

Indicators of health risk factors

The AIHW view

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Australian Institute of Health and Welfare

October 2003

Australian Institute of Health and Welfare
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Contents

List of tables	vii
Preface	viii
Abbreviations.....	ix
Introduction.....	1
1. Physical inactivity	2
Sedentary activity	2
Comparison of surveys	3
Conclusion	5
Recommendations	6
2. Overweight and obese.....	8
Body Mass Index.....	8
Self-reported and actual measures	9
Prevalence of overweight and obesity in Australians based on self-reports	9
Prevalence of overweight and obesity in Australians based on measurements.....	10
Comparison of surveys	11
Conclusions	12
Recommendations	13
3. Tobacco smoking.....	14
Daily smoking	14
Current smoking.....	15
Comparison of surveys	16
Conclusion	18
Recommendations	18
4. Alcohol consumption	19
Summary alcohol consumption status	19
Alcohol risk.....	20
Comparison of surveys	21
Conclusion	23
Recommendations	25

Glossary	26
Appendix 1: Current surveys and collections	28
References	29

List of tables

Table 1.1:	Proportion of people aged 18 years and over who reported sedentary activity: comparison of the Active Australia Surveys and the National Health Surveys.....	3
Table 1.2:	NHS categories for scores of exercise level	4
Table 1.3:	Active Australia Survey categories for activity time and activity time and sessions	4
Table 2.1:	Classification of BMI for people aged 18 years and over	9
Table 2.2:	Prevalence of overweight and obesity among men and women aged 18 years and over, 1989 to 2001	10
Table 2.3:	Prevalence of overweight and obesity among men and women aged 25–64 years, 1980 to 1999–2000, measured in various surveys.....	11
Table 2.4:	Comparison of interview methodology for collection of height and weight.....	11
Table 3.1:	Measure of smoking status used by national surveys.....	14
Table 3.2:	Prevalence of daily smoking, persons aged 18 years and over: comparison of National Health Survey and National Drug Strategy Household Survey results.....	15
Table 3.3:	Prevalence of current smoking, persons aged 18 years and over: comparison of National Health Survey and National Drug Strategy Household Survey results.....	15
Table 3.4:	Prevalence of daily and current smoking, persons aged 14 years and over, 2001: comparisons for selected minimum ages	17
Table 3.5:	Headline tobacco indicator: prevalence of daily smoking, persons aged 14 years and over, Australia, 2001.....	18
Table 4.1:	Summary alcohol consumption status, persons aged 18 years and over: comparison of National Health Survey and National Drug Strategy Household Survey results, 2001.....	19
Table 4.2:	Risk of alcohol-related harm in the long term, persons aged 18 years and over: comparison of National Health Survey and National Drug Strategy Household Survey results, 2001.....	20
Table 4.3:	Risk of alcohol-related harm in the short term on a weekly basis, persons aged 18 years and over, 2001	21
Table 4.4:	Prevalence of current drinking, long-term risk and short-term risk, persons aged 14 years and over: comparisons for selected minimum ages.....	24
Table 4.5:	Headline alcohol indicators, persons aged 14 years and over, Australia, 2001	25
Table A.1:	Current risk factor data holdings	28

Preface

Risk factor information plays an important part in the measurement of the health of Australians. The collection of this information contributes to policy formulation for health interventions, programs and services.

A vast amount of work has been undertaken into the formulation of indicators for risk factor information by a number of organisations. These provide a valuable mechanism for the comparison of data overtime and across collections, and are often used to measure performance in the health sector.

A number of organisations now collect risk factor information and at times release findings which may differ from each other. This sometimes results in confusion for policy makers, analysts, the community and other data users as to which measure to use in which circumstance.

This report by the AIHW examines data in relation to four health related risk factors – physical inactivity, overweight and obesity, tobacco smoking and alcohol consumption. Particular attention is given to the ability of current data, and the instruments used to collect these data, to provide measures of established population risk factors. The Institute strongly supports the ongoing work on indicators and encourages a unified approach in the collection and interpretation of health risk data between data collection agencies. The Institute acknowledges the current work on data harmonisation being undertaken by the National Public Health Information Working Group's CATI Technical Reference Group and would recommend that this Group and other similar groups recognise the recommendations set out in this report.

One aim of this report is to facilitate discussion on this topic with those who use health risk data for analysis and for policy making, and those who develop collection instruments and collect data. I therefore invite readers of this report to provide comments about these issues and encourage organisations interested in risk factor data and other stakeholders to work together towards a unified approach in the collection of this information. Comments may be sent to riskfactors@aihw.gov.au.

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October 2003

Abbreviations

AAS	Active Australia Survey
ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
AusDiab	Australian Diabetes, Obesity and Lifestyle Study
CATI	Computer Assisted Telephone Interview
DHAC	Department of Health and Aged Care
DoHA	Department of Health and Ageing
GQF	Graduated Quantity Frequency
HDSC	Health Data Standards Committee
NDSHS	National Drug Strategy Household Survey
NHDD	National Health Data Dictionary
NHF	National Heart Foundation
NHMRC	National Health and Medical Research Council
NHPA	National Health Priority Areas
NHPAC	National Health Priority Action Council
NHPC	National Health Performance Committee
NHS	National Health Survey
NNS	National Nutrition Survey
OECD	Organisation for Economic Co-operation and Development
RFPS	Risk Factor Prevalence Survey
WHO	World Health Organization

Introduction

In June 2002, the Australian Institute of Health and Welfare (AIHW) released its eighth biennial report on the health of Australians, *Australia's Health 2002*. This publication compiled key health statistics and analysis that were available at the time of printing.

Since its release, additional health data have been released, notably results from the 2001 Australian Bureau of Statistics (ABS) National Health Survey (NHS). One of the key areas of this survey was the collection of information on risk factors for a range of diseases.

Information on risk factors is collected in a number of population surveys by different agencies. This report presents the most current information available about a selection of these health risk factors and discusses some of the reasons why results might differ between surveys.

It is anticipated that this report will facilitate discussion between those who use health data for policy making, and will provide analysts of health data with information about the types of data currently available, its content, coverage and limitations.

For the purposes of this report, *risk factors* is the term given to a range of health related behaviours that can impact on the health of an individual, either in a negative or positive way. The risk factors discussed in this report are most likely to impact health in a negative way by increasing the risk of ill-health. However, it should be noted some health benefits, protection against hypertension and ischaemic heart disease, can be gained from low to moderate levels of alcohol consumption.

The four risk factors for which information is presented in this report are:

- physical inactivity
- overweight/obesity
- tobacco smoking, and
- alcohol consumption.

Data about risk factors can assist in explaining trends in the health status of a population and can provide insight into why some people (or groups) have better or worse health than others. Data can also be used to monitor the success of health related campaigns or to initiate health promotion interventions.

This report is structured in a way that presents each risk factor in a separate section. Each section contains a description of currently available national data, a discussion of the results and a comparison between various sources of data. These comparisons intend to assist data collection agencies and users of risk factor data by highlighting differences in the collections and further contribute to the information already available. Also included in these sections are headline indicators (relative to each risk factor) which create a focal point for those interested in health data. These indicators provide users of the data a measure to assess the impact of these risk factors against health outcomes and to monitor changes in risk behaviours over time. The indicators also assist collectors of risk factor data in the development of surveys so that the most relevant information to policy makers and researchers is collected.

1. Physical inactivity

Physical inactivity is associated with an increased risk of morbidity and mortality from cardiovascular and other diseases. It can contribute to increases in blood pressure, blood cholesterol levels and overweight and obesity. Increased physical activity is beneficial to improvements in various aspects of health including cardiovascular disease, musculoskeletal health and diabetes. Physical activity may also assist in the reduction in symptoms of depression and reduce the risks of developing some cancers (AIHW 2002a).

Physical activity for health benefit comprises many components, for example intensity, frequency, duration. Its measurement is complicated because there are various dimensions of physical activity (energy expenditure, aerobic intensity, strength and flexibility) that may relate to different health conditions. For example, physical activity for the prevention of heart disease may be different from that required for musculoskeletal problems.

To incur a health benefit from physical activity, the National Physical Activity Guidelines for Australians (DHAC 1999), recommend to 'put together at least 30 minutes of moderate-intensity physical activity on most, preferably all, days' in a week. Moderate intensity activity is activity that will cause a slight (but noticeable) increase in breathing and heart rate, for example brisk walking, digging in the garden or medium paced cycling.

In general, surveys collect and define people's physical activity levels as sedentary (or physically inactive, see glossary), moderate and of vigorous intensity. These definitions can differ in the way they are derived between surveys. These differences are discussed below. Other differences between surveys lie in the definitions of what constitutes physical activity. Again these differences are discussed further in this chapter.

The two national surveys that have recently addressed this risk factor are compared below: the ABS National Health Survey (NHS) and the Active Australia Survey (AAS). A table showing other recent surveys which collect data on physical activity is shown in Appendix 1.

The different methodologies used to collect information about physical activity (discussed further in this chapter) make it difficult to compare results for most activity levels with the exception of sedentary activity which is discussed below.

Sedentary activity

Physical activity data, as measured by the Active Australia Surveys, showed that for the years 1997, 1999 and 2000, the proportion of people whose physical activity levels were considered sedentary increased over the collection periods (Bauman 2001). In contrast, latest results from the 2001 NHS have shown the proportion of people whose exercise levels are considered sedentary have decreased since 1989-90 (Table 1.1). Results from the 2000 Active Australia National Physical Activity Survey were included in Australia's Health 2002.

Table 1.1: Proportion of people aged 18 years and over who reported sedentary activity: comparison of the Active Australia Surveys and the National Health Surveys

Survey and year	Men	Women	Persons
Active Australia Survey^{(a)(b)}			
1997	13.7	13.1	13.4
1999	14.6	14.7	14.6
2000	17.3	12.9	15.3
National Health Survey^(c)			
1989–90	37.2	37.5	37.5
1995	35.0	35.2	35.2
2001	30.9	32.0	31.2

(a) Age-standardised to the 1991 Australian population.

(b) Aged 18–75 years only.

(c) Age-standardised to the 2001 Australian population adjusted to exclude sparsely settled areas.

Comparison of surveys

The surveys are not directly comparable as they measure different aspects of physical inactivity. There are differences in the concepts and methodologies used in the two surveys. The following sections of this chapter describe differences between the Active Australia and National Health Surveys and highlight some of the major reasons which may contribute to variation between their results. The most important differences between the surveys are the definitions of what comprise physical activity, the measures used to define levels of physical activity and the methodologies used to collect the information, such as recall periods.

Definition of physical activity/exercise in surveys

Physical activity is any bodily movement produced by skeletal muscles that results in energy expenditure. **Exercise** is a subset of physical activity and is defined as planned, structured and repetitive bodily movement done to improve or maintain one or more components of physical fitness.

For the NHS, exercise was asked about only in relation to sport, recreation or fitness. This excluded any other incidental activity (see Glossary), such as physical activity undertaken in the course of work or physical activity taken for transport (getting to and from places).

The Active Australia Survey asked about participation in predominantly leisure-time physical activities. It also excluded activity undertaken in the course of work, but included walking which enabled the respondent to get to and from places.

Measures of exercise

The NHS calculates the proportions of people undertaking various levels of activity as sedentary, low, moderate and high. The total time spent in each of walking, moderate and vigorous activity are multiplied by the activity's intensity value (MET value, see Glossary) and summed to give a total exercise score for that respondent. These scores are then grouped for output purposes (Table 1.2).

Table 1.2: NHS categories for scores of exercise level

Category	Score
Sedentary	Less than 100 (includes no exercise)
Low	100 to less than 1,600
Moderate	1,600–3,200, more than 3,200 but less than 2 hours in 2 weeks of vigorous exercise
High	More than 3,200 and 2 hours or more in 2 weeks of vigorous exercise

The Active Australia Surveys calculate the proportion of the population who reported participating in physical activity at levels sufficient to confer a health benefit. For the purposes of calculating ‘sufficient’ activity for health, participation in walking, moderate activity and vigorous activity is included but activities such as gardening is not. Gardening and yardwork are not included in the calculation of ‘sufficient’ activity because there is limited research regarding the actual energy expenditure of these activities (AIHW 2000).

The survey uses two different measures of ‘sufficient’ activity for health, based on the National Physical Activity Guidelines for Australians (DHAC 1999) that, to achieve health benefit, **a person should participate in 30 minutes of at least moderate-intensity physical activity on most days of the week**. For the purposes of calculating ‘sufficient’ activity, this is interpreted as 30 minutes on at least five days of the week; a total of at least 150 minutes of activity per week. The two ‘sufficient’ activity measures used in the Active Australia Survey are ‘*sufficient time*’ (i.e. at least 150 minutes of physical activity) and a further refined definition of ‘*sufficient time and sessions*’. To achieve *sufficient time and sessions*, a person must accrue at least 150 minutes of physical activity over at least five sessions in the week. The measure *sufficient time and sessions* is the preferred indicator for measuring ‘sufficient’ activity for health.

Table 1.3: Active Australia Survey categories for activity time and activity time and sessions

Measure and time	Category
Activity time to gain health benefit	
0 minutes	Sedentary
Less than 150 minutes	Insufficient
150 minutes or more	Sufficient
Activity time and sessions to obtain a health benefit	
0 minutes	Sedentary
Less than 150 minutes ^(a)	} Insufficient
OR	
150 minutes or more and less than 5 sessions ^(a)	} Sufficient
150 minutes or more and 5 or more sessions	

(a) Participating in some physical activity but either not enough in total or not regularly enough to obtain a health benefit.

Sedentary category

The category ‘sedentary’ is defined differently in each survey. NHS respondents are given an exercise score (calculated from duration, frequency and intensity) which is grouped to represent the intensity of the exercise. The sedentary classification is given to respondents

who scored less than 100 (Table 1.2) and includes those who did no exercise at all; data may be broken down further to produce two sub-categories of 'did not exercise' and 'other'.

In the Active Australia Survey, only respondents who report no participation in physical activity are classified as sedentary (Table 1.3).

NHS data for 2001 (Table 1.1) can also be calculated using only those respondents who did no exercise, therefore bringing the NHS definition of 'sedentary' a little closer to the definition of sedentary used in the Active Australia survey. The proportions who did no exercise were 29.6%, 31.2% and 30.4% for males, females and all people respectively for the year 2001.

Sample and other methodology

The NHS was a face to face interview, whereby respondents were asked questions by a trained ABS interviewer and responses coded onto a paper questionnaire. The Active Australia interviews were undertaken by interviewers especially trained in the CATI (Computer Assisted Telephone Interviewing) system. Answers to questions were entered into the system during interview allowing for automatic validation and checking by the system.

Both surveys are national surveys which use random sampling methodologies to select respondents. One adult from each selected household is chosen as the respondent. The NHS surveys people in all age groups; however only persons aged 18 years and over are asked about exercise (17,918 persons). In comparison, the Active Australia survey questioned 3,590 persons aged 18–75 years.

Enumeration periods for both surveys differ. The 2001 NHS was enumerated over a 10 month period from February to November 2001 and the Active Australia Survey was enumerated over a two week period in November of 2000. The NHS was not enumerated during a six-week period around the national Census of 7 August 2001.

Recall periods for the surveys also differ. The NHS asks respondents about activity undertaken in the last two weeks. In contrast, Active Australia Survey asks respondents about physical activity undertaken in the last week.

Conclusion

The surveys are not directly comparable as they measure different aspects of physical activity (including sedentary).

Results from the NHS and the Active Australia Survey both provide useful measures but in different contexts.

- The definition of sedentary is very different between NHS and the Active Australia Survey. This difference has contributed significantly to the apparently conflicting results of the two surveys.
- NHS looks at structured exercise only, and therefore is not indicative of total physical activity. Those respondents who may not participate in exercise but undertake large amounts of physical activity in the course of work are likely to be recorded having exercise levels of sedentary or low.
- The Active Australia methodology provides more comprehensive measurement of physical activity because of the inclusion of walking for transport. The questionnaire also

caters for respondents to report other types of physical activity they have undertaken through gardening or yardwork.

Of note is the time series available from both the National Health and Active Australia Surveys. The NHS has collected data about exercise for the years 1989–90, 1995 and 2001, the Active Australia Surveys for 1997, 1999 and 2000.

Recommendations

The AIHW recommends that data from surveys using the Active Australia Survey instrument be used to derive indicators of levels of physical activity, including physical inactivity. AIHW intends to base its reporting in *Australia's Health* and other publications on the Active Australia Surveys. The National Health Performance Committee (NHPC) indicator 2.08 is 'the proportion of adults insufficiently physically active to obtain a health benefit' (NHPC 2003, forthcoming). The National Health Priority Action Council (NHPAC) has included 'the proportion of adults not engaged in regular physical activity, aged 18–75 years' (AIHW 2002a, Table S59) as one of its indicators for health risk factors. Both these indicators can be measured by the Active Australia Surveys. The Institute recommends that the definition of sufficiently active be based on the measure sufficient time and sessions. Therefore the definition of insufficiently active would be, or imply, not undertaking sufficient time and sessions of activity to confer a health benefit.

The extensive development of the standards, methods and definitions for the collection of physical activity data was undertaken by the Expert Working Group on Physical Activity Measurement which concluded its work in 1999. The Active Australia Survey was developed by this group to produce an instrument that provides an accurate picture of physical activity patterns in the Australian population as they relate to health (AIHW 2003a). In 2001, research and testing of instruments that measure physical activity in population groups found that the questions used in the Active Australia Survey exhibited good reliability and acceptable validity. The report in which these findings were presented included a recommendation that the Active Australia Survey be adopted for continuing population monitoring of physical activity in Australia (Brown et. al 2002). In addition, the ability to measure amounts of physical activity, as specified in the National Physical Activity Guidelines for Australians, adds further value to using this instrument.

With the exception of walking for transport, the Active Australia Survey only collects information about leisure time physical activity. However, non-leisure time physical activity such as work, domestic or transport-related also contributes to overall physical activity. Further there is evidence of some relationship between non-leisure time physical activity and health. However, non-leisure time physical activity is difficult to measure accurately and the instruments used to assess these activities in epidemiological studies are not generally appropriate for use in population surveys as they are typically long and time-consuming. Work is currently underway internationally to develop simpler population survey instruments to measure non-leisure time physical activity. The Institute recommends that appropriate, valid and reliable methods of measuring non-leisure time physical activity in Australian population surveys be developed that take account of international developments.

The Institute acknowledges the immense value that NHS data contribute to information on physical activity, largely due to the ability to analyse exercise data with all other risk factor variables collected by the survey, including smoking, alcohol consumption and other health related and demographic data items.

The Institute recommends that the ABS and the members of the Expert Working Group on Physical Activity Measurement consult together to harmonise a definition of sedentary activity. This definition should then be put to the Health Data Standards Committee (HDSC) for endorsement.

2. Overweight and obese

Being overweight or obese is associated with numerous health problems including Type 2 diabetes, cardiovascular disease, respiratory disease, musculoskeletal problems and some cancers. Children and adolescents who are overweight or obese are at greater risk of becoming overweight or obese adults.

Aside from genetic factors, overweight and obesity is caused by an energy imbalance, where energy intake exceeds energy expenditure over a considerable period of time. Hence, good nutrition and adequate levels of physical activity play an important role in the prevention of further weight gain throughout the life cycle (DoHA 2002).

Monitoring the prevalence of excess weight in the population enables researchers to forecast levels and trends in chronic diseases associated with excess weight and may provide health policy makers with some opportunity for intervention.

The national surveys compared below are the ABS National Health Surveys (NHS), the 1995 National Nutrition Survey (NNS, a sub-sample of the 1995 NHS) and the Australian Diabetes, Obesity and Lifestyle Study (AusDiab). Some data from the Risk Factor Prevalence Surveys (RFPS) conducted by the National Heart Foundation (NHF) are also included for time series purposes. A table showing other recent surveys which collect data on overweight and obesity is shown in Appendix 1.

Body Mass Index

The most common measure used in surveys for classifying weight relative to height – the Body Mass Index (BMI) – is calculated as a person's weight in kilograms divided by the square of their height in metres. A classification defined by the World Health Organization (WHO 2000) is generally used to group people into categories based on their BMI (Table 2.1). This classification is used for people aged 18 years and over and is **not** suitable for children and adolescents. The specific cut points shown below also may not be suitable for all population groups, who may have equivalent levels of risk to other population groups at a lower BMI (e.g. those born in some Asian countries) or higher BMI (e.g. those born in Pacific countries) (Inoue S et. al 2000).

In this information paper the WHO definitions for overweight (greater than or equal to 25) and obese (greater than or equal to 30) have been used, however, the WHO category of 'preobese' (BMI greater than or equal to 25, but less than 30) is referred to as 'overweight but not obese'.

Table 2.1: Classification of BMI for people aged 18 years and over

BMI (kg/m ²)	Classification	Risk of co-morbidities
Less than 18.5	Underweight	Low
18.5 to less than 25	Normal weight range	Average
25 to less than 30	Overweight but not-obese	Increased
30 or more	Obese	
30 to less than 35	Obese class 1	Moderate
35 to less than 40	Obese class 2	Severe
40 or more	Obese class 3	Very severe

Source: World Health Organization 2000.

Self-reported and actual measures

In Australia, national surveys have used both measured and self-reported information on height and weight in order to calculate BMI. When interpreting these data, it is important to note that rates based on self-reported data should **not** be compared with those based on measured data. BMI information obtained from self-reported data generally underestimates a person's true BMI, thus prevalence estimates based on such data will be lower than the actual values (Flood et. al 2000; Niedhammer et. al, 2000; Waters 1993).

A comparison of self-reported data from the 1995 NHS and measured data from the 1995 National Nutrition Survey (NNS) (a sub-sample of the 1995 NHS) showed that self-reported data underestimated the true prevalence rates of obesity and overweight by an average of around 6 percentage points and 5 percentage points respectively (ABS 1998). The reason for this is that people tend to overestimate their height and underestimate their weight. Further, shorter people tend to overestimate their height to a greater extent than taller people, and lighter people tend to report their weight more accurately than heavier people.

The 1995 NHS also showed that there was a tendency amongst survey respondents to round off their height and weight, particularly for those who reported their weight in metric units. The NHS found that 40% of males and females tended to respond in 5 kilogram multiples. In the NHS, height and weight were recorded to the nearest centimetre or inch, and no provision was made to record part centimetres or inches. Similarly for weight, the NHS collected information in whole kilograms or pounds (ABS 1998).

In contrast, surveys which collect actual measurements record height and weight far more accurately than self-reported surveys. In 1995, the NNS collected height information measured in centimetres, expressed to two decimal places, and recorded weight to 0.1 of a kilogram. Similarly, the AusDiab study measured height to the nearest 0.5 centimetre and weight to the nearest 0.1 kilogram.

Prevalence of overweight and obesity in Australians based on self-reports

In 2001, an estimated 16% of men and 17% of women aged 18 years and over were obese, based on self-reported height and weight – a total of 2.4 million obese Australian adults. A

further 4.9 million Australian adults (42% of men and 25% of women aged 18 years and over) were estimated to be overweight but not obese. Accounting for the likely underestimate in the prevalence of obesity (based on the difference found between self-reported data and measured data in 1995), as many as 3.3 million may be a more accurate estimate of the number of Australians aged 18 years and over who were obese in 2001. Similarly, as many as 5.6 million may be overweight but not obese.

Analysis of trends using data from the 1989–90, 1995 and 2001 NHS surveys suggests a rapid rise in the prevalence of obesity among both men (80% increase) and women (71% increase) over the 13-year period, with a smaller increase in the prevalence of overweight but not obese (14% in both men and women) (Table 2.2). For both overweight but not obese and obesity, the increase over time was observed across each age group (ABS 2002).

Table 2.2: Prevalence of overweight and obesity^(a) among men and women aged 18 years and over, 1989 to 2001

Sex	Year	Overweight but not obese	Obese	Overweight
		per cent ^(b)		
Men	1989–90	37.0	8.6	45.5
	1995	40.3	11.6	51.9
	2001	42.0	15.5	57.6
Women	1989–90	22.2	9.9	32.1
	1995	24.3	12.2	36.5
	2001	25.3	16.9	42.2

(a) Based on self-reported height and weight.

(b) Age-standardised to the 2001 Australian population.

Sources: ABS 1989–90, 1995 and 2001 National Health Surveys.

Prevalence of overweight and obesity in Australians based on measurements

The latest estimate of the prevalence of obesity based on measured height and weight comes from the 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab). Based on this study an estimated 2.6 million Australians aged 25 years and over (21%) were obese in 1999–2000. A further 4.8 million (39%) were overweight but not obese.

The rapid rise in the prevalence of obesity based on self-reported height and weight is supported by data derived from measured height and weight. Between 1980 and 1999–2000, the proportion of men aged 25–64, living in capital cities and urban areas, who were obese rose by almost 80%, from 9.4% to 16.9% (Table 2.3). Over this same period, the obesity rate among women aged 25–64 years rose 2.5 times from 7.9% to 19.8%.

Although the proportion of obese men and the proportion of overweight but not obese women appear to have fallen slightly between 1995 and 1999–2000, the falls were not statistically significant.

Table 2.3: Prevalence of overweight and obesity^(a) among men and women aged 25–64 years^(b), 1980 to 1999–2000, measured in various surveys

Sex	Year	Overweight but not obese	Obese	Overweight
		per cent ^(c)		
Men	1980 (RFPS) ^(d)	37.9	9.4	47.4
	1983 (RFPS) ^(d)	40.4	8.9	49.3
	1989 (RFPS) ^(d)	43.0	10.4	53.4
	1995 (ABS: NNS)	48.7	19.6	68.2
	1999–2000 (AusDiab)	48.8	16.9	65.7
Women	1980 (RFPS) ^(d)	19.3	7.9	27.2
	1983 (RFPS) ^(d)	21.8	10.4	32.2
	1989 (RFPS) ^(d)	24.5	12.5	36.9
	1995 (ABS: NNS)	30.1	19.2	49.3
	1999–2000 (AusDiab)	26.7	19.8	46.5

(a) Based on measured height and weight.

(b) Living in capital cities and urban areas only.

(c) Age-standardised to the 2001 Australian population.

(d) Risk Factor Prevalence Survey conducted by the National Heart Foundation.

Sources: NHF 1980, 1983 and 1989 Risk Factor Prevalence Surveys; ABS 1995 National Nutrition Survey; 1999–2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab).

Comparison of surveys

Measures

As noted in the preceding paragraphs, surveys use both measured and self-reported information to calculate BMI. Table 2.4 highlights some differences in survey methodologies of national Australian surveys that collect information on height and weight.

Table 2.4: Comparison of interview methodology for collection of height and weight

Survey	Methods	
	Type of survey	How height and weight data are collected
National Health Surveys	Face to face interview	Self-reported
AusDiab	Face to face interview and biomedical examination	Measured
National Nutrition Survey	Face to face interview and physical measurements	Measured
Risk Factor Prevalence Surveys	Self-completion questionnaire and biomedical examination	Measured in 1980, 1983 and 1989 Self-reported in 1989

Sample and other methodology

The following discussion looks at other differences in survey methodologies which may contribute to discrepancies between survey results. However, it should be noted that no studies have been conducted to measure the impact of these differences.

Scope

Apart from the RFPS which only surveyed in capital cities, all other national surveys enumerated in both urban and rural areas. The NHS and the NNS surveyed in all states and territories; the AusDiab study did not survey in the Australian Capital Territory.

Age groups

Height and weight information were recorded from respondents:

- aged 15 years and over in the ABS National Health Surveys (NHS)
- aged 25 years and over in AusDiab 1999–2000
- aged 2 years and over in the National Nutrition Survey (NNS) 1995
- between 25 and 64 years in National Heart Foundation Risk Factor Prevalence Surveys (RFPS) in 1980 and 1983 and between 20 and 69 years in 1989.

Participation in survey

Participation in AusDiab, NNS and the RFPS was voluntary, whereas participation in the NHS is conducted under the Census and Statistics Act 1905.

Response rates

Response rates varied between the surveys. In 2001, the NHS had a response rate of 92% of households. For the AusDiab survey, approximately 50% of eligible households participated in the household interview; and 55.2% of eligible adults in those households took part in the physical examination where height and weight were measured. The 1995 NNS had a response rate of 61.4% of individuals selected for the survey from the NHS sample, and the RFPS recorded a response rate of 74.7%.

Another factor that may contribute to a bias in results from surveys is the likelihood of certain population groups to participate or not. It has been suggested that people who are overweight or obese may be less likely to participate in surveys where their weight will be assessed, therefore resulting in self-selection bias and an underestimation of overweight and obesity prevalence in the population (Magnus et al. 1983).

Conclusions

Prevalence rates of overweight and obesity estimated from the National Health Surveys (NHS) are based on self-reported height and weight. These rates are **not directly comparable** with estimates derived from surveys in which height and weight are measured.

We can conclude that:

- An estimated 2.4 million Australians aged 18 years and over were obese based on self-reported height and weight data from the ABS 2001 NHS. A further 4.9 million were overweight but not obese. However, the prevalence rates of both overweight but not obese and obesity based on self-reported data tend to be underestimates of the true prevalence rates (i.e. those based on measured height and weight). Given the degree of

this underestimation, there may be as many as 3.3 million Australians aged 18 years and over who are obese and 5.6 million who are overweight but not obese.

- Over the 13-year period from 1989–1990 to 2001, there was a rapid rise in the prevalence of obesity, based on self-reported height and weight, among both men and women aged 18 years and over. Further, this increase occurred across all age groups.
- Trends based on measured height and weight also indicate a significant increase in the prevalence of both overweight but not obese and obesity, at least over the period from 1980 to 1995. While the latest estimates (i.e. 1999–2000 from the AusDiab study) suggest a fall in prevalence rates, the falls are not statistically significant and may be explained by differences in the survey response rate or methods.

Recommendations

The AIHW recommends that measured data should be used to determine the headline indicator for the measurement of body mass in the population where such data are available. The NHPAC recommends the measurement of the 'proportion of adults who are overweight, aged 25–64 years' as a health risk factor indicator for the National Health Priority Areas.

To derive an accurate indicator, measured height and weight, and if possible other measures which add value (e.g. waist circumference), should be used. Surveys that measure these also are more likely to collect other measured information (e.g. blood pressure and blood samples) to allow research and analysis of the effect of multiple risk factors.

While self-reported data underestimate the prevalence of overweight and obesity, they:

- provide a reasonable indicator of the trends in overweight and obesity in the population
- are relatively easy to collect and are much less expensive to collect than measured data
- are often collected together with other health related data
- can be adjusted using available estimates of the extent to which they underestimate the prevalence of overweight and obesity.

Therefore information from self-report surveys should continue to be collected to monitor trends. If self-report data are used to estimate point prevalence then they should be adjusted to provide a 'best' estimate.

Those occasional surveys that use a sub-sample of the NHS (containing self-reported measures) and also measure respondents' height and weight provide users with periodic data on the relationship between self-reported and measured data. AIHW recommends that where possible, these types of comparisons should be made.

AIHW will publish trends in measured and self-reported rates and will publish point prevalence estimates for measured and adjusted self-reported rates. Overweight and obese will be reported separately.

3. Tobacco smoking

Smoking is a major contributor to mortality and ill-health of Australians. In Australia, approximately 19,000 deaths annually are attributable to smoking-related causes. In 1997–98, 143,000 hospital separations were attributed to smoking (AIHW: Miller & Draper 2001). For the purposes of this publication, the term smoking refers to tobacco smoking only and includes the smoking of tobacco products (manufactured and roll your own cigarettes, cigars and pipes).

Smoking is a major risk factor for coronary heart disease, stroke, peripheral vascular disease, numerous cancers, notably lung and throat, and many other conditions.

Survey data about smoking are used to determine the prevalence of smoking in the community and to evaluate health promotion and disease prevention programs. The most common measure used is the ‘smoking status’ of a respondent which can be defined and reported differently by surveys.

The two national surveys compared below are the National Drug Strategy Household Surveys (NDSHS) and the National Health Surveys (NHS) conducted by the ABS. Differences in smoking classification are shown in Table 3.1. A table showing other recent surveys which collect data about smoking is shown in Appendix 1.

The definitions presented here measure the smoking status and smoking behaviours (e.g. amount smoked per day) at the time of the survey.

Table 3.1: Measure of smoking status used by national surveys

NHS	NDSHS
Current smoker—	Daily
Daily	Weekly
Other	Less than weekly
Ex-smoker	Ex-smoker
Never smoked	Never smoked

Daily smoking

The prevalence of daily smoking has declined in Australia over recent years (Table 3.2), continuing the decline that has been documented over the past few decades (AIHW 2000a). Based on the results of the 2001 NHS, the prevalence of daily smoking among people aged 18 years and over was 22.4%. This is slightly higher than the estimate derived from the 2001 NDSHS, at 20.2%.

Table 3.2: Prevalence of daily^(a) smoking, persons aged 18 years and over: comparison of National Health Survey and National Drug Strategy Household Survey results

Survey and year	Men	Women	Persons
		per cent	
National Health Survey			
1995	27.3	20.3	23.8
2001	25.4	19.5	22.4
National Drug Strategy Household Survey			
1995	27.4	22.8	25.0
1998	25.3	20.2	22.7
2001	22.0	18.4	20.2

(a) In the NHS this is defined as 'regular' smoking, that is smoking at least once per day.
Sources: ABS, 1997–2002; National Drug Strategy Household Survey, 1995–2001.

Current smoking

The 'current smoking' group adds to daily smoking those people that smoke occasionally, therefore enabling the measurement of a population group that still have an increased risk of developing smoking related illnesses. The prevalence of current smoking among adults in Australia in 2001 was 24.3% based on the NHS, and 23.9% based on the NDSHS (Table 3.3). Both survey series yield a decline in the current smoking prevalence from the beginning of the decade.

Table 3.3: Prevalence of current^(a) smoking, persons aged 18 years and over: comparison of National Health Survey and National Drug Strategy Household Survey results

Survey and year ^(b)	Men	Women	Persons
		per cent	
National Health Survey			
1989–90	31.1	24.3	27.7
1995	28.5	21.8	25.1
2001	27.3	21.4	24.3
National Drug Strategy Household Survey			
1995	30.2	25.1	27.6
1998	27.7	22.7	25.1
2001	26.1	21.2	23.6
2001 excluding CATI sub-sample ^(c)	26.4	21.5	23.9

(a) Includes current daily and occasional smoking; in the NHS there is no reference period for 'current' smoking, whereas the NDSHS excludes persons who have not smoked in the past 12 months.

(b) All results age-standardised to 2001 NHS reference population.

(c) The CATI sub-sample was introduced in the 2001 survey to assess the feasibility of its use as an ongoing surveillance tool. Results were scrutinised by a Technical Advisory Committee who agreed that results were sufficiently comparable to results collected by the other methods in the survey.

Sources: ABS, 2002; National Drug Strategy Household Survey, 1995–2001.

Comparison of surveys

Measures of smoking prevalence

As shown in Table 3.1, the NHS and NDSHS have slightly different conceptual bases for assessing smoking prevalence (smoker status). The NHS asks three questions that enable estimates of:

- current smoker
- regular smoker (that is, at least once a day)
- former regular smoker
- someone who has never smoked.

The NDSHS contains a more extensive tobacco module that enables estimates of each of these, plus other concepts such as smoking duration (for both daily and non-daily smoking periods), amount and type of tobacco products consumed, and smoking-related behaviours. In addition, the NDSHS imposes an amount of 100 cigarettes or the equivalent amount of tobacco ever smoked on qualifying as an 'ever' smoker. This may be relevant here to the extent that novice smokers aged 18 years and over may not have reached this threshold and therefore would not be included in the NDSHS results, but would be included in the NHS estimates.

The definitions used in the NDSHS are the recommended definitions in the National Health Data Dictionary (NHDD) (AIHW 2003b).

Recall period

In the NHS there is no reference period for 'current' smoking, whereas the NDSHS excludes persons who have not smoked in the past 12 months.

Sample and other methodology

Both surveys are national surveys using random sampling methodologies to select respondents. One adult from each selected household was chosen as the respondent. The NHS surveyed people in all age groups from 18 years and over; 17,918 persons were asked about their smoking behaviours in 2001. In comparison, the 2001 NDSHS surveyed 26,744 persons aged 14 years and over (25,267 of these were aged 18 years and over). Both surveys are complex and include a large subject matter, of which tobacco smoking is only part.

Enumeration periods for both surveys differ. The NHS was enumerated over a 10 month period from February to November 2001 and the NDSHS was enumerated between July and November 2001.

The NHS achieved a response rate of around 92%, while the NDSHS had a response rate of around 50%. The contribution of non-response bias on smoking prevalence estimates is unknown.

The NHS was a face to face interview, whereby respondents were asked questions by a trained ABS interviewer and responses coded onto a paper questionnaire. The 2001 NDSHS employed three data collection modes, each with trained fieldworkers:

- (i) A drop-and-collect mode similar to the Census (see Glossary), in which the fieldworker made contact with the household, selected the respondent and left a self-complete questionnaire. After at least two days the fieldworker returned to collect the

completed questionnaire in a sealed envelope. If the questionnaire was not yet completed the fieldworker left a replied-paid envelope addressed to the survey manager, by which the respondent could return the questionnaire when completed.

- (ii) A personal (face to face) interview mode, incorporating a 'sealed' questionnaire for the sensitive questions (personal health, drug use history, drug-related behaviours).
- (iii) A CATI survey with slightly reduced content.

As far as practical, each question was worded identically across all three survey modes.

Choosing a headline indicator

Age considerations

The 2001 NDSHS reveals that the median age at which lifetime smokers first smoked was 15 years. Among lifetime smokers, 42% had initiated smoking by the age of 14, and 57% by the age of 15. In 2001, the prevalence of smoking in the age group 14–17 years (that is, those under the legal age for being supplied tobacco) was 15.4%.

Given these results, it seems appropriate to interview and report on smoking for persons younger than 18 years. Survey practices vary around the world, with people as young as 12 years interviewed in the United States, and other countries adopting 15 years and 16 years as the minimum age in general population surveys. On the reporting side, the OECD, for example, presents international comparative results for persons aged 15 years and over, and individual countries typically report from their minimum survey age.

Inclusion of under-age smokers in the headline indicators appears to lower the prevalence estimates by around 0.6–0.7 percentage points (Table 3.4). Although not directly relevant to the prevalence indicator, the effect on estimates of consumption may be more marked, as young smokers tend to consume fewer cigarettes on average than their older counterparts (AIHW 2002b).

Table 3.4: Prevalence of daily and current^(a) smoking, persons aged 14 years and over, 2001: comparisons for selected minimum ages

Prevalence measure and age group	Men	Women	Persons
		per cent	
Daily			
14 years and over	21.1	18.0	19.5
15 years and over	21.4	18.2	19.8
16 years and over	21.6	18.3	19.9
17 years and over	21.8	18.4	20.1
14–17 years	10.3	12.7	11.5
18 years and over	22.0	18.4	20.2
Current			
14 years and over	25.6	20.8	23.2
15 years and over	26.0	21.0	23.4
16 years and over	26.3	21.1	23.6
17 years and over	26.5	21.2	23.8
14–17 years	14.8	16.0	15.4
18 years and over	26.5	21.1	23.8

(a) Includes current daily and occasional smoking.
 Source: 2001 National Drug Strategy Household Survey.

In Australia there is a strong policy interest in young smokers, so their inclusion in headline indicators is essential. This could be done using the lowest minimum age in the indicator, and/or as a separate age group with a more conventional (higher) age group shown as well.

Frequency considerations

The second issue is whether to report daily smoking and/or any current smoking. Although the recent mass media campaign reminds us that ‘every cigarette is doing you damage’, the non-daily smokers are a fairly diffuse, ill-defined group that would include novice smokers, those attempting to quit, recidivist quitters and ‘social’ smokers. These are important targets for public health interventions.

Conclusion

The NHS and the NDSHS are not directly comparable as they measure slightly different things with different conceptual bases, such as affecting estimates for never smokers, with a minor impact on current smokers. They also use different survey instruments and have different sample sizes.

However, both surveys measure a common underlying phenomenon. They show trends over time that are consistent between the surveys, and similar patterns across sex and age.

The existence of a smoking module in the NHS is important because it enables analyses of smoking behaviours against current/past health status including long-term medical conditions and mental well-being, and of the relationship with other risk factors including physical activity and diet. For these purposes, and particularly at the population level, the current smoking module may be adequate.

The NDSHS module is designed to provide more robust descriptions of smoking patterns and related behaviours, with links to alcohol and other substance use, but misses out on the link with medical health conditions and other risk factors such as physical activity and dietary habits. The definitions used in the NDSHS are the recommended definitions in the National Health Data Dictionary (NHDD)(AIHW 2003b).

Recommendations

On balance, the AIHW recommends that the headline indicator for Australia should be daily smokers, presented as 14–17 years, 18 years and over, and the aggregate for 14 years and over (see Table 3.5). The NDSHS is a consistent source for these indicators.

Table 3.5: Headline tobacco indicator: prevalence of daily smoking, persons aged 14 years and over, Australia, 2001

Age group	Men	Women	Persons
		per cent	
14–17 years	10.3	12.7	11.5
18 years and over	22.0	18.4	20.2
<i>Total 14 years and over</i>	<i>21.1</i>	<i>18.0</i>	<i>19.5</i>

Source: 2001 National Drug Strategy Household Survey.

4. Alcohol consumption

Alcohol is the most prevalent drug consumed across all age groups. Excessive alcohol consumption has been highlighted as a risk factor for morbidity and mortality in Australia. It is estimated that about 3,500 deaths each year are due to alcohol related disease (including injuries) (AIHW 2002a).

Alcohol consumption is a risk factor for certain medical conditions when consumed at high levels over a long period. Regular excessive consumption contributes to some cancers, liver disease, diabetes, and other conditions. Further, a single episode of heavy drinking increases the short-term risk of injury or death due to alcohol's acute intoxicating effects. Both types of risks, long and short term, have significant impact on the health of the population. However, there is evidence that low levels of consumption confer a health benefit for some people, particularly in relation to reducing the risk of heart disease from middle age onwards (NHMRC 2001).

The two national major surveys measuring alcohol consumption are the National Drug Strategy Household Surveys (NDSHS) and the National Health Surveys (NHS). A table showing other recent surveys which collect data about alcohol consumption is shown in Appendix 1.

Summary alcohol consumption status

According to the NHS in 2001, around 89% of the adult population had consumed alcohol at some time in their life, and 83% had consumed in the past 12 months (Table 4.1). These results are comparable to the NDSHS in the same year with 92% and 84% for lifetime and recent use respectively.

Table 4.1: Summary alcohol consumption status, persons aged 18 years and over: comparison of National Health Survey and National Drug Strategy Household Survey results, 2001

Survey and status	Men	Women	Persons
		per cent	
National Health Survey			
Consumed in the past 12 months	88.2	78.4	83.2
Not consumed in the past 12 months	4.9	7.0	6.0
Never consumed alcohol	6.8	14.6	10.8
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
National Drug Strategy Household Survey			
Consumed in the past 12 months	87.6	79.8	83.6
Not consumed in the past 12 months	6.8	9.5	8.2
Never consumed alcohol	5.6	10.6	8.2
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>

Sources: ABS, 2002; National Drug Strategy Household Survey, 2001.

Alcohol risk

Risks of harm in the long term are assessed in terms of average weekly consumption, whereas short-term harm is assessed in terms of number of drinks in a single drinking episode or day. These risks have been quantified in the *Australian Alcohol Guidelines* released by the National Health and Medical Research Council in October 2001 (NHMRC 2001).

Risk of harm in the long term

In 2001, both the NHS and the NDSHS showed that just under 17% of the adult population had not consumed alcohol in the past 12 months, that is, were abstainers (Table 4.2). Similar results were also apparent for those who consumed alcohol at levels considered to be low risk; the NHS data showing 71.7% and the NDSHS showing 73.7%.

Both surveys reported that approximately 7% of the adult population were drinking at levels that are risky for long-term harm, although there is a small difference in the estimates for high risk in the long term: 4.4% for the NHS and 2.9% for the NDSHS.

Table 4.2: Risk of alcohol-related harm in the long term, persons aged 18 years and over: comparison of National Health Survey and National Drug Strategy Household Survey results, 2001

Survey and status	Men	Women	Persons
			per cent
National Health Survey			
Abstainers ^(a)	11.8	21.6	16.8
Low risk	58.1	43.9	50.9
Risky	6.9	6.6	6.7
High risk	6.4	1.9	4.1
Risk not assessed ^(b)	16.8	26.1	21.5
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
National Health Survey reworked^(c)			
Abstainers ^(a)	11.8	21.6	16.8
Low risk	74.6	68.9	71.7
Risky	7.0	7.4	7.1
High risk	6.6	2.1	4.4
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
National Drug Strategy Household Survey			
Abstainers ^(a)	12.4	20.0	16.3
Low risk	76.8	70.7	73.7
Risky	7.1	7.1	7.1
High risk	3.7	2.2	2.9
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>

(a) Includes never consumed alcohol and not consumed in the last 12 months.

(b) Persons who last consumed alcohol between one week and 12 months ago.

(c) The ABS analysis of the NHS categorised all non-recent drinkers (see note (b) above) as low risk. Detailed analysis of the NDSHS suggests that a small proportion of current drinkers that did not consume in the past week nevertheless would exceed the risk thresholds and would have been assessed if the reference period was longer; the NDSHS method for alcohol risk use a 12-month reference period. For the reworked results the AIHW proportionately allocated drinkers not assessed by the ABS into the three risk categories.

Sources: ABS, 2002; AIHW analysis of NHS results; National Drug Strategy Household Survey, 2001.

Risk of harm in the short term

The NHS alcohol module is not suitable for assessing short-term risk, so only results from the NDSHS are presented here.

In 2001, 2.7% of the adult population had drinking episodes at least once per week that were high risk for short-term alcohol-related harm (Table 4.3). A further 4.2% consumed alcohol at levels defined as risky for short-term harm on at least a weekly basis.

Table 4.3: Risk of alcohol-related harm in the short term on a weekly basis, persons aged 18 years and over, 2001

Survey and status	Men	Women	Persons
		per cent	
National Drug Strategy Household Survey			
Abstainers ^(a)	12.4	20.0	16.3
Low risk	78.8	74.9	76.8
Risky	5.5	3.0	4.2
High risk	3.4	2.1	2.7
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>

(a) Includes never consumed alcohol and not consumed in the last 12 months.
Source: National Drug Strategy Household Survey, 2001.

Comparison of surveys

Measures of alcohol consumption

As indicated above, both the NHS and the NDSHS produce results for alcohol consumption status and risk of harm in the long term. Risk of harm in the short term is not able to be assessed from NHS data because this requires a more comprehensive quantification of peak consumption episodes, which cannot be expected of a seven day recall type approach.

The NDSHS also collects data on age of initiation to alcohol consumption (and age of cessation if not consumed in the past 12 months); typical frequency, quantity and location(s) of drinking; preferred types of drink; and alcohol-related behaviours (such as reduction and moderation behaviours).

The NDSHS requires respondents to report consumption in terms of an Australian standard drink. This is the equivalent of 10 grams or 12.5 millilitres of pure alcohol. As an example, a nip of spirits is one standard drink, whereas a 375 millilitres bottle of regular-strength beer is 1.5 standard drinks.

In contrast, NHS respondents were asked to report the number, type and quantity of alcoholic drinks consumed. Quantity of the drink was collected in terms of standard containers or measures such as a stubbie and nip. Where respondents were unable to provide this information, interviewers were asked to record as much information as necessary to clearly indicate quantity. NHS respondents were also asked to report the types of drink consumed. Despite this difference, the NHS and NDSHS estimates of long-term risk are very similar.

Recall period

The recall period is an important difference in the measurement approaches of the NHS and the NDSHS. In the 2001 NHS, respondents who had consumed alcohol in the past 12 months are asked to report detailed type and volume of drinks for the last three drinking occasions in the past seven days. This is used to calculate an average daily consumption and from that the risk category is derived. In earlier implementations of the NHS respondents reported detailed consumption (or none) for each of the past seven days.

The NDSHS uses an approach called Graduated Quantity Frequency (GQF), or sometimes just called Graduated Frequency (see Glossary). In the NDSHS this is a series of six questions for which the reference period is the last 12 months. For each question, the respondent reports the number of times in the reference period that they had consumed a specified number of standard drinks. This approach is designed to get a better measure of peak episodes of drinking, which may only happen once or twice a year, but are likely not captured by other methods.

Again, despite these differences in methodology, the similarity of estimates of long-term risk from the two surveys is noteworthy.

Sample and other methodology

Both surveys are national surveys that used random sampling methodologies to select respondents. One adult from each selected household was chosen as the respondent. The NHS surveyed people in all age groups from 18 years and over; 17,918 persons were asked about their alcohol consumption. In comparison, the 2001 NDSHS surveyed 26,744 persons aged 14 years and over (25,267 of these were aged 18 years and over).

Enumeration periods for both surveys differ. The NHS was enumerated over a 10 month period from February to November 2001 and the NDSHS was enumerated between July and November 2001. Both surveys were not enumerated during a six-week period around the national Census on 7 August 2001.

The NHS achieved a response rate of around 92%, while the NDSHS had a response rate of around 50%. The contribution of non-response bias on alcohol consumption estimates is unknown.

The NHS was a face to face interview, whereby respondents were asked questions by a trained ABS interviewer and responses coded on a paper questionnaire. The 2001 NDSHS employed three data collection modes, each with trained fieldworkers:

- (i) A drop-and-collect mode similar to the Census, in which the fieldworker made contact with the household, selected the respondent and left a self-complete questionnaire. After at least two days the fieldworker returned to collect the completed questionnaire in a sealed envelope. If the questionnaire was not yet completed the fieldworker left a replied-paid envelope addressed to the survey manager, by which the respondent could return the questionnaire when completed.
- (ii) A personal (face to face) interview mode, incorporating a 'sealed' questionnaire for the sensitive questions (personal health, drug use history, drug-related behaviours).
- (iii) A CATI survey with slightly reduced content.

As far as practical, each question was worded identically across all three survey modes.

To be classified as 'ever having consumed alcohol' in the NDSHS, a respondent would have had consumed at least one full glass of alcohol, whereas the NHS does not request this type of information during the interview.

Conclusion

The surveys are not directly comparable as they measure alcohol consumption using different methodologies.

The existence of an alcohol module in the NHS is important because it enables analyses of drinking behaviours against the health status of respondents (e.g. types of long-term conditions experienced), and of the relationship with other risk factors such as smoking, body mass and physical activity. For these purposes, and particularly at the population level, the current alcohol module may be adequate, although the limitation with respect to short-term risk is significant.

On the other hand, the NDSHS module is designed to provide more comprehensive descriptions of drinking patterns and related behaviours, with links to alcohol and other substance use, but misses out on the link with any health conditions and other risk factors.

The NHS is not suitable for assessing risk of harm in the short term, because this requires a more comprehensive quantification of peak consumption episodes, which cannot be expected of a seven day recall-type approach.

Choosing headline indicators

Age considerations

The 2001 NDSHS reveals that the median age at which lifetime drinkers first had a full serve of alcohol was 16 years. Among lifetime drinkers, only 20.4% had initiated drinking by the age of 14, but 50.1% had done so by the age of 16. In 2001, the prevalence of drinking in the age group 14–17 years (that is, those under the legal age for being supplied alcohol) was 66.3%.

Given these results, it seems appropriate to interview and report on drinking for persons younger than 18 years. Survey practices vary around the world, with people as young as 12 years interviewed in the United States, and other countries adopting 15 years and 16 years as the minimum age in general population surveys.

Inclusion of under-age drinkers in the headline indicators appears to lower the prevalence and risk estimates by no more than 1.2 percentage points (Table 4.4) across all three key measures.

Table 4.4: Prevalence of current^(a) drinking, long-term risk and short-term risk, persons aged 14 years and over: comparisons for selected minimum ages

Prevalence measure and age group	Men	Women	Persons
		per cent	
Current drinker			
14 years and over	85.8	79.1	82.4
15 years and over	86.6	79.5	83.0
16 years and over	87.1	79.8	83.4
17 years and over	87.4	79.9	83.6
14–17 years	64.1	68.7	66.4
18 years and over	87.6	79.8	83.6
Risky or high risk for harm in the long term			
14 years and over	10.2	9.4	9.8
15 years and over	10.4	9.5	9.9
16 years and over	10.6	9.4	10.0
17 years and over	10.8	9.4	10.1
14–17 years	3.9	10.9	7.3
18 years and over	10.8	9.3	10.0
Risky or high risk for harm in the short term at least weekly			
14 years and over	8.5	5.3	6.9
15 years and over	8.7	5.3	7.0
16 years and over	8.8	5.3	7.0
17 years and over	8.9	5.2	7.0
14–17 years	4.9	8.5	6.6
18 years and over	8.8	5.1	6.9

(a) Includes any consumption of alcohol in the past 12 months.
Source: 2001 National Drug Strategy Household Survey.

In Australia there is a strong policy interest in young drinkers, so their inclusion in headline indicators is essential. This could be done using the lowest minimum age in the indicator, and/or as a separate age group with the age group 18 years and over shown as well.

Key measures to report

The second issue is which key measures to report from population surveys. The WHO, in their *International Guide for Monitoring Alcohol Consumption and Related Harm* (WHO 2000), recommend a number of measures in countries with optimal health information systems. Interestingly, prevalence of current consumption is not included in the set of measures. Rather, they recommend:

- self-reported rates of personal and social problems related to alcohol use
- GQF to estimate volumes of consumption
- proportion of total alcohol consumed in the form of high risk drinks of any kind (e.g. cheap fortified wine or cask wine)
- frequencies and per cent of all alcohol drunk on days where the risk thresholds are exceeded
- population rates of risky and high risk drinking for episodic drinking on a weekly basis.

Most of these measures can be derived from the GQF approach, and some are derivable from a recent recall approach.

Despite the absence from this list of a general summary alcohol status measure, the AIHW recommends retaining such a measure both to maintain a sensible time series in Australia, and also to provide contextual information for the risk indicators.

Another principle that should apply in indicator selection is parsimony: readers will note that some of the indicators listed above are different 'views' of the same data, adding to the emphasis on alcohol-related risk.

Table 4.5: Headline alcohol indicators, persons aged 14 years and over, Australia, 2001

Age group	Men	Women	Persons
		per cent	
Currently consume alcohol^(a)			
14–17 years	64.1	68.7	66.4
18 years and over	87.6	79.8	83.6
<i>Total 14 years and over</i>	<i>85.8</i>	<i>79.1</i>	<i>82.4</i>
Risky or high risk for harm in the long term			
14–17 years	3.9	10.9	7.3
18 years and over	10.8	9.3	10.0
<i>Total 14 years and over</i>	<i>10.2</i>	<i>9.4</i>	<i>9.8</i>
Risky or high risk for harm in the short term on a weekly basis			
14–17 years	4.9	8.5	6.6
18 years and over	8.8	5.1	6.9
<i>Total 14 years and over</i>	<i>8.5</i>	<i>5.3</i>	<i>6.9</i>

(a) Includes any consumption of alcohol in the past 12 months.
Source: 2001 National Drug Strategy Household Survey.

Recommendations

The AIHW recommends that the estimates from the NHSDS be used as the headline indicator for alcohol consumption. AIHW recommends three headline indicators for alcohol consumption in Australia presented as 14–17 years, 18 years and over, and the aggregate for 14 years and over. These are:

- proportion of the population that are current drinkers
- proportion of the population that consume at risky or high-risk levels for long-term alcohol-related harm
- proportion of the population who consume at risky or high-risk levels for short-term alcohol-related harm on a weekly basis.

Due to strong policy interest in young drinkers, AIHW recommends the continued surveillance of alcohol consumption in those aged less than 18 years, however noting that the indicators shown above may not be appropriate to younger age groups.

AIHW recommends that further development of indicators for alcohol consumption, particularly in relation to risk of harm or impact on health be undertaken and be included in the National Health Data Dictionary (NHDD).

Glossary

Body Mass Index (BMI): BMI is a measure of a person's weight in relation to their height calculated as weight in kilograms divided by height in metres squared.

Computer Assisted Telephone Interview (CATI): is an interview system which allows direct entry of data from telephone interviews into a computer file. It facilitates interview monitoring, data coding and entry and quality control procedures.

Ex-smoker: For the NDSHS this is defined as a person who has smoked at least 100 cigarettes or the equivalent of tobacco in their lifetime but who does not smoke at all now. For the NHS this is defined as someone who ever smoked regularly, but was not a current smoker at the time of the survey.

Graduated Quantity Frequency: This method asks how often people drink specified amounts of alcohol in one day, usually starting with large amounts and graduating down to smaller quantities so as to encourage full reporting (WHO 2000).

High risk alcohol consumption: defines a level of drinking at which there is substantial risk of serious harm, and above which risk continues to increase rapidly (NHMRC 2001).

Incidental physical activity: includes the forms of physical activity done at work and home, and activity in which people take part as they go about their day to day lives, generally using large skeletal muscle groups, for example, using stairs and domestic tasks.

Low risk alcohol consumption: defines a level of drinking at which there is only a minimal risk of harm. At this level, there may be health benefits for some of the population (NHMRC 2001).

MET Values: (metabolic equivalents) are units used to estimate the metabolic cost (oxygen consumption) of physical activity. One MET is defined as the energy expenditure for sitting quietly, which for the average adult is 1 kilocalorie body weight in kg⁻¹hr⁻¹ or 3.5ml of oxygen body weight in kg⁻¹ min⁻¹. METS are used as an index of the intensity of activities.

Never smoker: defined in the NDSHS as someone who does not smoke now and has smoked fewer than 100 cigarettes or the equivalent of tobacco in their lifetime. In the NHS, defined as someone who has does not currently smoke and who has never regularly smoked in the past.

Obesity: marked degree of overweight, defined as BMI 30 and over.

Overweight: Defined as a BMI 25 and over but less than 30.

Sedentary activity: defined in the Active Australia Survey as those people who are physically inactive, that is who reported no participation in walking, moderate-intensity or vigorous-intensity activity during the previous week, resulting in an estimated energy expenditure of less than 50 kilocalories per week. Defined in the National Health Survey as those people who reported no participation in walking or exercise, or those who scored less than 100 MET values.

Smoker: A person who reports currently smoking. For the NDSHS this could be classified as daily, weekly or less often than weekly. For the NHS this could be classified as daily or other.

Appendix 1: Current surveys and collections

The following section lists a number of surveys or collections which ask about the risk factors covered in this report. This list is not extensive and AIHW acknowledges there may be other data collections not listed here that may address particular population groups or that operate on a regional level.

Table A.1: Current risk factor data holdings

Survey	Year	Physical inactivity	Smoking	Alcohol consumption	Overweight/obesity
National surveys and collections					
National Health Survey	1995, 2001	X	X	X	X
National Nutrition Survey	1995 ^(a)	X	X	X	X ^(b)
Active Australia Survey	1997, 1999, 2000	X			
Australian Diabetes, Obesity and Lifestyle Study (AusDiab)	2000	X	X	X	X
Exercise, Recreation and Sport Survey (ERASS)	2001	X			
General Social Survey (GSS)	2002	X			
State surveys and collections					
NSW Department of Health Surveys	1997, 1998	X	X	X	X
Victorian Population Health Survey	2001	X	X	X	
Health and Wellbeing Survey (Western Australia, South Australia, Northern Territory)	2002, 2003	X	X	X	X
SERCIS surveys (South Australia) ^(c)	1997, 1998, 2001	X	X	X	X
Western Australian Physical Activity Survey	1999	X			
Health Communities Survey (Tasmania)	1998	X	X	X	
Queensland State Wide Health Survey	1998, 1999	X	X	X	X
Queensland Omnibus	2001, 2002	X	X		X

(a) The 1995 National Nutrition Survey was a subset of respondents from the 1995 National Health Survey, therefore all health risk items collected by the 1995 National Health Survey are available.

(b) This item is available 'as reported' in the 1995 National Health Survey and as a 'measured' item from the 1995 National Nutrition Survey.

(c) The 2001 SERCIS survey on physical activity patterns of South Australian Adults did not contain questions about smoking.

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