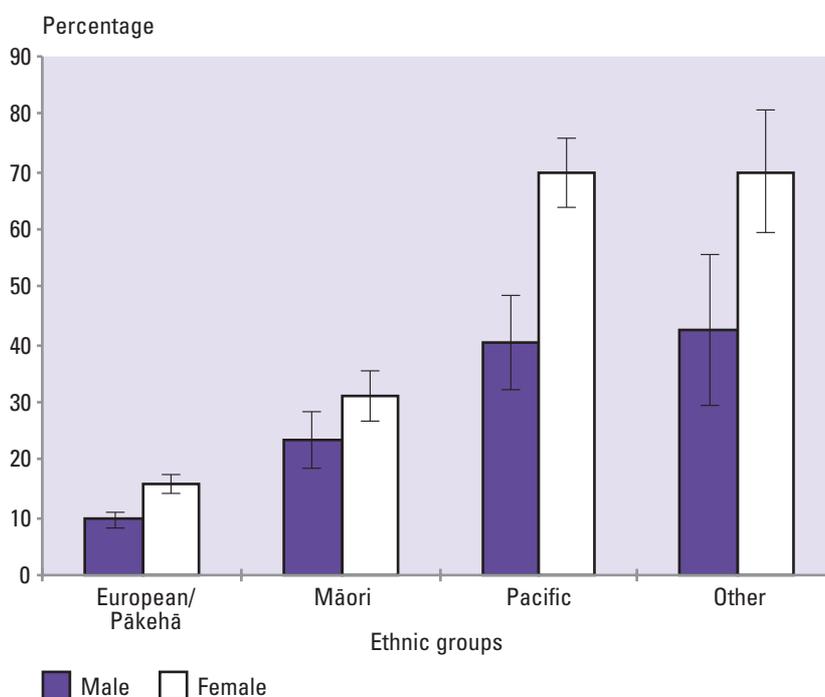
Although the AUDIT questionnaire itself has not been used previously in the general population in New Zealand, other studies have looked at the use of alcohol in New Zealand using different questions. The results of these surveys are consistent with the patterns seen here. The fact that men drink more alcohol than women has been consistently shown (Statistics New Zealand and Ministry of Health 1993; Wyllie et al 1996). It has been estimated that men drink 73% of the total alcohol consumed in New Zealand (Wyllie et al 1996). There is also consistent evidence that young people, particularly young men, are prone to frequent binge drinking, and that older people consume less alcohol overall than younger people (Wyllie et al 1996).

### Alcohol use by ethnicity

AUDIT scores and alcohol consumption patterns were analysed first in the total adult population (including drinkers and non-drinkers), and then among drinkers only. In the total population, AUDIT scores and alcohol consumption patterns varied significantly across ethnic groups ( $p < 0.0001$ ). Only 12.9% (11.7–14.1) of European/Pākehā reported that they had not had any alcohol in the previous year compared with 27.4% (24.1–30.7) of Māori adults. Over half of all Pacific adults (54.9%; 49.2–60.6) and adults from the Other ethnic group (56.9%; 47.5–66.3) reported no alcohol intake in the previous year. Māori adults were most likely to have an AUDIT score of eight or more (26.5%; 23.2–29.8) while similar proportions of European/Pākehā and Pacific adults fell into this category (17.3%; 15.7–18.9 and 16.1%; 12.2–20.0 respectively). People from the Other ethnic group were least likely to have a higher AUDIT score, with only 3.1% (0.0–6.2) scoring eight or more. This pattern across ethnic groups was similar for males and females, but in all ethnic groups men were more likely to have AUDIT scores of eight or more and women were more likely to be abstainers (see Figure 25).

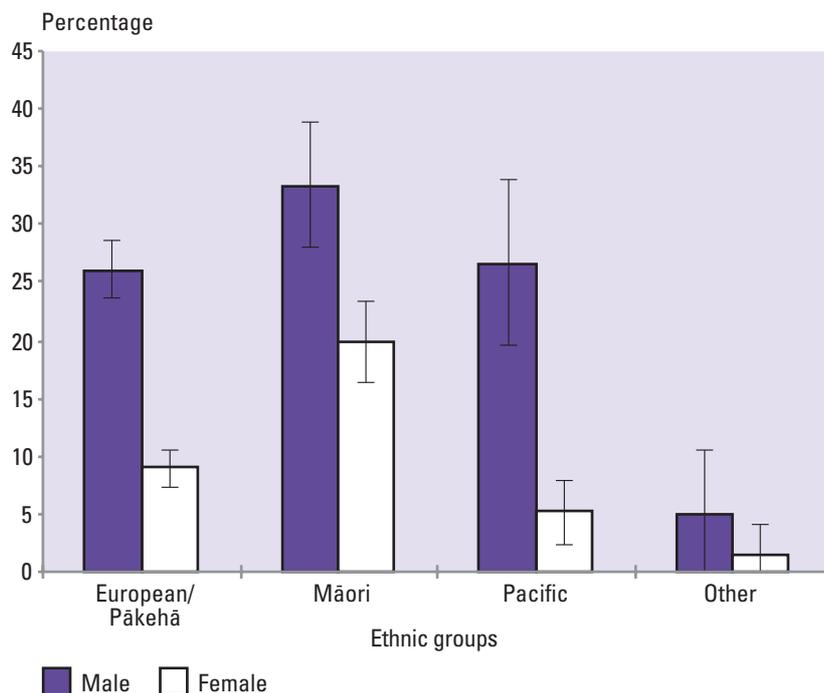
Among drinkers only, a slightly different pattern emerged. Again there were significant differences across ethnic group ( $p < 0.0001$ ). Around one in five (19.9%; 18.1–21.7) European/Pākehā drinkers had AUDIT scores of eight or more, compared with over a third of both Māori (36.5%; 32.4–40.6) and Pacific (35.7%; 28.3–43.1) drinkers. While a similar proportion of Māori and Pacific male drinkers scored eight or more on AUDIT (43.6%; 36.9–50.3 and 44.7%; 34.7–54.7 respectively), female Māori drinkers were more likely to score eight or more than female Pacific drinkers (28.8%; 23.9–33.7 and 17.4%; 8.8–26.0 respectively; see Figure 26).

**Figure 25:** Proportion of people who reported that they had not consumed alcohol in the previous year, by ethnicity and sex (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

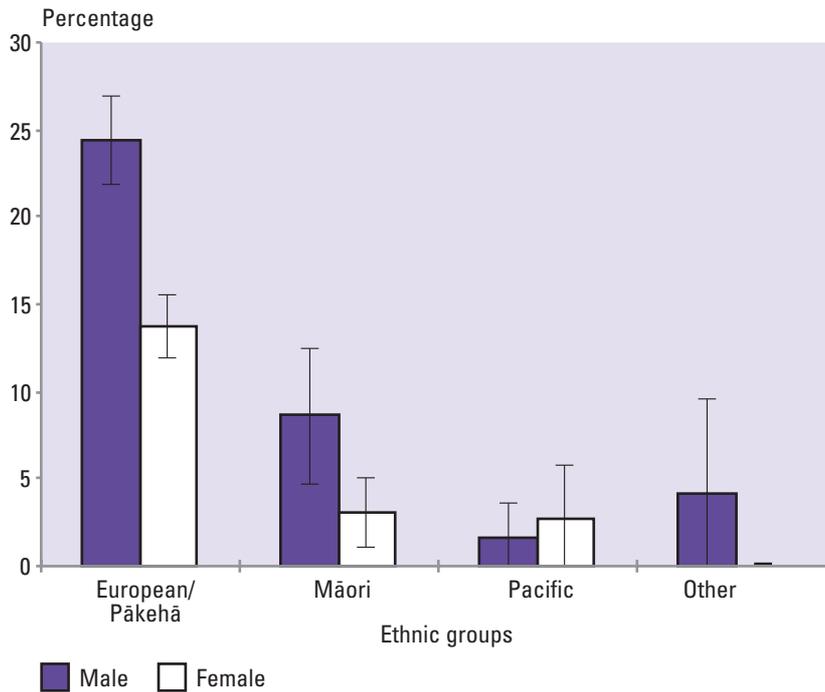
**Figure 26:** Proportion of people (including non-drinkers) with a potentially hazardous drinking pattern, by ethnicity and sex (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

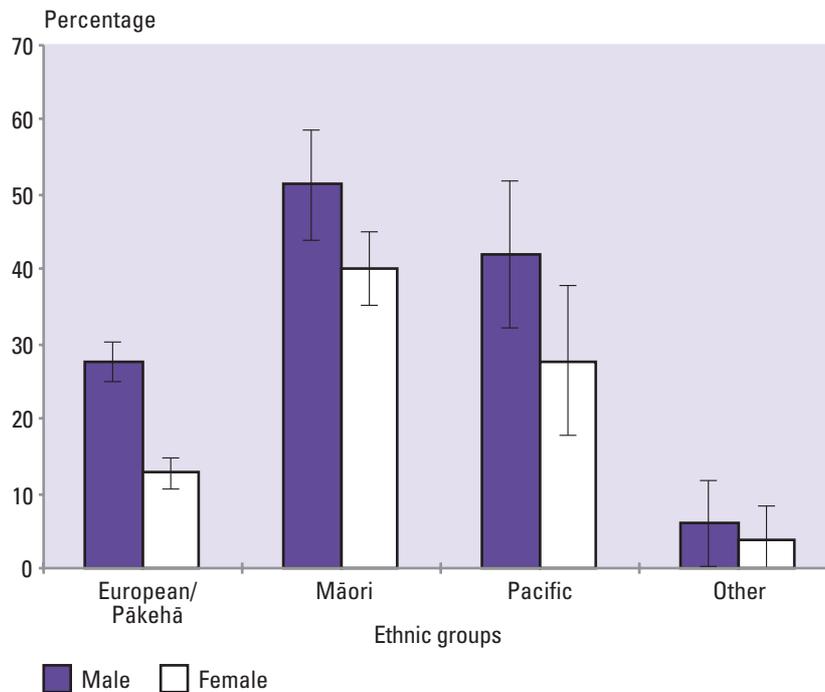
The pattern of drinking varied considerably between ethnic groups. European/Pākehā drinkers were more likely to drink four or more times per week than either Māori or Pacific drinkers ( $p < 0.0001$ ). On the other hand, Māori and Pacific drinkers were more likely to drink five or more drinks on one occasion than European/Pākehā drinkers ( $p < 0.0001$ ). Māori drinkers were more likely to drink six or more drinks at least weekly than either European/Pākehā or Pacific drinkers ( $p < 0.0001$ ). The ethnic-specific patterns described here were similar for men and women, but again, in each ethnic group men reported drinking a greater amount and more often than women (see Figures 27, 28 and 29).

**Figure 27:** Proportion of people who drink four or more times per week, by ethnicity and sex (age-standardised)



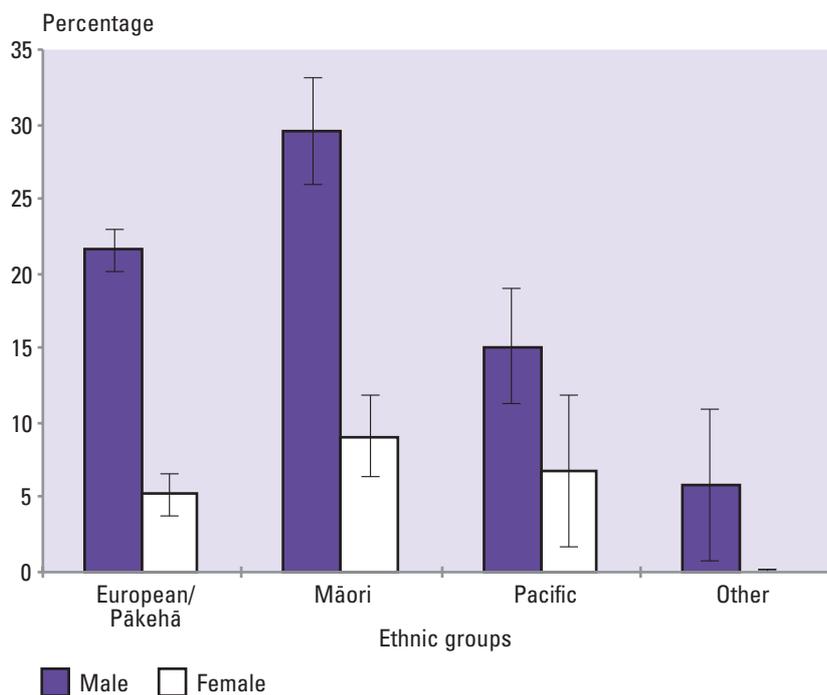
Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

**Figure 28:** Proportion of people who drink five or more drinks on a typical day when drinking, by ethnicity and sex (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

**Figure 29:** Proportion of people who drink six or more drinks on one occasion at least weekly, by ethnicity and sex (age-standardised)



Note: Error bars indicate 95% confidence intervals. For further explanation of graphs, see Appendix 2: Notes to Figures and Tables.

These results are reasonably consistent with those from the 1992/93 Health Survey (Statistics New Zealand and Ministry of Health 1993), which found that over half of all Pacific people and people from the Other ethnic group did not drink alcohol, compared with over a quarter of Māori and one in five European/Pākehā people. That survey also found that Māori were over-represented among the moderate and heavy alcohol drinkers.

A more recent survey on alcohol use (Dacey 1997) also found that more Māori than non-Māori were non-drinkers, and that, although the frequency of drinking was lower for Māori compared with non-Māori, the median quantity per drinking occasion was higher for Māori. That survey also found that while the annual volume of consumption was higher for Māori men, the annual consumption for Māori women was lower than for non-Māori. The findings of the 1996/97 Health Survey are not consistent with this latter finding.

#### *Alcohol use by family income, education and NZDep96 score\**

Once differences in age and sex were accounted for, people with lower family incomes, lower levels of education and those living in the more deprived areas of New Zealand were most likely to report not drinking alcohol in the previous year (all  $p < 0.0001$ ). However, after excluding non-drinkers from the analysis, these same groups were also all more likely to have AUDIT scores of eight or more (all  $p < 0.0001$ ).

\* The NZDep96 score measures the level of deprivation in the area in which a person lives, according to a number of census variables such as the proportion of people in that area who earn low incomes or who receive income support benefits, are unemployed, do not own their own home, have no access to a car, are single-parent families, or have no qualifications. The scores are divided into quartiles from 1 (least deprived) to 4 (most deprived). For more details, see Chapter 1: The Survey.

Surveys both in New Zealand and overseas (Statistics New Zealand and Ministry of Health 1993; Hedges 1996; Health and Welfare Canada 1988) have suggested that people in higher socioeconomic groups are more likely both to drink alcohol and to drink greater amounts of alcohol. The results here suggest that while those in higher socioeconomic groups are more likely to drink alcohol, they may have safer drinking patterns, particularly in terms of less binge drinking, than those in lower socioeconomic groups. This is consistent with findings of studies of people with problem drinking, which show people from lower socioeconomic groups are over-represented (Crum et al 1993; Mirand and Welte 1996; Makela et 1997; Poulin et al 1997).

### *Alcohol use by smoking status*

Smokers were significantly more likely to drink alcohol ( $p < 0.0001$ ), and to drink alcohol in a potentially hazardous manner (AUDIT scores of eight or more;  $p < 0.0001$ ) relative to non-smokers. For example, around a quarter of smokers (26.2%; 23.7–28.7) and one in five ex-smokers (19.8%; 16.1–23.5) could be defined as potentially hazardous drinkers, while only one in nine (11.4%; 9.6–13.2) non-smokers fell into this category.

### *Alcohol use by self-rated health status*

Moderate drinkers (scored less than eight on AUDIT) were most likely to rate their health as excellent or very good, and least likely to rate their health as fair or poor ( $p < 0.001$ ). Lower proportions of non-drinkers and those with AUDIT scores of eight or more rated their health as excellent or very good. Those who drank no alcohol were most likely to rate their health as fair or poor. For more detailed information on the relationship between self-rated health and alcohol consumption, see Chapter 11: SF-36 Health Status Questionnaire: Health Risk Behaviours, Specific Conditions and Health Service Utilisation.

**Table 22:** Self-rated health status, by AUDIT scores: percent (95% confidence intervals)

	Excellent/very good % (95% CI)		Good % (95% CI)		Fair/poor % (95% CI)	
	Unadj	Adj*	Unadj	Adj*	Unadj	Adj*
No alcohol	52.2 (48.7–55.7)	53.6 (49.9–57.3)	29.6 (26.3–32.9)	29.5 (26.0–33.0)	18.2 (15.7–20.7)	16.8 (14.3–19.3)
AUDIT less than eight	61.1 (59.1–63.1)	60.7 (58.5–62.9)	29.0 (27.2–30.8)	29.2 (27.2–31.2)	9.9 (8.7–11.1)	10.1 (8.9–11.3)
AUDIT eight and over	55.4 (51.3–59.5)	50.6 (44.9–56.3)	30.8 (26.9–34.7)	35.5 (29.2–41.8)	13.8 (10.9–16.7)	14.0 (10.9–17.1)

\* Adjusted rates are adjusted for age and sex.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

### *Alcohol use by health service utilisation*

There were significant differences in the frequency with which people saw their GPs according to their AUDIT scores ( $p < 0.0001$ ). Non-drinkers were both most likely to have not seen their GP at all in the previous year, and to have seen their GP six or more times in that time. Moderate drinkers were least likely not to have seen their GP at all in the previous year, and were also least likely to have seen their GP six or more times in the previous year. Those with AUDIT scores of eight and over were between these two extremes.

There were no significant differences in rates of admissions to hospital according to AUDIT score.

**Table 23: AUDIT scores, by sociodemographic variables: percent (95% confidence intervals)**

	No alcohol			AUDIT less than eight			AUDIT eight and over		
	%		Pop est	%		Pop est	%		Pop est
	(95% CI)			(95% CI)			(95% CI)		
	Unadj	Adj*		Unadj	Adj*		Unadj	Adj*	
<b>Total</b>	18.5 (17.3–19.7)		510,282	64.2 (62.6–65.8)		1,773,659	17.3 (16.1–18.5)		478,437
<b>Sex</b>									
Male	14.0 (12.4–15.6)	14.1 (12.5–15.7)	188,850	60.2 (57.8–62.6)	60.4 (58.0–62.8)	810,488	25.7 (23.5–27.9)	25.5 (23.3–27.7)	346,276
Female	22.7 (20.9–24.5)	22.4 (20.6–24.2)	321,432	68.0 (66.0–70.0)	68.1 (66.1–70.1)	963,170	9.3 (8.1–10.5)	9.5 (8.3–10.7)	132,161
<b>Age</b>									
15–24 years	18.5 (15.2–21.8)	18.5 (15.2–21.8)	96,235	48.2 (43.9–52.5)	48.5 (44.2–52.8)	251,491	33.3 (29.2–37.4)	33.0 (28.9–37.1)	173,594
25–44 years	14.9 (13.3–16.5)	14.9 (13.3–16.5)	167,345	67.2 (64.8–69.6)	67.2 (64.8–69.6)	755,699	17.9 (15.9–19.9)	17.9 (15.9–19.9)	200,705
45–64 years	17.2 (14.8–19.6)	17.3 (14.9–19.7)	126,547	70.9 (68.2–73.6)	71.0 (68.3–73.7)	521,940	11.9 (9.7–14.1)	11.8 (9.6–14.0)	87,980
65–74 years	23.5 (19.8–27.2)	30.7 (27.6–33.8)	55,061	71.0 (67.1–74.9)	64.7 (61.4–68.0)	166,685	5.6 (3.8–7.4)	4.6 (3.2–6.0)	13,034
75+ years	44.6 (39.3–49.9)	43.8 (38.5–49.1)	65,095	53.3 (48.2–58.4)	53.8 (48.5–59.1)	77,844	2.1 (0.7–3.5)	2.3 (1.2–4.4)	3123
<b>Ethnicity</b>									
European/ Pākehā	13.6 (12.4–14.8)	12.9 (11.7–14.1)	302,786	69.9 (68.3–71.5)	69.8 (68.0–71.6)	1,554,998	16.5 (15.1–17.9)	17.3 (15.7–18.9)	367,988
Māori	22.8 (19.9–25.7)	27.4 (24.1–30.7)	61,285	46.8 (43.1–50.5)	46.1 (42.6–49.6)	125,965	30.4 (26.7–34.1)	26.5 (23.2–29.8)	81,790
Pacific	52.1 (46.2–58.0)	54.9 (49.2–60.6)	65,151	27.9 (23.2–32.6)	29.0 (24.1–33.9)	34,974	20.0 (15.3–24.7)	16.1 (12.2–20.0)	25,012
Other	56.9 (48.7–65.1)	56.9 (47.5–66.3)	81,061	40.5 (32.5–48.5)	40.0 (30.8–49.2)	57,721	2.6 (0.6–4.6)	3.1 (0.0–6.2)	3647
<b>Family income</b>									
0–\$20,000	30.7 (27.8–33.6)	26.8 (23.3–30.3)	148,559	56.7 (53.8–59.6)	55.2 (51.7–58.7)	274,467	12.6 (10.6–14.6)	18.0 (14.9–21.1)	61,220
\$20,001–\$30,000	18.7 (15.8–21.6)	17.8 (14.7–20.9)	69,243	66.2 (62.3–70.1)	62.7 (58.2–67.2)	245,707	15.2 (12.1–18.3)	19.5 (15.2–23.8)	56,293
\$30,001–\$50,000	17.1 (14.6–19.6)	19.0 (15.9–22.1)	89,823	65.9 (62.8–69.0)	64.2 (60.7–67.7)	346,781	17.0 (14.5–19.5)	16.8 (14.3–19.3)	89,223
\$50,001+	8.0 (6.2–9.8)	10.8 (7.1–14.5)	68,920	72.6 (69.9–75.3)	71.9 (68.0–75.8)	628,512	19.4 (16.9–21.9)	17.4 (14.9–19.9)	168,239
<b>NZDep96 score</b>									
1 (least deprived)	14.7 (12.0–17.4)	14.6 (11.9–17.3)	117,226	69.5 (66.4–72.6)	70.0 (67.1–72.9)	553,813	15.8 (13.1–18.5)	15.4 (12.9–17.9)	126,094
2	15.3 (12.8–17.8)	15.0 (12.5–17.5)	105,091	70.4 (67.3–73.5)	69.5 (66.2–72.8)	482,305	14.2 (11.8–16.6)	15.4 (12.7–18.1)	97,513
3	17.7 (15.5–19.9)	17.6 (15.4–19.8)	110,041	63.8 (60.7–66.9)	64.3 (61.4–67.2)	395,860	18.5 (16.0–21.0)	18.1 (15.6–20.6)	114,928
4 (most deprived)	27.0 (24.5–29.5)	26.9 (24.5–29.3)	177,924	51.8 (49.3–54.3)	53.0 (50.5–55.5)	341,680	21.2 (19.0–23.4)	20.1 (18.1–22.1)	139,902
<b>Smoking status</b>									
Current smoker	12.6 (10.8–14.4)	14.2 (12.2–16.2)	86,372	58.3 (55.4–61.2)	59.6 (56.9–62.3)	400,644	29.2 (26.5–31.9)	26.2 (23.7–28.7)	200,544
Ex-smoker	13.6 (11.6–15.6)	13.0 (10.6–15.4)	93,112	70.9 (68.0–73.8)	67.2 (63.3–71.1)	484,567	15.5 (13.0–18.0)	19.8 (16.1–23.5)	106,201
Never smoked	23.8 (21.8–25.8)	23.1 (21.1–25.1)	329,040	63.9 (61.5–66.3)	65.5 (63.3–67.7)	885,273	12.3 (10.5–14.1)	11.4 (9.6–13.2)	170,180
<b>Education</b>									
No qualification	26.9 (24.2–29.6)	25.6 (22.9–28.3)	208,454	56.9 (54.2–59.6)	55.7 (52.8–58.6)	441,184	16.2 (14.2–18.2)	18.7 (16.3–21.1)	125,766
School or post-school only	17.1 (15.3–18.9)	17.5 (15.5–19.5)	170,003	62.3 (59.8–64.8)	64.1 (61.6–66.6)	619,175	20.6 (18.2–23.0)	18.3 (16.1–20.5)	204,684
School and post-school	13.0 (11.2–14.8)	13.9 (11.7–16.1)	127,812	72.0 (69.5–74.5)	70.7 (68.0–73.4)	706,433	15.0 (13.0–17.0)	15.4 (13.2–17.6)	147,165

\* Adjusted rates are adjusted for age and sex, except when they are age-specific, in which case they are adjusted only for sex, or when they are sex-specific, in which case they are adjusted only for age.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

**Table 24: AUDIT scores for males, by age and ethnicity: percent (95% confidence intervals)**

Males	No alcohol			AUDIT less than eight			AUDIT eight and over		
	% (95% CI)		Pop est	% (95% CI)		Pop est	% (95% CI)		Pop est
	Unadj	Adj*		Unadj	Adj*		Unadj	Adj*	
<b>Total</b>	14.0 (12.4–15.6)	14.1 (12.5–15.7)	188,850	60.2 (57.8–62.6)	60.4 (58.0–62.8)	810,488	25.7 (23.5–27.9)	25.5 (23.3–27.7)	346,276
<b>Age</b>									
15–24 years	18.4 (13.3–23.5)		48,333	41.0 (34.7–47.3)		107,812	40.7 (34.4–47.0)		107,123
25–44 years	10.4 (8.4–12.4)		56,469	62.2 (58.7–65.7)		338,612	27.4 (24.1–30.7)		148,971
45–64 years	13.1 (10.4–15.8)		48,115	66.4 (61.9–70.9)		244,232	20.5 (16.4–24.6)		75,246
65+yrs	21.1 (17.0–25.2)		35,933	70.2 (65.5–74.9)		119,833	8.8 (6.3–11.3)		14,937
<b>Ethnicity</b>									
European/ Pākehā	9.9 (8.5–11.3)	9.8 (8.4–11.2)	107,553	64.8 (62.3–67.3)	64.1 (61.4–66.8)	703,515	25.3 (22.8–27.8)	26.1 (23.6–28.6)	274,810
Māori	19.4 (14.9–23.9)	23.5 (18.6–28.4)	24,443	42.8 (36.9–48.7)	43.1 (37.4–48.8)	54,113	37.8 (31.7–43.9)	33.4 (27.9–38.9)	47,750
Pacific	38.5 (30.5–46.5)	40.4 (32.2–48.6)	24,338	28.3 (21.2–35.4)	32.9 (25.5–40.3)	17,854	33.2 (25.4–41.0)	26.7 (19.6–33.8)	21,006
Other	46.3 (34.1–58.5)	42.7 (29.6–55.8)	32,516	49.8 (37.8–61.8)	52.4 (39.1–65.7)	35,006	3.9 (0.6–7.2)	4.9 (0.0–10.6)	2711

\* Adjusted rates are adjusted for age.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

**Table 25: AUDIT scores for females, by age and ethnicity: percent (95% confidence intervals)**

Females	No alcohol			AUDIT less than eight			AUDIT eight and over		
	% (95% CI)		Pop est	% (95% CI)		Pop est	% (95% CI)		Pop est
	Unadj	Adj*		Unadj	Adj*		Unadj	Adj*	
<b>Total</b>	22.7 (20.9–24.5)	22.4 (20.6–24.2)	321,432	68.0 (66.0–70.0)	68.1 (66.1–70.1)	963,170	9.3 (8.1–10.5)	9.5 (8.3–10.7)	132,161
<b>Age</b>									
15–24 years	18.6 (14.1–23.1)		47,902	55.7 (49.8–61.6)		143,680	25.8 (20.5–31.1)		66,471
25–44 years	19.1 (16.7–21.5)		110,875	71.9 (69.2–74.6)		417,086	8.9 (7.3–10.5)		51,735
45–64 years	21.2 (17.9–24.5)		78,432	75.3 (71.8–78.8)		277,708	3.5 (2.3–4.7)		12,734
65+years	40.1 (35.8–44.4)		84,223	59.3 (55.0–63.9)		124,697	0.6 (0.0–1.2)		1220
<b>Ethnicity</b>									
European/ Pākehā	17.1 (15.3–18.9)	15.9 (14.1–17.7)	195,233	74.7 (72.7–76.7)	75.1 (73.1–77.1)	851,483	8.2 (6.8–9.6)	9.0 (7.4–10.6)	93,178
Māori	25.8 (21.9–29.7)	31.1 (26.8–35.4)	36,843	50.3 (45.8–54.8)	49.0 (44.5–53.5)	71,852	23.8 (19.7–27.9)	19.9 (16.4–23.4)	34,040
Pacific	65.9 (59.6–72.2)	69.8 (63.7–75.9)	40,812	27.6 (21.7–33.5)	25.0 (19.3–30.7)	17,120	6.5 (3.0–10.0)	5.2 (2.5–7.9)	4006
Other	67.2 (57.6–76.8)	70.0 (59.4–80.6)	48,545	31.5 (22.3–40.7)	28.6 (18.4–38.8)	22,715	1.3 (0.0–3.8)	1.4 (0.0–3.9)	936

\* Adjusted rates are adjusted for age.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

**Table 26:** Frequency of alcohol consumption among male drinkers: percent  
(95% confidence intervals)

Males	Monthly or less % (95% CI)	2–4 times per month % (95% CI)	2–3 times per week % (95% CI)	4+ times per week % (95% CI)
	Adj*	Adj*	Adj*	Adj*
<b>Total</b>	20.9 (18.7–23.1)	26.6 (24.2–29.0)	30.1 (27.7–32.5)	22.4 (20.2–24.6)
<b>Age</b>				
15–24 years	28.5 (22.4–34.6)	33.3 (27.0–39.6)	31.6 (25.3–37.9)	6.6 (2.9–10.3)
25–44 years	19.3 (16.4–22.2)	31.5 (27.8–35.2)	32.2 (28.5–35.9)	17.0 (14.1–19.9)
45–64 years	18.7 (15.2–22.2)	19.4 (15.7–23.1)	29.4 (25.3–33.5)	32.5 (27.4–37.6)
65+ years	20.2 (15.5–24.9)	16.0 (11.9–20.1)	22.5 (17.6–27.4)	41.2 (35.5–46.9)
<b>Ethnicity</b>				
European/Pākehā	18.4 (16.2–20.6)	25.4 (22.9–27.9)	31.9 (29.2–34.6)	24.4 (21.9–26.9)
Māori	31.2 (25.3–37.1)	38.7 (32.2–45.2)	21.5 (15.4–27.6)	8.6 (4.7–12.5)
Pacific	48.5 (38.5–58.5)	32.9 (24.3–41.5)	17.0 (9.4–24.6)	1.6 (0.0–3.6)
Other	42.4 (23.8–61.0)	24.9 (10.8–39.0)	28.6 (10.4–46.8)	4.1 (0.0–9.6)

\* Adjusted rates are adjusted for age, except where they are age-specific.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

**Table 27:** Frequency of alcohol consumption among female drinkers: percent  
(95% confidence intervals)

Females	Monthly or less % (95% CI)	2–4 times per month % (95% CI)	2–3 times per week % (95% CI)	4+ times per week % (95% CI)
	Adj*	Adj*	Adj*	Adj*
<b>Total</b>	35.3 (33.1–37.5)	30.3 (28.1–32.5)	21.7 (19.7–23.7)	12.7 (11.1–14.3)
<b>Age</b>				
15–24 years	35.1 (29.4–40.8)	41.4 (35.3–47.5)	20.1 (14.8–25.4)	3.4 (0.7–6.1)
25–44 years	35.5 (32.4–38.6)	32.4 (28.9–35.9)	22.8 (19.9–25.7)	9.3 (7.3–11.3)
45–64 years	33.7 (29.4–38.0)	23.6 (19.9–27.3)	22.3 (18.2–26.4)	20.4 (16.5–24.3)
65+ years	39.2 (33.5–44.9)	18.3 (14.4–22.2)	18.6 (14.2–22.9)	24.0 (18.7–29.3)
<b>Ethnicity</b>				
European/Pākehā	32.3 (29.8–34.8)	30.5 (28.0–33.0)	23.5 (21.1–25.9)	13.7 (11.9–15.5)
Māori	50.8 (45.5–56.1)	34.9 (29.6–40.2)	11.1 (7.8–14.4)	3.1 (1.1–5.1)
Pacific	67.1 (57.1–77.1)	21.2 (12.0–30.4)	9.0 (3.5–14.5)	2.7 (0.0–5.8)
Other	45.9 (26.9–64.9)	33.4 (15.0–51.8)	20.7 (2.3–39.1)	0.0 (0.0–0.0)

\* Adjusted rates are adjusted for age, except where they are age-specific.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

**Table 28:** Number of drinks on a typical day when drinking, for males: percent (95% confidence intervals)

Males	1 or 2 % (95% CI)	3 or 4 % (95% CI)	5 or more % (95% CI)
	Adj*	Adj*	Adj*
<b>Total</b>	47.9 (45.2–50.6)	22.9 (20.7–25.1)	29.2 (26.8–31.6)
<b>Age</b>			
15–24 years	26.4 (20.1–32.7)	17.2 (12.1–22.3)	56.4 (49.7–63.1)
25–44 years	43.6 (39.7–47.5)	26.7 (23.2–30.2)	29.7 (26.2–33.2)
45–64 years	57.4 (52.5–62.3)	22.2 (18.5–25.9)	20.5 (16.2–24.8)
65+ years	72.4 (67.5–77.3)	19.7 (15.2–24.2)	7.9 (5.2–10.6)
<b>Ethnicity</b>			
European/Pākehā	48.9 (46.0–51.8)	23.4 (20.9–25.9)	27.7 (25.0–30.4)
Māori	28.9 (22.4–35.4)	19.8 (14.5–25.1)	51.3 (44.0–58.6)
Pacific	38.9 (27.9–49.9)	19.0 (11.7–26.3)	42.1 (32.3–51.9)
Other	74.6 (59.5–89.7)	19.4 (5.3–33.5)	6.0 (0.3–11.7)

\* Adjusted rates are adjusted for age, except where they are age-specific.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

**Table 29:** Number of drinks on a typical day when drinking, for females: percent (95% confidence intervals)

Females	1 or 2 % (95% CI)	3 or 4 % (95% CI)	5 or more % (95% CI)
	Adj*	Adj*	Adj*
<b>Total</b>	66.3 (63.9–68.7)	18.4 (16.4–20.4)	15.3 (13.5–17.1)
<b>Age</b>			
15–24 years	34.7 (28.6–40.8)	24.9 (19.0–30.8)	40.4 (33.7–47.1)
25–44 years	64.0 (60.7–67.3)	21.8 (18.9–24.7)	14.2 (12.0–16.4)
45–64 years	83.1 (80.0–86.2)	12.9 (10.0–15.8)	4.1 (2.7–5.5)
65+ years	91.3 (88.2–94.4)	7.0 (4.5–9.5)	1.8 (0.0–3.6)
<b>Ethnicity</b>			
European/ Pākehā	68.4 (65.9–70.9)	18.9 (16.7–21.1)	12.7 (10.7–14.7)
Māori	37.4 (31.9–42.9)	22.5 (18.0–27.0)	40.1 (35.0–45.2)
Pacific	52.8 (42.0–63.6)	19.5 (12.1–26.9)	27.7 (17.7–37.7)
Other	81.2 (67.5–94.9)	15.0 (1.9–28.1)	3.8 (0.0–8.3)

\* Adjusted rates are adjusted for age, except where they are age-specific.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

**Table 30:** Frequency of having six or more drinks in one occasion, for males: percent (95% confidence intervals)

Males	Never % (95% CI)	Less than monthly % (95% CI)	Monthly % (95% CI)	Weekly or more % (95% CI)
	Adj*	Adj*	Adj*	Adj*
<b>Total</b>	32.6 (30.2–35.0)	26.0 (23.8–28.2)	20.3 (18.3–22.3)	21.1 (18.9–23.3)
<b>Age</b>				
15–24 years	17.4 (11.9–22.9)	23.5 (17.6–29.4)	25.7 (20.2–31.2)	33.4 (26.5–40.3)
25–44 years	25.9 (22.2–29.6)	30.4 (26.7–34.1)	24.4 (21.3–27.5)	19.3 (16.2–22.4)
45–64 years	37.2 (32.3–42.1)	26.1 (21.6–30.6)	14.9 (11.6–18.2)	21.8 (17.3–26.3)
65+ years	66.3 (60.6–72.0)	14.9 (10.8–19.0)	10.7 (7.0–14.4)	8.1 (5.6–10.6)
<b>Ethnicity</b>				
European/Pākehā	31.2 (28.7–33.7)	27.0 (24.5–29.5)	20.2 (18.0–22.4)	21.6 (19.1–24.1)
Māori	22.8 (16.5–29.1)	22.2 (16.9–27.5)	25.5 (20.2–30.8)	29.6 (23.1–36.1)
Pacific	32.0 (21.4–42.6)	22.2 (14.4–30.0)	30.7 (22.5–38.9)	15.1 (8.2–22.0)
Other	75.4 (61.7–89.1)	17.1 (6.7–27.5)	1.7 (0.0–3.9)	5.8 (0.0–15.0)

\* Adjusted rates are adjusted for age, except where they are age-specific.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

**Table 31:** Frequency of having six or more drinks in one occasion, for females: percent (95% confidence intervals)

Females	Never % (95% CI)	Less than monthly % (95% CI)	Monthly % (95% CI)	Weekly or more % (95% CI)
	Adj*	Adj*	Adj*	Adj*
<b>Total</b>	55.1 (52.7–57.5)	25.7 (23.5–27.9)	13.8 (12.2–15.4)	5.4 (4.4–6.4)
<b>Age</b>				
15–24 years	23.6 (17.7–29.5)	35.5 (29.2–41.8)	25.7 (20.4–31.0)	15.2 (10.7–19.7)
25–44 years	49.5 (46.2–52.8)	31.3 (28.2–34.4)	15.7 (13.3–18.1)	3.6 (2.4–4.8)
45–64 years	72.9 (69.0–76.8)	17.4 (13.9–20.9)	6.6 (4.4–8.8)	3.1 (1.7–4.5)
65+ years	91.7 (88.6–94.8)	6.0 (3.3–8.7)	2.1 (0.5–3.7)	0.2 (0.0–0.4)
<b>Ethnicity</b>				
European/Pākehā	55.4 (52.9–57.9)	27.2 (24.8–29.6)	12.2 (10.4–14.0)	5.2 (3.8–6.6)
Māori	35.5 (30.2–40.8)	24.6 (19.9–29.3)	30.8 (25.9–35.7)	9.1 (6.4–11.8)
Pacific	51.8 (40.6–63.0)	21.2 (12.8–29.6)	20.2 (11.4–29.0)	6.8 (1.7–12.9)
Other	79.8 (66.5–93.1)	12.2 (0.6–23.8)	8.0 (0.6–15.4)	0.0 (0.0–0.0)

\* Adjusted rates are adjusted for age, except where they are age-specific.

Note: For further explanation of Tables, see Appendix 2: Notes to Figures and Tables.

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