

Section 4 What are the characteristics of women with various levels of alcohol consumption?

4.1 Methods

As in the previous section, the two categories from the Australian alcohol guidelines called 'risky' and 'high risk' alcohol consumption have been combined, because of the relatively small number of women in these categories. The category 'Low Risk' has been separated into two subgroups: those who rarely drink and the remainder of the low risk group (see Table 2.2).

Groups of women, defined according to their alcohol consumption, were compared within each age group separately. The characteristics which were compared included area of residence, self-reported socio-demographic variables, measures of health, and measures of health service use.

The Short-Form 36 (SF-36) Quality of Life questionnaire covers the major aspects of health and has been validated with adults of all ages (Ware and Sherbourne, 1992; McCallum, 1994). The SF-36 produces an eight-dimension measure of health status and quality of life. The dimensions are: general health perceptions (GH), physical function (PF), bodily pain (BP), the effect of physical health on role performance (RP), the effect of emotional health on role performance (RE), general mental health (MH), social functioning (SF), and vitality (VT). Each dimension is measured on a scale of 0-100, with higher scores representing better health.

Factor analysis of the correlations among the eight dimensions of the SF-36 has identified two summary measures relating to physical health and mental health. The dimensions labelled general health (GH), physical function (PF), bodily pain (BP) and role physical (RP) load more strongly on the physical health component and the remaining four dimensions load more strongly on the mental health component. The summary scores were computed and standardised (using the ALSWH population) to produce the 'physical health component summary score' (PCS) and the 'mental health component summary score' (MCS). The PCS and MCS scores have a mean of 50 and standard deviation of 10 (Mishra & Schofield, 1998).

An important consideration is whether or not differences in SF-36 scores represent a clinically significant decrease or increase in physical and mental



health. Normative data from the 1995 National Health Survey show that the presence of one serious physical condition (e.g. cancer, heart disease, diabetes, hypertension, asthma, arthritis) results in decreases of PCS and MCS of 3.3 and 2.1 respectively. The decrease in mean dimension scores for people with one serious physical condition were: PF 6.2, RP 9.0, BP 8.9, GH 8.2, VT 6.4, SF 5.6, RE 5.7, MH 4.2. (ABS- Australian Bureau of Statistics, 1997. National Health Survey Australia, 1995: SF-36 Population Norms, Canberra, Australia.)

4.2 Results

4.2.1 Younger women

The area of residence of the 14,247 Younger women aged 18-23 years at Survey 1 is shown in Table 4.1, by their levels of alcohol consumption.

Area of residence was significantly associated with alcohol consumption ($p < .001$). The percentage of young women drinking at risk was higher in rural and remote areas of Australia. Percentages in all subsequent tables are weighted to take account of over-sampling in rural and remote areas.

Table 4.1 Area of residence of Younger women by alcohol consumption, Survey 1 (n=14,247)

	Non-drinker (n=1253)	Rarely drinks (n=4853)	Low risk drinker (n=7192)	Risky or high risk drinker (n=782)	Total
Urban n=7778	9.8	32.6	53.1	4.5	100
Rural n=5755	7.8	37.2	48.6	6.4	100
Remote n=547	7.3	32.2	49.0	11.5	100

Table 4.2 shows the socio-demographic characteristics of Younger women, by their consumption of alcohol. The findings for Younger women are that:

- There was little difference in the pattern of alcohol consumption by age, for women aged between 18 and 24 years.
- The pattern of drinking was the same for Australian-born women and those of English-speaking background (ESB). Non-ESB women were more likely to be non-drinkers (36% versus 7%) and overall drank less than ESB women.
- Separated, divorced and widowed young women were most likely to drink at risky levels (9%) and married women were least likely to drink at risky levels (2%).
- Drinking at low risk levels increased in prevalence with increasing education, from 39% of those with school certificate to 63% of those with a university degree.
- Women who had less difficulty managing on their income were more likely to be low risk drinkers.
- There was no clear association between being rushed and busy in this age group and alcohol consumption (although there was a statistically significant effect, it was small and inconsistent).



Table 4.2 Socio-demographic characteristics of Younger women by alcohol consumption, Survey 1 (n=14,247)

	N	Non-drinker (n=1253)	Rarely drinks (n=4853)	Low risk drinker (n=7192)	Risky/high risk drinker (n=782)	p-value
Age in years						
18	814	8.8	31.1	54.0	6.1	.051
19	2945	9.8	32.5	51.6	6.2	
20	2920	8.4	34.8	51.9	4.9	
21	2719	9.5	33.1	52.7	4.7	
22	2751	9.0	35.0	51.6	4.4	
23	1984	10.4	33.2	51.4	5.0	
Country of birth						
Australia	12,926	7.5	33.1	54.0	5.4	<.001
Other English speaking background	542	7.2	33.7	53.5	5.6	
Other	664	36.0	39.3	23.7	1.0	
Marital status						
Never married	10,850	8.7	30.9	54.9	5.5	<.001
Married	1265	19.2	42.4	36.2	2.2	
De facto	1928	5.9	45.0	44.7	4.5	
Separated/divorced/widowed	134	17.2	39.3	34.9	8.6	
Highest qualification						
School certificate or less	2427	13.3	40.7	39.0	7.0	<.001
Higher school certificate	7600	8.8	32.8	53.4	5.0	
Trade/diploma	2563	8.7	35.1	51.2	5.0	
University degree	1576	7.3	26.3	63.2	3.2	
Manage on income						
Impossible/difficult all the time	2624	8.6	35.6	48.8	7.0	<.001
Difficult some of the time	4706	8.4	34.1	51.8	5.8	
Not too bad	5070	9.7	32.2	54.0	4.1	
Easy	1795	11.1	33.1	52.0	3.8	
Feel rushed/too busy						
Never/monthly	2254	11.5	32.9	50.6	5.0	<.001
Weekly	2838	8.2	33.6	52.9	5.3	
Few times weekly	5853	8.4	33.1	53.7	4.8	
Every day	2378	9.7	35.3	50.0	5.5	

Table 4.3 shows the health status of Younger women, by their consumption of alcohol. The findings for Younger women are that:

- Self-rated physical health of low-risk drinkers was significantly better than that of women who drank at all other levels.

- Self-rated mental health of women drinking at risky levels was significantly worse than that of women who drank at all other levels.
- Smokers were more likely to drink at risky levels (9% to 12%) than non-smokers (2%). More non-smokers than smokers were non-drinkers (14% vs 4%).
- Young women who had moderate or high levels of physical activity were more likely to drink at low risk (53% to 55%) than those who were sedentary or had low levels of physical activity (49%).
- Young women who were in the acceptable range for Body Mass Index (BMI) were most likely to drink at low risk (55%), while those who were obese tended to be non-drinkers or rarely drink and were least likely to drink at low risk (41%).
- Women who were currently pregnant were more likely to be non-drinkers or rarely drink, although 3% reported drinking alcohol at risky levels.
- Women who had ever been pregnant were also more likely to be non-drinkers or rarely drink than women who had not been pregnant.

Table 4.3 Health status of Younger women by alcohol consumption, Survey 1 (n=14,247).

	N	Non-drinker (n=1253)	Rarely drinks (n=4853)	Low risk drinker (n=7192)	Risky/ high risk drinker (n=782)	p-value
SF-36 mean (95% confidence interval)						
Physical health summary score	13,807	48.9 (48.3; 49.4)	49.4 (49.2; 49.7)	50.8 (50.6; 51.1)	49.3 (48.5; 50.0)	<.001
Mental health summary score	13,807	51.5 (50.9; 52.0)	49.9 (49.6; 50.2)	50.1 (49.9; 50.3)	47.8 (47.1; 48.6)	<.001
Smoking status						
Never smoked	7123	14.0	37.9	45.9	2.2	<.001
Ex-smoker	2085	6.6	34.5	53.8	5.0	
Smoke <20 cigs per day	2356	3.9	25.3	61.6	9.2	
Smoke ≥20 cigs per day	1712	3.6	29.0	55.5	11.9	
Physical activity						
None or low	6220	10.1	35.7	49.6	4.6	<.001
Moderate	3646	8.5	31.1	55.0	5.4	
High	4287	8.8	32.3	53.3	5.6	
Body mass index*						
Underweight	3306	11.4	33.7	51.4	3.5	<.001
Acceptable	6471	8.3	31.5	55.0	5.1	
Overweight	1969	8.5	35.6	49.7	6.2	
Obese	840	11.7	42.0	41.0	5.3	
Currently pregnant						
Yes	419	24.1	48.6	24.2	3.0	<.001
No	13,467	8.9	33.1	52.9	5.1	
Don't know	232	10.2	36.3	44.3	9.2	
Ever pregnant						
Yes	2647	12.1	41.8	40.4	5.8	<.001
No	11,441	8.7	32.0	54.4	4.9	

* BMI not included for pregnant women



Table 4.4 shows the health service use of Younger women, by their consumption of alcohol. The findings for Younger women are that:

- Women who had seven or more visits to a general practitioner in the last year were more likely to be non-drinkers or rarely drink (possibly related to pregnancy).
- Women taking three or more prescription medications were more likely to drink at risky levels (7%) compared with those taking none or one medication (5%).
- Women not taking non-prescription medications were more likely to be non-drinkers (12%) or to rarely drink (37%), compared with those taking three or more non-prescription medications (9% and 28%, respectively).

Table 4.4 Health service use of Younger women by alcohol consumption, Survey 1 (n=14,247)

	N	Non-drinker (n=1253)	Rarely drinks (n=4853)	Low risk drinker (n=7192)	Risky/high risk drinker (n=782)	p- value
General practitioner visits in last year						
0-2	5369	11.2	32.5	52.1	4.2	<.001
3-4	3967	7.4	32.8	54.6	5.2	
5-6	2478	7.1	32.5	54.3	6.1	
7 or more	2372	10.7	38.5	45.0	5.9	
Prescription medications in last four weeks						
None	6054	11.3	34.8	49.1	4.8	<.001
1	4906	7.1	32.4	55.7	4.8	
2	2001	8.3	31.8	54.2	5.7	
3 or more	1242	10.3	35.2	47.9	6.6	
Non-prescription medications in last four weeks						
None	5654	11.9	36.5	46.4	5.2	<.001
1	4757	7.9	33.9	54.0	4.2	
2	2351	6.9	30.0	57.1	6.0	
3 or more	1445	8.5	27.7	57.6	6.2	

Table 4.5 shows the health risk taking behaviour of Younger women, by their consumption of alcohol, at Survey 2. These more sensitive questions were not asked at Survey 1. The findings for Younger women are that:

- Women who reported deliberately harming themselves in the past six months were more likely to report drinking alcohol at risky or high risk levels.
- Illicit drug use was related to alcohol consumption, with current users of multiple drugs the most likely to be high risk or risky drinkers (9%), followed by current users of cannabis only (6%). Only 1% of women who had never used illicit drugs were drinking alcohol at long-term risky or high risk levels.
- Long-term risk drinking was associated with a higher reported number of male sexual partners.
- Women who had had none or one male sexual partner were more likely to be non-drinkers or rarely drink.

Table 4.5 Health risk behaviours of Younger women by alcohol consumption, Survey 2 (n=9689)

	N	Non-drinker (n=871)	Rarely drinks (n=2789)	Low risk drinker (n=5601)	Risky/ high risk drinker (n=363)	p-value
Deliberate self harm in last six months						
Yes	347	6.2	27.7	57.0	9.1	<.001
No	9232	8.8	27.6	60.2	3.5	
Use of illicit drugs						
Never used	4141	14.8	34.7	49.2	1.3	<.001
Cannabis only, not in last year	2237	5.3	28.5	63.7	2.6	
Cannabis only, in last year	943	3.1	18.1	73.0	5.7	
Multiple, not in last year	657	5.8	25.5	64.4	4.3	
Multiple, in last year	1540	3.0	15.3	72.4	9.3	
Number of male sexual partners						
None	720	21.7	34.8	42.8	0.7	<.001
One	2014	13.0	33.9	51.9	1.2	
Two	1056	8.5	28.6	60.7	2.2	
Three or more	4680	4.3	23.5	66.8	5.4	
Don't want to answer	1022	10.9	26.7	57.8	4.5	

4.2.2 Mid-age women

The area of residence of the 13,716 Mid-age women aged 45-50 years at Survey 1 is shown in Table 4.6, by their levels of alcohol consumption.

Table 4.6 Area of residence of Mid-age women by alcohol consumption, Survey 1 (n=13,716)

	Non-drinker (n=2063)	Rarely drinks (n=4268)	Low risk drinker (n=6532)	Risky or high risk drinker (n=716)	Total
Urban (n=4937)	14.4	29.8	50.6	5.2	100
Rural (n=7724)	15.6	32.7	46.6	5.1	100
Remote (n=918)	15.7	29.1	47.9	7.3	100

Area of residence was significantly associated with alcohol consumption ($p < .001$). The percentage of Mid-age women drinking at low risk was higher in urban areas of Australia and a slightly higher percentage of women in remote areas were drinking at higher levels of risk. Percentages in all subsequent tables are weighted to take account of over-sampling in rural and remote areas.

Table 4.7 shows the socio-demographic characteristics of Mid-aged women, by their consumption of alcohol. The findings for Mid-age women are that:

- There was no trend in the level of drinking with increasing age for women aged between 45 and 50 years (although age was significantly associated with level of drinking).
- The pattern of drinking was similar for Australian born women and those of English-speaking background (ESB), with 5% to 6% drinking at risk



and 51% to 57% being low risk drinkers. Non-ESB women were more likely to be non-drinkers (28% versus 11 to 13%) and overall drank less than ESB women.

- Women living in de facto relationships were more likely to drink at risky levels (12%) than married women (5%).
- Low risk drinking increased in prevalence with increasing education, from 35% of those with no formal qualifications to 61% of those with a university degree.
- Women who had less difficulty managing on their income were more likely to be low risk drinkers.
- There was no clear association between being rushed and busy in this age group and alcohol consumption (although the effect was statistically significant). Women who were busy were more likely to drink alcohol, but at low levels of risk.

Table 4.7 Socio-demographic characteristics of Mid-age women by alcohol consumption, Survey 1 (n=13,716)

	N	Non-drinker (n=2063)	Rarely drinks (n=4268)	Low risk drinker (n=6532)	Risky/high risk drinker (n=716)	p-value
Age in years						
45	692	14.0	34.6	44.4	7.0	<.001
46	2874	13.8	31.3	49.7	5.2	
47	2821	14.2	28.2	51.4	6.2	
48	2631	16.3	30.2	49.4	4.1	
49	2636	13.2	32.6	49.4	4.8	
50	2042	17.1	29.2	48.2	5.5	
Country of birth						
Australia	10,306	13.1	30.1	51.1	5.7	<.001
Other English speaking background	1820	10.5	27.1	57.5	4.9	
Other	1416	28.0	36.1	32.7	3.2	
Marital status						
Married	10,516	15.1	30.9	49.3	4.7	<.001
De facto	795	9.3	24.0	54.7	12.0	
Separated/divorced/ widowed	1891	14.9	30.9	49.2	5.0	
Never married	446	15.5	29.4	48.3	6.8	
Highest qualification						
No formal	2483	20.3	40.4	34.5	4.8	<.001
School certificate	4317	14.3	32.1	48.5	5.1	
Higher school certificate	2287	15.2	30.1	49.6	5.0	
Trade diploma	2599	12.9	28.4	53.9	4.9	
University degree	1892	11.5	21.0	61.4	6.1	
Manage on income						
Impossible/difficult all the time	2030	17.6	35.5	40.1	6.9	<.001
Difficult some of the time	3922	15.3	34.7	45.5	4.6	
Not too bad	5643	14.3	29.0	51.8	4.8	
Easy	2035	12.3	22.7	59.2	5.8	
Feel rushed/too busy						
Never/monthly	2854	18.0	33.0	43.6	5.4	<.001
Weekly	2409	13.8	26.7	54.0	5.5	
Few times weekly	5374	13.6	31.0	50.6	4.7	
Every day	2831	14.4	30.1	49.7	5.8	



Table 4.8 shows the health status of Mid-age women, by their consumption of alcohol. The findings for Mid-age women are that:

- Self-rated physical health of low-risk and risky drinkers was significantly better than that of women who were non-drinkers and those who rarely drank.
- Self-rated mental health of women drinking at risky levels was significantly worse than non-drinkers and women who drank at all other levels.
- Smokers were more likely to drink at risky levels (6% to 15%) than non-smokers (2%).
- Mid-age women who had moderate or high levels of physical activity were more likely to drink at low risk (52%) than those who were sedentary or had low levels of physical activity (48%).
- Mid-age women who were in the acceptable range for Body Mass Index (BMI) were most likely to drink at low risk (56%) while those who were obese tended to be non-drinkers or rarely drink and were least likely to drink at low risk (38%).

Table 4.8 Health status of Mid-age women by alcohol consumption, Survey 1 (n=13,716)

	N	Non-drinker (n=2063)	Rarely drinks (n=4268)	Low risk drinker (n=6532)	Risky/high risk drinker (n=716)	p- value
SF-36 mean (95% confidence interval)						
Physical health summary score	12,768	47.5 (47.1; 48.0)	49.0 (48.7; 49.3)	51.4 (51.1; 51.6)	51.1 (50.4; 51.9)	<.001
Mental health summary score	12,768	49.9 (49.5; 50.4)	49.7 (49.4; 50.0)	50.7 (50.5; 51.0)	48.1 (47.4; 48.9)	<.001
Smoking status						
Never smoked	7050	20.0	31.5	46.2	2.4	<.001
Ex-smoker	3774	7.5	26.8	58.7	7.0	
Smoke <20 cigs per day	981	10.1	31.2	52.5	6.2	
Smoke ≥20 cigs per day	1401	13.5	33.3	38.7	14.6	
Physical activity						
None or low	7918	14.9	32.4	47.6	5.1	<.001
Moderate	3464	13.7	28.5	52.5	5.3	
High	2227	15.4	26.7	52.5	5.4	
Body mass index						
Underweight	935	20.0	27.5	47.9	4.7	<.001
Acceptable	5996	12.6	26.4	55.6	5.4	
Overweight	3655	14.6	32.0	47.8	5.6	
Obese	2369	17.8	39.7	38.1	4.5	

Table 4.9 shows the health service use of Mid-age women, by their consumption of alcohol. The findings for Mid-age women are that:

- Women who had had seven or more visits to a general practitioner in the last year were more likely to be non-drinkers or rarely drink.
- Women taking three or more prescription medications were more likely to be non-drinkers or rarely drink (58%) compared with those taking fewer medications (41% to 45%). However, 5% of women taking three or more prescription medications were combining this with high risk or risky alcohol consumption.
- Women not taking any non-prescription medications were more likely to be non-drinkers or to rarely drink (49%), compared with those taking three or more non-prescription medications (42% to 43%).



Table 4.9 Health service use of Mid-age women by alcohol consumption, Survey 1 (n=13,716)

	N	Non-drinker (n=2063)	Rarely drinks (n=4268)	Low risk drinker (n=6532)	Risky/ high risk drinker (n=716)	p-value
General practitioner visits in last year						
0-2	6305	12.9	28.9	52.4	5.8	<.001
3-4	3539	13.0	29.9	52.0	5.1	
5-6	1920	15.2	30.0	49.7	5.2	
7 or more	1880	22.6	37.3	36.3	3.8	
Prescription medications in last four weeks						
None	6367	13.6	30.4	51.0	4.9	<.001
1	3450	13.0	28.2	52.8	6.0	
2	1953	16.1	29.1	49.4	5.4	
3 or more	1777	20.9	36.7	37.8	4.6	
Non-prescription medications in last four weeks						
None	5333	17.7	31.6	46.0	4.6	<.001
1	4669	12.6	29.4	52.5	5.5	
2	1991	12.4	31.0	50.7	5.9	
3 or more	1539	14.2	29.2	51.2	5.4	

4.2.3 Older women

The area of residence of the 12,432 Older women aged 70-75 years at Survey 1 is shown in Table 4.10, by their levels of alcohol consumption.

Area of residence was significantly associated with alcohol consumption ($p < .001$). The percentage of Older women drinking at low risk was higher in urban areas of Australia and a slightly higher percentage of women in remote areas were drinking at higher levels of risk, although many were non-drinkers. Percentages in all subsequent tables are weighted to take account of over-sampling in rural and remote areas.

Table 4.10 Area of residence of Older women by alcohol consumption, Survey 1 (n=12,432)

	Non-drinker (n=4127)	Rarely drinks (n=3486)	Low risk drinker (n=3926)	Risky or high risk drinker (n=408)	Total
Urban (n=4868)	33.0	28.6	34.9	3.5	100
Rural (n=6803)	35.5	29.5	31.7	3.3	100
Remote (n=276)	37.3	30.4	26.5	5.8	100

Table 4.11 shows the socio-demographic characteristics of Older women, by their consumption of alcohol. The findings for Older women are that:

- There were no differences in the pattern of drinking by age for women aged between 70 and 75 years.

- Women of non-English-speaking background (NESB) were more likely to be non-drinkers (45%) than Australian born women (34%) and other women of English-speaking background (ESB; 27%). Few Older women drank at risky levels; 4% of Australian born and ESB women, and 1% of NESB women.
- Married women were most likely to drink at low risk (36%) compared with widowed women (31%), separated and divorced women (32%) and never married women (32%).
- Low risk drinking increased in prevalence with increasing education, from 25% for those with no formal qualifications to 49% for those with a university degree.
- Women who had less difficulty managing on their income were more likely to be low risk drinkers.
- Older women who were very busy were more likely to be non-drinkers.

Table 4.11 Socio-demographic characteristics of Older women by alcohol consumption, Survey 1 (n=12,432)

	N	Non-drinker (n=4127)	Rarely drinks (n=3486)	Low risk drinker (n=3926)	Risky/high risk drinker (n=408)	p-value
Age in years						
70	788	32.9	30.5	33.4	3.2	0.710
71	2737	33.8	28.7	34.5	3.0	
72	2762	33.4	27.9	35.1	3.6	
73	2408	34.1	29.3	32.7	3.9	
74	2202	33.1	29.1	34.2	3.6	
75	1524	35.5	29.5	32.0	3.0	
Country of birth						
Australia	9000	33.5	28.3	34.5	3.7	<.001
Other English speaking background	1468	26.9	29.3	39.9	3.9	
Other	1154	44.5	31.4	23.1	1.0	
Marital status						
Married/de facto	6934	32.5	27.6	36.3	3.6	<.001
Widowed	4224	35.7	30.5	30.6	3.2	
Separated/divorced	699	32.1	32.2	32.2	3.6	
Never married	351	36.3	27.9	31.8	4.0	
Highest qualification						
No formal	4023	41.4	30.8	25.4	2.4	<.001
School certificate	4532	32.1	28.3	35.6	4.0	
Higher school certificate	1471	26.8	28.6	40.6	4.0	
Trade/diploma	1311	29.3	27.6	40.3	2.8	
University degree	431	20.5	24.3	48.6	6.6	
Manage on income						
Impossible/difficult all the time	817	39.5	29.1	27.9	3.5	<.001
Difficult some of the time	2411	36.2	30.9	30.1	2.8	
Not too bad	6224	33.1	29.4	34.0	3.6	
Easy	2714	31.6	25.9	38.6	3.9	
Feel rushed/too busy						
Never/monthly	7022	34.6	28.9	32.9	3.6	<.001
Weekly	2440	32.8	27.2	37.1	2.9	
Few times weekly	2334	30.3	32.0	34.4	3.3	
Every day	436	42.1	23.5	29.5	4.9	



Table 4.12 shows the health status of Older women, by their consumption of alcohol. The findings for Older women are that:

- Self-rated physical and mental health of low-risk drinkers was significantly better than for women who were non-drinkers and those who rarely drank.
- Smokers were more likely to drink at risky levels (8% to 16%) than non-smokers (1% to 6%).
- Women who never smoked were more likely to be non-drinkers (41%) than smokers and ex-smokers (20% to 24%).
- Older women who had moderate or high levels of physical activity were more likely to drink at low risk (35% to 39%) than those who were sedentary or had low levels of physical activity (31%).
- Older women who were in the acceptable range for Body Mass Index (BMI) were most likely to drink at low risk (38%) while those who were obese tended to be non-drinkers or rarely drink, and were least likely to drink at low risk (24%).

Table 4.12 Health status of Older women by alcohol consumption, Survey 1 (n=12,432)

	N	Non-drinker (n=4127)	Rarely drinks (n=3486)	Low risk drinker (n=3926)	Risky/ high risk drinker (n=408)	p- value
SF-36 mean (95% confidence interval)						
Physical health summary score	10,494	48.5 (48.2; 48.8)	49.9 (49.6; 50.3)	51.6 (51.3; 51.9)	50.9 (49.9; 52.0)	<.001
Mental health summary score	10,494	49.7 (49.4; 50.1)	50.3 (49.9; 50.6)	50.9 (50.5; 51.2)	50.4 (49.4; 51.4)	<.001
Smoking status						
Never smoked	7243	41.1	29.0	28.4	1.5	<.001
Ex-smoker	3458	20.2	28.9	45.0	6.0	
Smoke <20 cigs per day	530	23.6	24.3	44.3	7.8	
Smoke ≥20 cigs per day	343	20.7	30.9	32.5	15.9	
Physical activity						
None or low	6959	35.6	29.4	31.4	3.7	<.001
Moderate	3548	30.5	27.7	38.9	3.0	
High	1469	32.0	29.3	35.2	3.6	
Body mass index						
Underweight	972	34.5	25.6	35.0	4.8	<.001
Acceptable weight	5193	30.1	27.9	38.3	3.7	
Overweight	3789	33.9	30.3	32.4	3.4	
Obese	1604	42.5	31.6	24.2	1.8	

Table 4.13 shows the health service use of Older women, by their consumption of alcohol. The findings for Older women are that:

- Women who had had seven or more visits to a general practitioner in the last year were more likely to be non-drinkers (40%) than those who visited a general practitioner less often (30% to 32%).
- Women taking four or more prescription medications were more likely to be non-drinkers or rarely drink (67%), compared with those taking fewer

medications (59% to 63%). However 3% of the Older women taking four or more prescribed medications were drinking alcohol at levels of risk to their health.

- Women not taking any non-prescription medications were more likely to be non-drinkers or to rarely drink (65%) compared with those taking three or more non-prescription medications (60%).

Table 4.13 Health service use of Older women by alcohol consumption, Survey 1 (n=12,432)

	N	Non-drinker (n=4127)	Rarely drinks (n=3486)	Low risk drinker (n=3926)	Risky/ high risk drinker (n=408)	p- value
General practitioner visits in last year						
0-2	2398	31.9	28.9	34.9	4.3	<.001
3-4	3318	30.0	28.6	37.7	3.7	
5-6	2866	31.0	29.4	36.9	2.7	
7 or more	3601	40.4	28.5	27.8	3.3	
Prescription medications in last four weeks						
None	2142	29.9	29.4	37.2	3.5	<.001
1	2329	31.0	29.8	35.8	3.4	
2	2427	32.8	30.1	33.5	3.6	
3	2004	32.7	27.1	36.8	3.4	
4 or more	3435	39.0	28.4	29.2	3.4	
Non-prescription medications in last four weeks						
None	7816	35.8	29.0	31.9	3.3	<.001
1	2527	29.9	29.6	36.8	3.7	
2	1069	28.4	27.6	39.4	4.6	
3 or more	908	32.3	27.9	37.5	2.3	

4.3 Summary

There are many similarities and some important differences in the characteristics of women in the three age groups according to their alcohol consumption. Women who consume alcohol at low levels that are not harmful to their health (low risk) are more likely than other women to:

- live in urban areas;
- have higher education;
- manage on their income without difficulty;
- be in the healthy weight range;
- have moderate or high levels of physical activity;
- have been born in Australia or another English-speaking country; and
- have better self-rated physical health.

Non-drinkers and women who rarely drink are more likely than other women to:

- have a non-English-speaking background;
- be a non-smoker;
- have more consultations with general practitioners;
- take a greater number of prescription medications (Mid-age and Older women); and
- be currently pregnant or ever pregnant (Younger women).

Women who consume alcohol at levels that are risky or high risk are more likely than other women their age to:

- have poorer mental health; and
- be current smokers.

and among Younger women to:

- be current users of multiple illicit drugs;
- have deliberately harmed themselves; and
- have had more male sexual partners.

(Note: these questions were asked of the Younger women at Survey 2.)

4.4 References

- McCallum J. 1994. *The new 'SF-36' health status measure: Australian validity tests*, Canberra, National Centre for Epidemiology and Population Health, The Australian National University.
- Mishra G. and Schofield M. J. 1998. 'Norms for the physical and mental health component summary scores of the SF-36 for young, middle-aged and older Australian women', *Quality of Life* 7: 215-220.
- Ware J. E. and Sherbourne C. D. 1992. 'The MOS 36-item Short-Form health survey (SF36): I. Conceptual framework and item selection', *Med Care* 30: 473-483.



Section 5 Short-term risk drinking among Younger women

5.1 Methods

This section aims to identify factors that are associated with alcohol consumption at levels of short-term risk. The definition of short-term risk drinking is based on the Australian alcohol guidelines criterion of drinking five or more drinks on a single occasion.

In this section, the frequency of short-term risk drinking were defined as *never*, *rarely* (less than once a month), *sometimes* (once a month) and *often* (once a week or more). The frequency of short-term risk drinking according to levels of long-term alcohol consumption were tabulated.

Groups of women, defined according to their short-term risk drinking, were compared. The Survey 1 characteristics which were compared included area of residence, self-reported socio-demographic variables, measures of health, and measures of health service use. Health risk behaviours measured at Survey 2 were also compared.

5.2 Results

While long-term risk drinking is relatively uncommon, short-term risk drinking occurs at least once a week in almost one in five of these young women (Figure 5.1).

Figure 5.1 Short-term risk drinking at Survey 1, Younger women (n= 14,247)

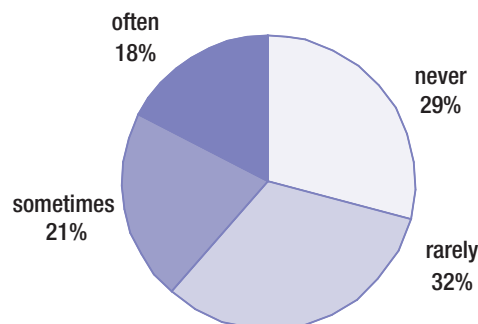


Table 5.1 shows the alcohol consumption of Younger women, by their frequency of short-term risk drinking. The findings for Younger women are that:

- Risky or high risk drinkers are most likely to participate in short-term risk drinking often (at least weekly) (93%).
- One third of low risk drinkers participate in short-term risk drinking about once a month and 24% do so at least weekly.

Table 5.1 Alcohol consumption of Younger women by frequency of short-term risk drinking, Survey 1 (n=14,247)

	N	Frequency of short-term risk drinking				p-value
		Never (n=3947)	Rarely (less than monthly) (n=4533)	Sometimes (Once a month) (n=3030)	Often (At least weekly) (n=2513)	
Non-drinker	1253	100.0	0.0	0.0	0.0	<.001
Rarely drinks	4853	46.5	44.1	9.0	0.5	
Low risk drinker	7192	8.4	33.5	34.5	23.7	
Risky or high risk drinker	782	0.0	0.8	5.9	93.3	

Table 5.2 shows the socio-demographic characteristics of Younger women, by their frequency of short-term risk drinking. The findings for Younger women are that:

- Women aged 18 to 19 years were more likely to report 'often' having five or more drinks on a single occasion (21% to 22%) than women aged 22 to 23 years (14%).
- Short-term risk drinking 'sometimes' or 'often' was more likely in Australian-born women (41%) and those of English-speaking background (37%) than non-ESB women (12%).
- Separated, divorced and widowed young women were most likely (19%), and women who had never married were least likely (7%), to participate in short-term risk drinking 'often'.
- Younger women with a university degree were most likely to report 'rarely' drinking at levels of short-term risk (34%), although lower education was associated with never drinking at short-term risk (perhaps because of higher rates of pregnancy and motherhood).
- Drinking at levels of short-term risk 'often' became more prevalent as difficulty managing on available income increased (14% to 20%).
- There was no consistent relationship between being rushed and busy in this age group and short-term risk drinking (although the association was statistically significant).



Table 5.2 Socio-demographic characteristics of Younger women by frequency of short-term risk drinking, Survey 1 (n=14,247)

	N	Frequency of short-term risk drinking				p-value
		Never (n=3947)	Rarely (n=4533)	Sometimes (n=3030)	Often (n=2513)	
Age in years						
18	814	28.3	28.2	21.3	22.2	<.001
19	2945	28.6	28.1	22.7	20.6	
20	2920	28.2	32.0	21.9	17.9	
21	2719	28.0	33.0	21.8	17.2	
22	2751	29.5	36.1	20.1	14.3	
23	1984	33.2	33.1	19.6	14.1	
Country of birth						
Australia	12,926	26.5	32.9	22.3	18.3	<.001
Other English speaking background	542	26.0	36.7	20.8	16.5	
Other	664	68.0	20.0	7.2	4.9	
Marital status						
Never married	10,850	49.4	31.8	12.0	6.8	<.001
Married	1265	26.5	40.0	21.5	11.9	
De facto	1928	34.5	29.7	22.1	13.7	
Separated/divorced/ widowed	134	27.4	31.1	22.2	19.3	
Highest qualification						
School certificate or less	2427	33.9	30.6	18.1	17.4	<.001
Higher school certificate	7600	28.1	31.7	22.2	18.0	
Trade/diploma	2563	29.2	33.8	20.2	16.8	
University degree	1576	28.2	34.2	22.2	15.4	
Manage on income						
Impossible/difficult all the time	2624	25.0	32.6	22.4	19.9	<.001
Difficult some of the time	4706	27.7	31.6	22.0	18.8	
Not too bad	5070	30.3	32.7	20.9	16.1	
Easy	1795	34.8	31.7	19.6	13.9	
Feel rushed/too busy						
Never/monthly	2254	32.0	30.4	21.0	16.6	<.001
Weekly	2838	28.0	31.7	22.3	18.0	
Few times weekly	5853	27.3	33.6	21.9	17.3	
Every day	2378	31.8	32.1	18.5	17.6	

Table 5.3 shows the health status of Younger women, by their frequency of short-term risk drinking. The findings for Younger women are that:

- Self-rated physical health of those who sometimes drink at short-term risk levels was significantly better than that of women who never or rarely participated in short-term risk drinking.
- Self-rated mental health of women who never drink at short-term risk was significantly better than that of other women.
- Smokers were more likely to 'often' participate in short-term risk drinking (31% to 32%) than ex-smokers (15%) and those who had never smoked (9%).

- Young women who had moderate or high levels of physical activity were more likely to participate in short-term risk drinking 'sometimes' or 'often' (41% to 42%) than those who were sedentary or had low levels of physical activity (35%).
- Young women who were obese were least likely to drink at short-term risk 'sometimes' or 'often' (29%) compared with underweight (36%), acceptable weight (41%) and overweight (38%).
- Women who were currently pregnant were less likely to participate in short-term risk drinking than other women.
- Women who had ever been pregnant were also less likely to participate in short-term risk drinking than women who had not been pregnant.

Table 5.3 Health status of Younger women by frequency of short-term risk drinking, Survey 1 (n=14,247)

	N	Frequency of short-term risk drinking				p-value
		Never (n=3947)	Rarely (n=4533)	Sometimes (n=3030)	Often (n=2513)	
SF-36 mean (95% confidence interval)						
Physical health summary score	13746	49.5 (49.2; 49.8)	50.3 (50.0; 50.6)	50.8 (50.4; 51.1)	50.1 (49.7; 50.5)	<.001
Mental health summary score	13746	50.6 (50.3; 50.9)	50.1 (49.8; 50.4)	49.8 (49.5; 50.2)	49.1 (48.7; 49.5)	<.001
Smoking status						
Never smoked	7123	40.4	32.9	17.5	9.2	<.001
Ex-smoker	2085	23.9	37.7	23.3	15.1	
Smoke <20 cigs per day	2356	14.6	28.1	26.1	31.1	
Smoke ≥20 cigs per day	1712	14.5	28.8	25.1	31.6	
Physical activity						
None or low	6220	31.8	32.9	19.4	15.9	<.001
Moderate	3646	27.2	30.8	23.1	18.9	
High	4287	27.0	32.3	22.6	18.1	
Body mass index*						
Underweight	3306	33.4	30.6	20.5	15.6	<.001
Acceptable	6471	27.2	32.1	22.2	18.6	
Overweight	1969	27.1	35.0	21.5	16.3	
Obese	840	37.0	34.3	16.6	12.1	
Currently pregnant						
Yes	419	53.6	28.4	11.5	6.4	<.001
No	13,467	28.5	32.3	21.7	17.6	
Don't know	232	28.7	34.0	15.5	21.9	
Ever pregnant						
Yes	2647	32.4	32.7	19.0	15.9	<.001
No	11,441	28.6	32.0	21.8	17.6	

* pregnant women not included



Table 5.4 shows the health service use of Younger women, by their frequency of short-term risk drinking. The findings for Younger women are that:

- There is an inverted U-shaped association between visits to general practitioners and frequency of short-term risk drinking. Women who had few visits or who had seven or more visits to a general practitioner in the last year were less likely to participate in short-term risk drinking.
- Women taking three or more prescription medications were more likely to drink at short-term risk 'often' (20%) compared with those taking fewer medications (17%).
- Short-term risk drinking 'sometimes' or 'often' increased from 36% of women not taking non-prescription medications to 43% of women taking three or more non-prescription medications.

Table 5.4 Health service use of Younger women by frequency of short-term risk drinking, Survey 1 (n=14,247)

	N	Frequency of short-term risk drinking				p-value
		Never (n=3947)	Rarely (n=4533)	Sometimes (n=3030)	Often (n=2513)	
General practitioner visits in last year						
0-2	5369	32.7	31.0	20.0	16.3	<.001
3-4	3967	27.3	32.6	22.7	17.5	
5-6	2478	23.7	33.4	23.3	19.7	
7 or more	2372	30.7	32.7	19.9	16.7	
Prescription medications in last four weeks						
None	6054	32.6	30.9	19.9	16.7	<.001
1	4906	26.1	33.8	22.5	17.5	
2	2001	26.2	33.3	23.9	16.7	
3 or more	1242	29.7	30.3	19.8	20.3	
Non-prescription medications in last four weeks						
None	5654	32.9	31.2	19.5	16.4	<.001
1	4757	28.2	33.7	21.9	16.3	
2	2351	24.6	32.7	22.7	20.1	
3 or more	1445	26.6	30.1	23.9	19.5	

Table 5.5 shows the health risk taking behaviour of Younger women, by their frequency of short-term risk drinking, at Survey 2. These more sensitive questions were not asked at Survey 1 (and were not asked of the Mid-age and Older women at Survey 1 or Survey 2). The findings for Younger women are that:

- Women who reported deliberately harming themselves in the past six months were more likely to be drinking at short-term risk levels than other women.
- Illicit drug use was related to short-term risk drinking. Sixty percent of current users of multiple drugs and 51% of current users of cannabis only were drinking at short-term risk 'sometimes' or 'often'. Only 18% of women who had never used illicit drugs participated in short-term risk drinking 'sometimes' or 'often'.
- The frequency of short-term risk drinking was higher for women who had had more male sexual partners.

Table 5.5 Health risk behaviours of Younger women by frequency of short-term risk drinking, Survey 2 (n=9571)

	N	Frequency of short-term risk drinking				p-value
		Never (n=2688)	Rarely (n=3585)	Sometimes (n=1931)	Often (n=1367)	
Deliberate self harm in last six months						
Yes	347	18.2	34.2	25.4	22.2	<.001
No	9232	28.8	37.3	19.8	14.1	
Use of illicit drugs						
Never used	4141	45.8	35.9	12.4	5.9	<.001
Cannabis only, not in last year	2237	20.9	44.4	21.5	13.3	
Cannabis only, in last year	943	11.0	38.4	27.1	23.6	
Multiple, not in last year	657	20.4	39.0	25.8	14.8	
Multiple, in last year	1540	9.8	30.0	29.6	30.7	
Number of male sexual partners						
None	720	57.5	30.3	9.6	2.6	<.001
One	2014	38.6	38.6	15.7	7.1	
Two	1056	23.3	42.9	21.7	12.2	
Three or more	4680	13.8	36.2	25.5	24.6	
Don't want to answer	347	28.4	32.6	21.4	17.6	

5.3 Summary

Alcohol consumption among Younger women, by their frequency of short-term risk drinking, was examined. The findings are that:

- 93% of risky drinkers participated in short-term risk drinking at least weekly.
- One third of low risk drinkers participated in short-term risk drinking about once a month and 24% did so at least weekly.

Factors associated with short-term risk drinking among Younger women were explored. In summary short-term risk drinking occurred more often among:

- Australian-born women and those of English-speaking background.
- Separated, divorced and widowed young women.
- Women who had difficulty managing on available income.
- Current smokers.
- Women who were not or have never been pregnant.
- Women who reported deliberately harming themselves.
- Current users of illicit drugs.
- Women who had had more male sexual partners.



Section 6

What predicts becoming a more or less risky drinker?

6.1 Introduction

This section aims to identify factors that are associated with changes in alcohol consumption between Survey 1 and Survey 2. Hence, only those women who consumed alcohol at Survey 1 or Survey 2 are included. Perpetual non-drinkers are excluded from the analysis.

Before describing the analysis and presenting the results, Section 6.2 presents a description of women who completed Survey 2 in each age cohort, according to their alcohol consumption at Survey 1.

6.2 Retention of participants between Survey 1 and Survey 2

The following tables show retention of Younger, Mid-age and Older women between Survey 1 and Survey 2 by alcohol consumption. The reasons for non-response or 'loss to follow-up' are broadly categorised as having withdrawn from the study, dying between Survey 1 and Survey 2, and other reasons. The 'other non-respondent' category includes women for whom no current address was available, those who were overseas, and those who did not complete the survey for some other reason.

Table 6.1 shows response to Survey 2 by alcohol consumption at Survey 1, for Younger women. The findings are:

- Non-drinkers were most likely to be non-respondents, with 62% completing Survey 2.
- Women who rarely drink and low risk drinkers had similar profiles for loss to follow-up.
- 68% of the risky/high risk group completed Survey 2 which compares favourably with the rest of the cohort.

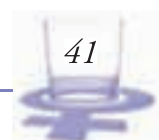


Table 6.1 Younger women - Response to Survey 2 by alcohol consumption at Survey 1 (n=14,088)

	Non-drinker (n=1254) %	Rarely drinks (n=4855) %	Low risk drinker (n=7197) %	Risky drinker (n=782) %
Respondent	62.1	67.8	69.5	67.8
Withdrawn	2.7	1.3	1.6	2.5
Deceased	0.1	0.2	0.1	0.8
Other non-respondent	35.1	30.8	28.8	28.8

Results are weighted for area of residence

Table 6.2 shows response to Survey 2 by alcohol consumption at Survey 1, for Mid-age women. The findings are:

- Non-drinkers were most likely to be non-respondents, with only 85% completing Survey 2.
- Low risk drinkers were most likely to be respondents, with 92% completing Survey 2.

Table 6.2 Mid-age women – Response to Survey 2 by alcohol consumption at Survey 1 (n=13,585)

	Non-drinker (n=2063) %	Rarely drinks (n=4273) %	Low risk drinker (n=6533) %	Risky drinker (n=716) %
Respondent	85.3	88.3	91.7	89.2
Withdrawn	2.9	2.2	1.1	1.1
Deceased	0.8	0.3	0.3	0.3
Other non-respondent	11.0	9.3	6.9	9.4

Results are weighted for area of residence

Table 6.3 shows response to Survey 2 by alcohol consumption at Survey 1, for Older women. The findings are:

- Non-drinkers were more likely to be non-respondents.
- Women who drank alcohol at various levels of consumption had similar response rates.

Table 6.3 Older women - Response to Survey 2 by alcohol consumption at Survey 1 (n=11,948)

	Non-drinker (n=4127) %	Rarely drinks (n=3487) %	Low risk drinker (n=3926) %	Risky drinker (n=408) %
Respondent	80.7	83.9	86.3	85.5
Withdrawn	6.1	5.3	5.2	3.9
Deceased	4.8	3.8	2.7	3.0
Other non-respondent	8.4	7.0	5.7	7.7

Results are weighted for area of residence



6.3 Methods

In the results shown in this section, the low risk drinker category (as defined in the Australian alcohol guidelines, see Table 2.2) comprises the two subgroups called ‘rarely drinks’ and ‘low risk drinker’ (shown in Table 3.4). Hence, there are four transition categories of alcohol consumption between Survey 1 and Survey 2 (see Table 6.4):

- (a) remain low risk (which will be the reference group for comparisons),
- (b) risky/high risk to low risk,
- (c) low risk to risky/high risk,
- (d) remain risky/high risk.

Table 6.4 Definition of alcohol transition categories

		Survey 2	
		Low risk	Risky/high risk
Survey 1	Low risk	remain low risk (a)	low risk to risky/high risk (c)
	Risky/high risk	risky/high risk to low risk (b)	remain risky/high risk (d)

These data can be analysed using a multinomial logistic regression. This method simultaneously compares each of the groups labelled (b), (c) and (d) above, with the reference group (a). Separate analyses were conducted for Younger, Mid-age and Older women. The explanatory variables thought to be associated with changes in alcohol consumption that were included in the models varied slightly for each age group. All models initially included transitions (changes over time) in marital status, smoking status, and also having had a major illness, injury or surgery at Survey 1 or Survey 2. To adjust for large changes in physical and mental health, an improvement or decline of more than ten points in PCS or MCS between Survey 1 and Survey 2 was defined as an increase or decrease in health (see Section 4.1 for further information about PCS and MCS).

Other explanatory variables in the analyses were changes in work status (Younger and Mid-age women), study (Younger women), motherhood (Younger women), care-giving (Mid-age and Older women) and managing on available income (Mid-age and Older women). The analysis for the Younger women also included whether they were pregnant at either survey. All analyses were also adjusted for area of residence and educational qualifications.

Table 6.5 Transition and other explanatory variables used in analyses of change in alcohol consumption among 9095 Younger women who consumed alcohol at Survey 1 or Survey 2

1996	2000	%
Highest educational qualification		
	School certificate or less	9.0
	Higher school certificate	22.7
	Trade/diploma	23.3
	University degree	45.0
Transition in marital status		
Never married	Never married	52.0
Never married/ separated/ widowed/ divorced/de facto	Married	16.5
Never married/ separated/ widowed/ divorced/ married	De facto	16.4
Married/ de facto	Married/ de facto (unchanged)	9.5
All other categories/ incomplete data		5.7
Transition in work status		
Work (paid or in family business)	Work (paid or in family business)	47.2
No work	Work (paid or in family business)	39.9
Work (paid or in family business)	No work	5.6
No work	No work	7.3
Transition in study status		
Not studying	Not studying	37.4
Study	Not studying	32.9
Not studying	Study	9.9
Study	Study	19.8
Pregnant during Survey 1		1.9
	Pregnant during Survey 2	4.3
Transition in motherhood status		
Not a mother	Not a mother	84.7
Not a mother	Mother	9.6
Mother	Mother	5.7
Transition in smoking status		
Non-smoker/ ex-smoker	Non-smoker/ ex-smoker	67.1
Smoker	Smoke fewer cigarettes/ ex-smoker	15.7
Non-smoker/ ex-smoker/ smoker	Smoker/ Smoke more cigarettes	10.2
Smoker (same number of cigarettes)	Smoker (same number of cigarettes)	7.0
Transition in physical health (PCS)		
Unchanged		71.4
Decline in physical health		15.4
Improvement in physical health		13.2
Transition in mental health (MCS)		
Unchanged		68.8
Decline in mental health		15.2
Improvement in mental health		16.0
Major illness/ injury or surgery in the last year at Survey 1		15.4
Major illness/ injury or surgery in the last year at Survey 2		12.6



6.4 Results

6.4.1 Younger women

Table 6.5 shows the demographic and health-related transitions and other variables that were included in the preliminary analysis of data from Younger women. Percentages were weighted for area of residence.

The findings for Younger women are:

- Most women (68%) had completed post-school qualifications by Survey 2.
- Half the women had never married, a third had either become married or begun living in a de facto relationship since Survey 1, and 10% were married at both surveys or in de facto relationships at both surveys.
- The majority (87%) were working at Survey 2, with 40% having joined the work force since Survey 1.
- Half the women were studying at Survey 1 compared with 30% at Survey 2.
- Small percentages of women were currently pregnant at the time of the survey—2% at Survey 1 and 4% at Survey 2.
- Six percent of women were mothers at Survey 1 and 16% by Survey 2.
- Two-thirds of women were non-smokers, 16% had decreased and 10% had increased their consumption of cigarettes.
- The physical and mental health of most women (70%) remained within 10 points of their Survey 1 score.
- Around 15% of women had a major illness, injury or surgery in the year before Survey 1 and 13% in the year before Survey 2.

Table 6.6 shows the odds of becoming a less risky drinker (changing from risky to low risk drinking), the odds of becoming a risky drinker (changing from low risk to risky drinking) and the odds of remaining a risky drinker compared with the odds of remaining a low risk drinker, for various demographic and health transitions.

For example, the estimated odds ratio of 4.74 in Table 6.6 (relating to smoking transition) implies that the odds of changing from risky to low risk drinking, compared with the odds of remaining a low risk drinker, is about five times higher for Younger women who decreased their smoking (were smoking fewer cigarettes at Survey 2 than at Survey 1) compared with those who were non-smokers, after adjusting for other variables in the model.

Changes in work, study, physical health and mental health, and being pregnant at either survey were not significantly associated with changes in alcohol consumption. After adjusting for area of residence and educational qualifications, the findings for Younger women (compared with the odds of remaining a low risk drinker) are that:

- Women who had married since Survey 1 had decreased odds of remaining or becoming risky drinkers.
- Women who had moved into de facto relationships had decreased odds of remaining risky drinkers.

- Women who had remained married or living in de facto relationships had decreased odds of changing from risky to low risk drinking.
- Women who became mothers after Survey 1 had decreased odds of remaining or becoming risky drinkers.
- Women who were mothers at both Surveys had decreased odds of remaining risky drinkers.
- The odds of being in any of the three alcohol consumption transition groups (see Table 6.4), compared with the odds of remaining a low risk drinker, is significantly higher for women who smoked at either Survey 1 or Survey 2 or both, compared with non-smokers.
- Women who had had a major illness, injury or surgery in the year before Survey 1 were more likely to decrease their alcohol consumption from risky to low risk between Surveys 1 and 2. Those with an illness, injury or surgery in the year before Survey 2, however, were more likely to have increased their alcohol consumption from low to risky since Survey 1.

Table 6.6 Multinomial logistic regression results for Younger women (n=7563).
Odds ratios (and 95% confidence intervals) for three categories of transition in alcohol consumption compared with remaining a low risk drinker (reference category).
Statistically significant results are shown in bold typeface

1996-2000	Risky to low risk	Low risk to risky	Remain risky
Marital transitions			
Never married	1.0	1.0	1.0
Became married	0.89 (0.63; 1.25)	0.40 (0.23; 0.71)	0.21 (0.06; 0.67)
Became de facto	1.22 (0.91; 1.62)	0.66 (0.43; 1.01)	0.40 (0.19; 0.85)
Married or de facto	0.41 (0.24; 0.73)	0.79 (0.45; 1.39)	1.05 (0.48; 2.30)
Other	1.14 (0.72; 1.83)	1.10 (0.63; 1.91)	0.60 (0.21; 1.69)
Motherhood status			
Not a mother	1.0	1.0	1.0
Not a mother to mother	0.87 (0.59; 1.28)	0.38 (0.18; 0.77)	0.32 (0.11; 0.93)
Mother	0.59 (0.32; 1.07)	0.60 (0.31; 1.17)	0.18 (0.04; 0.79)
Smoking transition			
Non-smoker	1.0	1.0	1.0
Decreased smoking	4.74 (3.64; 6.18)	2.27 (1.52; 3.39)	4.73 (2.60; 8.63)
Increased smoking	2.00 (1.37; 2.93)	3.58 (2.45; 5.23)	2.98 (1.43; 6.19)
Smoker	3.13 (2.14; 4.59)	3.53 (2.26; 5.52)	7.44 (3.90; 14.21)
Major illness, injury or surgery in 1995			
No	1.0	1.0	1.0
Yes	1.84 (1.41; 2.41)	0.90 (0.59; 1.36)	1.58 (0.90; 2.77)
Major illness, injury or surgery in 1999			
No	1.0	1.0	1.0
Yes	1.33 (0.98; 1.82)	1.54 (1.05; 2.27)	1.36 (0.72; 2.58)

Results are shown after adjusting for area of residence and education



Table 6.7 Transition and other explanatory variables used in analyses of change in alcohol consumption among 10,228 Mid-age women who consumed alcohol at Survey 1 or Survey 2

1996	1998	%
Highest educational qualification		
	School certificate or less	44.2
	Higher school certificate	17.4
	Trade/diploma	20.7
	University degree	17.7
Transition in marital status		
Married	Married	74.0
De facto	De facto	4.3
Separated/ divorced/ widowed/ single	Separated/ divorced/ widowed/ single (no change)	14.0
Changed marital status		7.7
Transition in work status		
Work (paid or in family business)	Work (paid or in family business)	73.3
No work	Work (paid or in family business)	4.9
Work (paid or in family business)	No work	7.8
No work	No work	14.0
Transition in care giving status		
Carer	Carer	11.7
Carer	Non carer	7.7
Non carer	Carer	10.3
Non carer	Non carer	70.3
Transition in managing on available income		
Impossible /difficult all the time	Impossible /difficult all the time	6.6
Difficult some of the time	Difficult some of the time	13.4
Not too bad /easy	Not too bad /easy	48.1
Not too bad /easy /difficult some of the time	More difficulty managing on income	17.1
Impossible /difficult all or some of the time	Less difficulty managing on income	14.8
Transition in smoking status		
Non-smoker/ ex-smoker	Non-smoker/ ex-smoker	81.6
Smoker	Smoke fewer cigarettes/ ex-smoker	3.5
Non-smoker/ ex-smoker/ smoker	Smoker/ Smoke more cigarettes	3.6
Smoker (same number of cigarettes)	Smoker (same number of cigarettes)	11.3
Transition in physical health (PCS)		
Unchanged		80.5
Decline in physical health		11.5
Improvement in physical health		8.0
Transition in mental health (MCS)		
Unchanged		76.2
Decline in mental health		11.5
Improvement in mental health		12.3
Major illness/ injury or surgery in the last year at Survey 1		14.2
Major illness/ injury or surgery in the last year at Survey 2		12.2

6.4.2 Mid-age women

Table 6.7 shows the demographic and health-related transitions and other variables that were included in the preliminary analysis of data from Mid-age women. The findings are:

- Around 40% had post-school qualifications (no transitions were calculated for this variable as there is little change in this age group).
- Three-quarters of the women were married at both surveys and 14% had remained separated, divorced, widowed or single.
- Most women (73%) were in paid work or working in a family business at both surveys.
- At both surveys, around one in five women were caring for another person.
- Many women (48%) found it easy to manage on their income at Surveys 1 and 2, but 19% had at least some difficulty and 17% were finding it more difficult to manage on their income at Survey 2 than at Survey 1.
- Most women were non-smokers (82%) or continued to smoke at the same level (11%).
- The physical and mental health of most women at Survey 2 (81% and 76%) remained unchanged (within 10 points of Survey 1).
- One in eight women had had a major illness, injury or surgery in the last year at Survey 1, and the same number at Survey 2.

Table 6.8 shows the odds of becoming a less risky drinker (changing from risky to low risk drinking), the odds of becoming a risky drinker (changing from low risk to risky drinking) and the odds of remaining a risky drinker, compared with the odds of remaining a low risk drinker, for various demographic and health transitions.

Changes in work, care giving, income, and physical health, and having a major illness or injury or surgery at Surveys 1 and 2, were not significantly associated with changes in alcohol consumption. After adjusting for area of residence and level of education, the findings for Mid-age women (compared with the odds of remaining a low risk drinker) are that:

- Women living in de facto relationships had twice the odds of either changing their alcohol consumption or remaining risky drinkers compared with women who were married at both surveys.
- Women who had changed their marital status since Survey 1 had higher odds of changing from risky to low risk drinkers.
- Women who were smokers, particularly those whose tobacco consumption remained the same, had higher odds of remaining risky drinkers.
- Women whose smoking habits remained unchanged, and those who decreased the amount they smoked, had at least twice the odds of changing from low risk to risky drinkers and from risky to low risk drinkers. However those who decreased the amount they smoked had four times the odds of changing from risky to low risk drinkers.
- Women whose mental health was worse at Survey 2 had higher odds of increasing from low risk to risky drinking.
- Women whose mental health had improved at Survey 2 had higher odds of changing from risky to low risk drinking or remaining risky drinkers.



Table 6.8 Multinomial logistic regression results for Mid-age women (n=9300).

Odds ratios (and 95% confidence intervals) for three categories of transition in alcohol consumption compared with remaining a low risk drinker (reference category).

Statistically significant results are shown in bold typeface

1996-1998	Risky to low risk	Low risk to risky	Remain risky
Marital transitions			
Married at both surveys	1.0	1.0	1.0
De facto at both surveys	2.06 (1.16; 3.65)	2.05 (1.22; 3.45)	1.93 (1.31; 2.86)
No partner at both surveys	0.82 (0.49; 1.37)	1.29 (0.88; 1.90)	0.69 (0.48; 0.98)
Changed marital status	1.69 (1.03; 2.76)	1.14 (0.68; 1.91)	1.21 (0.84; 1.74)
Smoking transitions			
Non-smoker	1.0	1.0	1.0
Decreased smoking	4.08 (2.45; 6.78)	2.19 (1.24; 3.85)	1.86 (1.11; 3.09)
Increased smoking	0.85 (0.31; 2.32)	1.58 (0.82; 3.04)	2.28 (1.43; 3.63)
Smoker	2.52 (1.69; 3.77)	2.28 (1.59; 3.26)	3.96 (3.09; 5.07)
Mental health transitions			
Unchanged	1.0	1.0	1.0
Decline in mental health	1.05 (0.64; 1.72)	1.59 (1.09; 2.31)	0.86 (0.60; 1.23)
Improvement in mental health	1.58 (1.04; 2.39)	1.25 (0.83; 1.87)	1.46 (1.10; 1.95)

Results are shown after adjusting for area of residence and education.

6.4.3 Older women

Table 6.9 shows the demographic and health-related transitions and other variables that were included in the preliminary analysis of data for Older women. The findings are:

- Around 20% of the women had post-school qualifications.
- Half the women were married at both surveys, while 40% were widowed at Survey 1 or had become widowed by Survey 2.
- At both surveys, around one in five women was caring for another person.
- Two-thirds of the women found it easy to manage on their income at Surveys 1 and 2, but 12% were finding it more difficult to manage on their income at Survey 2 than Survey 1.
- Most women were non-smokers (92%).
- The physical health of most women at Survey 2 (71%) had remained within 10 points of Survey 1, but one in four women had worse physical health by Survey 2.
- The mental health of most women (65%) at Survey 2 had remained within 10 points of Survey 1, with one in four women having worse mental health at Survey 2.
- Around 17% of women had had a major illness, injury or surgery in the last year at Survey 1, and 23% at Survey 2.

Table 6.9 Transition and other explanatory variables used in analyses of change in alcohol consumption among 6406 Older women who consumed alcohol at Survey 1 or Survey 2

1996	1999	%
Highest educational qualification		
	No formal qualifications	26.4
	School certificate	39.2
	Higher school certificate	15.7
	Trade/diploma	13.3
	University degree	5.4
Transition in marital status		
Married /de facto	Married /de facto	50.6
Widowed	Widowed	32.7
	Became widowed	7.5
All other categories	All other categories	9.2
Transition in care giving status		
Carer	Carer	9.2
Carer	Non carer	9.9
Non carer	Carer	11.9
Non carer	Non carer	69.0
Transition in managing on available income		
Impossible /difficult all the time	Impossible /difficult all the time	1.9
Difficult some of the time	Difficult some of the time	8.3
Not too bad /easy	Not too bad /easy	66.7
Not too bad /easy /difficult some of the time	More difficulty managing on income	11.9
Impossible /difficult all or some of the time	Less difficulty managing on income	11.2
Transition in smoking status		
Non-smoker/ ex-smoker	Non-smoker/ ex-smoker	92.3
Smoker at Survey 1 or Survey 2	Smoker at Survey 1 or Survey 2	7.7
Transition in physical health (PCS)		
	Unchanged	70.8
	Decline in physical health	24.7
	Improvement in physical health	10.2
Transition in mental health (MCS)		
	Unchanged	65.4
	Decline in mental health	24.4
	Improvement in mental health	12.3
	Major illness/ injury or surgery in the last year at Survey 1	17.1
	Major illness/ injury or surgery in the last year at Survey 2	22.8



Table 6.10 shows the odds of becoming a less risky drinker (changing from risky to low risk drinking), the odds of becoming a risky drinker (changing from low risk to risky drinking) and the odds of remaining a risky drinker, compared with remaining a low risk drinker, for various demographic and health transitions.

Changes in care giving, income, physical health, and mental health, and illness or injury or surgery at Surveys 1 and 2 were not significantly associated with changes in alcohol consumption. After adjusting for area of residence and level of education, the findings for Older women (compared with the odds of remaining a low risk drinker) are that:

- Women who were widows or became widowed by Survey 2 were about half as likely to remain risky drinkers as women who were married at both surveys.
- Women who were smokers were almost twice as likely to change from low risk to risky drinkers and more than four times as likely to remain risky drinkers as non-smokers.

Table 6.10 Multinomial logistic regression results for Older women (n=5780).

Odds ratios (and 95% confidence intervals) for three categories of transition in alcohol consumption compared with remaining a low risk drinker (reference category).

Statistically significant results are shown in bold typeface

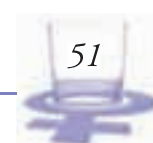
1996-1999	Risky to low risk	Low risk to risky	Remain risky
Marital transitions			
Married at both surveys	1.0	1.0	1.0
Widowed at both surveys	1.41 (0.88; 2.27)	1.01 (0.68; 1.51)	0.53 (0.37; 0.75)
Became widowed	1.56 (0.75; 3.26)	0.62 (0.27; 1.44)	0.45 (0.23; 0.90)
All other categories	1.16 (0.51; 2.63)	1.32 (0.73; 2.40)	0.72 (0.43; 1.23)
Smoking transitions			
Non-smoker	1.0	1.0	1.0
Smoker	1.32 (0.63; 2.76)	1.87 (1.07; 3.25)	4.36 (3.04; 6.24)

Results are shown after adjusting for area of residence and education.

6.5 Summary

Among women in all three age groups, the most consistent and largest associations existed between smoking and drinking habits. Those who smoked had consistently higher odds of either remaining risky drinkers or changing from low risk to risky drinkers.

Among the Younger and Older women, changes in marital status were associated with decreased odds of remaining a risky drinker. Younger women who became married or formed de facto relationships between Survey 1 and Survey 2 had decreased odds of remaining risky drinkers or becoming risky drinkers. Older women who were widowed by Survey 2 had decreased odds



of remaining risky drinkers. Although Mid-age women without partners had decreased odds of remaining risky drinkers, those in de facto relationships had increased odds of remaining risky drinkers or changing their drinking habits.

Changes in health were also associated with changes in alcohol consumption among Younger and Mid-age women. Younger women who had a major illness, injury or surgery in the previous year had increased odds of changing their drinking habits. Mid-age women whose mental health had deteriorated by Survey 2 had increased odds of becoming risky drinkers, whereas those whose mental health had improved had increased odds of remaining risky drinkers or changing from risky to low risk drinkers.

Younger women who were mothers at both Survey 1 and Survey 2 had decreased odds of remaining risky drinkers. Those who had become new mothers by Survey 2 had decreased odds of remaining or becoming risky drinkers.

Section 7 What long-term effects does alcohol consumption have on women's health?

7.1 Introduction

This section aims to investigate whether changes in health-related quality of life between Survey 1 and Survey 3, were associated with levels of alcohol consumption (measured by long-term risk). As there is little variation over time in alcohol consumption for Mid-age and Older women, their responses at Survey 1 were used to classify their long-term risk. As there were more changes in alcohol consumption over time among Younger women, a different classification, incorporating transitions in long-term risk over all three surveys, was used.

The association between alcohol consumption and death was also examined for both the Mid-age and Older cohorts; there have been very few deaths among the Younger women, 115 deaths among Mid-age women and 1068 among Older women. The association of alcohol consumption with the risk of withdrawing from the study was also examined for all cohorts. Between Survey 1 and Survey 3, 534 Younger women, 449 Mid-age women and 1541 Older women withdrew from the study.

Before describing the analysis and presenting the results, Section 7.2 presents a summary of who completed Survey 3 in each age cohort, according to their alcohol consumption at Survey 1.

7.2 Retention of participants between Survey 1 and Survey 3

The following tables show retention of Younger, Mid-age and Older women between Survey 1 and Survey 3, by alcohol consumption. The reasons for non-response or 'loss to follow-up' are broadly categorised as having withdrawn from the study, dying between Survey 1 and Survey 3, and other non-respondents. The 'other non-respondent' category includes women for whom no current address was available at Survey 3, those who were overseas, and those who did not complete the survey for some other reason.

Table 7.1 shows response to Survey 3 by alcohol consumption at Survey 1, among Younger women. The findings are:

- Low risk drinkers were most likely to be respondents to all 3 surveys and to Surveys 1 and 3.
- Women who rarely drink and low risk drinkers had similar profiles for loss to follow-up.

Table 7.1 Younger women – Response to Survey 3 by alcohol consumption at Survey 1 (n=14,088)

	Non-drinker (n=1254) %	Rarely drinks (n=4855) %	Low risk drinker (n=7197) %	Risky drinker (n=782) %
Respondent at all 3 surveys	48.0	53.7	56.3	51.5
Respondent at Y1 and Y3	7.5	8.7	9.5	7.8
Withdrawn	6.4	3.4	3.7	3.8
Deceased	0.3	0.2	0.2	1.0
Other non-respondent	37.9	34.0	30.4	35.8

Results are weighted for area of residence

Table 7.2 shows response to Survey 3 by alcohol consumption at Survey 1, among Mid-age women. The findings are:

- Low risk drinkers were most likely to respond to Survey 3.
- Non-drinkers were more likely to have withdrawn from the study or died (although there were only 115 deaths).

Table 7.2 Mid-age women – Response to Survey 3 by alcohol consumption at Survey 1 (n=13,585)

	Non- drinker n=2063 %	Rarely drinks n=4273 %	Low risk drinker n=6533 %	Risky drinker n=716 %
Respondent	73.5	78.7	84.1	81.7
Withdrawn	5.2	4.3	2.7	2.6
Deceased	1.5	0.8	0.7	0.6
Other non-respondent	19.8	16.2	12.5	15.1

Results are weighted for area of residence

Table 7.3 shows response to Survey 3 by alcohol consumption at Survey 1, among Older women. The findings are:

- Low risk drinkers were most likely to respond to Survey 3.
- Non-drinkers were more likely to have died or withdrawn from the study.



Table 7.3 Older women – Response to Survey 3 by alcohol consumption at Survey 1 (n=11,948)

	Non-drinker n=4127 %	Rarely drinks n=3487 %	Low risk drinker n=3926 %	Risky drinker n=408 %
Respondent	64.6	69.9	74.9	72.8
Withdrawn	13.6	12.0	10.9	9.9
Deceased	10.1	8.0	6.1	7.0
Other non-respondent	11.7	10.0	8.1	10.4

Results are weighted for area of residence.

7.3 Survival analysis

The percentages of women who died or withdrew by Survey 3 in 2003, for each level of alcohol consumption (long-term risk), are shown in Tables 7.1 to 7.3. Among Mid-age women, 0.7% of the low risk drinkers and 1.5% of the non-drinkers had died by Survey 3 (Table 7.2). Among Older women, the percentages who died ranged from 6.1% of women who consumed alcohol at low levels of long-term risk, to 10.1% among the non-drinkers. Hence, survival rates appear to be lower for women who did not consume alcohol.

The association between survival and alcohol consumption, after adjusting for smoking, education, area of residence and comorbidity was assessed using proportional hazards models (see Table 7.4). Low risk drinkers were chosen as the reference category for alcohol consumption so that the model estimates the risk (or hazard) of dying, relative to the group of women drinking at low risk. A conservative p-value of 0.005 was used to adjust for multiple comparisons and large sample sizes. P values were computed with likelihood-ratio tests. Women who had withdrawn from the study were excluded from the analysis. Similar analyses estimated the risk of women withdrawing from the study in each of the alcohol groups, relative to the group of women drinking at low risk.

Table 7.4 Predictor variables used in survival analyses for Mid-age and Older women

Variable	Values
Alcohol risk category	Non-drinker = 1 Rarely drinks = 2 Low risk = 3* Risky = 4
Area	Non Urban = 0* Urban = 1
Smoker	Non-smoker = 0* Smoker = 1
Education	School only = 0* More education = 1
Comorbidity	No chronic condition = 0* At least 1 chronic condition = 1

* Reference category in the model

For the Younger cohort, the number of deaths was very low so survival analyses were not conducted. Compared with the low risk drinkers, the non-drinkers were more likely to withdraw from the study (hazards ratio 1.5 (95% CI: 1.1, 2.0)).

For the Mid-age cohort, the hazards ratio for death for each alcohol consumption group was not significantly different from 1.0 (at the $p = 0.005$ level), indicating that their risk of dying was not different from that of the low risk drinkers. This may result from the low number of deaths among the Mid-age cohort ($n=115$), and further analysis can be conducted over the course of the longitudinal study. After adjusting for covariates, compared with the low risk drinkers, non-drinkers and women who rarely drank were more likely to withdraw from the study (hazards ratios for non-drinkers 2.1 (95% CI: 1.6, 2.7) and for women who rarely drank was 1.5 (95% CI: 1.2, 1.9)).

For the Older cohort, compared with the low risk drinkers, the hazard ratio for death for the non-drinkers was 1.7 (95% CI: 1.4, 2.0), and for women who rarely drank was 1.3 (95% CI: 1.1, 1.6). In other words, both groups of women had a significantly higher risk of dying during the survey period than low risk drinkers. The risk of dying during the study period for women who drank at risky levels was not significantly different from that of low risk drinkers. However, it should also be noted that the number of risky/high risk drinkers in the Older cohort was small ($n=408$). After adjusting for covariates, compared with the low risk drinkers, non-drinkers were more likely to withdraw from the study (hazards ratio 1.4 (95% CI: 1.2, 1.6)).

7.4 Methods for longitudinal analysis of health-related quality of life

For the longitudinal analyses within each cohort, we used the method of generalised estimating equations (GEE) to analyse changes in health-related quality of life (measured with the SF-36 at Survey 1, Survey 2 and Survey 3) in relation to alcohol consumption. The analysis adjusted for area of residence, smoking, education, BMI and comorbidity (Table 7.4). A different definition of alcohol consumption was used for Younger women (see Section 7.5.1). The outcome measures were the two summary scores and the eight dimensions of the SF-36 (see Section 4.1).

Data from women who died or withdrew were not included in the analysis (see Section 7.3). The tables presented in this report show the estimated effects of all levels of long-term alcohol consumption, even if these effects were not statistically significant. In some cases, it appears that the effect of alcohol on the health score is large enough to regard it as significant. However, the error surrounding the estimate may be too large and so the effect is not statistically significant at $p < 0.005$.



7.5 Results

7.5.1 Younger women

The predictor variables used in the models for the Younger cohort differ slightly from those used in the analysis for the Mid-age and Older cohorts. Alcohol consumption over the seven-year period (1996-2003) among the Younger women was more variable, whereas for the Mid-age and Older cohorts there was little change between Survey 1 and Survey 3.

For the Younger cohort, a new longitudinal summary measure of long-term risk was defined, using the number of surveys at which women had reporting consuming alcohol at risky or high risk levels. The reference value in the models was the subgroup of women who drank at low risk for all three surveys. Very few women drank at long-term risky levels for all three surveys. The groups are:

Perpetual non-drinker (n = 253)

Remain low risk (n = 6656)

Risky at 1 survey (n = 567)

Risky at 2-3 surveys (n = 161)

After adjusting for area of residence, education, smoking, BMI and comorbidity, results of the analyses showed that alcohol consumption among the Younger women over the seven-year period was significantly associated with three health outcomes (Tables 7.5 and 7.6). Compared with low risk drinkers, non-drinkers had poorer physical functioning and lower physical health summary scores. Compared with low risk drinkers, women who remained risky drinkers had poorer mental health.

Table 7.5 Summary of significant effects on health-related quality of life for Younger women 1996-2003, after adjusting for area of residence, smoking, education, BMI and comorbidity (○ shows negative effect)

Alcohol (compared with low risk drinker)	PCS	MCS	GH	BP	PF	RP	MH	VT	SF	RE
Non-drinker	○				○					
Risky drinker at 1 survey										
Risky drinker at 2-3 surveys							○			

Table 7.6 Effects of alcohol consumption on health-related quality of life among Younger women, 1996-2003

(statistically significant effects are shown in bold typeface)

Health Outcome	Alcohol consumption (compared with low risk drinkers) Size of effect (95% CI)		
	Non-drinker	Risky drinker at 1 survey	Risky drinker at 2-3 surveys
Physical Health Summary Score	-2.2 (-3.7, -0.7)	0.1 (-0.8, 1.0)	-0.1 (-1.6, 1.4)
Mental Health Summary Score	0.3 (-1.0, 1.6)	-1.0 (-2.0, 0.0)	-2.4 (-4.2, -0.7)
General Health	-0.8 (-3.6, 2.1)	-0.4 (-2.4, 1.6)	-3.4 (-7.1, 0.3)
Bodily Pain	-3.2 (-6.3, -0.2)	0.4 (-1.7, 2.4)	-1.5 (-5.0, 2.0)
Physical Functioning	-4.5 (-6.8, -2.2)	-1.2 (-2.6, 0.3)	-0.2 (-2.1, 1.8)
Role Physical	-2.2 (-6.3, 1.9)	0.8 (-1.9, 3.5)	-0.3 (-5.1, 4.5)
Mental Health	0.6 (-1.8, 3.1)	-1.2 (-3.0, 0.6)	-5.0 (-8.2, -1.9)
Vitality	-1.6 (-4.4, 1.2)	-1.2 (-3.2, 0.8)	-3.7 (-7.0, -0.4)
Social Functioning	-1.9 (-5.1, 1.3)	-3.1 (-5.3, -0.8)	-2.6 (-6.5, 1.4)
Role Emotional	-0.1 (-4.9, 4.8)	-2.1 (-5.7, 1.5)	-5.3 (-11.9, 1.3)

Results are shown after adjusting for area of residence, smoking, education, BMI and comorbidity.

7.5.2 Mid-age women

After adjusting for area of residence, education, smoking, BMI and comorbidity, the results are summarised in Tables 7.7 and 7.8. Compared with being a low risk drinker, women who were non-drinkers or rarely drink had significantly lower scores on all dimensions of physical health. Being a risky drinker, compared with a low risk drinker, was associated with poorer mental health and general health.

Table 7.7 Summary of significant effects on health-related quality of life for Mid-age women 1996-2001, after adjusting for area of residence, smoking, education, BMI and comorbidity (○ shows negative effect)

Alcohol (compared with low risk drinker)	PCS	MCS	GH	BP	PF	RP	MH	VT	SF	RE
Non-drinker	○		○	○	○	○		○	○	
Rarely drinks	○		○	○	○		○	○	○	
Risky drinker		○	○				○		○	○



Table 7.8 Effects of alcohol consumption on health-related quality of life among Mid-age women, 1996-2001

(statistically significant effects are shown in bold typeface)

Health Outcome	Alcohol consumption (compared with low risk drinkers) Size of effect (95% CI)		
	Non-drinker	Rarely drinks	Risky drinker
Physical Health Summary Score	-2.5 (-3.0, -1.9)	-1.4 (-1.8, -1.0)	0.2 (-0.6, 0.9)
Mental Health Summary Score	-0.4 (-1.0, 0.1)	-0.5 (-0.9, -0.1)	-2.2 (-3.1, -1.2)
General Health	-5.4 (-6.5, -4.3)	-3.5 (-4.3, -2.7)	-2.4 (-4.1, -0.7)
Bodily Pain	-3.2 (-4.5, -2.0)	-2.1 (-3.0, -1.1)	-0.2 (-2.0, 1.7)
Physical Functioning	-4.6 (-5.6, -3.5)	-2.9 (-3.6, -2.2)	-0.9 (-2.2, 0.5)
Role Physical	-5.2 (-7.1, -3.3)	-2.3 (-3.8, -0.9)	-0.6 (-3.4, 2.2)
Mental Health	-1.2 (-2.2, -0.3)	-1.3 (-2.0, -0.6)	-3.8 (-5.4, -2.1)
Vitality	-2.5 (-3.6, -1.3)	-2.1 (-3.0, -1.3)	-2.2 (-3.9, -0.5)
Social Functioning	-3.6 (-4.8, -2.4)	-2.7 (-3.6, -1.7)	-3.8 (-5.9, -1.7)
Role Emotional	-2.5 (-4.4, -0.6)	-1.5 (-2.9, 0.0)	-5.9 (-9.0, -2.7)

Results are shown after adjusting for area of residence, smoking, education, BMI and comorbidity.

7.5.3 Older women

After adjusting for area of residence, education, smoking, BMI and comorbidity, the results are summarised in Tables 7.9 and 7.10. Compared with being a low risk drinker, women who were non-drinkers had significantly lower scores on PCS and the eight dimensions. Women who rarely drink also had lower scores on PCS and five of the eight dimensions.

Table 7.9 Summary of significant effects on health-related quality of life for Older women 1996-2002, after adjusting for area of residence, smoking, education, BMI and comorbidity (○ shows negative effect)

Alcohol (compared with low risk drinker)	PCS	MCS	GH	BP	PF	RP	MH	VT	SF	RE
Non-drinker	○		○	○	○	○	○	○	○	○
Rarely drinks	○		○	○	○				○	○
Risky drinker										

Table 7.10 Effects of alcohol consumption on health-related quality of life among Older women, 1996-2002

(statistically significant effects are shown in bold typeface)

Health Outcome	Alcohol consumption (compared with low risk drinkers) Size of effect (95% CI)		
	Non-drinker	Rarely drinks	Risky drinker
Physical Health Summary Score	-1.7 (-2.2, -1.2)	-1.0 (-1.5, -0.5)	0.0 (-1.1, 1.2)
Mental Health Summary Score	-0.8 (-1.3, -0.3)	-0.4 (-0.9, 0.1)	-0.3 (-1.4, 0.9)
General Health	-3.9 (-5.0, -2.9)	-2.5 (-3.5, -1.5)	-0.2 (-2.6, 2.2)
Bodily Pain	-2.7 (-4.0, -1.4)	-1.9 (-3.2, -0.5)	1.3 (-1.7, 4.3)
Physical Functioning	-5.5 (-6.7, -4.3)	-3.0 (-4.2, -1.8)	-1.6 (-4.4, 1.2)
Role Physical	-5.7 (-7.9, -3.5)	-2.8 (-5.0, -0.6)	2.8 (-1.9, 7.5)
Mental Health	-1.6 (-2.4, -0.7)	-0.9 (-1.7, 0.0)	-0.8 (-2.7, 1.1)
Vitality	-2.2 (-3.2, -1.2)	-1.4 (-2.4, -0.4)	0.4 (-1.9, 2.8)
Social Functioning	-4.6 (-5.8, -3.4)	-2.4 (-3.6, -1.2)	0.6 (-2.1, 3.3)
Role Emotional	-4.5 (-6.3, -2.6)	-2.7 (-4.6, -0.9)	0.4 (-3.7, 4.5)

Results are shown after adjusting for area of residence, smoking, education, BMI and comorbidity.



7.6 Summary

The association between alcohol consumption and withdrawing from the study or dying was investigated in each age group with adjustment for area of residence, education, smoking and comorbidity. The main results were:

- Younger women who were non-drinkers were more likely to withdraw from the study than low risk drinkers.
- Mid-age women who were non-drinkers or rarely drank had a significantly higher risk of withdrawing from the study during the survey period than low risk drinkers.
- Older women who were non-drinkers had a significantly higher risk of withdrawing from the study during the survey period than low risk drinkers.
- Older women who were non-drinkers or rarely drank had a significantly higher risk of dying during the survey period than low risk drinkers.

The association between alcohol consumption and health related quality of life was investigated in each age group with adjustment for area of residence, education, smoking, BMI and comorbidity. The main results were:

- (1) Alcohol consumption among the Younger women over the seven-year period was significantly associated with these health outcomes:
 - Compared with low risk drinkers, non-drinkers had poorer physical functioning and lower physical health summary scores.
 - Compared with low risk drinkers, women who remained risky drinkers had poorer mental health.
- (2) Alcohol consumption was associated with many aspects of health for the Mid-age women over the five-year period:
 - Being a non-drinker or rarely drinking was associated with a reduction in all dimensions of physical health.
 - Being a risky drinker, compared with a low risk drinker, was associated with poorer mental health and general health.
- (3) A strong relationship was found between alcohol consumption and health-related quality of life among the Older women:
 - Compared with being a low risk drinker, Older women who were non-drinkers also had significantly poorer health on the physical health summary measure and the eight dimensions of physical and mental health.
 - The findings for Older women who rarely drink were similar but not as strong with lower scores on the physical health summary measure and five of the eight dimensions.

Section 8

ALSWH publications relevant to alcohol use among women

Ball, K., W. Brown, *et al.* 2002. 'Who does not gain weight? Prevalence and predictors of weight maintenance in young women', *International Journal of Obesity* 26(12): 1570-1578.

OBJECTIVE: To investigate the prevalence and predictors of weight maintenance over time in a large sample of young Australian women.

DESIGN: This population study examined baseline and four-year follow-up data from the cohort of young women participating in the Australian Longitudinal Study on Women's Health.

SUBJECTS: A total of 8726 young women aged 18-23 years at baseline.

MEASURES: Height, weight and body mass index (BMI); physical activity; time spent sitting; selected eating behaviours (e.g. dieting, disordered eating, takeaway food consumption); cigarette smoking, alcohol consumption; parity; and socio-demographic characteristics.

RESULTS: Only 44% of the women reported their BMI at follow-up to be within 5% of their baseline BMI (maintainers); 41% had gained weight and 15% had lost weight. Weight maintainers were more likely to be in managerial or professional occupations; to have never married; to be currently studying; and not to be mothers. Controlling for sociodemographic factors, weight maintainers were more likely to be in a healthy weight range at baseline, and to report that they spent less time sitting and consumed less takeaway food than women who gained weight.

CONCLUSIONS: Fewer than half the young women in this community sample maintained their weight over this four-year period in their early twenties. Findings of widespread weight gain, particularly among those already overweight, suggest that early adulthood, which is a time of significant life changes for many women, may be an important time to promote maintenance of healthy weight. Strategies which encourage decreased sitting time and less takeaway food consumption may be effective for weight maintenance at this stage of life.



Bell, S. and C. Lee 2002, 'Development of the Perceived Stress Questionnaire for Young Women', *Psychology Health & Medicine* 7(2): 189-201.

The Perceived Stress Questionnaire for Young Women (PSQYW) was developed for the Women's Health Australia project as a measure of the level and perceived sources of stress. A total of 14,779 Australian women aged 18-23 years completed the baseline survey. The PSQYW scale was shown to be internally reliable, unifactorial and to have content validity. Convergent construct validity was demonstrated most strongly with measures of mental health, life events and symptoms, and more weakly with the health behaviours of smoking and alcohol short-term risking.

There was no relationship with physical activity. Multiple regression showed that illness, physical health, mental health and life events explained 44% of the variance, with mental health explaining the most. Construct validity for the life domains indicated five factors relating to family of origin, relationships with others, own health, work/money and study.

The PSQYW was proposed to be an adequate measure of overall perceived stress and to be able to indicate broad life domain perceived stress sources for young women. Further research with broader demographic samples is proposed to enable the PSQYW to be used as a succinct method of assessing perceived stress levels and sources by GPs, and other health practitioners. (PsycINFO Database Record © 2002 APA, all rights reserved).

Bell, S. and C. Lee 2003. 'Perceived stress revisited: The Women's Health Australia project Young cohort', *Psychology, Health and Medicine* 8(3): 343-353.

The Perceived Stress Questionnaire for Young Women (PSQYW) was assessed for internal reliability and validity, for longitudinal changes, and for relationships with health and health behaviours. Participants in the Young cohort of the Women's Health Australia project completed the questionnaire as part of a wide-ranging survey on health and well-being in both 1996 and 2000. The 9683 women were aged between 18 and 23 years at Survey 1, and 22 and 27 years at Survey 2.

The PSQYW was shown to have reproducible internal reliability and validity. Overall stress levels increased across the four years. For individual items the largest increase in stress was in the life domain of relationship with partner/spouse, while the largest decrease was in the life domain of study. Higher levels of stress were associated with current smoking, and weekly alcohol short-term risking.

Of the health outcomes, mental health was found to have the strongest relationship with stress, with a measure of symptoms contributing some unique explanation, and physical health having only a minimal relationship. As this cohort is in the midst of the transition to adulthood future, research should include the contextual factor of life course position, with another key area for future research being the causal relationship between stress and health over time.



Brown, W. J., A. F. Young, *et al.* 1997. 'Women's Health Australia: A health profile of mid-life rural women', *National Rural Public Health Forum: Rural Public Health in Australia 1997*, Canberra, Australia, National Rural Health Alliance.

More than 14,000 women aged 45-50 from every state and territory are participating in the Australian Longitudinal Study on Women's Health. This study is designed to track the health of Australian women for 20 years, and to understand lifestyle and health care factors that influence women's health. The study deliberately over-represents women from rural (n = 955) and remote areas (n = 954). This early analysis of baseline data provided by the women compares responses for urban, rural and remote area women.

The data show that while rural and remote women in this age group have similar levels of self-rated health, they have significantly fewer visits to general practitioners and specialists ($p < 0.001$) and more visits to alternative health care providers. Rural and remote women were also more likely to undergo gynaecological surgery than women living in urban areas ($p < 0.001$).

Other results suggest that drinking and overweight are more common among rural and remote women. In the main however, the results reflect the strength and independence of rural and remote women. Further follow-up will allow divergence in health and health care equity to be explored as these women move into their older years.

Brown, W. J., K. Ball *et al.* 1998. 'Is life a party for young women?' *ACHPER Healthy Lifestyles Journal* 45(3): 21-26.

Baseline data for the Australian Longitudinal Study on Women's Health (now known as the Women's Health Australia or WHA project) were collected from women in three age groups (18 - 23; 45 - 50; 70 - 75) in 1996. The project aims to explore what effects changes in biological, psychological, social and lifestyle factors over time had on women's physical and emotional health. Participants in the study were randomly selected from the Health Insurance Commission/Medicare database, and represented women from all walks of life, from every State and Territory of Australia.

This paper focuses on lifestyle variables, as well as causes of, and methods of coping with stress, in the young cohort (n=14600). The most common causes of stress in this group were money, study and work/employment issues, and the most common method of coping was talking to a good friend. Almost 20% of the cohort reported eating (more or less) as a method of coping with stress, and 17% reported using exercise as a stress reduction strategy. One third of the cohort were current smokers and almost one fifth reported binge drinking (more than five drinks) at least weekly.

More than 60% of the sample reported more than one health 'risk' characteristic and multiple risks were associated with decreased physical

and mental health scores on the Medical Outcomes Survey (MOS Short Form, SF-36) Health profile. Mental health scores were very low for women who reported unhealthy eating practices and high levels of stress, and for women who reported three or more risk characteristics (33% of the cohort).

The data provide insight into levels of stress and strategies for coping with stress in young women. Associations between high stress levels, poorer mental health and multiple risk behaviours suggest that 'life is not a party' for many young women in the transition between adolescence and adulthood. The findings, which will be the focus of future work in this longitudinal study, have implications for health education and health promotion programs for young women.

Dobson, A., W. Brown *et al.* 1999. 'Women drivers' behaviour, socio-demographic characteristics and accidents', *Accident Analysis & Prevention* 31(5): 525-535.

The purpose of this study was to examine factors which affect driving behaviour and accident rates in women in Australia. Two groups of women (aged 18–23 and 45–50 years) participating in the Australian Longitudinal Study on Women's Health completed a mailed questionnaire on driver behaviour and road accidents. Self-reported accident rates in the last three years were 1.87 per 100000 km for the young drivers (n=1199) and 0.59 per 100,000 km for the Mid-age drivers (n=1564); most accidents involved damage only, not injury.

Mean scores for lapses obtained using the Driver Behaviour Questionnaire were similar in the two age groups and similar to those found in other studies. In contrast, scores for errors and violations for the young women were higher than for the Mid-age group and previous reports using the same instruments. Riskier driving behaviour among young women was associated with stress and habitual alcohol consumption. In the Mid-age group, poorer driver behaviour scores were related to higher levels of education, feeling rushed, higher habitual alcohol consumption and lower life satisfaction scores.

Accident rates in both groups were significantly related to lapses. Women born in non-English speaking countries had significantly higher risk of accidents compared to Australian-born women: relative risk=3.40, 95% confidence interval (1.93, 5.98) for the young drivers; relative risk=1.77, 95% confidence interval (1.11, 2.83) for Mid-age drivers. These findings support the need for road safety campaigns targeted at young women to reduce dangerous driving practices, such as speeding, 'tail-gating' and overtaking on the inside.

There is also a need for further research to understand how lifestyle characteristics are associated with higher risk of accidents and to explore factors which might account for the higher risk for women drivers who were born overseas.



France C , Lee C & Powers J. 2004. 'Correlates of depressive symptoms in a representative sample of young Australian women', *Australian Psychologist* 39(3): 228-237.

This paper presents a descriptive analysis of the prevalence of depressive symptoms among a national cohort of young Australian women, and the characteristics of those who experience them. It explores the associations between demographic and health-related variables and depressive symptoms in a representative sample of 9333 Australian women aged 22-27 years, from the Australian Longitudinal Study on Women's Health.

Approximately 30% of these young women indicated that they were experiencing depressive symptoms, as indicated by the CES-D 10. After adjusting for age and rurality of residence, depressive symptoms were related to the following demographic variables: low income, low educational qualifications, a history of unemployment, not being in a relationship, and living arrangements other than living with a partner. Those health-related variables which were significantly associated with depressive symptoms included frequent visits to doctors and medical specialists, and a higher number of physical symptoms experienced and diagnoses made. More illicit drug use, higher use of cigarettes and alcohol, and lower exercise status were also significantly associated with depressive symptoms.

This analysis supports the view that depression is one aspect of a multifactorial cluster of negative conditions across several domains of functioning, including physical ill-health, risky behaviours, and marginal social status. The complex interactions between these conditions, of which depression is only one, underscore the difficulties which arise in the treatment of depression and support the value of preventive interventions as an important public health strategy.

Jonas, H. A., A. J. Dobson, *et al.* 2000. 'Patterns of alcohol consumption in young Australian women: socio-demographic factors, health-related behaviours and physical health', *Australian & New Zealand Journal of Public Health*. 24(2): 185-91.

OBJECTIVE: To determine which socio-demographic factors, health-related behaviours and physical health conditions are associated with non-drinking, short-term risk drinking and hazardous/harmful drinking in young Australian women.

METHODS: Cross-sectional data were obtained from the baseline survey of 14,762 young women (aged 18-23 years) enrolled in the Women's Health Australia study in 1996. Associations between a range of drinking patterns and socio-demographic factors, health-related behaviours and health conditions were examined.

RESULTS: Half the women were 'low intake' drinkers, a third 'rarely drank' and 9% were non-drinkers; however, 70% reported short-term risk drinking with one-quarter of the short-term risk drinkers doing

so at least weekly. Non-drinkers were more likely than drinkers to be married, pregnant, non-smokers, born in non-English speaking countries, to live in the Northern Territory, and to have lower levels of education, employment, and private health insurance. 'Low intake/short-term risk weekly' drinkers (12%) and 'hazardous/harmful' drinkers (5%) were more likely than 'low risk' drinkers to be unmarried; to live in shared accommodation, alone or with their parents; to live in rural or remote areas; to have ever had any sexually transmitted infection; to be current smokers or ex-smokers and to have used unhealthy weight-control practices.

CONCLUSIONS: The results confirm findings from other countries about the importance of social conditions as determinants of alcohol consumption by young women.

IMPLICATIONS: Health promotion to reduce young women's alcohol consumption needs to be carefully targeted to take account of their demography, living environment and beliefs.

Lee, C. 1999. 'Health habits and psychological well-being among young, middle-aged and older Australian women', *British Journal of Health Psychology* 4(4): 301-314.

OBJECTIVES: To assess health habits, and their relationship with psychological wellbeing, among Australian women; in particular to examine the relationship between health habits and the Women's Health Questionnaire (WHQ; Hunter, 1992).

DESIGN: A cross-sectional postal survey of women in three age groups was carried out.

METHODS: Questionnaire responses from a representative sample of 612 women from three age groups (18-23, 45-50 and 70-75) were analysed. Data included the WHQ, 12-item General Health Questionnaire, Medical Outcomes Study SF-12 and self-reports of smoking, height and weight, alcohol use and exercise status.

RESULTS: Young women had the highest rates of smoking and drinking and were most likely to be underweight, while middle-aged and older women were most likely to be overweight or obese. Psychological distress was highest in the youngest group; the middle-aged group were most likely to report vasomotor symptoms and difficulties with memory and concentration; and the older women difficulty in sleeping. Health habits were related to psychological well-being: smoking, unhealthy body weight and lack of exercise were most closely related to the depression subscale of the WHQ.

CONCLUSIONS: Young adulthood appears the time of greatest distress for women. Distress, particularly depression, is associated with behaviours which predispose to later disease, suggesting that psychological interventions with young women may be particularly important for long-term physical health. The WHQ appears a useful measure of well-being and a good predictor of health-related behaviour across a range of ages.



Patterson, A. J., W. J. Brown, *et al.* 2001. 'Dietary and lifestyle factors influencing iron stores in Australian women: an examination of the role of bio-available dietary iron', *Australian Journal of Nutrition & Dietetics, Dietitians Association of Australia*. 58: 107.

Abstract research to date has not been able to adequately describe the relative effects of dietary and lifestyle variables on iron status. While total iron intake appears unrelated to iron stores, bio-available dietary iron should correlate with iron stores after adjustment for iron losses. Therefore, the objective of this study was to examine dietary and lifestyle variables that are important in the determination of iron status for Australian women of child-bearing age. Serum ferritin was measured in 52 iron-deficient and 24 iron-replete women.

Dietary data were collected using seven-day weighed food records and bio-available dietary iron calculations were performed using the algorithms developed by Mosen *et al.*, Mosen and Balintfy, and Tseng *et al.* Self-reported data on demographic characteristics, parity, breastfeeding, oral contraceptive pill, intrauterine device and hormone replacement therapy use, menstruation, smoking, alcohol intake, exercise, dieting, vitamin and mineral supplement use and blood donation were collected. Multiple linear regression was used to examine dietary and lifestyle factors associated with serum ferritin.

Current oral contraceptive pill use and alcohol intake were positively associated ($P=0.01$ and $P=0.001$ respectively) and phytate intake was negatively associated ($P = 0.05$) with serum ferritin. Total iron, haem iron and bio-available dietary iron intakes were not associated with iron stores. Bio-available dietary iron estimates were well below the recommended intakes for menstruating women, suggesting possible problems with either the algorithms or the assumptions built into the current Australian recommended dietary intakes. Further work to accurately determine bio-available dietary iron estimates for Australian women is needed. (Aust J Nutr Diet 2001;58:107-113). [Abstract from author].

Schofield, M. J., V. Minichiello, *et al.* 2000. 'Sexually transmitted infections and use of sexual health services among young Australian women: Women's Health Australia study', *International Journal of STD & AIDS* 11(5): 313-323.

Our objective was to examine associations between self-reported sexually transmitted infections (STIs) and socio-demographic, lifestyle, health status, health service use and quality of life factors among young Australian women; and their use of family planning and sexual health clinics and associations with health, demographic and psychosocial factors.

The study sample comprised 14,762 women aged 18-23 years who participated in the mailed baseline survey for the Australian Longitudinal Study on Women's Health, conducted in 1996. The main outcome



measures are self-report of ever being diagnosed by a doctor with an STI, including chlamydia, genital herpes, genital warts or other STIs, and use of family planning and sexual health clinics. The self-reported incidence of STI was 1.7% for chlamydia, 1.1% genital herpes, 3.1% genital warts, and 2.1% other STIs. There was a large number of demographic, health behaviour, psychosocial and health service use factors significantly and independently associated with reports of having had each STI.

Factors independently associated with use of family planning clinic included unemployment, current smoking, having had a Pap smear less than 2 years ago, not having ancillary health insurance, having consulted a hospital doctor and having higher stress and life events score. Factors independently associated with use of a sexual health clinic included younger age, lower occupation status, being a current or ex-smoker, being a binge drinker, having had a Pap smear, having consulted a hospital doctor, having poorer mental health and having higher life events score.

This study reports interesting correlates of having an STI among young Australian women aged 18-23. The longitudinal nature of this study provides the opportunity to explore the long-term health and gynaecological outcomes of having STIs during young adulthood.

Schofield, M., R. Hussain, *et al.* 2002. 'Psychosocial and health behavioural covariates of cosmetic surgery: Women's Health Australia study', *Journal of Health Psychology* 7(4): 445-457.

Assessed current psychosocial and health behavioural covariates of past cosmetic surgery in a population-based sample (n=14,100; aged 45-50 years), from the baseline survey of the Women's Health Australia study. Seven percent (n=982) reported having ever had cosmetic surgery.

Multivariate analysis found that self-reported dieting frequency in the past year and body mass index were highly significant covariates of cosmetic surgery; perception about body weight was moderately significant, and satisfaction with body weight was unrelated. A higher likelihood of cosmetic surgery was also found for women who had ever been in a violent relationship, who had been verbally abused recently, smokers, those taking medication for sleep or nerves and those with private hospital insurance.

There were moderate associations between cosmetic surgery and state of residence, higher occupational status, alcohol use, higher stress and poorer mental health. Life satisfaction, social support, recent life events, physical health, area of residence, country of birth and marital status, though all significant at the univariate level, were unrelated in multivariate analyses. The psychological and health implications of the findings are discussed. [PscINFO Database Record © 2002 APA, all rights reserved].



Turner, C., A. Russell, *et al.* 2003. 'Prevalence of illicit drug use in young Australian women, patterns of use and associated risk factors', *Addiction* 98: 1419-1426.

OBJECTIVES: To estimate the prevalence of illicit drug use in young Australian women, determine their patterns of drug use and identify associated risk factors.

METHODS: Data were collected in 2000 as part of the second survey of the youngest cohort in the Australian Longitudinal Study on Women's Health (n=9512).

RESULTS: Among women aged 22-27 years, 58% reported having used an illicit drug at some time with most (57%) having used cannabis. Amphetamines (16%), ecstasy/designer drugs (15%) and LSD (14%) were the next three most commonly used drugs. Four different patterns of drug use were identified: past users of cannabis only (39%); current users of cannabis only (17%); past multiple drug users (13%) and current multiple drug users (31%). Living in a de-facto relationship or never being married, living with non-family members, a history of physical abuse, sexual intercourse, smoking and binge drinking were significantly associated with exclusive use of cannabis and with use of multiple drugs compared to never using illicit drugs. Living with a partner, experience of sexual or emotional abuse, pregnancy, diagnosis of depression and taking sleeping medication were significantly associated with being a multiple drug user but not for exclusive cannabis use. Multiple drug users had, on average, used cannabis two to three years before using any other drug.

CONCLUSIONS: Given the strong association found between smoking, heavy drinking and drug use of varied patterns, public health initiatives targeted at preventing young women from smoking and drinking should additionally target illicit drug use.

Appendix

Questions used in the ALSWH surveys

Questions about alcohol consumption used in the ALSWH surveys

(Young Survey 1, Young Survey 2, Young Survey 3, Mid-age Survey 1, Mid-age Survey 2, Older Survey 1, Older Survey 2, Older Survey 3)

Frequency of alcohol consumption:

How often do you usually drink alcohol?

(Circle one number only)

- | | |
|-----------------------|---|
| I never drink alcohol | 1 |
| I drink rarely | 2 |
| Less than once a week | 3 |
| On 1 or 2 days a week | 4 |
| On 3 or 4 days a week | 5 |
| On 5 or 6 days a week | 6 |
| Every day | 7 |

Quantity of alcohol consumed :

On a day when you drink alcohol, how many drinks do you usually have?

(Circle one number only)

- | | |
|--------------------------|---|
| 1 or 2 drinks per day | 1 |
| 3 or 4 drinks per day | 2 |
| 5 - 8 drinks per day | 3 |
| 9 or more drinks per day | 4 |

Short-term risk (not asked in Older Survey 2) :

How often do you have five or more drinks of alcohol on one occasion?

(Circle one number only)

- | | |
|------------------------|---|
| Never | 1 |
| Less than once a month | 2 |
| About once a month | 3 |
| About once a week | 4 |
| More than once a week | 5 |



Victorian Cancer Council's Food Frequency Questionnaire

At Survey 3 of the Younger and Mid-age women, questions on alcohol consumption were included as part of the Victorian Cancer Council's Food Frequency Questionnaire. These questions are not directly comparable with the ALSWH questions.

65 Over the LAST 12 MONTHS, how often did you drink beer, wine and/or spirits?

(Mark one on each line)

If you do NOT drink alcohol, mark here and go to Q68

	Times That You Drank									
	Never	Less than once/month	1 to 3 days/month	1 day/week	2 days/week	3 days/week	4 days/week	5 days/week	6 days/week	every day
a Beer (low alcohol)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Beer (full strength)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Red wine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d White wine (include sparkling wines)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e Fortified wines, port, sherry etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Spirits, liqueurs etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When answering the next two questions, please convert the amounts you drink into glasses using the examples given below.

For spirits, liqueurs, and mixed drinks containing spirits, please count each nip (30 ml) as one glass.

1 can or stubby of beer = 2 glasses

1 bottle wine (750 ml) = 6 glasses

1 large bottle beer (750 ml) = 4 glasses

1 bottle of port or sherry (750 ml) = 12 glasses

66 Over the LAST 12 MONTHS, on days when you were drinking, how many glasses of beer, wine and/or spirits altogether did you usually drink? (Mark one only)

Total number of glasses per day

one	two	three	four	five	six	seven	eight	nine	ten or more
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

67 Over the LAST 12 MONTHS, what was the maximum number of glasses of beer, wine and/or spirits that you drank in 24 hours? (Mark one only)

Maximum number of glasses per 24 hours

1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19 or more
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

