Back problems
Web report  |  Last updated: 30 Aug 2019  |  Author: AIHW

Citation
AIHW

Back problems are a range of conditions related to the bones, joints, connective tissue, muscles and nerves of the back. Back problems are a significant cause of disability and lost productivity.

Cat. no: PHE 231

Findings from this report:

- 2nd leading cause of disease burden overall in Australia 2015, accounting for 4.1% of Australia’s total disease burden
- Almost 2 in 5 (38%) people with back problems said pain "moderately" interfered with daily activities in 2017–18
- 1 in 6 Australians (16%) had back problems in 2017–18. That’s 4.0 million people
What are back problems?

Back problems describes a range of conditions related to the bones, joints, connective tissue, muscles and nerves of the back. These conditions can affect the neck (cervical spine), upper back (thoracic spine) and lower back (lumbar spine) as well as the sacrum and tailbone (coccyx).

Back problems include:
- pain in the lower, middle and upper back caused by a range of injuries and conditions
- pain including tingling, numbness and weakness in the legs that starts from the lower back
- narrowing in the canal of the spine through which the spinal cord passes
- degeneration of the spine caused by wear and tear on the joints
- pressure on a segment of the spinal nerve attached to the spinal cord
- neck pain/stiff neck caused by disc degeneration.

Back problems can have many causes, relating to issues associated with posture and injuries, diseases such as osteoarthritis, disc disease, osteoporosis, and some genetic conditions. Other factors may increase the risk of developing back problems, such as age, physical fitness, smoking, being overweight, and the type of work a person does [1]. Recently, studies show that back problems can have a significant genetic component [2].

Back problems are common conditions. Estimates from the Australian Bureau of Statistics 2017–18 National Health estimate about 4.0 million Australians (16% of the population) have back problems. It is estimated that 70–90% of people will suffer from lower back pain in some form at some point in their lives.

Pain is the main symptom in most back problems. It is a common reason for pain among younger and middle-aged adults, but can start in childhood [3]. One study of people with long term back problems reported 14% experience constant or persistent pain, and 86% experience pain one day per week [4].

References

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Who gets back problems?

About 4.0 million Australians (16% of the total population) have back problems, based on self-reported data from the Australian Bureau of Statistics (ABS) 2017–18 National Health Survey (NHS).

Back problems increase with age. They are least common among people from birth to age 24 (Figure 1). The overall prevalence of back problems, after accounting for age, is similar for males (16%) and females (15%).

Back problems reported on these webpages include:
- Disc disorders (such as herniated discs or disc degeneration)
- Sciatica and curvature of the spine
- Back pain/problems not elsewhere classified.

Note, back problems that are caused by another condition, such as osteoporosis or osteoarthritis, are not included. For this reason, the total prevalence of back problems is likely to be underestimated.

Figure 1: Prevalence of back problems, by age and sex 2017–18

Note: refers to people who self-reported having back pain and problems (current and long term).

Source: AIHW analysis of (ABS 2019) [1] (Data table).

Aboriginal and Torres Strait Islander people

According to self-reported data from the ABS 2012–13 Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS) and the ABS 2011–13 Australian Health Survey, Indigenous people were 1.1 times as likely to report having back problems compared with non-Indigenous Australians after adjusting for age (Figure 2).

Figure 2: Prevalence of back problems by Indigenous status, 2012–13

Note: Rates are age-standardised to the Australian population as at 30 June 2001.

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Inequalities

Based on self-reported data from the 2017–18 National Health Survey, the prevalence of back problems is similar in Major cities (16%) compared with Inner regional (17%) and Outer regional and remote (15%) areas.

The prevalence of back problems is higher among people living in the lowest socioeconomic areas (19%) compared with people in the highest socioeconomic areas (12%) (Figure 3).

Figure 3: Prevalence of back problems, by remoteness and socioeconomic area, 2017–18

Note: Rates are age-standardised to the Australian population as at 30 June 2001.

Source: AIHW analysis of (ABS 2019) [1] (Data table).

References


2. ABS 2014. Australian Aboriginal and Torres Strait Islander Health Survey: First Results, Australia, 2012–13. ABS cat. no. 4727.0.55.001. Canberra: ABS.

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What medications are used to manage back problems?

Analgesics (or painkillers) are commonly used to manage back pain. Analgesics include paracetamol, non-steroidal anti-inflammatory drugs (NSAIDs) and opioid analgesics.

Recent clinical practice guidelines from Australia and various other countries for management of low back pain have discouraged using pharmacotherapy as a first choice, and suggest medications only to those who have not adequately responded to non-pharmacological interventions (such as physical therapy). Guidelines encourage GPs to discuss with patients the risks and realistic benefits of medications before prescribing. If medications are used, they should be used at the lowest effective dose and for the shortest amount of time possible [1].

The most common medications prescribed for back problems managed by GPs include opioids, paracetamol/opioid analgesic combination and NSAIDs. Paracetamol alone may not be effective in managing acute lower back pain, and is no longer recommended in treatment [2–5]. NSAIDs are recommended for both acute and chronic back pain management [2, 4, 5]. Opioids are commonly prescribed for lower back pain [6], however all guidelines suggest caution in using these medicines due to the increasing concern for potential harm [7]. Guidelines state opioids should only be used if expected benefits outweigh the risks for patients, and should not be used long term [1].

Treatment and management

Compared with people without chronic low back pain, people with chronic low back pain make greater use of pain-related medications and health care resources [8].

Pain is the main symptom of most back problems and treatment can be complex. This can be complicated by the existence of other comorbidities. As pain treatment is given at the same time as other treatments, serious drug interactions can be an issue [9].

Some general treatment strategies for chronic diseases can benefit people with back problems. For example, lifestyle modifications such as diet, exercise, weight control, and reducing smoking have been shown to be beneficial [10].

Reference


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What role do GPs play in treating back problems?

General practitioners (GPs) are usually the first point of contact with the health care system for people with back problems.

Management of back problems in general practice includes:

- assessment of the condition(s)
- referral to other health services (specialists, allied health practitioners, diagnostic testing and hospitals)
- prescribing, advising and supplying medication, and
- providing patient education.

Back problems are among the most commonly managed conditions in general practice [1]. In 2015–16, 3.1 of every 100 GP-patient encounters for chronic problems were for the management of back problems. This has increased significantly from 2.6 of every 100 GP-patient encounters in 2006–07 (Figure 1).

There is currently no nationally consistent primary health care data collection monitoring provision of care by GPs. Note that statistics on general practice activities based on Bettering the Evaluation and Care of Health (BEACH) data are derived from a sample survey of GPs and their encounters with patients, and need to be interpreted with some caution.

Figure 1: Rate of back complaints managed by GPs, 2006–07 to 2015–16

Number per 100 encounters


Reference


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What role do hospitals play in treating back problems?

Back problems can be managed in a variety of ways including pain management, rehabilitation, patient education and surgery.

Spinal surgery could be considered in specific circumstances in the treatment of back problems. It may include:

- removing bone to relieve pressure on the spinal cord or nerve roots (segment of spinal nerve attached to the spinal cord)
- removing a portion of the intervertebral disc
- spinal fusion surgery (joining of two vertebrae to stop movement between them)
- replacing an intervertebral disc.

Data from the AIHW National Hospital Morbidity Database (NHMD) show that in 2016–17:

- there were 175,136 hospitalisations with a principal diagnosis of a back problem
- the rate of hospitalisations was greater for females than males (790 per 100,000 compared with 645 per 100,000)
- the rate of hospitalisation for back problems increased with age (Figure 1).

Common reasons for back problem hospitalisations

The top 3 main reasons for back problem hospitalisations were:

- lower back pain (28% of hospitalisations for back problems)
- lumbar and other intervertebral disc disorders with radiculopathy (for example, when one or more nerve roots is affected and does not work properly) (10%)
- spinal stenosis (abnormal narrowing of the spinal canal that causes compression of the spinal cord) (8.3%).

Figure 1: Rate of hospitalisation for back problems, by sex and age, 2016–17

In the 10 years from 2006–07 to 2016–17, the age-standardised acute care hospitalisation rate for back problems among Australians increased slightly from 621 per 100,000 to 752 per 100,000 (Figure 2). Over the same period, the hospitalisation rate for sub-acute and non-acute care for back problems increased nearly 3 times, from 73 per 100,000 to 220 per 100,000.

Figure 2: Age-standardised rate of hospitalisations for back problems (as any diagnosis), by care type, 2006–07 to 2016–17
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Note: Age-standardised to the 2001 Australian population.

Source: AIHW National Hospital Morbidity Database (Data table).
How do back problems affect quality of life?

The chronic and widespread nature of back problems often lead to poorer quality of life, psychological distress, bodily pain, and disability.

Back problems reported on these webpages include:

- Disc disorders (such as herniated disc or disc degeneration)
- Sciatica and curvature of the spine
- Back pain/problems not elsewhere classified.

Note, back problems that are caused by another condition, such as osteoporosis or osteoarthritis, are not included.

Burden of disease

Back pain and problems is a large contributor to illness, pain, and disability in Australia. Based on data from the Australian Burden of Disease Study 2015, back pain and problems were the second leading cause of burden overall, accounting for 4.1% of Australia's total disease burden.

Back pain and problems were the third leading cause of disease burden for both males and females, representing 3.9% and 4.4% of total disease burden, respectively [1].

Among males, back pain and problems is the second leading cause of disease burden for those aged 25–44 and 45–54 and the third leading cause for those aged 55–64. Among females, it was the leading cause for those aged 45–54 and the second leading cause for those aged 25–44.

Almost all of the burden caused by back pain and problems was non-fatal burden, where back pain and problems was the number one leading cause of non-fatal disease burden among males, females and overall, accounting for 8.1% of total non-fatal disease burden in Australia.

Additionally, in 2015–16, Back pain and problems cost the Australian health system an estimated $2.8 billion, representing 23% of disease expenditure on Musculoskeletal conditions and 2.4% of total health expenditure [2].

Perceived health status

People aged 15 and over with back problems are less likely to perceive their health as excellent than those without the condition according to the 2017–18 National Health Survey (NHS). After adjusting for age, people with back problems were 2.4 times as likely to rate their health as poor (6.5%) compared to with those without back problems (2.7%) (Figure 1).

Figure 1: Self-assessed health of people aged 15 and over with and without back problems, 2017–18

Per cent

<table>
<thead>
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<th>Self-assessed health status</th>
<th>With back problems</th>
<th>Without back problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
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</tr>
<tr>
<td>Poor</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Rates are age-standardised to the Australian population as at 30 June 2001.


Psychological distress

Overall, people aged 18 and over with back problems were 2.5 times as likely to report experience very high levels of psychological distress (8.1%) than those without the condition (3.2%) after adjusting for age (Figure 2).
How do back problems affect quality of life?
The chronic and widespread nature of back problems often lead to poorer quality of life, psychological distress, bodily pain, and impact on activity.

Pain
People with back problems were 2 times as likely to experience severe (11%) and very severe (3.1%) bodily pain compared with those without the condition (4.6% and 1.0%, respectively) according to self-reported data from the 2017–18 NHS (Figure 3).

Figure 3: Pain experienced by people aged 18 and over with and without back problems, 2017–18

Impact on activity
In 2017–18, 38% of people with back problems said that bodily pain interfered with their daily activities at least ‘moderately’, compared with 17% of people without back problems. Of people with back problems, 5.8% said bodily pain had an 'extreme' impact on their activity, compared with 2.4% of people without back problems (Figure 4).

Figure 4: Extent that bodily pain interferes in daily activities in people with and without back problems, 2017–18
How do back problems affect quality of life?

The chronic and widespread nature of back problems often lead to poorer quality of life, psychological distress, bodily pain, and emotional states experienced in the previous 4 weeks. The scores are grouped into Low: K10 score 10–15, Moderate: 16–21, High: 22–50, Very high: 51–58, and Extreme: 59–100.

According to self-reported data from the 2017–18 NHS, people aged 15–64 with back problems are less likely to be employed (73%) compared with people without back problems (77%) and more likely to not be in the labour force (22% compared with 19%). There is little difference in the proportion of people who were unemployed with (5%) and without (4%) back problems (Figure 5).

Figure 5: Workforce participation of people aged 15–64 with and without back problems, 2017–18


References

Back problems and associated comorbidities

People with back problems often have other chronic diseases and long-term conditions. These are referred to as ‘comorbidities’—two or more health problems occurring at the same time. Comorbidities often share common risk factors, and are increasingly seen as acting together to determine the health status of individuals.

As people age, they are more likely to develop more than one chronic condition. Various studies show that cardiovascular diseases [1, 2], arthritis [3], mental health problems [4, 5] and respiratory conditions [6] are common comorbidities with back problems.

In this context, ‘back problems’ include:

- Disc disorders (such as a herniated disc or disc degeneration)
- Sciatica and curvature of the spine, and
- Back pain/problems not elsewhere classified.

Note, if back problems are caused by another condition such as osteoporosis or osteoarthritis they will be classified as that condition and not included here. As such, the true prevalence of back problems presented here may be an underestimate.

This information is based on self-reported data from the Australian Bureau of Statistics (ABS) 2017–18 National Health Survey (NHS), and was last updated in March 2019.

Selected comorbidities

An estimated 2.5 million Australians aged 45 and over have back problems, based on self-reported data from the 2017–18 National Health Survey. Of these, almost 3 in 4 of those people (74% of the total population of people with back problems) report also having one or more of the following selected chronic conditions (Figure 1):

- heart, stroke and vascular disease
- kidney disease
- arthritis
- mental land behavioural conditions
- asthma
- diabetes
- chronic obstructive pulmonary disease (COPD)
- osteoporosis
- cancer.

These 9 chronic conditions have been selected because they are common, pose significant health problems, have been the focus of ongoing national surveillance efforts, and action can be taken to prevent their occurrence.

In addition, more than 2 in 5 (46%) have two or more other chronic conditions (Figure 1).

Figure 1: Number of selected chronic conditions in people aged 45 years and over with back problems, 2017–18

![Bar chart showing the number of chronic conditions.](Image)

Note: the 9 other selected chronic conditions are heart, stroke and vascular disease, asthma, arthritis, cancer, COPD, diabetes, kidney disease, mental and behavioural conditions, and osteoporosis.

Types of comorbid chronic conditions in people with back problems

Figure 2 shows that among people aged 45 years and over with back problems:

- 48% have arthritis, compared with 29% without back problems
- 33% have mental and behavioural conditions, compared with 18% without back problems.
- 17% have asthma, compared with 11% without back problems
- 16% have heart, stroke, and vascular disease, compared with 10% without back problems.

These proportions remained similar even after accounting for difference in the age structure of the populations (Table 5.2).

Figure 2: Prevalence of other chronic conditions in people aged 45 years and over with and without back problems, 2017–18


Note: These components do not total 100% as one person may have more than one comorbidity.

Data notes

The comorbidity data presented here are based on self-reported data from the Australian Bureau of Statistics National Health Survey (NHS). When interpreting self-reported data, it is important to recognise that because we rely on respondents providing accurate information, the outputs may not always be a true reflection of the situation.

In the 2017–18 NHS, the number and proportion of persons with long-term health conditions is presented as those who have 'a current medical condition which has lasted, or is expected to last, for 6 months or more, unless otherwise stated' [8]. For the conditions arthritis, asthma, cancer, heart, stroke and vascular disease (HSVD), diabetes, kidney disease and mental and behavioural conditions, the estimates are based on: persons who reported having been told by a doctor or nurse that they had the condition/s and whether they reported that their condition was current and long-term; that is, their condition was current at the time of interview and had lasted, or was expected to last, 6 months or more.

For HSVD and diabetes, estimates also included persons who reported they had the conditions, but that these conditions were not current and long-term at the time of interview.

The conditions data collected for back problems and COPD are 'as reported' by respondents and do not necessarily represent conditions as medically diagnosed. However, as the data relate to conditions which had lasted, or were expected to last, for six months or more, there is considered to be a reasonable likelihood that medical diagnoses would have been made in most cases. The degree to which conditions have been medically diagnosed is likely to differ across condition types. See the National Health Survey: Users’ Guide, 2017–18 [9] for more information.

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An estimated 2.5 million Australians aged 45 and over have back problems, based on self-reported data from the Victorian Health Survey 2017–18. Back problems are more common in men than women. Most people with back problems report that they have a physical or mental health problem which has lasted, or is expected to last, for 6 months or more, unless otherwise stated. These 9 chronic conditions have been selected because they are common, pose significant health problems, have been the focus of ongoing national surveillance efforts, and action can be taken to prevent their occurrence.

These components do not total 100% as one person may have more than one comorbidity.

Risk factors associated with back problems

Risk factors increase the chance of developing a chronic condition. Back problems share a number of risk factors with other chronic diseases, such as:

Non-modifiable risk factors
- age (back problems are more common as people get older)
- genetic predisposition.

Modifiable risk factors
- insufficient physical activity
- smoking
- obesity
- occupational hazards (for example, activities involving repetitive bending and/or lifting, prolonged sitting)
- joint trauma and injuries (for example, injuries from contact sports or falls, high impact sports)
- some non-occupational physical activities (for example heavy domestic physical activity, or combination of heavy domestic and recreational physical activity) [1].

Other factors such as exposure to whole body vibration [2] and mechanical exposures (such as placing unequal stress on the spine by twisting while lifting heavy objects or poor posture during work activities) [3] may increase the risk of developing back problems, in particular low back pain.

Risk factors can also affect quality of life, and often complicate treatment and management options [4]. Managing these risk factors helps to manage the progression and health burden of back problems, and can reduce the risk of developing further complications and other chronic diseases.

Risk factors are defined in Box 1.

Common risk factors
According to self-reported data from the 2017–18 National Health Survey (NHS), people with back problems are more likely to be current daily smokers, insufficiently physically active and obese, compared with those without back problems (Figure 1).

Figure 1: Prevalence of risk factors in people with and without back problems, 2017–18

Notes:
1. Insufficient physical activity refers to adults aged 18–64 who did not complete 150 minutes of moderate to vigorous physical activity across 5 or more days in the last week and adults aged 65 and over who did not complete at least 30 minutes of physical activity per day on 5 or more days in the last week. Data does not include people for whom this measure was not known or not applicable.

2. Obesity is based on Body Mass Index (BMI) for persons whose height and weight was measured and imputed. In 2017–18, 33.8% of respondents aged 18 years and over did not have a measured Body Mass Index (BMI). For these respondents, imputation was used to obtain BMI. For more information see Appendix 2: Physical measurements in the 2017–18 National Health Survey [5].


Selected risk factors

Smoker status
People with back problems were more likely to be or have been a smoker:

- 18% were current daily smokers (compared with 13% of people without back problems)
- 35% were ex-smokers (compared with 29% of people without back problems) (Figure 2).

![Figure 2: Smoker status of people with and without back problems, 2017–18](source)


Physical activity
People with back problems were slightly less likely than people without back problems to report engaging in the recommended levels of moderate or vigorous physical activity. For adults with back problems, 60% were insufficiently physically active compared with 53% of those without back problems (Figure 3).

Exercise and physical activity are important for the prevention and management of back problems. The relationship between physical activity and back problems is affected by the nature and intensity of the physical activities undertaken. Both too little and too much activity increases the risk of chronic lower back pain [7]. Moderate to strong risk factors for lower back pain include heavy manual workload and repetitive lifting, with stronger associations for flexed, rotated or awkward positions of the spine [8].

![Figure 3: Physical activity in people with and without back problems, 2017–18](source)

Body weight

People with back problems were more likely to be obese (40%) compared with people without back problems (29%). People with back problems were less likely to be overweight, or underweight/in the normal range compared with people without back problems (Figure 4).

Figure 4: Body weight category of people with and without back problems, 2017–18

Note: Body weight category is based on Body Mass Index (BMI) for persons whose height and weight was measured and imputed. In 2017–18, 33.8% of respondents aged 18 years and over did not have a measured Body Mass Index (BMI). For these respondents, imputation was used to obtain BMI. For more information see Appendix 2: Physical measurements in the 2017–18 National Health Survey [5].


Age differences in risk factors in people with back problems

For people with back problems, the prevalence of risk factors varies by age.

The prevalence of smoking among people with back problems decreased with increasing age. Older people (aged 65 and over) with back problems were less likely to report current daily smoking (9%) than those aged 45–64 (20%) or 18–44 (21%).

There was an increase with increasing age in the prevalence of insufficient physical activity or obesity for people with back problems. Insufficient physical activity increased significantly from 51% at age 18–44 to 60% at age 45–64 and 75% at age 65 and over. Obesity increased significantly from 32% at age 18–44 to 45% at ages 45–64 and 43% at 65 and over (Figure 4).

A similar pattern is observed in the prevalence of smoking, insufficient physical inactivity and obesity for people without back problems.

Figure 5: Prevalence of risk factors in people with back problems, by age, 2017–18


Data notes

Risk factors analysis is based on people aged 18 and over. This age group was selected due to the available data in the ABS National Health Survey.
Health Survey (NHS) and to ensure consistency with other AIHW risk factor reports [9, 10].

The risk factor data presented here were obtained at one point in time, based on self-reported data from the NHS (with the exception of BMI, which was measured). When interpreting self-reported data, it is important to recognise that it relies on respondents providing accurate information.

It is not possible to attribute cause and effect to self-reported risk factors and back problems. Risk factors present at the time of the survey may or may not have contributed to the presence of back problems. Similarly, the presence of back problems may not be directly related to the number of risk factors a person has.

The risk factor definitions used in the ABS 2017–18 National Health Survey are described below in Box 1.

### Box 1: Definitions for risk factors in the National Health Survey

#### Smoker status

**Current daily smoker**

A respondent who reported at the time of interview that they regularly smoked one or more cigarettes, cigars or pipes per day.

**Current smoker (occasional)**

A respondent who reported at the time of interview that they smoked cigarettes, cigars or pipes, less frequently than daily.

**Ex-smoker**

A respondent who reported that they did not currently smoke, but had regularly smoked daily, or had smoked at least 100 cigarettes, or smoked pipes, cigars, etc. at least 20 times in their lifetime; and

**Never smoked**

A respondent who reported they had never regularly smoked daily, and had smoked less than 100 cigarettes in their lifetime and had smoked pipes, cigars, etc. less than 20 times.


#### Physical activity

Australia's Physical Activity and Sedentary Behaviour Guidelines (the Guidelines) are a set of recommendations outlining the minimum levels of physical activity required for health benefits, as well as the maximum amount of time one should spend on sedentary behaviours to achieve optimal health outcomes [12]. Please see the [Physical activity web topic page](https://www.aihw.gov.au/physical-activity) for more information.

In 2017–18, the ABS National Health Survey collected information for the first time on physical activity at work. Therefore all results for adults include physical activity at work.

Based on the guidelines, insufficient physical activity is defined as:

- Adults aged 18–64 who did not complete 150 minutes of moderate to vigorous physical activity across 5 or more days in the last week.
- Adults aged 65 and over who did not complete at least 30 minutes of physical activity per day on 5 or more days in the last week.

For the purpose of calculating activity time, vigorous activity time is multiplied by a factor of two.

Muscle strengthening activities are not included in this analysis.

*Source: (AIHW 2019) Insufficient activity report [13].*

#### Body mass index

Body Mass Index (BMI) is a simple index of weight-for-height that is commonly used to classify underweight, normal weight, overweight and obesity. It is calculated from height and weight information, using the formula weight (kg) divided by the square of height (m). To produce a measure of the prevalence of underweight, normal weight, overweight or obesity in adults, BMI values are grouped according to the table below.

<table>
<thead>
<tr>
<th>Category</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Less than 18.50</td>
</tr>
<tr>
<td>Normal range</td>
<td>18.50 – 24.99</td>
</tr>
<tr>
<td>Overweight</td>
<td>25.00 – 29.99</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td><strong>Obese</strong></td>
<td>30.00 – 34.99</td>
</tr>
<tr>
<td><strong>Obesity II</strong></td>
<td>35.00 – 39.99</td>
</tr>
<tr>
<td><strong>Obesity III</strong></td>
<td>40.00 or more</td>
</tr>
</tbody>
</table>

In 2017–18, 33.8% of respondents aged 18 years and over did not have a measured Body Mass Index (BMI). For these respondents, imputation was used to obtain BMI [14].


**References**


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Related material

Resources

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Latest related reports
- Rheumatoid arthritis | 30 Aug 2019

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