

2.26 Prevalence of overweight and obesity

The prevalence of overweight and obesity among Aboriginal and Torres Strait Islander adults and children

Data sources

Data on the prevalence of overweight and obesity among Aboriginal and Torres Strait Islander adults come from the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS).

National Aboriginal and Torres Strait Islander Health Survey

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) collected information from 10,439 Indigenous Australians of all ages. This sample was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys. The survey was conducted in remote and non-remote areas of Australia and collected a range of information from Indigenous Australians. This included information on health-related actions, health risk factors, health status, socioeconomic circumstances and women's health. The survey provides comparisons over time in the health of Indigenous Australians. It is planned to repeat the NATSIHS at 6-yearly intervals, with the next NATSIHS to be conducted in 2011–12. Selected non-Indigenous comparisons are available through the 2004–05 National Health Survey (NHS).

Data for this measure are based on information collected on self-reported height and weight. These measures were used to calculate body mass index (BMI) and categorise respondents into categories of underweight, acceptable weight, overweight and obese. Note that, for approximately 16% of Indigenous Australians and 8% of non-Indigenous Australians, self-reported height and weight were not known or not stated.

Based on the *National health data dictionary*, BMI cut-offs for adults are as follows:

- overweight is a BMI of at least 25 kg/m² and less than 30 kg/m²
- obese is a BMI of at least 30 kg/m².

For children, overweight and obesity are defined using the same BMI cut-offs as for adults after adjusting for age and sex.

Data analyses

No data are currently available on the prevalence of overweight and obesity among Aboriginal and Torres Strait Islander children.

Prevalence of overweight and obesity

- In 2004–05, of those with a known body mass index, approximately 4% of Indigenous Australians aged 18 years and over were underweight, 36% were of acceptable weight, 29% were overweight and 31% were obese (Table 2.26.1).
- After adjusting for differences in age structure, in 2004–05, Indigenous adults were slightly more likely than non-Indigenous adults to be underweight (4% compared with 3%); less likely to be of acceptable weight (32% compared with 44%); less likely to be overweight (31% compared with 36%) and much more likely to be obese (34% compared with 18%) (Table 2.26.1; Figure 2.26.1).

Prevalence of overweight and obesity by age and sex

- Both Indigenous and non-Indigenous adults were most likely to be overweight or obese at ages 45–54 years and 55 years and over. In these age groups, between 69% and 74% of Indigenous people, and between 61% and 59% of non-Indigenous people, were overweight or obese.
- A higher proportion of Indigenous males were overweight (34%) compared with Indigenous females (24%). However, Indigenous females were more likely to be obese than Indigenous males (34% compared with 28%), and also more likely to be underweight than Indigenous males (6% compared with 3%) (Table 2.26.1).

Table 2.26.1: Proportion of adults who are underweight, of acceptable weight, overweight or obese, by Indigenous status, sex and age group, 2004–05

BMI groupings	Age group (years)										Totals				
	18–24		25–34		35–44		45–54		55 and over		Non age-standardised		Age-standardised ^(a)		
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Ratio
Per cent															
Males															
Underweight	4.9 ^(b)	3.1	2.8 ^(b)	0.6 ^(c)	1.3 ^(b)	0.6 ^(b)	3.0 ^(b)	0.3 ^(c)	1.5 ^(b)	1.1	2.8*	1.0*	2.4*	1.0*	2.4
Acceptable weight	47.9*	61.5*	36.7	39.4	32.1	29.3	26.7	29.0	24.2*	35.0*	35.0*	37.0*	31.7*	36.9*	0.9
Overweight	30.0	28.3	36.9	42.6	30.9*	47.3*	37.9*	45.9*	38.6*	44.9*	34.4*	43.0*	35.5*	43.0*	0.8
Obese	17.2*	7.1*	23.6	17.5	35.7*	22.9*	32.4	24.7	35.6*	19.1*	27.8*	19.0*	30.4*	19.1*	1.6
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	..
Total Number ('000)	23.7	872.9	30.3	1,319.7	24.8	1,349.3	17.1	1,263.6	13.0	2,065.0	108.8	6,870.5	108.8	6,870.5	..
Females															
Underweight	10.0	10.2	5.0 ^(b)	4.9	6.8 ^(b)	3.5	3.5 ^(b)	2.0	3.1 ^(b)	3.3	6.0	4.2	5.2	4.3	1.2
Acceptable weight	51.0*	62.4*	38.4*	56.8*	30.0*	54.1*	29.2*	47.6*	24.0*	43.1*	35.9*	51.0*	32.4*	51.3*	0.6
Overweight	20.0	19.4	22.0	24.5	25.3	26.1	26.4	30.2	30.0	33.2	24.0*	27.9*	25.6*	27.8*	0.9
Obese	18.9*	8.0*	34.7*	13.9*	37.8*	16.3*	40.9*	20.2*	42.9*	20.4*	34.1*	16.8*	36.8*	16.7*	2.2
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	..
Total Number ('000)	23.2	821.5	30.5	1,274.6	25.2	1,321.9	17.2	1,216.9	13.8	2,072.7	109.9	6,707.6	109.9	6,707.6	..

(continued)

Table 2.26.1 (continued): Proportion of adults who are underweight, of acceptable weight, overweight or obese, by Indigenous status, sex and age group, 2004–05

BMI groupings	Age group (years)										Totals				
	18–24		25–34		35–44		45–54		55 and over		Non age-standardised		Age-standardised		
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.	Ratio
	Per cent														
	Persons														
Underweight	7.4	6.5	3.9	2.7	4.1 ^(b)	2.0	3.2 ^{(b)*}	1.2*	2.3	2.2	4.4*	2.6*	3.8*	2.6*	1.5
Acceptable weight	49.4*	61.9*	37.6*	47.9*	31.0*	41.6*	28.0*	38.1*	24.1*	39.0*	35.5*	43.9*	32.1*	44.0*	0.7
Overweight	25.1	24.0	29.4*	33.7*	28.1*	36.8*	32.1*	38.2*	34.2*	39.1*	29.2*	35.5*	30.5*	35.5*	0.9
Obese	18.0*	7.5*	29.1*	15.7*	36.8*	19.6*	36.7*	22.5*	39.4*	19.8*	30.9*	17.9*	33.6*	17.9*	1.9
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	..
Total Number ('000)	46.9	1,694.4	60.8	2,594.3	50.0	2,671.1	34.3	2,480.5	26.7	4,137.7	218.7	13,578.1	218.7	13,578.1	..
<i>Not Known</i>	17.3	8.8	12.9	6.1	15.3	7.9	13.4	8.3	19.4	8.7	15.3	8.0	15.9	7.9	..

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons $p < 0.05$

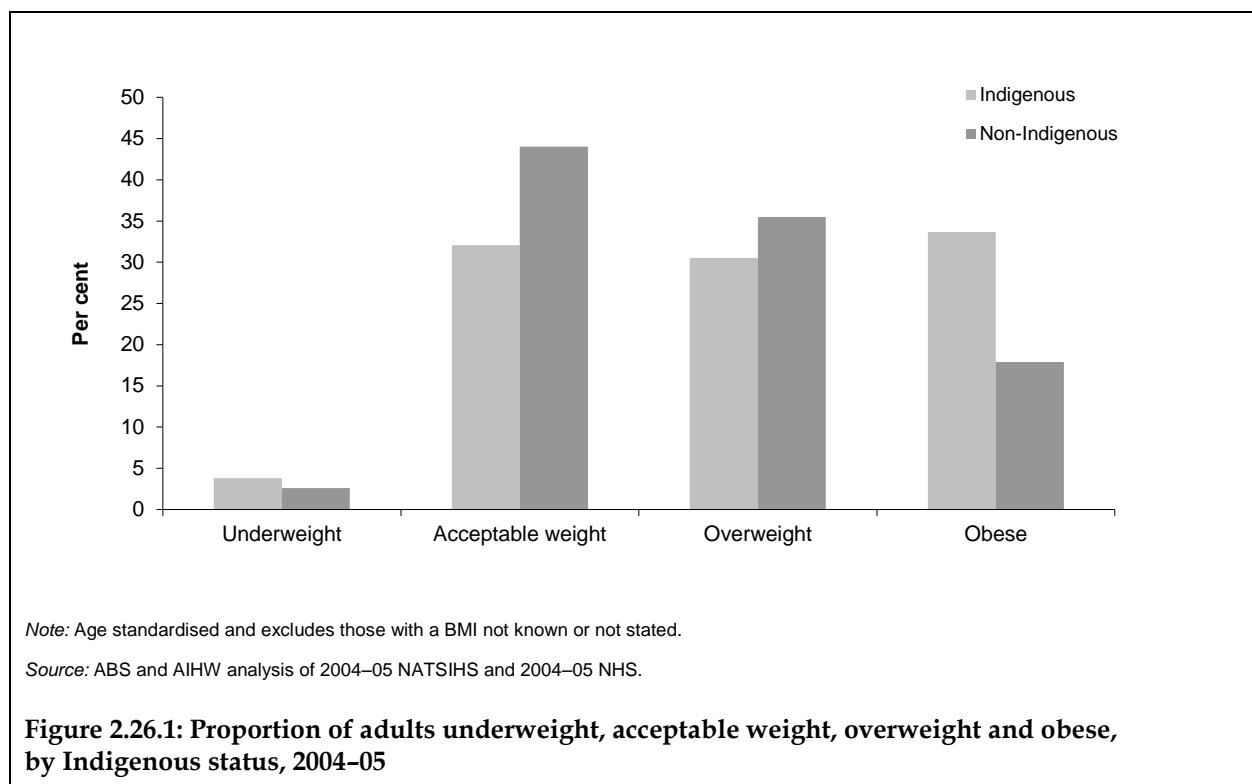
(a) Directly age-standardised proportions to the Australian 2001 standard population.

(b) Estimate has a relative standard error of between 25% and 50% and should be used with caution.

(c) Estimate has a relative standard error greater than 50% and is considered too unreliable for general use.

Note: Proportions exclude those for whom BMI was unknown (39,583 or 15% for Indigenous and 1,175,132 or 8% for non-Indigenous).

Source: ABS and AIHW analysis of 2004–05 NATSIHS and 2004–05 NHS.



Prevalence by selected population and health characteristics

- In 2004–05, Indigenous Australians aged 18 years and over were more likely to be overweight/obese if they had a self-assessed health status of fair/poor rather than excellent/very good (68% compared with 55%); reported three or more long-term health conditions rather than no long term-health conditions (65% compared with 56%); reported circulatory problems (72% compared with 57% with no circulatory problems); had diabetes (83% compared with 57%); or did not have cancer (60% compared with 42%) (Table 2.26.2).
- A higher proportion of Indigenous adults in the highest (5th) household income quintile were overweight/obese compared with the lowest (1st) (61% compared with 59%). Those in the lowest income quintile were more likely to be underweight (7%) than those in the highest (3%).
- There was little difference between the proportions of overweight/obese Indigenous adults in the lowest (1st) socioeconomic (SEIFA) quintile (61%) and those in the highest (5th) (60%).
- Indigenous adults whose highest year of school completed was Year 12 were more likely to be overweight/obese than those whose highest year of school completed was Year 9 or below (64% compared with 57%).
- In 2004–05, Indigenous adults who were employed were slightly more likely to be overweight/obese (61%) than those who were unemployed (59%) or not in the labour force (60%).

- Indigenous adults who reported being current smokers were more likely to be underweight (6%) and less likely to be overweight/obese (54%) than those who reported never smoking (3% and 65%, respectively) or being an ex-smoker (2% and 69% respectively).
- Indigenous adults who reported no daily vegetable intake were more likely to be underweight (8%) and less likely to be overweight/obese (49%) than those who reported eating vegetables daily (4% and 61%, respectively).

Table 2.26.2: Proportion of Indigenous adults aged 18 years and over who are underweight, of acceptable weight, overweight or obese, by selected health outcomes, population characteristics and risk factors, 2004–05

	Under-weight	Acceptable weight	Overweight	Obese	Overweight or Obese	Total
	Per cent					
Self-assessed health status						
Excellent/very good	4.9	40.6	29.9	24.6	54.5	100.0
Good	4.0	34.4	28.1	33.4	61.6	100.0
Fair/poor	4.1	27.9	29.7	38.3	68.0	100.0
Number of long-term conditions						
None	6.1	38.1	31.4	24.3	55.7	100.0
One	4.3	38.6	30.9	26.1	57.0	100.0
Two	5.7	39.2	30.4	24.7	55.1	100.0
Three or more	3.2	31.6	27.1	38.0	65.2	100.0
Circulatory problems						
Yes	3.4	25.0	27.7	43.9	71.6	100.0
No	4.7	38.5	29.6	27.1	56.8	100.0
Has diabetes						
Yes	0.8	16.0	35.1	48.1	83.2	100.0
No	4.8	37.9	28.5	28.8	57.3	100.0
Has cancer						
Yes	0.6	57.9	18.5	23.1	41.6	100.0
No	4.4	35.2	29.3	31.0	60.3	100.0
Household income						
1st quintile	6.6	34.3	28.3	30.8	59.1	100.0
5th quintile	3.3	35.3	29.5	31.9	61.4	100.0
SEIFA^(a)						
1st quintile	5.2	33.4	30.3	31.1	61.3	100.0
5th quintile	3.7	36.0	28.2	32.1	60.3	100.0
Highest year of school completed						
Year 12	5.0	31.3	29.7	34.1	63.7	100.0
Year 9 or below	3.4	39.9	28.9	27.8	56.8	100.0

(continued)

Table 2.26.2 (continued): Proportion of Indigenous adults aged 18 years and over who are underweight, of acceptable weight, overweight or obese, by selected health outcomes, population characteristics and risk factors, 2004–05

	Underweight	Acceptable weight	Overweight	Obese	Overweight or Obese	Total
	Per cent					
Has non-school qualification						
Yes	2.1	34.9	30.4	32.6	63.0	100.0
No	5.7	35.6	28.6	30.1	58.7	100.0
Employment						
Employed	3.3	36.1	30.6	30.0	60.6	100.0
Unemployed	4.9	35.8	24.2	35.1	59.3	100.0
Not in the labour force	6.0	34.4	28.0	31.6	59.6	100.0
Long-term risky/high-risk alcohol consumption						
Yes	3.3	39.0	33.2	24.5	57.7	100.0
No	4.6	34.8	28.4	32.2	60.6	100.0
Short-term risky/high-risk alcohol consumption						
Yes	3.1	37.4	31.6	27.9	59.5	100.0
No	4.1	36.7	30.1	29.1	59.3	100.0
Smoking status						
Current smoker	6.0	39.8	28.3	26.0	54.2	100.0
Ex-smoker	1.9	29.2	33.2	35.7	68.9	100.0
Never smoked	3.2	32.1	28.1	36.6	64.7	100.0
Physical activity^(b)						
Low/sedentary	3.2	36.0	28.6	32.3	60.8	100.0
Moderate	3.4	42.5	28.3	25.9	54.1	100.0
High	0.7	31.2	36.5	31.7	68.1	100.0
Eats fruit daily						
Yes	4.1	35.6	29.1	31.2	60.4	100.0
No	6.2	35.0	29.6	29.3	58.8	100.0
Eats vegetables daily						
Yes	4.1	35.0	29.5	31.3	60.8	100.0
No	8.3	42.3	24.9	24.5	49.4	100.0
Total persons aged 18+ years	4.4	35.5	29.2	30.9	60.1	100.0
Total number	9,618	77,568	63,872	67,655	131,527	218,714

(a) SEIFA refers to Socio-economic Indexes for Areas developed by the ABS. The SEIFA Indexes allow ranking of regions/areas which provide a method of determining the level of socioeconomic wellbeing in that region.

(b) Non-remote areas only.

Note: Excludes those with an unknown BMI (39,583 or 15%).

Source: AIHW analysis of 2004–05 NATSIHS.

Time series analyses

- There has been no significant change in the prevalence of overweight and obesity among Indigenous Australians between 2001 and 2004–05 (59% and 60%, respectively, among those with a known BMI).
- In non-remote areas of Australia, approximately 51% of Indigenous Australians were overweight or obese in 1995, which was lower than the proportions reported in 2001 (56%) and 2004–05 (60%) (Table 2.26.3).
- For non-Indigenous Australians, there was a slight increase in the proportion who were overweight or obese between 2001 and 2004–05 (48% and 53%, respectively, among those with a known BMI) (ABS unpublished data).

Table 2.26.3: Proportion of Indigenous Australians aged 18 years and over who are overweight/obese, by remoteness, 1995, 2001 and 2004–05

	1995	2001	2004–05
	Per cent		
Remote	n.a.	61	60
Non-remote	51	56	60
Total	n.a.	59	60
Total number who reported a BMI	116,340	195,191	218,714

Note: Excludes those with a BMI not known or not stated.

Source: ABS and AIHW analysis of the 1995 and 2001 NHS (Indigenous supplement) and 2004–05 NATSIHS.

Additional information

Studies of the links between obesity, poverty and nutrition in the Indigenous population

A number of studies have investigated the links between obesity and factors such as poverty and diet in the Indigenous population.

Available data show that when Aboriginal and Torres Strait Islander people lived a traditional lifestyle, they generally had a low body mass index compared with what is considered normal for European Australians, and their weight did not tend to increase with age (O’Dea 2008; MIMS Consumer Health Group 2003). Indigenous Australians have a naturally lighter build than European Australians, with relatively long legs, short bodies, narrow chests, and narrow hips and shoulders, which are factors associated with a tendency for central obesity (O’Dea 2008).

There is a small body of research to suggest that Indigenous people are at particular risk of weight gain when eating a non-traditional diet because of their naturally light body build and metabolism geared towards making them efficient hunter-gatherers.

Available research suggests that traditional Indigenous hunter-gatherers consumed a varied diet in which animal foods were a major component. Their diet was not high in fat because the wild animal meat consumed was extremely lean. A wide variety of uncultivated plant foods were eaten, which were generally high in fibre and contained carbohydrates that were digested slowly. Traditional foods generally had a low energy density and high level of nutrients. The low-energy intake of the diet and the labour intensity of procuring food

would have protected Indigenous people against obesity and associated health conditions such as diabetes (O'Dea 1991).

Today, many Indigenous people consume a diet high in fat, sugar and energy-dense foods which has led to high rates of overweight and obesity. Poverty and food insecurity have been recognised as important factors in the poor-quality diet of many Indigenous people, especially those living in remote communities. Food prices are generally higher in remote areas for many types of food. The price of basic healthy foods is at least 50% higher in remote locations than in *Major cities* (NHMRC 2003). Foods of better nutritional choice, including fresh fruits and vegetables, are often expensive because of transport and overhead costs, or only minimally available (Shannon 2002). Remote stores on average sell half the fruit and one-quarter of the vegetable intake per capita of that of the overall Australian community overall (Lee et al. 1994). In comparison, takeaway and convenience food items, which are often energy-dense and high in fat or sugar, are less affected by issues of cost and availability.

There is evidence to suggest that people living in poverty tend to maximise calories per dollar spent on food. Energy-dense foods rich in fats, refined starches and sugars represent the lowest cost options, whereas healthy diets based on lean meats, whole grains and fresh vegetables and fruits are more costly (Drewnowski & Spencer 2004). A study that analysed the store turnover of food supplies at six remote Indigenous communities in the Northern Territory found a very high consumption of energy, fat and sugar, with fatty meats making the largest contribution to fat intake. In comparison to national consumption data, intake of sweetened carbonated beverages and sugar was much higher in these communities. The proportion of energy derived from refined sugars was approximately four times the recommended intake. The diets of people living in these communities had high levels of animal fat (mainly from poor-quality meat) and very low levels of fruit and vegetables (Lee et al. 1994).

Several studies have looked at the effect of traditional and non-traditional diets on BMI and weight gain in the Indigenous population. A study which looked at the therapeutic potential of a traditional lifestyle and diet involved a trial of a group of 10 middle-aged Indigenous people with diabetes who were overweight or obese in the West Kimberly region of Western Australia. The group reverted to a traditional hunter-gatherer diet for 7 weeks. After this short time living off their traditional lands, the people involved in the study lost an average of 7 kg. In addition, the metabolic abnormalities of diabetes and risk factors for heart disease (blood pressure, blood cholesterol, triglycerides) all improved markedly (O'Dea 1984). The Indigenous people involved in the trial also became more confident and assertive while they were in the bush and became proud of their local knowledge and skills. These were deemed important factors in improving the BMI and physical health of Indigenous people (O'Dea 1984). Successful prevention of obesity in some Indigenous outstations has been associated with greater physical activity, consumption of bush foods and ownership of, and access to, traditional homelands (Rowley et al. 2000, cited in O'Dea et al. 2007).

Data quality issues

National Aboriginal and Torres Strait Islander Health Survey

The NATSIHS uses the standard Indigenous status question. The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. It has therefore overcome the problem inherent in most national surveys with small and unrepresentative Indigenous samples. As with other surveys, the NATSIHS is subject to sampling and non-sampling errors. Calculations of standard errors and significance testing help to identify the accuracy of the estimates and differences.

Information recorded in this survey is essentially 'as reported' by respondents. The ABS makes every effort to collect accurate information from respondents, particularly through careful questionnaire design, pre-testing of questionnaires, use of trained interviewers and assistance from Indigenous facilitators. Nevertheless, some responses may be affected by imperfect recall or individual interpretation of survey questions.

Non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in *Major cities, Inner and outer regional areas* and *Remote and very remote areas*, but *Very remote* areas were excluded from the sample. Time series comparisons are available through the 1995 and 2001 NHS.

In *Remote and very remote* communities there were some modifications to the NATSIHS content in order to accommodate language and cultural appropriateness in traditional communities and help respondents understand the concepts. Some questions were excluded and some reworded. Also, paper forms were used in communities in remote areas and computer-assisted interview (CAI) instruments were used in non-remote areas. The CAI process included built-in edit checks and sequencing.

Further information on NATSIHS data quality issues can be found in the NATSIHS 2004–05 publication (ABS 2006).

Overweight and obesity data

The quality of BMI as a measure of overweight and obesity has a number of issues: the reliability of self-reported height and weight; under-reporting; mixed methods of collection of weight and height; and interpretation of BMI cut-offs in children.

Self-reported height and weight has been found to over-estimate height and under-estimate weight, thus under-estimating the resultant BMI. An analysis of the 1995 National Health Survey and 1995 National Nutrition Survey (ABS 1998), in which both self-reported and measured height and weight data were collected, found that 27% of males and 28% of females would have been classified to a different, predominately heavier, BMI category. This analysis did not explore data from the Aboriginal and Torres Strait Islander respondents; however, there was little difference between different ethnic and socioeconomic groups. The report concludes:

Based on the findings from this study, there may be grounds for questioning the reliability, and hence the use and interpretation, of BMI results based on self-reported height and weight.

In the 2004–05 NATSIHS and 2004–05 National Health Survey, height and weight information could not be obtained for approximately 16% of Indigenous Australians and 8% of non-Indigenous Australians. With a large non-response rate there may be issues with bias. In the 1994 NATSIHS an assessment of potential bias due to non-measurement concluded that there would have been only small differences if the whole population was measured; however, this assessment was based on an imputation method that assumed that

people with similar characteristics had similar weight and height (Cunningham & Mackerras 1998).

Height and weight were self-reported in the 2004–05 National Health Survey except in remote areas where respondents to the Indigenous survey were offered the opportunity to be weighed or measured if they were unsure of their weight or height (ABS 2006). Given the known problems with self-reporting of height and weight, care needs to be exercised in interpretation of results given the mixed methods used, especially when the analysis is split by remoteness.

List of symbols used in tables

n.a. not available

– rounded to zero (including null cells)

0 zero

.. not applicable

n.e.c. not elsewhere classified

n.f.d. not further defined

n.p. not available for publication but included in totals where applicable, unless otherwise indicated

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