

# 15 Patient risk factors

General practice is commonly identified as a significant intervention point for health care and health promotion because GPs have considerable knowledge of the health of the population.

Since April 1998, a section on the bottom of each encounter form has been used to investigate aspects of patient health or health care delivery not covered by general practice consultation-based information. These additional substudies are referred to as SAND (Supplementary Analysis of Nominated Data). The SAND methods are described in Section 2.5. The methods used in the substudies reported here are described below. The patient risk factors measured include self-reported height and weight (for calculation of body mass index, BMI), alcohol consumption and smoking status. Patient risk factors are investigated for a subsample of 40 of the 100 patient encounters recorded by each GP. See Appendix 1 for the form containing the SAND questions used to collect these data.

Summaries of results from all SAND substudies 1999–2006 inclusive can be found in a recently published report, *Patient-based substudies from BEACH: abstracts and research tools 1999–2006*.<sup>12</sup>

## 15.1 Annual results, 2006–07

### Body mass index

It is estimated that overweight and obesity account for 7.5% of the total burden of disease in Australia in 2003, ranked third<sup>84</sup>, an increase from 4.3% of total burden and sixth rank in 1999.<sup>85</sup> The 1999–00 Australian Diabetes, Obesity and Lifestyle Study (AusDiab) estimated that 60% of Australians aged over 25 years were overweight or obese (BMI > 25). Men were more likely to be overweight or obese than women (67% compared with 52%).<sup>86</sup>

### Method

Patient BMI was investigated for a subsample of 40 of 100 patient encounters. Each GP was instructed to ask the patient (or their carer in the case of children):

- What is your height in centimetres?
- What is your weight in kilograms?

Metric conversion tables (feet and inches; stones and pounds) were provided to the GP.

The BMI for an individual was calculated by dividing weight (kilograms) by height (metres) squared. The recent WHO recommendations<sup>87</sup> for BMI groups have been adopted, which specify that an adult (18 years or more) with a BMI:

- less than 18.5 is underweight
- greater than or equal to 18.5 and less than 25 is normal
- greater than or equal to 25 and less than 30 is overweight
- of 30 or more is obese.

The division between underweight and normal was, in reports prior to 2005–06, set at a BMI of 20. Changes over time in patient BMI were re-calculated in the 2005–06 report for all years and are now reported according to the WHO criteria.

The reported height for adult patients was checked against sex-appropriate upper and lower height limits from the Australian Bureau of Statistics (ABS).<sup>88</sup> Encounters with adults whose reported heights were outside the sex appropriate limits were excluded from the analysis.

The standard BMI cut-offs described above are not appropriate in the case of children. Cole et al. developed a method which calculates the age–sex-specific BMI cut-off levels for overweight and obesity specific to children aged 2–17 years.<sup>89</sup> There are three categories defined for childhood BMI: underweight/normal, overweight and obese. This method, based on international data from developed Western cultures, is applicable in the Australian setting. The reported height of children was checked against age–sex-appropriate upper and lower height limits from the ABS<sup>88</sup> and the United States Centers for Disease Control and Prevention (CDC).<sup>90</sup> Encounters with children whose reported heights were outside either of the age–sex-appropriate limits were excluded from the analysis. In this report, the rates of overweight and obesity reported in the changes over time for children have been re-calculated for all years to incorporate the new exclusions detailed above.

The BEACH data on BMI are presented separately for adults (aged 18 years and over) and children (aged 2–17 years). The standard BMI cut-offs have been applied for the adult sample, and the method described by Cole et al. has been used for defining overweight and obesity in children (aged 2–17 years).<sup>89</sup>

## Results

### Body mass index of adults

The sample size was 32,334 patients aged 18 years and over at encounters with 928 GPs.

- More than half (58.5%) of the patients were overweight or obese – 23.5% obese and 35.0% overweight.
- Only 2.6% of patients were underweight.
- Only 4 out of 10 patients had a BMI that was in the normal range (Table 15.1).
- Males were more likely to be overweight or obese (64.8%, 95% CI: 63.7–65.9) than females (54.3%, 95% CI: 53.3–55.4) (Table 15.1).
- Two-thirds of women aged 45–74 were overweight or obese (Figure 15.1).
- Overweight/obesity was most prevalent among male patients aged 45–64 years (72.4%) and aged 65–74 years (71.9%) (Figure 15.1).
- In the 18–24 years age group, 6.8% of women and 2.5% of men were underweight, as were 5.3% of women and 2.1% of men aged 75 years or more (Figure 15.2).

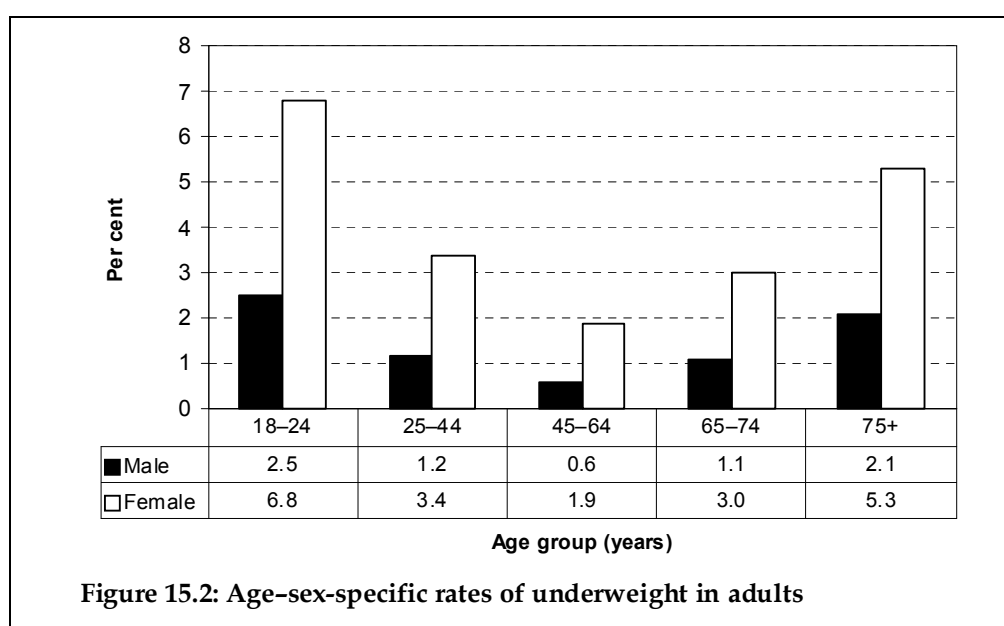
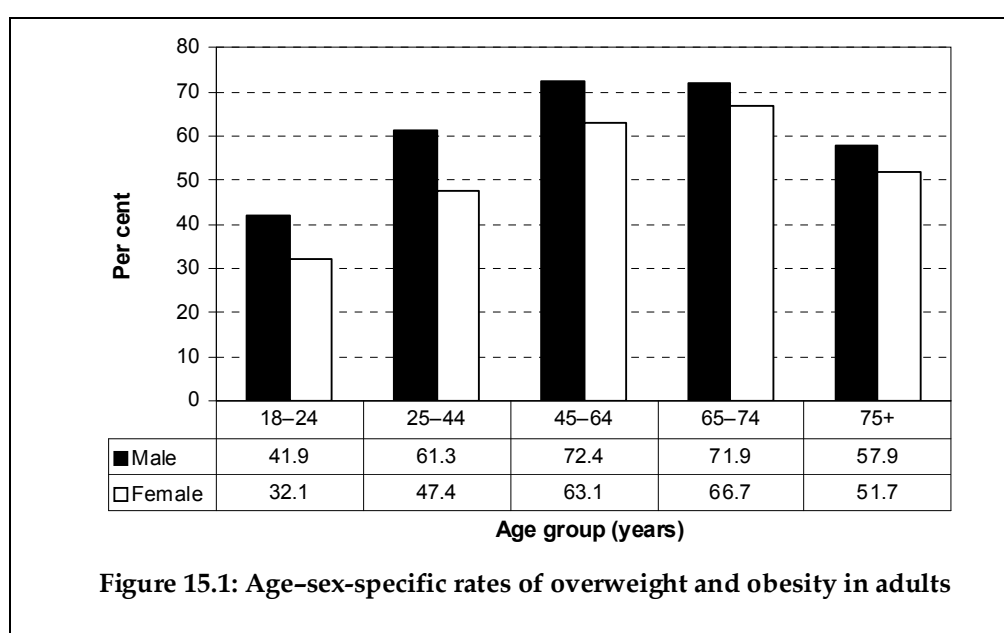
These results are consistent with those of the 1999–00 AusDiab study<sup>86</sup> and with the ABS 2004–05 figures from the National Health Survey, which suggest that 53% of adults aged 18 or more are overweight or obese.<sup>91</sup>

**Table 15.1: Patient body mass index (aged 18 years and over), 2006-07**

BMI class	Male <sup>(a)</sup>			Female <sup>(a)</sup>			Total respondents		
	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL
Obese	22.4	21.6	23.3	24.2	23.3	25.1	23.5	22.7	24.2
Overweight	42.3	41.4	43.3	30.1	29.4	30.9	35.0	34.3	35.6
Normal	34.0	32.9	35.1	42.2	41.2	43.2	39.0	38.1	39.8
Underweight	1.2	1.0	1.4	3.5	3.2	3.8	2.6	2.4	2.8
<b>Total (n, %)</b>	<b>12,715</b>	<b>100.0</b>	<b>—</b>	<b>19,410</b>	<b>100.0</b>	<b>—</b>	<b>32,334</b>	<b>100.0</b>	<b>—</b>

(a) Patient sex was unknown for 209 respondents.

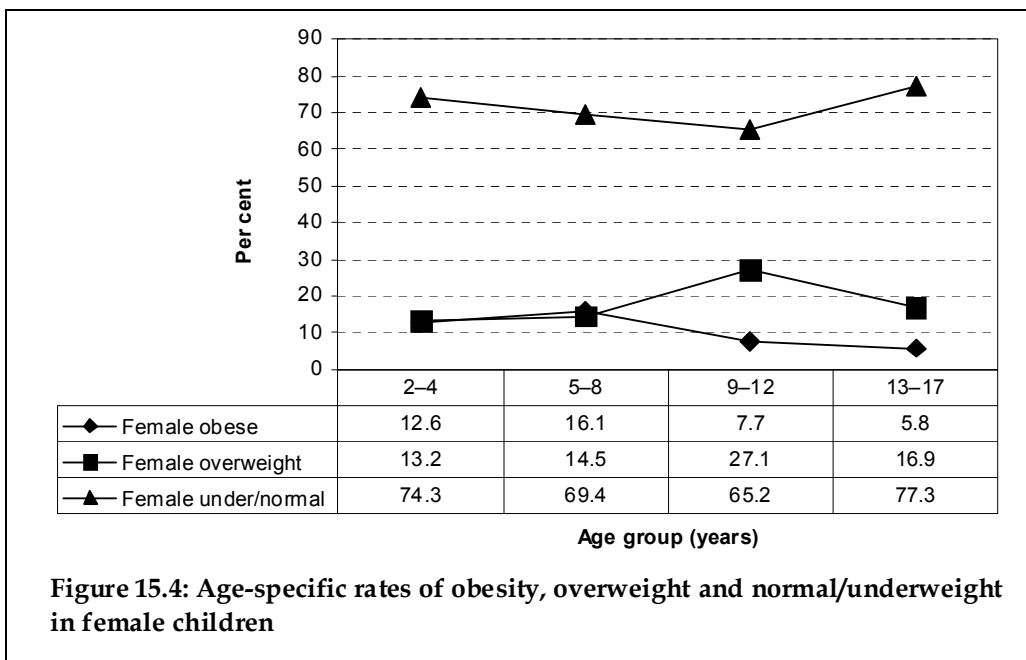
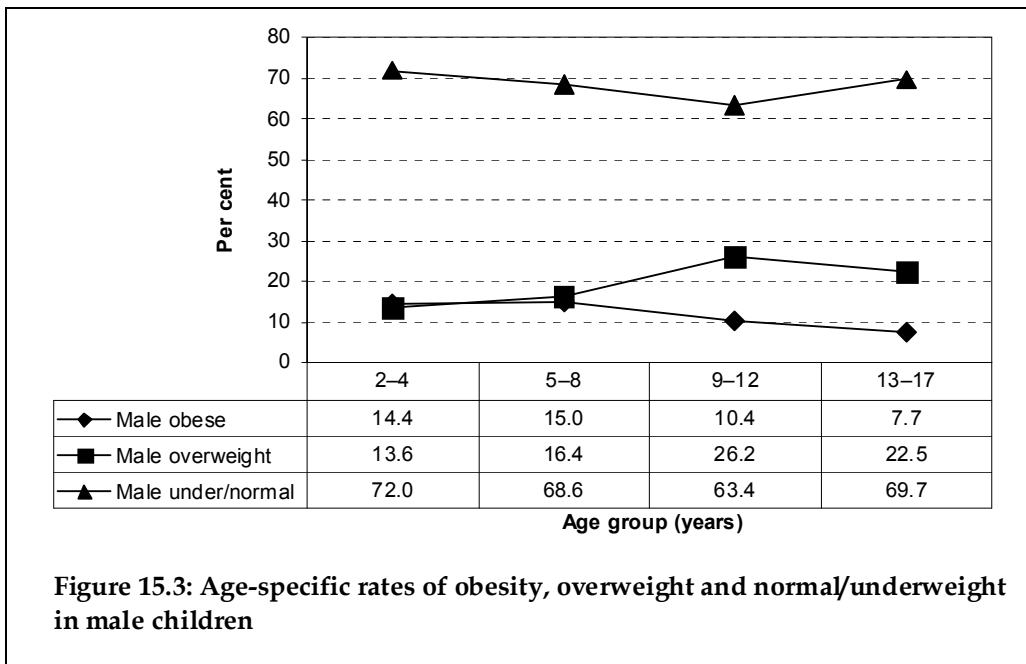
Note: BMI—body mass index; LCL—lower confidence limit; UCL—upper confidence limit.



## Body mass index of children

BMI was calculated for 3,087 patients aged 2–17 years at encounters with 776 GPs.

- Three in 10 children (29.2%, 95% CI: 27.4–31.1) were classed as overweight or obese; 10.6% (95% CI: 9.3–11.9) were considered obese and 18.6% (95% CI: 17.2–20.0) were defined as overweight (results not tabulated).
- There was no difference in prevalence of overweight/obesity among male (31.4%, 95% CI: 28.9–33.8) and female children (27.2%, 95% CI: 24.7–29.6) (results not tabulated).
- The age-specific rates of obesity followed similar patterns for both sexes until teenage years, when the prevalence of overweight/obesity decreased more sharply among females than among males (figures 15.3 and 15.4).



## Smoking (patients aged 18 years and over)

Tobacco smoking is the leading cause of drug-related death and hospital separations in Australia.<sup>92</sup> It has been identified as the risk factor associated with the greatest disease burden, accounting for 7.8% of the total burden of disease in Australia in 2003<sup>84</sup>, a decrease from 9.7% of total burden in 1999.<sup>85</sup> According to the 2004 National Drug Strategy Household Survey (NDSHS), 17.4% of Australians aged 14 years and over smoked daily: 18.6% of males and 16.3% of females.<sup>93</sup>

### Method

GPs were instructed to ask adult patients (18 years and over):

- What best describes your smoking status?
  - Smoke daily
  - Smoker occasionally
  - Previous smoker
  - Never smoked

Respondents were limited to adults aged 18 years and over because there are ethical concerns about approaching the younger patient group to ask for information on smoking and alcohol consumption for survey purposes. In addition, the reliability of this information from patients aged less than 18 years may be compromised if a parent is present at the consultation.

### Results

The smoking status of 31,176 adult patients was established at encounters with 929 GPs. Table 15.2 shows that:

- 16.1% of adult patients were daily smokers
- significantly more male (19.4%) than female patients (14.0%) were daily smokers
- only 3.8% of adult patients were occasional smokers
- more than a quarter of the adults (28.8%) were previous smokers.

Daily smoking was most prevalent among younger adult patients (aged 18–24 and 25–44), with about one in four of these patients reporting daily smoking. Almost 60% of male and 26% of female patients aged 75 years and over were previous smokers but only 5% of males and 4% of females in this age group were daily smokers (figures 15.5 and 15.6).

**Table 15.2: Patient smoking status (aged 18 years and over), 2006–07**

Smoking status	Male <sup>(a)</sup>			Female <sup>(a)</sup>			Total respondents		
	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL
Daily	19.4	18.3	20.5	14.0	13.3	14.8	16.1	15.4	16.9
Occasional	3.8	3.4	4.2	2.7	2.5	3.0	3.2	2.9	3.4
Previous	37.1	35.8	38.4	23.3	22.5	24.2	28.8	28.0	29.6
Never	39.7	38.5	41.0	59.9	58.8	61.0	51.9	50.9	52.9
<b>Total (n, %)</b>	<b>12,257</b>	<b>100.0</b>	<b>—</b>	<b>18,718</b>	<b>100.0</b>	<b>—</b>	<b>31,176</b>	<b>100.0</b>	<b>—</b>

(a) Patient sex was unknown for 201 respondents.

Note: LCL—lower confidence limit; UCL—upper confidence limit.

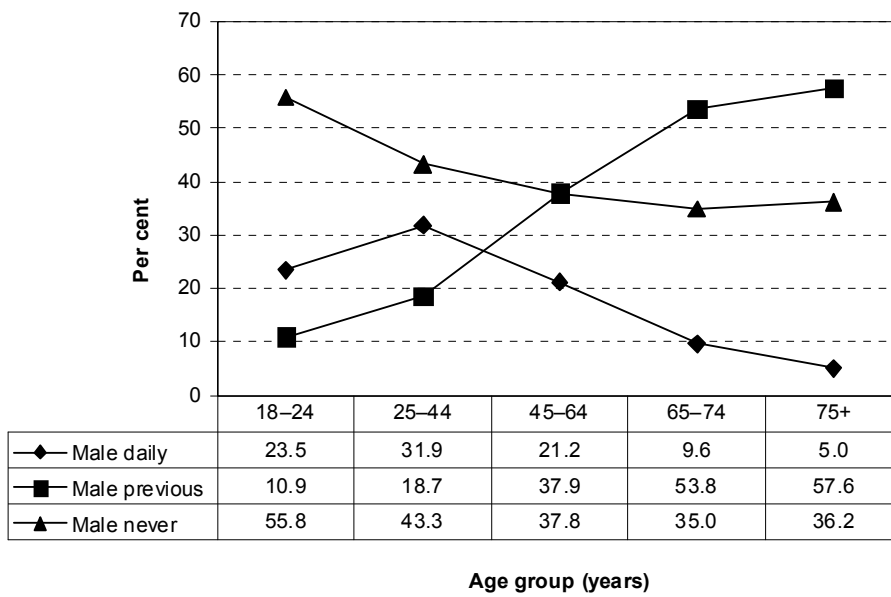


Figure 15.5: Smoking status – male age-specific rates

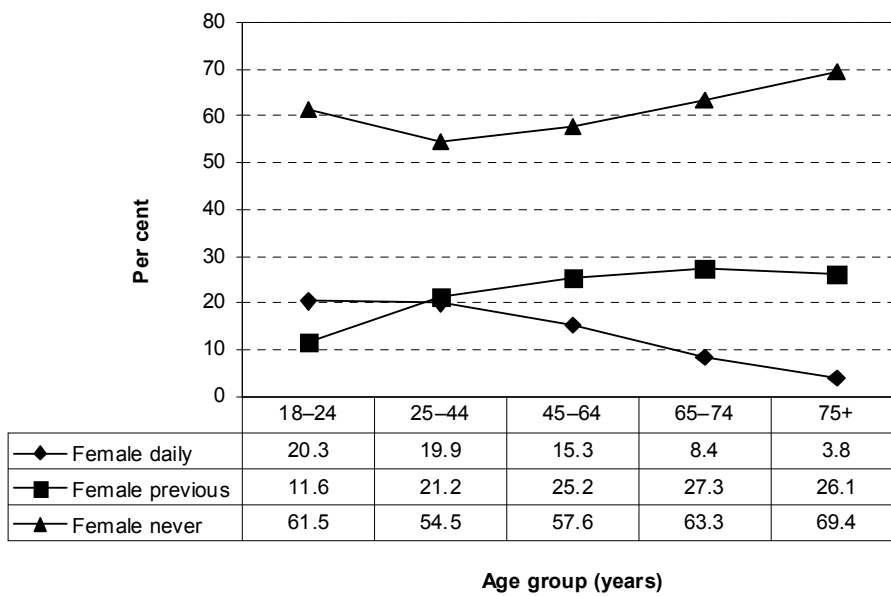


Figure 15.6: Smoking status – female age-specific rates

## Alcohol consumption (patients aged 18 years and over)

In people aged 65 years and over, low to moderate consumption of alcohol has been found to have a preventive effect against selected causes of morbidity and mortality (for example cardiovascular disease).<sup>92</sup> The beneficial impact of low alcohol consumption has been found to prevent more mortality than is caused by harmful alcohol consumption.<sup>92</sup> In 2003 alcohol consumption accounted for 3.3% of the total burden of disease in Australia; however, after taking into account the benefit derived from low to moderate alcohol consumption, this fell to 2.3%.<sup>84</sup>

The 2004 NDSHS found that 9.8% of people aged 14 years and over (10.1% of males and 9.6% of females) drank at levels considered to be risky or high risk for their health in the long term.<sup>93</sup> This risk level of alcohol consumption was based on the NHMRC 2001 guidelines.<sup>94</sup> The 2004 NDSHS also found that 35.4% of people aged 14 years and over (40.3% of males and 30.7% of females) drank alcohol during the preceding 12 months at levels that put their health at risk in the short term.<sup>93</sup>

### Method

To measure alcohol consumption, BEACH uses three items from the WHO Alcohol Use Disorders Identification Test (AUDIT)<sup>95</sup>, with scoring for an Australian setting.<sup>96</sup> Together, these three questions assess 'at-risk' alcohol consumption. The scores for each question range from zero to four. A total (sum of all three questions) score of five or more for males or four or more for females suggests that the person's drinking level is placing him or her at risk.<sup>96</sup>

GPs were instructed to ask adult patients (18 years and over):

- How often do you have a drink containing alcohol?  
Never  
Monthly or less  
Once a week/fortnight  
2-3 times a week  
4+ times a week
- How many standard drinks do you have on a typical day when you are drinking?  
\_\_\_\_\_
- How often do you have six or more standard drinks on one occasion?  
Never  
Less than monthly  
Monthly  
Weekly  
Daily or almost daily

A standard drinks chart was provided to each GP to help the patient identify the number of standard drinks consumed.

The wording of the responses to the first and third questions was changed from 2001-02 onwards to reflect exactly the AUDIT instrument from which the responses are derived. This update, along with a data entry change enabling more specific entry for the second question, slightly increased the rates of at-risk drinking. The data collected from 2001-02 onwards are a more accurate reflection of the alcohol consumption of general practice patients and these are the years compared in this report.

## Results

Patients' self-reported alcohol consumption was recorded at 30,347 adult patient (18 years and over) encounters with 929 GPs.

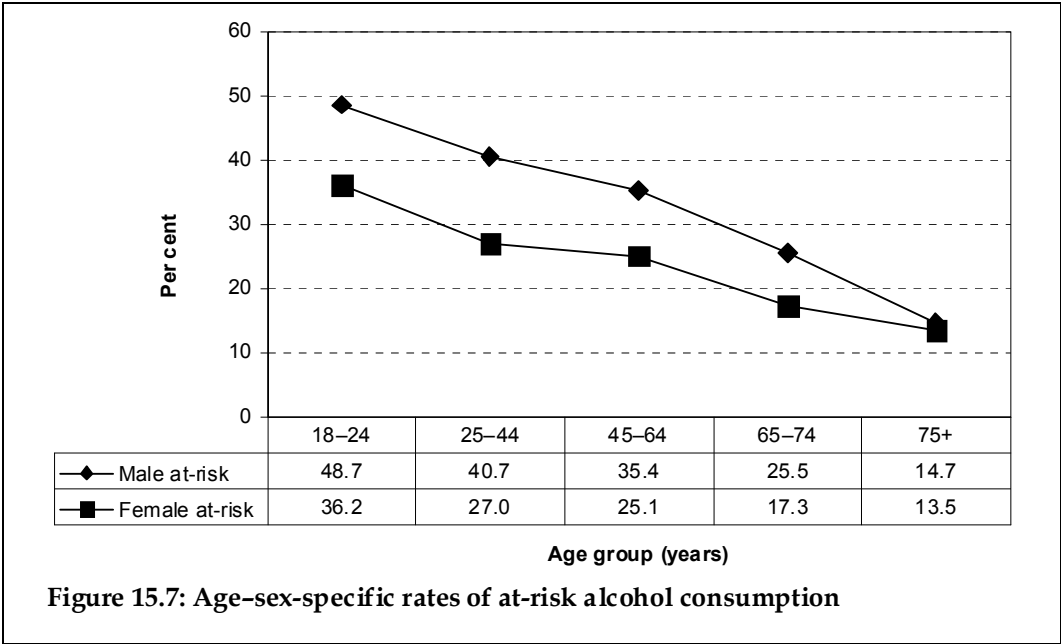
- Just over one-quarter of these respondents reported drinking alcohol at at-risk levels (Table 15.3).
- At-risk drinking was more prevalent among male patients (32.5%) than female patients (22.5%) (Table 15.3).
- At-risk drinking was most prevalent in the 18-24 year age group, among whom almost half of the males and more than a third of the females reported at-risk alcohol consumption (Figure 15.7).
- The proportion of patients who were at-risk drinkers decreased with age for both males and females (Figure 15.7).

These estimates are a little lower than those for short-term risk from the NDSHS.<sup>97</sup> This is likely to be due to the difference in the age ranges studied (14 and over in NDSHS and 18 and over in BEACH), and to differences in the age-sex distributions of the study populations. As older people attend a GP more often than young adults do, they have a greater chance of being selected in the subsample and this leads to a greater proportion of older people, the group least likely to report drinking alcohol at at-risk levels.

**Table 15.3: Patient alcohol consumption (aged 18 years and over), 2006-07**

Alcohol consumption	Male			Female			Total respondents		
	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL	Per cent	95% LCL	95% UCL
At-risk drinker	32.5	31.2	33.8	23.5	22.5	24.5	27.0	26.1	28.0
Responsible drinker	48.0	46.7	49.2	42.4	41.3	43.5	44.6	43.7	45.5
Non-drinker	19.5	18.5	20.6	34.1	32.8	35.4	28.3	27.3	29.4
<b>Total (n, %)</b>	<b>12,005</b>	<b>100.0</b>	<b>—</b>	<b>18,342</b>	<b>100.0</b>	<b>—</b>	<b>30,347</b>	<b>100.0</b>	<b>—</b>

Note: LCL—lower confidence limit; UCL—upper confidence limit.



**Figure 15.7: Age-sex-specific rates of at-risk alcohol consumption**



## Risk factor profile of adult patients

From 2001–02 onwards, all patient risk factor questions (BMI, smoking and alcohol consumption) were asked of the same subsample of patients. This allows us to build a risk profile of this sample of adult patients. For the purposes of this analysis, being overweight or obese, a daily smoker or an at-risk drinker are considered risk factors. A risk factor profile was prepared for 29,386 adult patients (aged 18 or more) (Table 15.4).

- Almost half of the adult respondents had one risk factor. Being overweight or obese accounted for three-quarters of these patients.
- One in five patients had two risk factors, the most common combinations being:
  - overweight + at-risk alcohol consumption—7.4% of surveyed patients
  - obesity + at-risk alcohol consumption—4.4% of surveyed patients
  - daily smoking + at-risk alcohol consumption—3.5% of surveyed patients.
- A small minority (3.7%) of patients reported having all three risk factors.

Table 15.5 shows the number of risk factors by patient sex.

- Females were significantly more likely to have no risk factors (29.8%) than males (20.3%).
- One-third of males (31.7%) had two or three risk factors compared with one in five (19.2%) females.

**Table 15.4: Risk factor profile of patients (aged 18 years and over), 2006–07**

Number of risk factors	Number	Per cent of patients (n = 29,386)	95% LCL	95% UCL
<b>No risk factors</b>	<b>7,646</b>	<b>26.0</b>	<b>25.2</b>	<b>26.8</b>
<b>One risk factor</b>	<b>14,640</b>	<b>49.8</b>	<b>49.1</b>	<b>50.6</b>
Overweight only	6,525	22.2	21.6	22.8
Obese only	4,623	15.7	15.1	16.3
At-risk alcohol level only	2,434	8.3	7.8	8.8
Current daily smoker only	1,058	3.6	3.3	3.9
<b>Two risk factors</b>	<b>6,002</b>	<b>20.4</b>	<b>19.8</b>	<b>21.1</b>
Overweight and at-risk alcohol level	2,186	7.4	7.1	7.8
Obese and at-risk alcohol level	1,277	4.4	4.1	4.6
Daily smoker and at-risk alcohol level	1,019	3.5	3.2	3.7
Overweight and current daily smoker	886	3.0	2.8	3.3
Obese and current daily smoker	634	2.2	2.0	2.4
<b>Three risk factors</b>	<b>1,098</b>	<b>3.7</b>	<b>3.5</b>	<b>4.0</b>
Overweight and current daily smoker and 'at-risk' alcohol level	720	2.5	2.2	2.7
Obese and current daily smoker and 'at-risk' alcohol level	378	1.3	1.2	1.4

Note: LCL—lower confidence limit; UCL—upper confidence limit.

**Table 15.5: Number of risk factors, by patient sex, 2006–07**

Number of risk factors	Number	Per cent within sex	95% LCL	95% UCL
<b>Male patients</b>	<b>11,662</b>	<b>100.0</b>	—	—
No risk factors	2,365	20.3	19.4	21.2
One risk factor	5,601	48.0	47.0	49.1
Two risk factors	3,059	26.2	25.2	27.2
Three risk factors	637	5.5	5.0	6.0
<b>Female patients</b>	<b>17,724</b>	<b>100.0</b>	—	—
No risk factors	5,281	29.8	28.9	30.8
One risk factor	9,039	51.0	50.1	51.9
Two risk factors	2,943	16.6	15.9	17.3
Three risk factors	461	2.6	2.3	2.9

Note: LCL—lower confidence limit; UCL—upper confidence limit.

## 15.2 Changes over time, 1998–99 to 2006–07

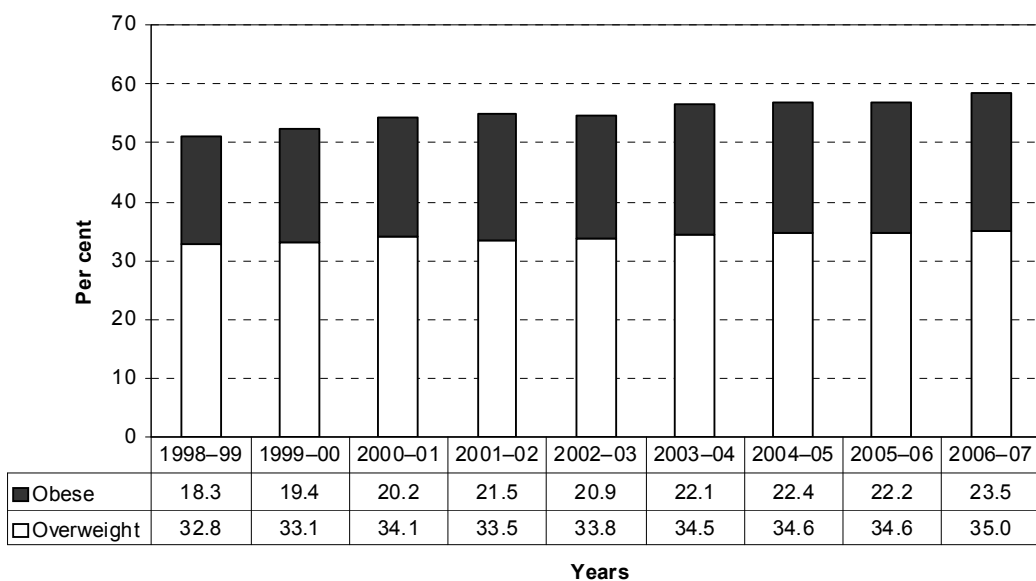
The results for each year of the BEACH program are presented in tables 15.6 to 15.8. These are graphically summarised in figures 15.8 to 15.12.

There has been a significant increase in the prevalence of overweight and obesity in adults attending general practice, from 32.8% and 18.3% respectively in 1998–98 to 35.0% and 23.5% in 2006–07 (Table 15.6 and Figure 15.8). This significant increase is apparent in both male and female patients. The increase in both sexes is largely due to an increase in prevalence of obesity; rates of overweight increased but by a much smaller amount (tables 15.7 and 15.8, and figures 15.9 and 15.10).

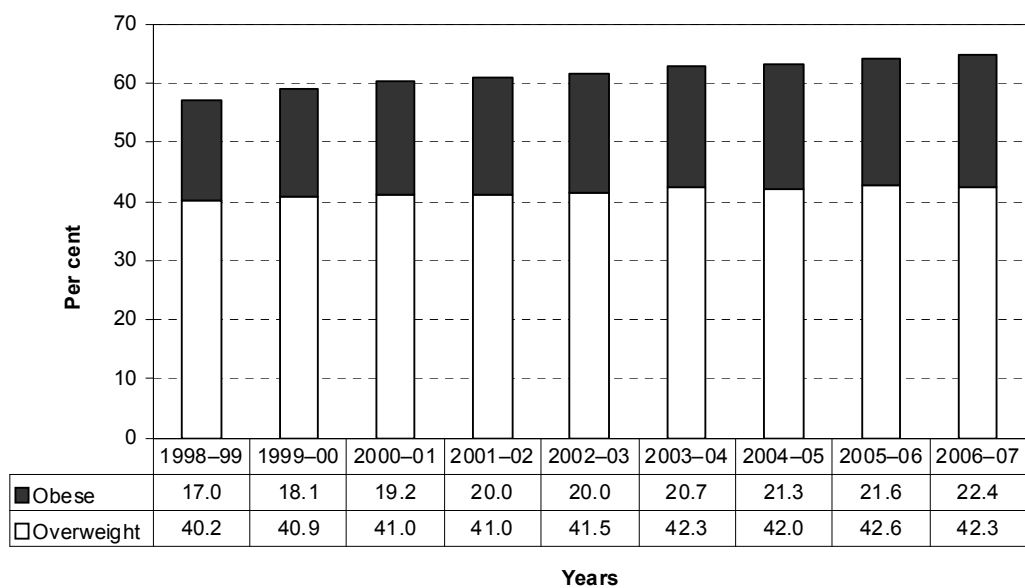
In contrast, the rates of overweight and obesity in children aged 2–17 years have remained static over this period, about 11% of children being obese and about 18% overweight. The new method using the unbiased prevalence estimates described by Cole<sup>89</sup> and the exclusion of children for whom an impossible height (per ABS and CDC) was supplied has given more precise estimates that show no difference over time. This is in contrast to previous results (using the biased prevalence estimate and not excluding biologically impossible heights) that suggested an increase in rates of overweight and obesity in children (Table 15.6).

There has been a significant decrease in the rates of current daily and occasional smoking in all adults aged 18 years or more, from 19.2% and 5.6% respectively in 1998–98 to 16.1% and 3.2% in 2006–07. This decrease was apparent in both male and female patients (Figure 15.11).

The rates of at-risk levels of alcohol consumption for adults attending general practice have remained static over this period at 26–27% (Table 15.6 and Figure 15.12).



**Figure 15.8: Rates of overweight & obesity among adults (aged 18 years and over), 1998-99 to 2006-07**



**Figure 15.9: Rates of overweight and obesity among male adults (aged 18 years and over), 1998-99 to 2006-07**

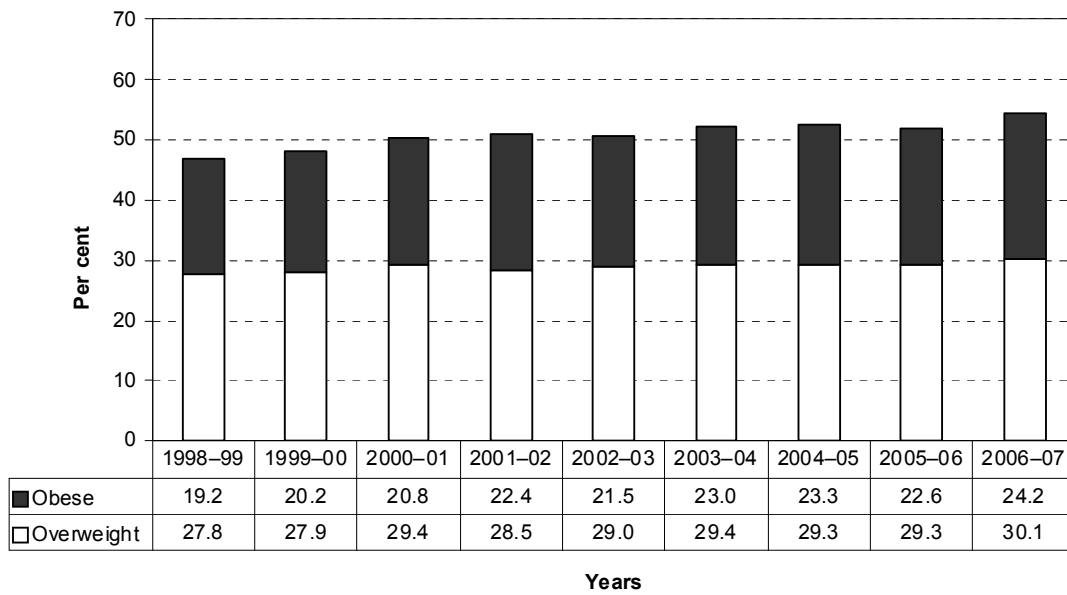


Figure 15.10: Rates of overweight and obesity among female adults (aged 18 years and over), 1998-99 to 2006-07

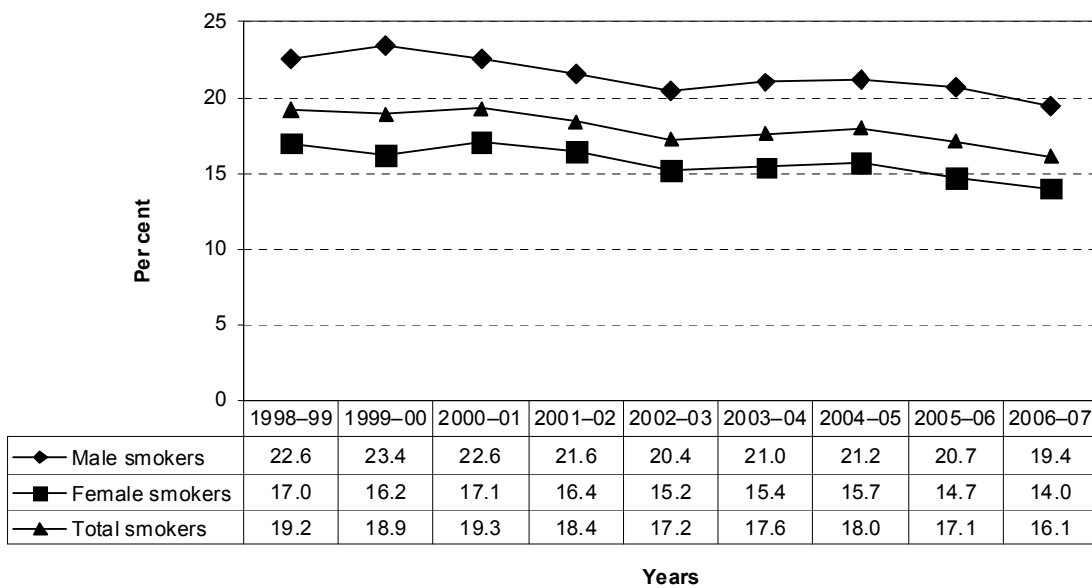
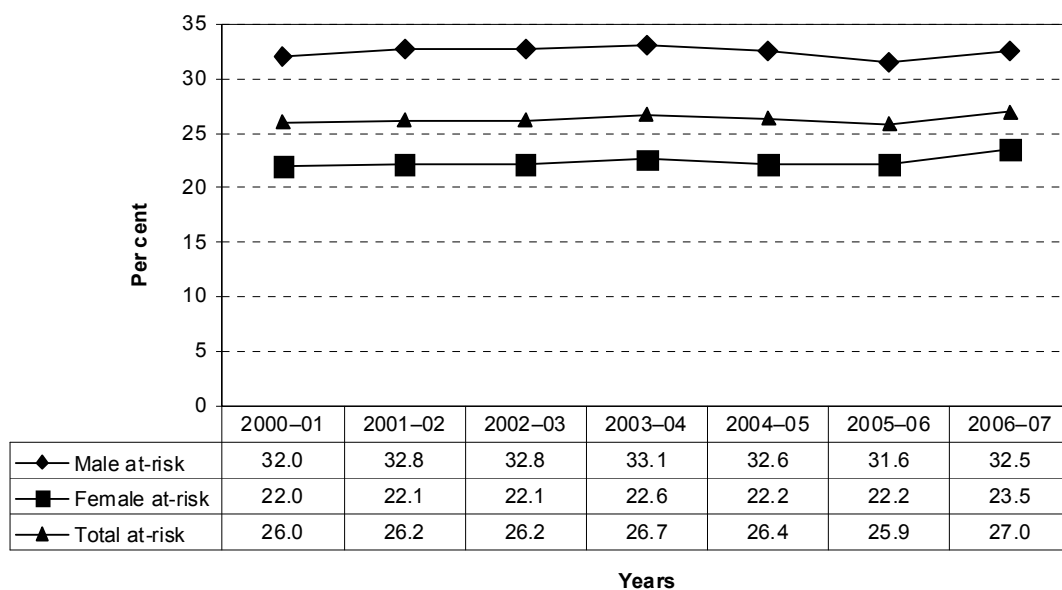


Figure 15.11: Rates of daily smoking among adults (aged 18 years and over), 1998-99 to 2006-07



**Figure 15.12: Rates of at-risk alcohol consumption among adults (aged 18 years and over), 1998-99 to 2006-07**

Table 15.6: Comparative results for all patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07

Risk factor	Per cent (95% CI)									Change <sup>(a)</sup>
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	
<b>Adults (aged 18 years and over)</b>										
<b>BMI class<sup>(b)</sup> (n)</b>	<b>(30,485)</b>	<b>(33,069)</b>	<b>(31,957)</b>	<b>(31,789)</b>	<b>(32,367)</b>	<b>(31,890)</b>	<b>(30,476)</b>	<b>(33,101)</b>	<b>(32,334)</b>	
Obese	18.3 (17.7–18.9)	19.4 (18.8–20.0)	20.2 (19.5–20.8)	21.5 (20.8–22.2)	20.9 (20.2–21.5)	22.1 (21.4–22.7)	22.4 (21.7–23.2)	22.2 (21.5–22.9)	23.5 (22.7–24.2)	↑
Overweight	32.8 (32.1–33.4)	33.1 (32.5–33.8)	34.1 (33.4–34.7)	33.5 (32.9–34.1)	33.8 (33.2–34.5)	34.5 (33.8–35.1)	34.6 (33.9–35.2)	34.6 (33.9–35.2)	35.0 (34.3–35.6)	↑
Normal	45.5 (44.7–46.4)	44.3 (43.5–45.1)	42.8 (42.0–43.7)	42.1 (41.3–42.9)	42.4 (41.6–43.3)	40.7 (39.9–41.6)	40.3 (39.5–41.2)	40.5 (39.7–41.4)	39.0 (38.1–39.8)	↓
Underweight	3.4 (3.1–3.6)	3.2 (3.0–3.5)	2.9 (2.7–3.1)	3.0 (2.8–3.2)	2.9 (2.7–3.1)	2.8 (2.6–3.0)	2.7 (2.5–2.9)	2.8 (2.5–3.0)	2.6 (2.4–2.8)	↓
<b>Smoking status (n)</b>	<b>(30,265)</b>	<b>(32,483)</b>	<b>(32,124)</b>	<b>(31,966)</b>	<b>(32,651)</b>	<b>(32,718)</b>	<b>(31,295)</b>	<b>(33,558)</b>	<b>(31,176)</b>	
Daily	19.2 (18.4–20.0)	18.9 (18.1–19.6)	19.3 (18.5–20.1)	18.4 (17.7–19.2)	17.2 (16.5–17.9)	17.6 (16.8–18.3)	18.0 (17.2–18.7)	17.1 (16.3–17.8)	16.1 (15.4–16.9)	↓
Occasional	5.6 (5.2–6.0)	5.2 (4.9–5.6)	4.4 (4.0–4.7)	4.1 (3.8–4.4)	4.1 (3.8–4.4)	4.3 (4.0–4.7)	3.7 (3.4–4.0)	3.6 (3.4–3.9)	3.2 (2.9–3.4)	↓
Previous	27.0 (26.2–27.8)	27.1 (26.3–27.8)	27.3 (26.5–28.1)	27.8 (27.0–28.6)	27.2 (26.5–28.0)	28.0 (27.3–28.8)	28.0 (27.2–28.8)	27.1 (26.3–27.8)	28.8 (28.0–29.6)	↑
Never	48.2 (47.2–49.2)	48.8 (47.9–49.7)	49.1 (48.1–50.1)	49.7 (48.7–50.7)	51.4 (50.4–52.4)	50.1 (49.1–51.0)	50.3 (49.4–51.3)	52.3 (51.3–53.2)	51.9 (50.9–52.9)	↑
<b>Alcohol consumption<sup>(c)</sup> (n)</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>(31,559)</b>	<b>(32,140)</b>	<b>(31,721)</b>	<b>(30,414)</b>	<b>(32,753)</b>	<b>(30,347)</b>	
At-risk alcohol level	NAv	NAv	NAv	26.0 (25.1–26.8)	26.2 (25.3–27.1)	26.7 (25.8–27.6)	26.4 (25.5–27.3)	25.9 (25.0–26.8)	27.0 (26.1–28.0)	—
Responsible drinker	NAv	NAv	NAv	44.1 (43.3–45.0)	44.2 (43.4–45.1)	44.9 (44.1–45.8)	44.9 (44.0–45.7)	44.8 (44.0–45.7)	44.6 (43.7–45.5)	—
Non-drinker	NAv	NAv	NAv	29.9 (28.9–30.9)	29.5 (28.5–30.6)	28.4 (27.3–29.4)	28.7 (27.7–29.8)	29.3 (28.2–30.4)	28.3 (27.3–29.4)	—

(continued)

**Table 15.6 (continued): Comparative results for all patient risk factors, summary of annual results, BEACH, 1998-99 to 2006-07**

Risk factor	Per cent (95% CI)									Change <sup>(a)</sup>
	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	↑ ↓
<b>Children (aged 2-17 years)<sup>(d)</sup> (n)</b>	<b>(4,019)</b>	<b>(4,053)</b>	<b>(3,610)</b>	<b>(3,518)</b>	<b>(3,380)</b>	<b>(3,189)</b>	<b>(3,018)</b>	<b>(3,338)</b>	<b>(3,087)</b>	—
Obese	11.0 (9.8-12.1)	10.4 (9.3-11.5)	11.4 (10.1-12.6)	10.9 (9.7-12.1)	11.9 (10.5-13.2)	11.8 (10.5-13.2)	10.8 (9.5-12.2)	10.9 (9.7-12.1)	10.6 (9.3-11.9)	—
Overweight	17.1 (15.9-18.4)	17.4 (16.3-18.6)	17.8 (16.5-19.2)	17.9 (16.5-19.3)	18.3 (16.9-19.6)	19.2 (17.7-20.7)	17.7 (16.3-19.1)	17.9 (16.5-19.2)	18.6 (17.2-20.0)	—

(a) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change and — indicates there was no change.

(b) Adult patients aged 18+ with a recorded height outside the ABS height range based on age and sex were excluded. WHO BMI criteria for normal (BMI 18.5 to < 25) and underweight (BMI < 18.5) have been applied.

(c) From 2001-02 onwards the wording of the responses to the first and third alcohol questions was amended to exactly reflect the AUDIT instrument from which they are derived. Therefore 1998-99 to 2000-01 are not directly comparable with data from 2001-02 onwards and as such are not listed.

(d) Children with height outside the ABS/CDC height range based on age and sex were excluded. Child BMI has been re-calculated for 1998-99 to 2005-06 and will differ from data previously published to incorporate this exclusion and to apply a more precise methodology for calculating child BMI.

Note: CI—confidence interval; BMI—body mass index; NAv —not available.

**Table 15.7: Comparative results for male patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07**

Risk factor	Per cent (95% CI)									Change <sup>(a)</sup>
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	
<b>BMI class<sup>(b)</sup> (n)</b>	<b>(12,030)</b>	<b>(13,062)</b>	<b>(12,800)</b>	<b>(12,512)</b>	<b>(12,450)</b>	<b>(12,434)</b>	<b>(12,288)</b>	<b>(12,882)</b>	<b>(12,715)</b>	
Obese	17.0 (16.2–17.8)	18.1 (17.3–19.0)	19.2 (18.4–20.1)	20.0 (19.1–20.9)	19.9 (19.1–20.8)	20.7 (19.8–21.5)	21.3 (20.4–22.3)	21.6 (20.7–22.5)	22.4 (21.6–23.3)	↑
Overweight	40.2 (39.2–41.2)	40.9 (39.9–41.8)	41.0 (39.9–41.8)	41.0 (40.0–42.0)	41.5 (40.5–42.4)	42.3 (41.3–43.2)	42.0 (41.0–43.0)	42.6 (41.6–43.6)	42.3 (41.4–43.3)	↑
Normal	41.0 (39.9–42.2)	39.4 (38.3–40.4)	38.2 (37.0–39.3)	37.4 (36.3–38.6)	37.2 (36.2–38.3)	35.6 (34.5–36.7)	35.3 (34.2–36.5)	34.3 (33.3–35.4)	34.0 (32.9–35.1)	↓
Underweight	1.8 (1.5–2.0)	1.6 (1.4–1.9)	1.6 (1.4–1.9)	1.5 (1.3–1.8)	1.4 (1.1–1.6)	1.5 (1.3–1.7)	1.4 (1.1–1.6)	1.5 (1.3–1.7)	1.2 (1.0–1.4)	↓
<b>Smoking status (n)</b>	<b>(11,797)</b>	<b>(12,230)</b>	<b>(12,869)</b>	<b>(12,547)</b>	<b>(12,521)</b>	<b>(12,692)</b>	<b>(12,613)</b>	<b>(13,016)</b>	<b>(12,257)</b>	
Current daily smoker	22.6 (21.5–23.7)	23.4 (22.3–24.5)	22.6 (21.5–23.7)	21.6 (20.5–22.6)	20.4 (19.4–21.4)	21.0 (20.0–22.0)	21.2 (20.2–22.3)	20.7 (19.7–21.8)	19.4 (18.3–20.5)	↓
Occasional	6.2 (5.6–6.8)	5.4 (4.9–5.9)	4.4 (4.0–4.9)	4.6 (4.1–5.1)	4.5 (4.0–5.0)	4.5 (4.0–4.9)	4.3 (3.9–4.7)	4.1 (3.7–4.6)	3.8 (3.4–4.2)	↓
Previous	36.8 (35.5–38.0)	36.3 (35.1–37.4)	36.5 (35.2–37.8)	36.6 (35.4–37.9)	36.4 (35.2–37.6)	37.3 (36.2–38.5)	36.5 (35.3–37.6)	35.7 (34.5–36.9)	37.1 (35.8–38.4)	—
Never	34.5 (33.3–35.7)	35.0 (33.9–36.1)	36.5 (35.3–37.7)	37.2 (36.0–38.4)	38.7 (37.5–40.0)	37.2 (36.0–38.4)	38.0 (36.8–39.2)	39.5 (38.2–40.7)	39.7 (38.5–41.0)	↑
<b>Alcohol consumption<sup>(c)</sup> (n)</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>(12,464)</b>	<b>(12,391)</b>	<b>(12,334)</b>	<b>(12,294)</b>	<b>(12,792)</b>	<b>(12,005)</b>	
At-risk alcohol level	NAv	NAv	NAv	32.0 (30.8–33.2)	32.8 (31.6–34.1)	33.1 (31.9–34.3)	32.6 (31.3–33.8)	31.6 (30.3–32.8)	32.5 (31.2–33.8)	—
Responsible drinker	NAv	NAv	NAv	46.8 (45.7–48.0)	46.6 (45.5–47.8)	47.3 (46.1–48.5)	47.7 (46.4–48.9)	47.9 (46.7–49.1)	48.0 (46.7–49.2)	—
Non-drinker	NAv	NAv	NAv	21.2 (20.1–22.2)	20.5 (19.5–21.5)	19.6 (18.5–20.7)	19.8 (18.7–20.9)	20.5 (19.4–21.6)	19.5 (18.5–20.6)	—

(a) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change and — indicates there was no change.

(b) Adult patients aged 18+ with a recorded height outside the ABS height range based on age and sex were excluded. WHO BMI criteria for normal (BMI 18.5 to < 25) and underweight (BMI < 18.5) have been applied.

(c) From 2001–02 onwards the wording of the responses to the first and third alcohol questions was amended to exactly reflect the AUDIT instrument from which they are derived. Therefore 1998–99 to 2000–01 are not directly comparable with data from 2001–02 onwards and as such are not listed.

Note: CI—confidence interval; BMI—body mass index; NAv—not available.



**Table 15.8: Comparative results for female patient risk factors, summary of annual results, BEACH, 1998–99 to 2006–07**

Risk factor	Per cent (95% CI)									Change <sup>(a)</sup>
	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	↑ ↓
<b>BMI class<sup>(b)</sup> (n)</b>	<b>(18,092)</b>	<b>(19,655)</b>	<b>(18,820)</b>	<b>(19,039)</b>	<b>(19,670)</b>	<b>(19,214)</b>	<b>(17,976)</b>	<b>(19,976)</b>	<b>(19,410)</b>	
Obese	19.2 (18.4–19.9)	20.2 (19.5–21.0)	20.8 (20.0–21.6)	22.4 (21.6–23.2)	21.5 (20.7–22.3)	23.0 (22.1–23.8)	23.2 (22.4–24.1)	22.6 (21.7–23.4)	24.2 (23.3–25.1)	↑
Overweight	27.8 (27.1–28.6)	27.9 (27.2–28.7)	29.4 (28.6–30.1)	28.5 (27.8–29.3)	29.0 (28.2–29.8)	29.4 (28.6–30.1)	29.3 (28.6–30.1)	29.3 (28.6–30.0)	30.1 (29.4–30.9)	↑
Normal	48.6 (47.6–49.5)	47.6 (46.6–48.5)	46.0 (45.0–47.0)	45.2 (44.2–46.1)	45.7 (44.7–46.8)	44.1 (43.1–45.1)	43.8 (42.7–44.8)	44.6 (43.6–45.6)	42.2 (41.2–43.2)	↓
Underweight	4.5 (4.1–4.8)	4.3 (4.0–4.6)	3.8 (3.5–4.1)	3.9 (3.6–4.2)	3.8 (3.5–4.2)	3.6 (3.3–3.9)	3.6 (3.3–4.0)	3.5 (3.2–3.8)	3.5 (3.2–3.8)	↓
<b>Smoking status (n)</b>	<b>(18,073)</b>	<b>(19,930)</b>	<b>(18,920)</b>	<b>(19,182)</b>	<b>(19,875)</b>	<b>(19,780)</b>	<b>(18,468)</b>	<b>(20,288)</b>	<b>(18,718)</b>	
Current daily smoker	17.0 (16.2–17.7)	16.2 (15.4–16.9)	17.1 (16.3–17.9)	16.4 (15.6–17.2)	15.2 (14.4–15.9)	15.4 (14.6–16.1)	15.7 (15.0–16.5)	14.7 (14.0–15.4)	14.0 (13.3–14.8)	↓
Occasional	5.2 (4.8–5.7)	5.1 (4.7–5.4)	4.3 (4.0–4.7)	3.8 (3.4–4.1)	3.9 (3.5–4.3)	4.2 (3.9–4.6)	3.3 (3.0–3.7)	3.3 (3.0–3.6)	2.7 (2.5–3.0)	↓
Previous	20.6 (19.8–21.4)	21.4 (20.7–22.2)	20.9 (20.0–21.7)	22.0 (21.2–22.9)	21.5 (20.7–22.3)	22.0 (21.2–22.8)	22.2 (21.3–23.0)	21.5 (20.7–22.3)	23.3 (22.5–24.2)	↑
Never	57.2 (56.1–58.4)	57.4 (56.3–58.4)	57.7 (56.6–58.8)	57.8 (56.7–58.9)	59.4 (58.3–60.5)	58.4 (57.3–59.5)	58.8 (57.7–59.9)	60.5 (59.5–61.6)	59.9 (58.8–61.0)	↑
<b>Alcohol consumption<sup>(c)</sup> (n)</b>	—	—	—	<b>(19,095)</b>	<b>(19,749)</b>	<b>(19,387)</b>	<b>(18,120)</b>	<b>(19,961)</b>	<b>(18,342)</b>	
At-risk alcohol level	NAv	NAv	NAv	22.0 (21.1–22.9)	22.1 (21.2–23.0)	22.6 (21.7–23.6)	22.2 (21.3–23.2)	22.2 (21.3–23.2)	23.5 (22.5–24.5)	—
Responsible drinker	NAv	NAv	NAv	42.4 (41.3–43.4)	42.7 (41.7–43.8)	43.5 (42.4–44.5)	43.0 (41.9–44.0)	42.8 (41.8–43.9)	42.4 (41.3–43.5)	—
Non-drinker	NAv	NAv	NAv	35.6 (34.4–36.9)	35.2 (33.9–36.5)	33.9 (32.7–35.2)	34.8 (33.4–36.2)	35.0 (33.6–36.3)	34.1 (32.8–35.4)	—

(a) The direction and type of change is indicated for each variable: ↑/↓ indicates a statistically significant change and — indicates there was no change.

(b) Adult patients aged 18+ with a recorded height outside the ABS height range based on age and sex were excluded. WHO BMI criteria for normal (BMI 18.5 to < 25) and underweight (BMI < 18.5) have been applied.

(c) From 2001–02 onwards the wording of the responses to the first and third alcohol questions was amended to exactly reflect the AUDIT instrument from which they are derived. Therefore 1998–99 to 2000–01 are not directly comparable with data from 2001–02 onwards and as such are not listed.

Note: CI—confidence interval; BMI—body mass index; NAv—not available.