TOPIC 4
Variations in health status between population groups

4.1 Overview

Key knowledge
• Health status of Australians and the biological, sociocultural and environmental factors that contribute to variations between population groups including
  – males and females
  – Indigenous and non-Indigenous
  – high and low socioeconomic status
  – those living within and outside of Australia’s major cities

Key skills
• Analyse patterns in morbidity and mortality in Australia over time
• Analyse health information to explain factors that contribute to variations in health status between population groups

FIGURE 4.1 The harsh environment provides just a few of the challenges facing different population groups in Australia.
4.2 Factors contributing to variations in health status — biological

KEY CONCEPT Understanding the biological factors contributing to variations in health status

In topic 3, a range of particularly influential factors that contribute to health status and burden of disease in Australia were explored. In addition to these factors, there are a range of influences that contribute to differences in health status among population groups within Australia. These factors can be sorted into one of three categories:

• biological
• sociocultural
• environmental.
These categories and the factors that relate to each will be explored so the differences in health status between population groups in Australia can be analysed and explained. We begin with biological factors.

Biological factors relate to the structure of the cells, tissues and systems of the body and how adequately they function. There is a range of biological factors and, although many are the outcome of various sociocultural and environment factors, there is often a genetic influence that cannot be controlled. In some cases, examples of biological factors are also examples of physical health and wellbeing.

The biological factors explored in this section are shown in figure 4.2.

4.2.1 Body weight
The impact of high body weight on the health status and burden of disease of the Australian population was explored in subtopic 3.4. Body weight is also responsible for a range of differences in health status between population groups within Australia.

A biological factor, body weight can impact on health and wellbeing and influence other biological factors. It therefore contributes significantly to variations in health status between individuals and population groups. For example, obesity increases the chances of developing high blood pressure, high blood cholesterol and impaired glucose regulation (which are also biological factors). Other health concerns associated with high body weight include:

- cardiovascular disease
- some cancers (including colorectal cancer)
- respiratory problems
- type 2 diabetes
- arthritis
- self-esteem issues and depression
- social exclusion.

4.2.2 Blood pressure
As blood circulates around the body through the blood vessels, it applies pressure to the blood vessel walls (see figure 4.3). As the heart contracts and the blood is pushed around the body, this pressure increases. As the heart relaxes and fills with more blood, the pressure on the walls decreases. Blood pressure is simply a measure of these two levels of pressure.

A person with high blood pressure has hypertension, a common health concern throughout the world. The blood of a person with hypertension does not flow through the blood vessels as easily as that of someone with normal blood pressure. This may mean that their heart and kidneys (which regulate blood pressure and
filter the blood) have to work harder, and blood flow may be restricted. Hypertension is a contributing factor to many conditions, including cardiovascular disease such as heart attack and stroke, and kidney failure. These conditions cause many deaths in Australia. Hypertension has been called the ‘silent killer’ because it has no symptoms. Regular checkups are the only way to monitor blood pressure (figure 4.4). Hypertension can be controlled with medication and lifestyle changes.

The risk factors for hypertension are:

- high body mass
- lack of physical activity
- stress
- smoking
- excessive alcohol consumption
- genetic predisposition
- poor diet (in particular, excess sodium).

Individuals and population groups that display higher rates of these risk factors are more likely to experience hypertension, which in turn increases their risk of associated health concerns such as cardiovascular disease and kidney failure. These risk factors often occur in conjunction with each other, which further increases the risk among some individuals and population groups.

### 4.2.3 Blood cholesterol

Cholesterol is a type of fat that was discussed in section 3.6.1, and high blood cholesterol is a biological factor that contributes to many differences in health status between population groups. Too much LDL cholesterol is a key risk factor for cardiovascular disease, particularly heart attack and stroke. The incidence of high blood cholesterol increases with age, peaking at the 55–64 age group (see figure 4.5).

**FIGURE 4.5** Proportion of adults with high blood cholesterol, 2011–12

Blood cholesterol can be checked by a simple blood test. Lifestyle changes can sometimes reverse high levels of blood cholesterol. However, if the main contributor is a genetic predisposition, medication may be required to bring cholesterol levels down.

A range of factors can increase the risk of high blood cholesterol, including:

- excessive alcohol intake
- smoking
- a diet high in saturated fat and/or trans fats
- a lack of exercise
- genetic predisposition.

4.2.4 Glucose regulation

Glucose is the preferred fuel for energy within the cells. Glucose is usually obtained from breaking down carbohydrates. When carbohydrates are eaten, the resulting glucose is absorbed into the bloodstream. When blood glucose levels rise, insulin is released from the pancreas to allow the glucose to travel from the bloodstream into the cells to be used for energy (see figure 4.6).

A range of factors can impact on this mechanism and contribute to the cells becoming resistant to the action of insulin, preventing glucose from being absorbed into the cells.

This is known as impaired glucose regulation (or insulin resistance). Impaired glucose regulation is seen as a precursor to type 2 diabetes.

**FIGURE 4.6** How insulin acts on glucose

![Diagram showing how insulin acts on glucose](image-url)
Impaired glucose regulation can occur as a result of:

- genetic predisposition
- stress
- pregnancy
- lack of exercise
- smoking
- being overweight (particularly around the abdomen)
- a diet high in fat, particularly trans fat
- excessive alcohol consumption
- high LDL cholesterol
- high blood pressure.

Individuals and population groups who display the risk factors associated with impaired glucose regulation experience higher rates of cardiovascular disease and type 2 diabetes. These conditions can contribute to significant differences in health status, such as higher rates of heart attack, stroke, heart disease and premature death. The prevalence of impaired glucose regulation increases with age (see figure 4.7).

Treatment for impaired glucose regulation consists of lifestyle changes such as losing weight, quitting smoking, managing stress and eating a healthy diet.

![Figure 4.7: Prevalence of impaired glucose regulation among those aged 12 and over, by age group, 2011–12](chart)

**Source:** ABS, *Australian health survey, 2011–12.*

### 4.2.5 Birth weight

Birth weight contributes to variation in health status among individuals and population groups. Birth weight is related to health outcomes directly after pregnancy and later in life. Babies born with a low birth weight (under 2.5 kilograms) are more likely to have an underdeveloped immune system, making them more susceptible to infections. They are also more likely to suffer from premature death and significant disabilities such as speech and learning disabilities.

Studies suggest that low birth weight can also contribute to health concerns in adulthood such as:

- high blood pressure
- type 2 diabetes
- cardiovascular disease.

There are many causes of low birth weight including:

- *Premature birth.* Less time spent in the uterus means less time to grow and develop.
• **Age of the mother.** Young mothers (especially those under 15 years of age) and older mothers (those over 45 years of age) have higher rates of low birth weight babies.

• **The mother’s nutritional status.** An inadequate supply of nutrients can lead to underdevelopment of the foetus.

• **Smoking, excessive alcohol consumption and drug use by the mother during pregnancy.** Use of these substances has been shown to reduce foetal growth.

• **Illness of the mother during pregnancy.** Infections in the uterus can lead to early labour, while other infections, such as chickenpox and rubella, can cause slowed growth.

4.2.6 Genetics

The genetic material contained in body cells controls many aspects of life that influence health status, such as sex, body type, hormone production, predisposition to disease and aspects of personality. A person’s genetic blueprint and genetic potential are determined at **fertilisation**.

**Sex**

Certain conditions are either exclusive to males or females or are more common in one of the sexes due to the biological differences between the sexes, which is caused by genetics. Examples include:

• Women can’t get prostate or testicular cancer.

• Men can’t get ovarian cancer.

• Women are more likely to develop breast cancer (less than one per cent of all breast cancer cases occur in men), largely due to most women having more breast tissue than most men.

**Predisposition to disease**

Genetics can influence how likely someone is to develop certain conditions. An increased risk is called a ‘genetic predisposition’ to that particular condition. Genetic predisposition to disease often runs in families and ethnic groups, making some individuals more likely to experience some conditions than others. This doesn’t mean that a person with a genetic predisposition will necessarily develop the condition as other factors also play a role, but they are at an increased risk. Many conditions have a genetic predisposition, including skin cancer. Two people who have spent the same amount of time in the sun, for example, may have different risks of developing skin cancer as a result of their genetics. Other conditions that have a genetic predisposition include:

• other cancers (including breast cancer and prostate cancer)

• cardiovascular disease

• diabetes (types 1 and 2)

• hypertension

• depression

• obesity.

Through these conditions, genetic predisposition can contribute to significant variations in health status.

**Hormones**

Hormones regulate many processes in the body and control many aspects of health and wellbeing. Hormones are also responsible for the formation of male and female sex characteristics that lead to differences in some of the conditions experienced by males and females.
Males have a different combination of hormones from females, which could contribute to some of the differences in health concerns experienced by the two sexes. Of particular note are the hormones oestrogen and testosterone.

**Oestrogen**

Oestrogen is a key hormone needed for the regulation of the menstrual cycle in women. Oestrogen also helps to maintain bone density in women by keeping the bones strong, a role played by testosterone in males. When a woman enters menopause, the levels of oestrogen decline. This decline leads to a loss of bone mass from the skeletal system, which can contribute to osteoporosis — a disease characterised by weak, porous bones that are more susceptible to breaks and fractures. Oestrogen may have a protective role in the development of cardiovascular disease, which might explain the lower rates of this disease in women prior to menopause. Oestrogen is also linked to distribution and deposition of fat in the body. Oestrogen tends to result in fat being deposited around the buttocks and thighs (pear shape), whereas men and post-menopausal women tend to accumulate more fat around the abdomen (apple shape), increasing the risk of heart disease (see figure 4.9).

**Testosterone**

Testosterone is also known as the male sex hormone (even though it is also found in small quantities in females). Testosterone is mainly responsible for the male sex characteristics and the production of sperm, but may also play a role in increased risk-taking behaviours and aggression in males compared to females. Risks such as skylarking, violence and substance misuse can contribute to higher rates of injury and mortality compared to females.

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**4.2 Activities**

**Test your knowledge**

1. Identify three conditions that can occur as a result of obesity.
2. (a) What causes pressure on the walls of the blood vessels?  
   (b) Explain why blood pressure changes with each beat of the heart.
3. What is hypertension?
4. What is the relationship between blood pressure and cardiovascular disease?
5. What is cholesterol?
6. Describe how high blood cholesterol rates change over the lifespan according to figure 4.5.
7. What role does glucose play in the body?
8. What role does insulin play in the ability of the body to use glucose?
9. What two conditions are associated with impaired glucose regulation?
10. Describe the trends evident in figure 4.7.
11. What weight is classified as low birth weight?
12. Identify three factors that increase the risk of giving birth to a low birth weight baby.
13. Explain what is meant by ‘genetic predisposition’ and identify a range of conditions with a genetic predisposition.
14. Explain the role hormones can play in relation to health status.
Apply your knowledge

15. Explain two ways that each of the following could contribute to variations in health status among individuals and population groups:
   (a) obesity
   (b) hypertension
   (c) high cholesterol levels
   (d) impaired glucose regulation
   (e) low birth weight
   (f) genetics.

16. Explain how high cholesterol could contribute to hypertension.

17. Using figure 4.2 as the basis of your response, create a mind map of the biological factors and include a brief description of their impacts on health status.

18. Access the Blood pressure animation weblink and worksheet in the Resources tab in your eBookPLUS, then complete the worksheet.

19. Access the Hypertension weblink and worksheet in the Resources tab in your eBookPLUS, then complete the worksheet.

20. Access the Glucose regulation weblink and worksheet in the Resources tab in your eBookPLUS, then complete the worksheet.

**eBookplus RESOURCES**

- Explore more with this weblink: Blood pressure animation
- Explore more with this weblink: Hypertension
- Explore more with this weblink: Glucose regulation
- Complete this digital doc: Blood pressure animation worksheet
  - Searchlight ID: doc-17424
- Complete this digital doc: Hypertension worksheet
  - Searchlight ID: doc-17425
- Complete this digital doc: Glucose regulation worksheet
  - Searchlight ID: doc-17426

**studyon**

- Unit 3 > AOS 1 > Topic 4 > Concept 1

**4.3 Factors contributing to variations in health status — sociocultural factors**

- **KEY CONCEPT** Understanding the sociocultural factors contributing to variations in health status

**Sociocultural factors** relate to the social and cultural conditions into which people are born, grow, live, work and age. These conditions include:

- socioeconomic status, which is determined by income, education and occupation
- social connections, including relationships and social exclusion

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family influences including culture, lifestyles and values
food security
early life experiences
access to affordable, culturally appropriate healthcare.

Many sociocultural factors are beyond the control of individuals, yet they have a significant impact on health status at an individual and population level.

People who experience poor sociocultural conditions experience worse health status in all societies. The gap between those at the top and those at the bottom of the sociocultural ladder has widened over the years, and those towards the bottom experience much worse health status. For this reason, sociocultural factors have now become the focus of most health authorities, who are trying to narrow the gap.

Too often, sociocultural factors interrelate, so that a person who experiences one of them is more likely to experience two or more of them when compared with people who are more fortunate. The longer the person lives in sociocultural distress, the more physiological wear and tear they will suffer, which ultimately means they are less likely to enjoy a healthy old age.

The sociocultural factors examined in this section are identified in figure 4.10.

4.3.1 Socioeconomic status

Socioeconomic status (SES) refers to a person’s position in society relative to other people based on three factors: income, occupation and education (see figure 4.11). People who are more socioeconomically disadvantaged have poorer health status across most countries and cultures.

All these components of socioeconomic status are related and affect each other. For example, a person who has a high level of education is more likely to work in a higher paying job. Such jobs usually carry greater status than lower paying jobs. As the level of education increases (for example, high school versus tertiary), in general, so does the status of occupation and the average income.

Income can influence people’s ability to access resources such as adequate housing, food, healthcare (including private health insurance), recreation, transport and education. These resources can assist people in maintaining a healthy body weight and preventing disease, staying socially connected and accessing healthcare when required, which can reduce morbidity and mortality rates.
The occupation a person has also influences health status. Some occupations (including many trades) involve manual labour, which can increase the risk of soft tissue injuries and back pain. Other occupations are sedentary in nature (including many administrative roles), which can reduce levels of physical activity and increase the risk of obesity. There is also evidence of a relationship between occupation and mortality. People in manual occupations, such as builders and farmers, have higher mortality rates than those in managerial/professional occupations (Draper et al. 2004, Health inequalities in Australia: mortality). Manual workers (such as those working in factories) often come from a lower socioeconomic background and experience more occupational hazards than those in managerial/professional occupations.

As well as influencing income and occupation, education impacts health status in a number of ways. Those who are more educated are more likely to be health literate, for example. Health literacy describes the degree to which individuals have the capacity to obtain, process, and understand the basic health information and services needed to make appropriate health decisions. This can relate to healthy lifestyles and accessing healthcare when required, both of which promote health status and decrease the impact of preventable and treatable conditions including cardiovascular disease, some cancers, respiratory diseases and type 2 diabetes.

Low levels of health literacy contribute to those of low socioeconomic status being:
- less likely to take notice of health promotion messages, therefore increasing the risk of preventable diseases
- more likely to smoke and be obese due to poor nutrition and physical inactivity.

4.3.2 Unemployment

The link between unemployment and health status is undeniable. According to the AIHW (2006), ‘the unemployed have a higher chance of dying and [suffer from] more illnesses than those of similar age who are employed’. In fact, the rates of suicide, lung cancer and cardiovascular disease are higher for those who are unemployed.

The effects of long-term unemployment on health status can be particularly serious, mainly due to psychological and financial factors (especially if the person falls into debt). The effect on health status can start even while the person is still working. An employee concerned about job security may begin to experience elevated levels of stress and anxiety before they even become unemployed. This can have a range of physiological implications, such as sleep problems (see figure 4.13) and increased risk of cardiovascular disease.

There is a two-way relationship between health status and unemployment. For some it is ill health that causes unemployment (such as an injury or illness), and for others it is unemployment that causes health problems (such as stress and depression).

4.3.3 Social connections and social exclusion

Social connections relate to the bonds between an individual and their relations, friends and acquaintances and the ability to participate in the society in which they live. Being socially connected has been associated with lower morbidity and increased life expectancy (Kawachi et al. 1997). The opposite of social connectedness is social exclusion, which contributes to significant variations in health status. Social exclusion
refers to the segregation that people experience if they are not adequately participating in the society in which they live. It also includes those who experience feelings of disconnectedness and do not get opportunities to make use of the resources available to them in a society, such as education, employment, housing, healthcare and social security services. In the past, such people have been referred to as ‘social outcasts’.

The causes of social exclusion are often the result of social exclusion as well. Therefore, the sufferer can find themselves in a vicious cycle (see figure 4.15). Social exclusion exists when individuals or groups face a number of issues, such as:
• poor physical and mental health and wellbeing
• disability
• inability to access services such as healthcare, education, employment and social security
• family breakdown
• homelessness
• discrimination, including racism
• low income.

Source: Medical Journal of Australia.
4.3.4 Social isolation

Social isolation refers to not being in regular contact with others. Geographical barriers can prevent people from being able to interact with others and is an issue particularly for many people in remote areas. Disability, illness, lack of transport, and communication barriers can also prevent people from socialising and contribute to social isolation, especially among the elderly and those from non-English speaking backgrounds.

Regular social contact gives people the opportunity to communicate and socialise, which can promote physical, social, emotional, mental and spiritual health and wellbeing. People who are isolated from others lack the emotional, psychological and health-related support that can improve health status. In times of difficulty, people who are socially isolated can feel they have no-one to turn to, and this can contribute to a range of mental health problems such as depression and stress.

4.3.5 Cultural influences

Cultural influences relate to customs, ideas, values, and traditions of a particular society that are passed through generations. Cultural influences that impact health status include gender stereotypes, food intake, attitudes and beliefs.

Gender stereotypes relate to behaviours that are culturally acceptable for males and females. Although many of these roles and expectations have broken down over the past decades, some cultures still retain distinct roles for males and females. These roles are learned from a very young age and shape many aspects of the wider society. Examples of stereotypes related to gender include:

- males working and females staying at home to look after the children
- males being ‘macho’ and needing to feel strong.

The dietary intake of cultural groups often evolves over a long period of time and influences the sorts of foods people consume. Changes to traditional diets can contribute to differences in health status. The traditional diet of Indigenous Australians, for example, included low fat meats and a range of fruits and vegetables. The change in diet that accompanied European settlement contributes significantly to the high rates of obesity seen today in Indigenous Australians.

Attitudes towards education and employment, recreation including substance use such as alcohol consumption, health and healthcare including traditional medicine, all affect health status. The traditional medicine of Indigenous Australians, for example, is culturally different from western medicine. This can reduce the ability of Indigenous Australians to access culturally appropriate medicine in a society dominated by western practices.

Alcohol consumption is an accepted part of life for many Australians. This contributes to a range of negative health outcomes for many, especially males, who typically consume more alcohol than females. Alcohol consumption contributes to a range of conditions, including injuries which males experience more than females.
4.3.6 Food security

The quality, availability and affordability of the food supply all affect what people eat. A shortage of such products (called food insecurity) can lead to deficiency diseases and other health complications. The other end of the scale is food plenty, which can contribute to people eating too much and therefore putting themselves at risk of diet-related diseases such as type 2 diabetes and cardiovascular disease.

Although the environment impacts food availability (for example, when people live too far away from food outlets), sociocultural factors such as income and nutritional knowledge also have an effect. People who are unable to afford healthy foods may be forced to buy cheaper processed foods. These are often made from poorer quality produce and have added fat, salt and/or sugar in an attempt to add flavour to the product. Such additives increase the risk of diet-related diseases, including obesity and cardiovascular disease.

4.3.7 Early life experiences

Every person is, in part, a product of their past experiences. Such experiences help to shape each individual, their outlook on life and the behaviours they engage in throughout their lives.

Behaviours of women while they are pregnant are early life experiences for unborn babies that can contribute to a range of health issues. Maternal tobacco, alcohol and drug use, and maternal nutrition and exposure to certain chemicals, bacteria and viruses during pregnancy, can all have significant impacts on the individual after birth and into adulthood. Possible impacts on the baby include low birth weight, increased risk of infections and higher under-five mortality rates (U5MR). In later life, some of these experiences can contribute to higher rates of cardiovascular disease and diabetes.

Having optimal growth and strong emotional attachment in the early years can assist physical, social, emotional, mental and spiritual health and wellbeing in adulthood (figure 4.18). Such experiences begin even before conception with the physical health and wellbeing of the mother, and become more important after conception and during pregnancy.

Infants who have experienced positive emotional stimulation are better prepared to take on the challenges of formal education and to exhibit positive behaviour, and are less likely to be socially excluded in adulthood. Infants who have had the best possible health and wellbeing are also more likely to have been exposed to healthy lifestyle choices such as a healthy food intake, a non-smoking environment and physical activity.

On the other hand, abuse or neglect during the early years affects brain function and development, and contributes to emotional and behavioural problems later in life, including tobacco and substance use. Slowed growth during infancy may lead to impaired cardiovascular, respiratory and kidney function, which can lead to illness in later life.
4.3.8 Access to healthcare

Healthcare refers to services that promote and preserve health and wellbeing. These services diagnose, treat and/or manage disease and illness. In Australia, these services are carried out by doctors, nurses, scientists, dentists, pharmacists and other health professionals such as physiotherapists and naturopaths. These health professionals often work together in a hospital or medical centre.

Numerous factors can limit an individual’s ability to access healthcare. Geographical access or proximity to health services is an environmental factor and will be explored in section 4.4.3, but there are many cultural, financial and other sociocultural barriers that prevent many Australians from accessing services they might otherwise use.

Some people who have geographical access to health services fail to use them. This may result from a lack of health literacy. Cultural barriers may influence an individual’s access. Women from some cultures will not visit a male GP, and this reduces the number of health professionals they have access to. Language barriers can prevent some people from using healthcare services, as they find the experience too difficult. Many Indigenous people find it culturally inappropriate to access western medicine, and associate hospitals with death.

Patients are sometimes responsible for paying for healthcare services. Those with a low socioeconomic status may avoid healthcare as a result. The proportion of Australians who delayed or did not see a general practitioner due to cost was 5.4 per cent in 2012–13 (AIHW, 2014).

Sociocultural barriers to healthcare can contribute to conditions going undiagnosed and untreated, which can result in a range of variations in health status including higher mortality rates and lower life expectancy.

4.3 Activities

Test your knowledge
1. What are the three components of socioeconomic status?
2. Discuss how:
   (a) unemployment can lead to ill health
   (b) ill health can lead to unemployment
3. (a) Define ‘social exclusion’.
   (b) List three causes or results of social exclusion.
4. (a) Define ‘social isolation’.
   (b) List possible causes of social isolation.
5. Outline three ways in which culture may contribute to differences in health status.
6. Define ‘food security’.
7. Why are processed foods generally less healthy than fresh produce?
8. Why are processed foods often cheaper than fresh produce?
9. Discuss variations in health status that may occur as a result of food insecurity.
10. (a) Make a list of ways that parents can enhance the experiences their child has during pregnancy and in the first years after birth.
    (b) Outline three variations in health status that may occur as a result of early life experiences.
11. (a) Outline the sociocultural factors that can affect a person’s ability to access healthcare.
    (b) Discuss the variations in health status that may result from a lack of access to healthcare.

Apply your knowledge
12. Discuss variations in health status that may occur as a result of being socially excluded and socially isolated.
13. (a) Which resources may socially excluded people not get the opportunity to use?
    (b) How could not using these resources lead to ill health?
14. Describe one way that mental illness could lead to social exclusion, and one way that social exclusion could lead to mental illness.
15. ‘A good start in life means supporting mothers and young children: the health impact of early development and education lasts a lifetime’ (WHO, 2003). Draw a flowchart illustrating how conditions early in life could have lifelong effects.
16. Using figure 4.10 as the basis of your response, create a mind map of the sociocultural factors and include a brief description of their impacts on health status.
17. Access the Social justice weblink and worksheet in the Resources tab in your eBookPLUS, then complete the worksheet.
4.4 Factors contributing to variations in health status — environmental factors

**KEY CONCEPT** Understanding the environmental factors contributing to variations in health status

**Environmental factors**, in the context of this course, relate to the physical features that surround us. These can be natural features or those built by people. As with all factors, the relationship between the physical environment and health status is complex, but there is growing evidence to suggest that the way people interact with the physical environment can increase or decrease the risk of negative health outcomes. One World Health Organization study (2002) estimated that 24 per cent of the global burden of disease and 23 per cent of all deaths were due to aspects of the physical environment. Factors related to the physical environment that are explored in more detail in this subtopic are identified in figure 4.19.

Understanding how the physical environment can affect health status allows government and non-government groups to implement strategies to modify the physical environment to reduce the risk of ill health occurring among the population.
4.4.1 Housing

Most people spend more time in their house than in any other environment. The housing environment therefore plays a significant role in determining health status. Some of the specific concerns of the home environment that contribute to variations in health status include:

- **Ventilation and hygiene.** Inadequate housing has been linked to increased rates of morbidity from infectious and chronic diseases. For example, a house that is damp and has poor ventilation can promote the growth of mould, which can increase the risk of developing respiratory and asthma-related symptoms such as coughing, wheezing and irritation of the upper respiratory tract by 30–50 per cent (AIHW, 2010).
- **Design and safety.** If not adequately maintained, features of houses such as stairs, floor surfaces (especially those that may become slippery when wet), bodies of water (such as ponds, dams and pools), balconies, electrical wiring and furniture can increase the risk of falls, cuts, drowning and electrocution. Young children and the elderly are often the most at risk of these injuries.
- **Overcrowding.** Those living in overcrowded housing experience higher rates of mental health issues because occupants find it difficult to find their own space. Overcrowded conditions also place added strain on bathroom, kitchen and laundry facilities, which can lead to unsanitary conditions and increases the risk of infectious diseases. Education and employment opportunities can also be impacted by overcrowded living conditions.
- **Sleeping conditions.** Sleep is an important aspect of good health and wellbeing, and sleeping conditions should promote restful sleep. Noise and overcrowding can impact on sleeping conditions and contribute to mental health issues.
- **Security.** Having a house that is not seen as secure from the elements and intruders can promote fear among the residents and lead to high levels of stress and anxiety.
- **Pollutants.** Environmental tobacco smoke, asbestos, dust, pet hair and other pollutants can lead to respiratory conditions such as asthma.
- **Resources conducive to eating a nutritionally sound diet.** Refrigeration for storing food, and adequate cooking appliances, are examples of resources that promote healthy eating. If individuals do not have access to such resources, they may rely on takeaway foods. Such foods may be high in fat and contribute to obesity and related conditions such as cardiovascular disease and type 2 diabetes.
- **Access to water and sanitation facilities.** An adequate water supply and the infrastructure to deliver clean water to homes are required to access clean water, and this decreases the risk of infectious diseases. Sanitation facilities are essential to remove human waste from the immediate environment. This reduces the risk of infectious diseases, such as cholera, that are spread by contact with human waste.

4.4.2 Work environment

Many Australians spend a significant amount of time in their place of employment. As a result, the physical environment of the workplace plays a significant role in determining health status. Examples of how the physical environment of the workplace can impact on health status include:

- **UV exposure.** Those working outdoors are more exposed to UV radiation. This can increase the risk of skin cancer among these workers.
• **Accidents and injuries.** According to the ABS (2014), around 4.3 per cent of all employees aged 15 and over sustained a work-related injury in the previous year. Many workplaces have risks associated with the specific environment in which the work is carried out. People working on farms, fishing trawlers and mining operations, for example, often use heavy machinery, which can increase the risk of injuries. Those working in transport, such as truck drivers and taxi drivers, may have an increased risk of road trauma as a result of spending extended periods on the roads. Those working with tools such as sewing machines and saws may have an increased risk of lacerations.

• **Exposure to hazardous substances.** Hazardous substances such as paint, asbestos, fuels, gases, acids and corrosive chemicals are used in many workplaces; for example, those used for manufacturing and building. Although the use of protective equipment can reduce the risks associated with handling such substances, they still contribute to morbidity and mortality in the workplace.

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**FIGURE 4.21** Australia has a large farming industry that has a range of associated workplace hazards, including UV exposure and injuries associated with the use of heavy machinery.

**FIGURE 4.22** The use of protective equipment, such as hazardous materials suits and gas masks, can reduce the effects of exposure to dangerous substances in the workplace.

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### 4.4.3 Urban design and infrastructure

Urban design and **infrastructure** relate to the features and structures of the suburbs, towns, regions and cities in which people live. Features of such areas that contribute to variations in health status for a range of population groups include the aspects summarised in figure 4.23.

**FIGURE 4.23** Factors relating to urban design and infrastructure

- Geographical location of resources such as hospitals, schools and employment
- Infrastructure including roads and transport systems, electricity and communications systems, water and sanitation
- Urban design and infrastructure
Geographical location of resources
Having access to goods and services can increase the ability of many people to access resources required for good health and wellbeing. Being close to supermarkets, shops and hospitals, and having the means to reach these resources, can decrease morbidity and mortality rates, because people can access the resources required to obtain adequate food and healthcare.

Being in close proximity to fast-food outlets may increase the frequency at which people consume such products. This can increase energy intake and contribute to overweight and obesity.

Industrial sites located in close proximity to residential areas may increase noise pollution in the area. This can increase the risk of mental health issues. In one study of neighbourhoods near Sydney airport, residents who were chronically exposed to high aircraft noise were more likely to report stress and high blood pressure than those living in a matched suburb unaffected by aircraft noise (AIHW, 2012).

Infrastructure
Having adequate infrastructure such as sealed roads, public transport systems, information and communication technologies such as telephone and internet connections, electricity grids and supply, clean water facilities and sanitation systems, and adequate parks, gardens and recreation facilities, assists in promoting health status.

Adequately maintained roads and traffic systems such as traffic lights, signage and road lighting can improve safety and decrease the risk of morbidity and mortality from road trauma.

Public transport systems can help people to access resources that can promote health status, such as food, employment, healthcare and social interaction. People living outside of Australia’s major cities may be particularly vulnerable to transport issues. In this sense, transport can actually prevent people from taking steps to promote their health status, such as having a balanced food intake and seeking medical care when required.

Information and communication technologies can assist in maintaining social connections, and this promotes mental health and wellbeing and can decrease the risk of mental illness. Internet connections can also promote education for those living outside major cities, helping to increase socioeconomic status.
Electricity is required for heating and cooling, cooking and refrigeration, telecommunications and recreation. All of these resources can assist in promoting health and wellbeing.

Water is essential for life. It is required for drinking, bathing, cooking and sanitation. Having access to a clean and reliable water supply reduces the risk of infectious diseases such as dysentery, and promotes health and wellbeing. Adequate sanitation infrastructure, such as sewerage systems, eliminates waste from the environment. Removing substances such as faeces, solid wastes and domestic wastewater reduces the risk of infectious diseases such as cholera.

Having access to adequate public spaces such as parks and gardens, and recreation facilities such as walking paths, cycling tracks and basketball and tennis courts, means people are more likely to be physically active. This can reduce the risk of mental health problems and obesity.

4.4.4 Climate and climate change

Geographically, Australia is a large country and experiences a range of climates as a result. Rainfall, temperature and wind patterns vary across the country, producing different impacts on health status. Weather patterns have been changing in Australia over the past century, and such changes also bring about impacts on health status.

Climate

Australia is the driest inhabited continent on Earth, and is more susceptible to bushfires than many other countries as a result. As well as the loss of human and animal life that occurs with bushfires, houses and infrastructure can also be destroyed, limiting the availability of goods and services that are required for optimal health and wellbeing. Access to resources such as water, food and healthcare can all be affected, further increasing morbidity and mortality rates in affected areas.

Ultraviolet radiation levels are also comparatively high in Australia, contributing to Australia having the highest rates of skin cancer in the world.

Climate change

There is increasing concern that changes to the environment are contributing to climate change, resulting in extreme temperatures, rising sea levels, and increases in the occurrence of natural disasters and the spread of vector-borne diseases such as dengue fever and Ross River fever, which are spread by infected mosquitoes. Human settlement, industrialisation, land clearing and farming practices all affect environmental systems, including climate systems (AIHW, 2010).

The impacts of climate change on the health status of individuals and population groups will vary depending on a range of factors. However, according to the Australian Institute of Health and Welfare (2012), ‘the most vulnerable groups will be those living in remote areas, on lower incomes or with poor housing; the young and elderly; and the sick. Aboriginal and Torres Strait Islanders living in remote communities are also likely to be disproportionally affected by climate change because of their relative isolation and limited access to support facilities.’

Changes in climate also result in more natural disasters such as bushfires and floods. Extreme weather across Australia during 2015 was associated with floods in the northern states and bushfires in the southern states.
Increasing temperatures are expected to lengthen bushfire seasons and increase the frequency and intensity with which bushfires occur. In 2009, Victoria experienced the Black Saturday fires, which were the most intense and most lethal in Australia’s recorded history. Over 170 people died, and many others suffered severe burns and were hospitalised. Towns were completely wiped out by fires that destroyed infrastructure such as electricity supply, dams, housing and schools. Thousands of sheep and cattle were also killed, and entire crops destroyed. As well as the immediate impact on mortality and morbidity, such events take a long time to recover from and can increase the risk of mental health disorders and reduce access to health promoting resources for years to come.

Floods in Queensland, New South Wales and Victoria in 2010–11 caused widespread damage, including the loss of life. Thousands of farms were affected by extensive livestock and crop losses. Infrastructure was also destroyed, limiting the ability of people to access resources such as food, clean water and healthcare.

4.4 Activities

Test your knowledge
1. Explain what is meant by ‘environmental factors’.
2. Outline one way that adequate housing could promote:
   (a) physical health and wellbeing
   (b) mental health and wellbeing.
3. Explain what is meant by urban design and infrastructure.
4. Explain how geographical location of resources may impact food security.
5. Explain how climate and/or climate change can impact health status.

Apply your knowledge
6. Draw an annotated diagram highlighting the features a house should have in order for it to promote optimal health and wellbeing.
7. Draw a flowchart that illustrates how poor housing could lead to poor health status.
8. Outline two ways that urban design and infrastructure may affect health status.
9. Identify three work environments and explain how they may contribute to differences in health status for people working in them.
10. Brainstorm the infrastructure in your neighbourhood that promotes health status. Explain the link between each resource and improved health status.
11. Explain why those with poor housing may be particularly susceptible to the impacts of climate change.
12. Explain how education and employment opportunities may be impacted by overcrowded housing.
13. Using figure 4.19 as the basis of your response, create a mind map of the environmental factors and include a brief description of the impacts on health status.
14. (a) List the types of infrastructure that are affected by climate change.
(b) Discuss how damage to each type of infrastructure could impact health status.
15. Access the Climate change weblink and worksheet in the Resources tab in your eBookPLUS, then complete the worksheet.

Explore more with this weblink: Climate change

Complete this digital doc: Climate change worksheet
Searchlight ID: doc-23559

study on

Unit 3  AOS 1  Topic 4  Concept 3

Environmental factors Summary screens and practice questions
4.5 Differences between population groups — Indigenous and non-Indigenous Australians

KEY CONCEPT The variations in health status as experienced by Indigenous Australians and the factors that explain the differences

The biological, sociocultural and environmental factors explored in the previous sections provide a basis to analyse and explain why some population groups experience poorer health status than the rest of the population. It is important to remember that no single factor acts in isolation, and the differences in health status usually occur as a result of the complex interplay between a range of factors.

With all the improvements that have occurred in education, technology and research in the past 100 years, the life expectancy of the Australian population has increased from approximately 51 years in 1901 to approximately 82 years in 2016. Unfortunately, these improvements in health status have not been shared by the entire population. There are still population groups that have life expectancies significantly lower than the average. These include Indigenous people, males, people of low socioeconomic status (SES), and those living outside major cities. We will explore the health status of these groups, along with an investigation of the factors that contribute to such differences.

Indigenous Australians make up 3 per cent of the Australian population and experience poorer health status than the rest of the population in nearly all health indicators.

4.5.1 Key differences in health status

Estimates of Indigenous life expectancy for 2010–12 were 69.1 years for men and 73.7 years for women (ABS, 2014). This represents a difference of about 10.6 and 9.5 years for males and females respectively when compared with the rest of the population (see figure 4.28).

Even though there have been some significant improvements in recent years in Indigenous mortality rates, Indigenous Australians are more likely to die at every stage of the lifespan and at younger ages than the non-Indigenous population. In fact, approximately 65 per cent of Indigenous Australians die before their sixty-fifth birthday compared to just under 20 per cent for the non-Indigenous population (see figure 4.29).

![Figure 4.28 Life expectancy at birth, by Indigenous status and sex, 2010–12](source: AIHW, Australia’s health 2016, page 235.)

![Figure 4.29 Age distribution of deaths among Indigenous and non-Indigenous Australians, 2008–12](source: Adapted from AIHW 2014, Mortality and life expectancy of Indigenous Australians: 2008 to 2012.)
In 2012–13, 6.4 per cent of Indigenous people had severe or profound disability (that is, they always or sometimes needed help with daily activities such as showering and toileting) — twice the rate of non-Indigenous Australians.

Other variations in health status reported by the ABS and AIHW (2015) include:
• an overall mortality rate that is more than one and a half times that of non-Indigenous Australians, and four times as high among Indigenous people aged 35–44
• infant mortality rates that are one and a half times higher than the rest of the population
• being half as likely as non-Indigenous Australians to report their health status as excellent or very good, and twice as likely to report their health status as fair or poor (see figure 4.30).
• burden of disease that was 2.3 times the rate of non-Indigenous Australians
• higher rates of hospitalisation and death from injury than the non-Indigenous population
• higher incidence and mortality rates from cardiovascular disease — 1.5 times greater than the non-Indigenous population
• higher mortality rates as a result of cancer (1.2 times higher), with significantly higher mortality rates from cervical and liver cancers
• high or very high levels of psychological distress experienced at nearly three times the rate of the non-Indigenous population, with rates of suicide that were four times higher than non-Indigenous Australians and rates of hospitalisation for mental health issues twice as high
• rates of diabetes and high blood glucose levels more than three times higher than the rest of the population. Indigenous Australians are also more likely to develop diabetes at a younger age and die from it earlier than the non-Indigenous population.
• a rate of chronic kidney disease (also referred to as CKD, which is the long-term loss of kidney function) nearly four times the rate of the rest of the population
• being almost twice as likely as non-Indigenous people to report having asthma
• higher rates of sexually transmissible infections (STIs) than non-Indigenous people
• higher rates of dental decay and gum disease.

4.5.2 Factors contributing to variations in the health status of Indigenous Australians

The reasons for the comparatively low health status of Indigenous Australians compared with the rest of the population are varied and complex. However, there are a range of identifiable factors that adversely affect the health status of Indigenous Australians.
**Biological factors**

Many biological factors contribute to variations in the health status of Indigenous Australians compared to non-Indigenous Australians. We will examine four factors: body weight, blood pressure, glucose regulation and birth weight.

**Body weight**

Indigenous Australians have higher rates of high body mass index across all ages, which increases the risk of suffering from chronic conditions such as cardiovascular disease, type 2 diabetes and osteoarthritis. The obesity rate among Indigenous adults is one and a half times higher than in the non-Indigenous population. Being obese is linked to **Syndrome X**, a major problem in the Indigenous population (see figure 4.31).

**Blood pressure**

Indigenous Australians are also 1.2 times more likely to report hypertension, a risk factor for stroke and heart disease.

**Glucose regulation**

Indigenous Australians experience higher rates of impaired glucose regulation than the rest of the population, contributing to the higher rates of diabetes and kidney disease experienced.

**Birth weight**

Indigenous mothers are almost twice as likely to give birth to a baby with low birth weight when compared with non-Indigenous Australians, contributing to a higher U5MR. Of live births to Indigenous mothers in 2012, 11.2 per cent were classified as low birth weight, compared with 4.6 per cent for live-born babies of non-Indigenous mothers. Maternal tobacco use, nutrition and access to healthcare are significant contributors to this difference. Babies of Indigenous mothers were also more likely to be premature (13.3 per cent) compared with babies of non-Indigenous mothers (8 per cent).
Sociocultural factors

A range of sociocultural factors contribute to the variations in health status experienced between Indigenous and non-Indigenous Australians. They include socioeconomic status, unemployment, social exclusion, food insecurity, early life experiences, cultural factors, and homelessness.

Socioeconomic status

Indigenous Australians are more likely to experience a lower socioeconomic status than other Australians. According to the Australian Institute of Health and Welfare (2010), Indigenous Australians reported lower incomes (see figure 4.33), poorer education achievements and lower rates of home ownership than other Australians. Lower educational outcomes contribute to lower levels of health literacy. This also places Indigenous Australians at greater risk of behaviours such as smoking and sedentary lifestyles, further contributing to obesity, type 2 diabetes, cardiovascular disease and lung cancer.

Unemployment

In 2012–13, Indigenous Australians were more than four times as likely to be unemployed as other Australians (18.9 per cent compared with 4.3 per cent). There is a relationship between unemployment and a range of risk factors and variations in health status, including increased rates of smoking and alcohol abuse, reduced overall feelings of wellbeing, and increased rates of cardiovascular disease, mental health problems and lung cancer.

Social exclusion

Discrimination and racism have been associated with ill health and lower health status for Indigenous people — in particular, mental health disorders (such as anxiety) and risky health behaviours such as tobacco, drug and alcohol use. According to the Australian Aboriginal and Torres Strait Islander health survey (AATSIHS) in 2012–13, 7 per cent of Indigenous adults (about 26,500 people) reported that they avoid seeking healthcare because they had been treated unfairly by doctors, nurses or other staff at hospitals or doctor surgeries. This can increase the duration and severity of disease and contribute to higher levels of morbidity and mortality.

Source: AIHW 2015, The health and welfare of Australia’s Aboriginal and Torres Strait Islander peoples 2015, page 37.
Data from an *Aboriginal experience of racism survey* conducted in Victoria in 2010 and 2011 indicated that almost all (97 per cent) the respondents had experienced at least one racist incident in the preceding 12 months. The survey found that 2 in 3 (67 per cent) experienced racism in shops, 59 per cent in public spaces and 29 per cent within health settings. Indigenous adults who had experienced high levels of racism were more likely to have high or very high levels of psychological distress than those who had experienced no, low or medium levels of racism.

Many Indigenous Australians have experienced forced removal from their natural family. According to the AIHW (2015), in the 2012–13 AATSIHS:

- 13 per cent of Indigenous adults reported having been removed from their natural family by welfare authorities or the government, or by being taken away to a mission
- 44 per cent of Indigenous adults reported that they had relatives who had been removed from their natural family
- 9.2 per cent of Indigenous adults fell into both groups — in total, almost half (48 per cent) of Indigenous adults reported that either they or their relatives had been removed from their natural family.

Levels of high or very high psychological distress were significantly more common among Indigenous adults:

- who had been removed from their family (35 per cent) compared with those who had not (29 per cent)
- who had relatives removed (34 per cent) compared with those who had not (26 per cent).

High levels of psychological distress relate to an increased rate of risky behaviours such as tobacco and alcohol use, and increase the risk of a range of diseases that may otherwise be preventable, such as cardiovascular disease, respiratory diseases and some cancers.

Social exclusion has been an issue for Indigenous Australians since European settlement, and this has generated a sense of alienation that is not easily rectified. According to a report by the WHO (‘Solid facts’), social exclusion also results from racism, discrimination and unemployment. Racial discrimination complaints still form more than 10 per cent of all complaints received by anti-discrimination bodies in NSW, Queensland, SA, WA and NT, many of which involve Indigenous Australians. Social exclusion contributes to a range of physical and mental health problems, and to the higher rates of morbidity and mortality experienced by Indigenous Australians.

**Food insecurity**

Indigenous Australians are significantly (3.4 times) more likely to report food insecurity compared with those in the general population in major cities (AIHW, 2008). This can contribute to higher rates of obesity and associated conditions such as type 2 diabetes, kidney disease and cardiovascular disease. Traditional Indigenous diets were high in protein and low in fat. European influences have changed the traditional diet for many Indigenous Australians, contributing to higher rates of obesity and associated conditions.

**Early life experiences**

Early life experiences including maternal tobacco, alcohol and drug use have significant impacts on health status. In Australia:

- One study (Hutchinson, 2015) showed that 48 per cent of Indigenous women smoked while pregnant, compared to 10 per cent of non-Indigenous women.
- National data relating to maternal alcohol consumption are not readily available, but some studies suggest that up to 50 per cent of babies born in some Indigenous communities display effects of maternal alcohol use.
- According to the AIHW (2013), babies born to Indigenous mothers were around 3.5 times more likely to display signs of exposure to drugs while in the uterus.

![FIGURE 4.34 Foods that formed the traditional Indigenous diet, such as kangaroo meat, are high in protein and low in fat. This is in stark contrast to many of the foods introduced by European settlers.](image-url)
These differences in substance use during pregnancy in the Indigenous community contribute to a range of variations in health status, including higher rates of:

- low birth weight babies
- some infections among infants
- foetal alcohol spectrum disorder
- under-five mortality
- cardiovascular disease
- type 2 diabetes.

**Cultural factors**

Cultural factors contribute to the lower rate at which many Indigenous Australians access western medicine. Many Indigenous people feel western medicine is culturally inappropriate, and associate hospitals with death. As a result, many conditions go unchecked for extended periods of time. This can increase morbidity and mortality rates, and reduce life expectancy.

**Homelessness**

In 2011 an estimated 26,743 Indigenous people were experiencing homelessness in Australia — a rate of 1 in 20 Indigenous people. Of all homeless people who provided information on their Indigenous status, 28 per cent were Indigenous. Homelessness increases the risk of psychological distress and risk-taking behaviour including tobacco and alcohol abuse, contributing to higher rates of mental health disorders, obesity, type 2 diabetes, cardiovascular disease and some cancers.

**Environmental factors**

The physical environment factors that contribute to variations in health status for Indigenous Australians include housing, water and sanitation, access to health services, and infrastructure.

**Housing**

Housing plays a major role in the health and wellbeing of Indigenous Australians. The absence of affordable, secure and appropriate housing can result in a number of negative consequences, including homelessness, poor health and wellbeing, and lower rates of employment and education participation. All of these can lead to social exclusion and the associated impacts on health status.

Housing quality is an issue for many Indigenous Australians, and much of the housing in Indigenous Australian communities is substandard in regard to shelter, drinking water and sanitation. According to the Australian Institute of Health and Welfare (2015), among Indigenous households in 2012–13:

- more than 1 in 3 (35 per cent) reported living in a dwelling with one or more major structural problems such as electrical or plumbing problems, major cracks in floors or walls, or roof defects
- more than 1 in 7 (15 per cent) reported living in a dwelling that was lacking at least one working facility such as a fridge, cooking facilities, toilet, or bath or shower (AIHW analysis of 2012–13 AATSIHS).

These dwellings posed many risks to the health status of Indigenous Australians, including increased risk of injury, disease and mental health problems.

**FIGURE 4.35** Many Indigenous Australians live in communities outside major cities. This presents many challenges including overcrowded housing, lack of access to healthcare, and an unreliable water supply.
Thirteen per cent of Indigenous Australians were reported to be living in overcrowded housing in 2011 compared to 3.4 per cent of non-Indigenous Australians (AIHW, 2015). Overcrowded housing places a strain on bathroom, kitchen and laundry facilities. This strain can lead to unhygienic living conditions and increased risk of injury, disease and mental health issues.

In 2012–13, Indigenous children aged 0–14 were five times as likely as non-Indigenous children to live in households with a daily smoker who smoked at home indoors (16 per cent and 3 per cent, respectively). Exposure to environmental tobacco smoke increases the risk of respiratory disease such as asthma, and can increase the risk of children becoming smokers when they get older. Tobacco use is associated with a range of variations in health status including high rates of cardiovascular disease.

**Water and sanitation**

Most Australians have access to one of the cleanest and most reliable water supplies in the world, but the 2006 *Community housing and infrastructure needs survey* (the most recent data available) found that 48 of the 148 Indigenous communities (about 12000 people) that were tested had drinking water supplies that failed testing at least once in the 12 months before the survey. Of the 82300 people surveyed, 59 per cent (about 48500 people) also reported experiencing an interruption to their water supply in the previous 12 months.

Sewerage systems are also inadequate in many Indigenous communities. In 2006, 40 per cent of Indigenous communities (about 30000 people) experienced a sewage leak or overflow. Lack of clean water and sanitation has been shown to increase the risk of infectious diseases including gastroenteritis, diarrhoea, dysentery and cholera. Such sanitary conditions can be particularly dangerous for children, who are likely to experience repeated infections. Increased morbidity and mortality rates can also be attributed to a lack of clean water and sanitation in Indigenous communities. Indigenous Australians living outside Australia’s major cities are less likely to have access to a fluoridated water supply, and this contributes to the higher rates of dental decay in these areas.

**Access to health services**

The Indigenous population has lower levels of access to, and use of, health services and resources such as Medicare-funded services, the Pharmaceutical Benefits Scheme (or PBS, which subsidises medication) and private GPs. About 21 per cent of Indigenous Australians live in remote areas, compared to 2 per cent of the rest of the population, which makes service delivery and access to services more difficult for many. As a result, conditions may go undiagnosed or untreated, and this may limit treatment options and so increase morbidity and mortality rates.

**Infrastructure**

Indigenous Australians living outside of Australia’s major cities are exposed to aspects of the physical environment that can increase the risk of injuries and deaths from road crashes, including unsealed roads and poorer lighting at night.
Summary of factors contributing to variations in the health status of Indigenous Australians

Figure 4.36 summarises the factors affecting the health status of Indigenous Australians.

**FIGURE 4.36** Factors contributing to variations in the health status of Indigenous Australians

- Life expectancy about ten years less than other Australians
- Higher mortality rates in each age group
- Twice as likely to have a severe profound disability
- Infant mortality 1.5 times higher than the rest of the population
- Half as likely to rate health status as excellent or very good
- Burden of disease rates 2.3 times higher than the non-Indigenous population
- Injury death rates 3 times higher than that experienced by non-Indigenous people
- Higher rates of chronic conditions including cancer, asthma and cardiovascular disease
- High or very high levels of psychological distress experienced at 3 times the rate of the non-Indigenous population
- Diabetes/high glucose rates around 3.5 times higher than the rest of the population
- Chronic kidney disease rates nearly 4 times higher than the rest of the population
- Higher rates of STIs
- Higher rates of dental decay and gum disease
- High body mass index
- Hypertension
- Impaired glucose regulation
- Low birth weight
- Low SES
- High rates of unemployment
- Lower levels of healthy literacy
- Social exclusion, including discrimination, racism and forced removal from the natural family
- High rates of food insecurity
- Early life experiences
- Lack of access to culturally appropriate healthcare
- Homelessness
- Poorer quality and overcrowded housing
- Poorer quality water and sanitation systems
- Poorer infrastructure, including poorer road quality
- Lack of access to healthcare facilities

### 4.5 Activities

**Test your knowledge**

1. Outline one similarity and one difference between Indigenous and non-Indigenous Australians according to figure 4.28.

2. (a) According to figure 4.29, approximately what percentage of deaths occurred in the under-65 age groups for:
   (i) the Indigenous population
   (ii) the non-Indigenous population?
   (b) Suggest two reasons that might account for this difference.

3. (a) Compare the proportion of those assessing their health status as very good or excellent between Indigenous and non-Indigenous Australians according to figure 4.30.
   (b) Outline three reasons that may account for the difference identified in part (a).

4. List three diseases that Indigenous people suffer from at higher rates than non-Indigenous people.

5. (a) Explain what is meant by Syndrome X.
   (b) Suggest two ways that someone could reduce their chances of developing Syndrome X.

**Apply your knowledge**

6. List two conditions that someone with Syndrome X may be at a greater risk of developing.

7. How could not finishing school lead to poor health status? Draw a flowchart to illustrate.
8. Use biological, sociocultural and/or environmental factors to explain the following variations in health status in the Indigenous population:
   (a) higher rates of death from injuries
   (b) higher rates of infant mortality
   (c) higher rates of cardiovascular disease
   (d) higher rates of diabetes.

9. (a) What was the rate of unemployment for Indigenous Australians in 2012–13 compared with that for non-Indigenous Australians?
    (b) Make a list of the factors that could contribute to this difference.

10. Create a flow chart that illustrates how poor housing can impact on the health and wellbeing and health status of Indigenous Australians.

11. Access the Discrimination weblink and worksheet in the Resources tab in your eBookPLUS, then complete the worksheet.

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4.6 Differences between population groups — males and females

**Key Concept** The variations in health status as experienced by males and females and the factors that explain the differences

The health status of males in Australia has always been below the health status of females. There have been some improvements in recent decades, but males are still not expected to live as long as females and they experience a range of conditions at higher rates than their female counterparts.

### 4.6.1 Key differences in health status

Although the life expectancy for males has been steadily increasing, they are still more likely to die at every stage of the lifespan than females. A male baby born in 2015 is expected to have a lifespan about four years shorter than a female baby born at the same time.

According to the Australian Bureau of Statistics and the Australian Institute of Health and Welfare:

- Males have greater rates of burden of disease than females.
- Males experience higher rates of premature death than females — 62 per cent of premature deaths were experienced by males.
- Males have higher rates of injury than females. The male death rate from injury is about twice the female death rate from injury.
- Males have higher rates of deaths due to suicide, road trauma and violence.
- Males suffer higher rates of cancer. By age 75, one in three males and one in four females will have been diagnosed...
with some form of cancer, but 57 per cent of all cancer deaths occur in males. Males are also more likely to develop melanoma — by age 75, one in 22 males and one in 33 females have been diagnosed with melanoma (AIHW, *Cancer in Australia: an overview*, 2012).

- Males have higher rates of diabetes (6 per cent of males compared with 4 per cent of females) and higher mortality rates due to diabetes (1.7 times higher in males).
- Males experience higher rates of kidney disease than females.
- Males are more likely to be diagnosed with cardiovascular disease and experience heart attacks, and mortality rates due to these conditions are also higher when compared with females (185.6 and 156.9 deaths per 100,000 people respectively).
- Males have higher mortality rates from chronic obstructive pulmonary disease than females.

The types of long-term conditions suffered are similar for both males and females, although there are some areas where males fare better than females:

- Males experience lower rates of osteoporosis (see figure 3.31 in subtopic 3.5); 85 per cent of all osteoporosis cases occur in females.
- Males experience lower rates of arthritis than females (11.8 per cent of males compared to 17.7 per cent of females).
- Males report slightly fewer cases of long-term mental and behavioural problems: 12 per cent of males compared with 15.1 per cent of females in 2012.
- Males are less likely to experience very high levels of psychological distress than females (3.1 per cent and 4.3 per cent respectively).
- Males are less likely to experience a severe or profound core activity limitation than females. That is, males are less likely to 'sometimes' or 'always' need help with core activities of daily living (mobility, self-care or communication) than females.

### 4.6.2 Factors contributing to variations in the health status between males and females

A range of factors contribute to the variations in health status experienced by males and females.

**Biological factors**

The biological factors that contribute to the variations in health status experienced by males when compared to females include body weight, blood pressure, glucose regulation and genetics.

**Body weight**

Levels of obesity are the same in males and females (27.5 per cent). However, the proportion of overweight individuals is much higher in the male population (42.2 per cent of males compared with 28.2 per cent of females), contributing to higher rates of hypertension, cardiovascular disease and type 2 diabetes.

**Blood pressure**

Males are more likely to experience hypertension until they are in the 65–74 age group. From this age group onwards, females are more likely to experience hypertension. Across all age groups, 23.4 per cent of males experience hypertension compared to 19.5 per cent of females, contributing to higher rates of cardiovascular and kidney disease among males.

**Glucose regulation**

In the *Australian health survey, 2011–12* (ABS), males were more likely to experience impaired glucose regulation than females (4.1 per cent and 2.1 per cent respectively), which increases the risk of type 2 diabetes and kidney disease.

**Genetics**

Males tend to store more fat around their abdomen. This is associated with greater health risks — especially cardiovascular disease, which is more common in males in almost all countries and cultures around the world. Research is still being conducted to ascertain the exact genetic difference that leads to this variation.
Declining amounts of oestrogen at menopause have been shown to accelerate the loss of bone density in women. In males, testosterone is responsible for maintaining bone density. This difference contributes to the higher rates of osteoporosis among females over the age of 60. Whether oestrogen protects against heart disease is still a matter of debate.

Higher levels of testosterone among males have been linked to increased risk-taking behaviours contributing to the higher levels of injuries experienced compared to females (see figure 4.38).

**FIGURE 4.38** Trends in death rates for injury and poisoning, 1907–2015

![Trends in death rates for injury and poisoning, 1907–2015](image)

*Source: ABS, Causes of death, various years.*

**Sociocultural factors**

A range of sociocultural factors contribute to the variations in health status experienced by males compared to females. They include unemployment, socioeconomic status, and cultural factors.

**Unemployment**

The effects of unemployment can be particularly influential on the health status of males. Males have traditionally been the breadwinners of the family and many males feel it is their duty to provide material resources for the family. An inability to do this can make males feel inadequate and stressed, which affects mental health and wellbeing. Males who are unemployed experience greater rates of morbidity and mortality compared to unemployed females. Specifically, rates of obesity, cardiovascular disease and suicide are higher for unemployed males.

**Socioeconomic status**

According to the ABS (2014), males employed on a full-time basis earn higher incomes on average than females employed full-time ($1560.50 per week compared to $1274.40 per week). As a result, males often have a higher socioeconomic status than females, especially those who are single parents.

**Cultural factors**

A range of gender stereotypes in Australia contribute to variations in health status between males and females, including:

- Males are less likely to be carers of children. This means that some men have more opportunities for adult contact than some women. Women who provide full-time care may experience a form of social isolation, which can impact their mental health and wellbeing. Females who don’t get the opportunity to communicate with people their own age may ‘bottle up’ problems and issues, which can impact their mental health and wellbeing.

- Physically laborious jobs are generally considered to be masculine. This can increase the risk of injury in the workplace for males undertaking such jobs.

- Contact sports such as Australian Rules Football and Rugby League are generally considered to be masculine sports. These sports can increase the risk of injuries among males.
• According to the Australian Institute of Health and Welfare (2011), males may be less likely to access healthcare than females as a result of ‘social norms and values associated with a traditional view of masculinity — self-reliance, suppression of emotion and perseverance in the face of pain or discomfort’. This contributes to higher rates of morbidity and mortality among males.

• Researchers have indicated that the way the media represent beauty, especially of females, has contributed to increasing rates of eating disorders and the greater prevalence of eating disorders among females compared to males. Female beauty is often portrayed by thin models, whereas male beauty is often portrayed by muscular individuals. These representations may have an effect on eating and exercise patterns, particularly among male and female youth.

• Peer pressure can have differing impacts on males compared to females. Males may encourage traditional stereotypes among their peers when in groups with other males. This can include the use of violence to resolve conflicts, risk-taking behaviour and risky alcohol consumption. These behaviours increase the incidence of injury among males.

Environmental factors

The work environment is the main environmental factor that contributes to differences in health status between males and females.

Males are more likely to work in industries such as trades, farming and mining. The environments associated with these occupations can increase the risk of serious injury and death. These workplaces often involve the use of heavy machinery and tools, and exposure to hazardous substances such as chemicals and asbestos. As a result, males are more likely to be injured or killed at work and to develop respiratory conditions as a result of air pollution in the workplace.

Of the 190 work-related deaths recorded in 2013, 176 (92 per cent) involved male workers. The fatality rate for male workers was ten times the rate for female workers.

Males are more likely to work outside and therefore have increased exposure to UV rays. This could explain the higher rates of melanoma and other skin cancers in males.

Males are also more likely to work in transport, which can lead to extended periods of time on public roads. This increases the risk of injury and death associated with road trauma.

FIGURE 4.39 Gender stereotypes, such as different sports being considered masculine or feminine, can affect the type and risk of injuries experienced by males and females.

FIGURE 4.40 Sociocultural factors contribute to males being less likely to access healthcare than females.

FIGURE 4.41 Jobs such as mining involve a certain amount of risk.
Summary of factors contributing to variations in the health status between males and females

Figure 4.42 summarises the factors affecting the health status of males.

### Figure 4.42
The biological, sociocultural and environmental factors contributing to the health status of males

- **Biological**
  - Higher rates of overweight
  - Higher rates of hypertension
  - Impaired glucose regulation
  - Genetics, including sex and hormones
  - Impacts of unemployment
  - Higher socioeconomic status
  - Cultural influences and gender stereotypes
  - Males often work in more dangerous environments

- **Sociocultural**
  - Higher rates of injury than females
  - Higher rates of deaths due to suicide, road trauma and violence
  - Higher rates of cardiovascular disease and many types of cancer
  - Higher rates of diabetes and kidney disease
  - Higher rates of chronic obstructive pulmonary disease
  - Lower rates of osteoporosis and arthritis
  - Lower rates of mental and behavioural problems
  - Less likely to experience very high levels of psychological distress
  - Less likely to experience a core activity limitation

- **Environmental**
  - Life expectancy around four years less than females
  - Higher rates of burden of disease
  - Higher chance of death at each stage of the life span
  - Higher rates of injury than females
  - Higher rates of deaths due to suicide, road trauma and violence
  - Higher rates of cardiovascular disease and many types of cancer
  - Higher rates of diabetes and kidney disease
  - Higher rates of chronic obstructive pulmonary disease
  - Lower rates of osteoporosis and arthritis
  - Lower rates of mental and behavioural problems
  - Less likely to experience very high levels of psychological distress
  - Less likely to experience a core activity limitation

### Activities

**Test your knowledge**

1. What is the difference in life expectancy between males and females?
2. List two conditions that females are more likely to report suffering from.
3. (a) Identify two trends shown in figure 4.38.
   (b) Explain possible reasons for these trends.
4. Explain why females experience higher rates of osteoporosis than males.
5. Explain why males may experience more detrimental effects on their health status than females when unemployed.

**Apply your knowledge**

6. Provide three reasons that might account for the higher death rates due to injuries in males.
7. Males are more likely to be overweight than females. Which conditions does this put males at higher risk of developing?
8. Which factors may explain the following?
   (a) Males have higher rates of diabetes.
   (b) Males experience higher rates of cancer.
   (c) Females report higher rates of long-term mental and behavioural problems.
   (d) Males are less likely to access healthcare than females.
4.7 Differences between population groups — high and low socioeconomic status groups

**KEY CONCEPT** The variations in health status as experienced by low socioeconomic groups and the factors that explain the differences

People in the highest socioeconomic status (SES) groups tend to have more choices and resources available to them and therefore enjoy better health status. People in the lowest socioeconomic status groups are at the other end of the spectrum. Health status tends to improve for each step taken towards the highest socioeconomic status level (see figure 4.43).

**FIGURE 4.43** The social gradient

4.7.1 Key differences in health status

People living in lower socioeconomic status groups have:
- lower life expectancy (life expectancy is around three years lower for the most disadvantaged groups)
- greater burden of disease for both fatal and non-fatal outcomes (see table 4.1)
- mortality rates 1.3 times higher than the higher socioeconomic status groups
- higher infant mortality rates
- higher rates of disability
- higher mortality rates from cardiovascular disease, lung cancer, type 2 diabetes, respiratory diseases and injuries
- a greater rate of potentially avoidable deaths (see figure 4.44). Potentially avoidable deaths are those deaths that might have been avoided through prevention, or through treatment, within the current health system. Examples include deaths due to road traffic accidents, lung cancer, diabetes and skin cancer (AIHW 2014).

Low socioeconomic status groups also experience higher rates of morbidity relating to a range of conditions (see table 4.2), specifically:
- higher rates of cardiovascular disease
- twice the rate of type 2 diabetes
- higher rates of mental and behavioural problems
- higher rates of arthritis
- higher rates of mental and behavioural problems
- higher rates of asthma and chronic obstructive pulmonary disease (COPD).
### TABLE 4.1 DALY, YLL and YLD counts, age-standardised rates and rate ratios, by socioeconomic status, 2011

<table>
<thead>
<tr>
<th>Socioeconomic group</th>
<th>Total burden</th>
<th>Non-fatal burden</th>
<th>Fatal burden</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DALY ('000)</td>
<td>Age-standardised rate (per 1000 people)</td>
<td>Rate ratio*</td>
</tr>
<tr>
<td>Quintile 1 (lowest)</td>
<td>1067</td>
<td>230.2</td>
<td>1.5</td>
</tr>
<tr>
<td>Quintile 2</td>
<td>1020</td>
<td>212.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Quintile 3</td>
<td>922</td>
<td>192.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Quintile 4</td>
<td>800</td>
<td>173.0</td>
<td>1.2</td>
</tr>
<tr>
<td>Quintile 5 (highest)</td>
<td>708</td>
<td>149.7</td>
<td>1.0</td>
</tr>
<tr>
<td>Australia</td>
<td>4494</td>
<td>189.9</td>
<td>2224</td>
</tr>
</tbody>
</table>

* The rate ratio indicates how many DALY, YLL or YLD were contributed in each area for every 1 DALY, YLL or YLD that was contributed by those in the highest socioeconomic group. For example, a rate ratio of 1.5 for total DALY for those in Q1 (the lowest socioeconomic group) indicates that for every 1 DALY contributed by those in the highest socioeconomic group, there were 1.5 DALY contributed by those in the lowest socioeconomic group.


Quintiles are used when the population has been broken into fifths. Each fifth refers to 20 per cent of the population. In table 4.1, the first quintile refers to the most disadvantaged fifth of the population with regards to socioeconomic position.

### TABLE 4.2 Inequalities in certain chronic conditions

<table>
<thead>
<tr>
<th>Year</th>
<th>Lowest socioeconomic group (%)</th>
<th>Highest socioeconomic group (%)</th>
<th>Rate ratio: lowest/highest socioeconomic group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis (2014–15)</td>
<td>19.7</td>
<td>12.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Asthma (2014–15)</td>
<td>12.8</td>
<td>9.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Back problems (2014–15)</td>
<td>18.9</td>
<td>15.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Chronic kidney disease (2011–12)</td>
<td>13.5</td>
<td>8.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Coronary heart disease (2011–12)</td>
<td>5.0</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Diabetes (2014–15)</td>
<td>8.2</td>
<td>3.1</td>
<td>2.6</td>
</tr>
<tr>
<td>Lung cancer incidence (2006–09)</td>
<td>52 per 100 000</td>
<td>33 per 100 000</td>
<td>1.6</td>
</tr>
<tr>
<td>Mental and behavioural problems (2014–15)</td>
<td>21.5</td>
<td>15.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Oral health rated as fair or poor (2010)</td>
<td>31.2</td>
<td>12.2</td>
<td>2.6</td>
</tr>
<tr>
<td>Stroke (2014–15)</td>
<td>1.1</td>
<td>0.5</td>
<td>2.2</td>
</tr>
</tbody>
</table>

**Source:** AIHW, *Australia’s health 2016*, page 184.
4.7.2 Factors contributing to variations in health status between those with high and low socioeconomic status

People from low socioeconomic status groups tend to have poorer health status because they experience higher levels of risk factors for most health indicators.

Biological factors

The biological factors that contribute to the variations in health status among low socioeconomic groups compared to the rest of the population include body weight, blood pressure, glucose regulation and birth weight.

Body weight

Obesity rates are higher for those in low socioeconomic status groups. As socioeconomic disadvantage increases, so does the rate of overweight/obesity (see figure 4.45). This contributes to lower life expectancy largely due to the increased rates of death from conditions such as cardiovascular disease and type 2 diabetes.

**Blood pressure**
Rates of hypertension are higher among low socioeconomic status groups (26 per cent compared to 21 per cent in the highest socioeconomic group). This contributes to higher rates of cardiovascular disease and higher rates of premature death.

**Glucose regulation**
Rates of impaired glucose regulation are higher among low socioeconomic status groups. This contributes to higher rates of type 2 diabetes and kidney disease.

**Birth weight**
Women experiencing socioeconomic disadvantage are more likely to give birth to low birth weight babies. Babies born into low socioeconomic status families in 2013 were 30 per cent more likely to have a low birth weight compared with those of high socioeconomic status (7.5 per cent compared with 5.6 per cent respectively). This contributes to higher rates of under-five mortality, infection and disability among low socioeconomic groups.

**Sociocultural factors**
A range of sociocultural factors contribute to the variations in health status experienced by low socioeconomic groups, including education and income, unemployment, social exclusion, food security, early life experiences, and access to healthcare.

**Education and income**
People in low socioeconomic status groups have lower educational attainment, lower incomes and jobs with lower social status. These factors are interrelated and all influence higher rates of risky behaviours such as unhealthy food intake, smoking, lack of physical activity, and lower likelihood of accessing healthcare (see figure 4.46). Such factors in turn influence the lower health status experienced by these groups including lower life expectancy, higher morbidity rates and higher mortality rates.

**FIGURE 4.46** Prevalence of smoking, lack of physical activity and inadequate fruit consumption by socioeconomic status groups, 2014–15

![Graph showing prevalence of smoking, lack of exercise, and inadequate fruit consumption by socioeconomic status groups.](source: Adapted from ABS, National health survey 2014–15.)
According to the AIHW (2012), those in low SES groups have lower health literacy rates than those in higher SES groups; 55 per cent of the population in the highest SES group had at least an adequate level of health literacy compared with 26 per cent of those in the lowest group.

This difference contributes to the higher rates of risk factors displayed, such as lower rates of healthcare usage (including during pregnancy) for those in low SES groups. This contributes to more conditions going undiagnosed and untreated, which partly explains the higher rates of morbidity and mortality experienced among low SES groups, including among pregnant women and children.

Those in lower socioeconomic groups may also feel that they have less control over their lives (including in relation to finances, work and health status), and this can contribute to a sense of helplessness and a reluctance to modify risk factors such as smoking. This contributes to higher rates of premature mortality and lower life expectancy.

**Unemployment**

People experiencing socioeconomic disadvantage are more likely to be unemployed. As already explored, those who are unemployed are also more likely to experience poor health status. This can lead to unemployment, creating a cycle between unemployment and poor health status. There is a relationship between unemployment, risk-taking behaviours and impacts on health status (see figure 4.48).

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**FIGURE 4.47** Education comes in many forms and is related to health outcomes.

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**FIGURE 4.48** Prevalence of health related factors by employment status, people aged 25–64 years, 2007–08

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**Source:** Adapted from AIHW, *Australia’s health 2010* and ABS, *National health survey 2014–15.*
Social exclusion
Socioeconomic disadvantage can also lead to social exclusion. Those who are socially excluded experience poorer physical and mental health and wellbeing than those who are socially connected.

Food security
People living with socioeconomic disadvantage are more likely to experience food insecurity. Lack of financial resources can lead to an inability to afford nutritious foods. Research suggests that healthy food options are often more expensive and harder to access in areas of socioeconomic disadvantage (DHS, 2010), which adds to the insecurity of the food supply to these groups.

Higher rates of obesity and lower rates of fruit and vegetable consumption are often the product of food insecurity. This can contribute to higher rates of cardiovascular disease, diabetes and some types of cancer. Those with low socioeconomic status may also lack sufficient knowledge of what constitutes healthy eating.

Early life experiences
Early life experiences impact those in low socioeconomic groups in a number of ways. According to the AIHW (2012), mothers in the lowest socioeconomic status groups were more than four times as likely to have smoked in pregnancy than those in the highest socioeconomic status groups (23 per cent and 5 per cent respectively). This contributes to higher rates of respiratory conditions such as asthma, low birth weight among babies, and higher infant and under-five mortality rates for those born to mothers living in low socioeconomic environments.

Women from the lowest socioeconomic areas were more likely to begin antenatal care later in pregnancy, and to be overweight or obese in pregnancy, than women from the highest socioeconomic areas. They were also more likely to give birth early (or pre-term) to babies of low birth weight than women from the highest socioeconomic areas, contributing to the higher U5MR experienced by these groups.

Access to healthcare
People from low socioeconomic status groups are also less likely to access preventative health services such as BreastScreen and cervical screens. This can lead to health conditions going undiagnosed. As a result, fewer treatment options are available once a diagnosis is made, contributing to higher rates of mortality from conditions such as breast and cervical cancer.

Those with low socioeconomic status are less likely to have private health insurance, with 75.7 per cent of the most disadvantaged not having private health insurance compared with 28.8 per cent of the most advantaged. This can contribute to psychological distress and extend waiting times for surgery, which can increase rates of morbidity and mortality.

Environmental factors
A range of environmental factors influence the variations in health status between high and low socioeconomic groups, including geographic location, housing, and the work environment.

Geographic location
Suburbs where socioeconomic disadvantage is greater are often the suburbs with the highest number of fast-food outlets. Fast food is generally higher in fat, salt and sugar than other options (see the following case study on a fat tax). Living in close proximity to such outlets may increase the likelihood of people consuming these foods, contributing to higher rates of obesity and associated conditions. People in low socioeconomic status groups are often less educated about healthy eating and may be more likely to be influenced by marketing.

According to VicHealth (2015):

It is clear that disparities in sports and recreational facilities exist according to neighbourhood-level SES. For example, a study of public open space in neighbourhoods of low and high SES in Victoria found little variation in the number of playgrounds or leisure facilities according to SES. However, public open space in high SES neighbourhoods were of higher quality than in low SES neighbourhoods.
in terms of amenities and aesthetics, such as picnic areas, foliage (provision of shade), water features, walking and cycling paths.

This contributes to lower rates of physical activity in lower socioeconomic groups, which in turn contributes to many variations in health status when compared to those living in higher socioeconomic areas.

According to the 2010 General social survey (ABS), people living in areas with the highest SES were more likely to feel safe or very safe at home alone both during the day and at night (88 per cent) than those living in the lowest SES areas (72 per cent). Those living in areas with the highest SES were more likely to report feeling safe or very safe (71 per cent) walking in their local area at night than those living in areas with the lowest SES (41 per cent). Lower feelings of safety in the home and neighbourhood can increase anxiety and stress, and contribute to higher rates of mental health issues among low socioeconomic status groups.

CASE STUDY

Why a fat tax is not enough to tackle the obesity problem

We often hear calls for a junk food tax or ‘fat tax’ when there’s discussion of Australia’s growing obesity problem. The idea behind such a tax is that it would enable governments to subsidise healthy foods so that they’re more affordable, and make unhealthy foods comparatively expensive so people buy less of them.

But would they really? Is cost really the most powerful determinant of what food products people buy?

Let’s consider the likely effects of a junk food tax. Researchers claim that a 20 per cent tax on a can of soft drink would be a sufficient deterrent to purchasing it.

It’s easy to visualise this: someone approaches the refrigerator in a convenience store wanting to buy a drink and ready to make a decision based on taste and cost. If a soft drink is more expensive than low-fat milk or water, it becomes less attractive and we could see a change in buying behaviour — and the attendant reduction in the consumption of obesity promoting products.

But the junk food tax idea falls over in other situations where food choices are made — when factors other than price come into play. Family dinner options, for instance, are rarely arrayed together in one location for a simple price comparison.

In lower income areas, where obesity is disproportionately more common, main roads are lined with takeaway food outlets and the only greengrocer may not have a car park (let alone a drive-through service). Part of the attraction of takeaway food is that it provides instant satisfaction while demanding little in the way of (cooking) skills or (nutritional) knowledge.

Dinner options that require food preparation may be out of the question for people living in housing with inadequate cooking and food storage facilities. So, although I can prepare a vegetable and lentil curry with brown rice, followed by apple crumble with real egg custard, for a total of $3.39 per person, in disadvantaged communities this might not compare favourably with the ‘Five-dollar Meal Deals’ offered by various takeaway chains, even if the meals were taxed until they became ‘Ten-dollar Meal Deals.’

FIGURE 4.49 Most meal options are not arrayed together for a simple price comparison.
And regardless of the price, it may be hard to sell my healthy $3.39 meal to someone accustomed to takeaway’s addictively sweet and salty and fatty flavours, low in vegetables and high in melt-in-the-mouth starches.

When people claim that healthy food is expensive, they are sometimes simply observing that processed foods labelled ‘diet’ are priced higher, or that high-energy junk foods supply more (unneeded) calories per dollar than vegetables do. Both claims are true, but trivial.

But sometimes they are actually pointing out, correctly, that the real cost of my meal is more than $3.39 — that, unlike the takeaway alternative, this home-cooked dinner cost nearly an hour of my time. An hour that I might not be inclined to spare if I were tired and footsore from a hard low-income job and trying to feed fractious children as soon as possible.

And that my home-cooked meal required a number of different skills and resources I might take for granted, such as cooking ability and a functional kitchen. And that it would cost more than $50 if I had to fund the startup cost of all the ingredients — the kilogram of flour and the bottle of oil, and so on — instead of just using (and costing) smaller amounts of items I already had.

My $3.39 meal is very nutritious. Unlike the takeaway meal, it provides the full spectrum of essential vitamins and minerals, as well as beneficial fibre and health-protective plant substances, at around 2800 kJ per serve. Five-dollar meal deals, on the other hand, typically overfeed, with one meal providing 4300 kJ or more (over half of a day’s requirement), as well as less protein and more fat than my version.

Better food labelling might help consumers realise this. But labelling also works best when your options are equally convenient and equally available, sitting side by side for comparison on the supermarket shelf or a food outlet’s menu. When this is not the case, labelling loses much of its power to influence food choices. Just as price manipulation strategies, such as a ‘fat tax’, do.

Efforts to combat obesity need to look beyond simple pricing strategies, to the underlying knowledge and skills that influence food choices. Just as physical activity is now compulsory at school, basic cooking (real basics, not just biscuits and pizza) should be an integral part of the personal development and life skills curriculum for all kids.

And rather than merely requiring a sink and food preparation area as they do now, building codes need to be updated so that adequate cooking facilities are mandatory in all dwellings. Communal kitchens are another suggestion worth considering.

An emphasis on improving skills means that rather than just punishing poor food choices, we equip people to make better ones — every day at home, not just in the convenience store.

Source: Suzie Ferrie, The Conversation online, 2 July 2016.

Case study review
1. (a) What is the idea behind a ‘fat tax’?
   (b) Explain how this may assist in addressing obesity among low socioeconomic groups.
2. What is ‘part of the attraction of takeaway food’?
3. Outline the sociocultural and environmental factors that contribute to poorer food intake in low socioeconomic areas identified in the article.
4. Outline the changes required to promote healthy eating among low socioeconomic groups identified in the article.
Housing
People of low socioeconomic status may not be able to afford high quality housing. As a result, they may experience:
• overcrowding, which can put strain on sanitation facilities, resulting in an increased rate of infection. Overcrowding can also result in increased rates of psychological distress and mental health disorders.
• inadequate cooking facilities, which can lead to a reliance on processed foods, contributing to higher rates of obesity and associated conditions
• an unsafe physical environment due to hazards such as inadequate ventilation and fire hazards such as unserviced heating appliances and lack of smoke detectors, which increase the risk of injuries and respiratory conditions such as asthma
• closer proximity to industrial sites. This can increase the level of noise pollution, which can contribute to anxiety and stress.

As smoking rates are higher among low socioeconomic groups, children and non-smoking adults in these groups have an increased risk of exposure to environmental tobacco smoke. This increases the risk of sudden infant death syndrome (SIDS), respiratory diseases such as asthma and other conditions, including cancer and cardiovascular disease. According to AIHW data (2016), children living in households in the lowest SES areas were nearly four times as likely as those in the highest SES areas to be exposed to tobacco smoke in the home (7.2 per cent compared with 2 per cent).

Work environment
People living in socioeconomic disadvantage are more likely to work in jobs that have dangerous working environments, such as factories and manufacturing plants, and involve exposure to toxic substances and heavy machinery. This may contribute to higher rates of illness, injury, respiratory conditions and some cancers.

Summary of factors contributing to variations in the health status between those with high and low socioeconomic status
Figure 4.51 summarises the factors affecting the health status of high and low socioeconomic groups.
4.7 Activities

Test your knowledge
1. Identify three differences in health status between low and high socioeconomic status groups.
2. What relationship exists between socioeconomic status and health status?
3. Identify two trends from figure 4.44 and suggest possible reasons for the trends.
4. From table 4.2, which condition shows the biggest difference between high and low socioeconomic status?
5. What is a quintile?
6. Explain the differences in rates of overweight/obesity for lowest and highest quintiles of socioeconomic advantage as shown in figure 4.45.
7. Refer to figure 4.46 to answer these questions.
   (a) What percentage of the most socioeconomically advantaged quintile are smokers and physically inactive? How does this compare with the most disadvantaged quintile?
   (b) Outline socioeconomic and environmental factors that contribute to the differences identified in part (a).

Apply your knowledge
8. Making reference to biological, sociocultural and environmental factors, discuss why people from lower socioeconomic status groups are more likely to suffer from mental and behavioural problems.
9. Using data from table 4.1, explain how one biological, sociocultural and environmental factor may contribute to the relationship between socioeconomic status and the rate ratio of total burden of disease.
10. Suggest possible reasons why people from lower socioeconomic status groups may experience higher rates of infant mortality.
11. Many health services (such as screening for breast and cervical cancers) are available free through Medicare, yet people from low socioeconomic status groups are less likely to use them. Suggest possible reasons for this.
12. People who are born into low socioeconomic status families are more likely to belong to low socioeconomic status groups later in life. Draw a cycle diagram illustrating how this may occur.
13. Select two factors from each category presented in figure 4.51 and discuss the likely impact on health status for each one.
14. Why might people with a low socioeconomic status be less likely to take notice of health promotion messages?
15. Discuss variations in health status that may arise as a result of low socioeconomic status and unemployment.

4.8 Differences between population groups — those living within and outside of Australia’s major cities

KEY CONCEPT

The variations in health status as experienced by those living within and outside of Australia’s major cities and the factors that explain the differences

The vast landscape in Australia poses many challenges for its inhabitants. As well as factors influenced by the remoteness in which some people live, such as access to services and social isolation, many people
living outside of major cities also experience challenges from the natural environment, such as droughts, bushfires and floods.

Overall, people living outside major cities experience worse health status than their urban counterparts. Many people who live outside major cities are of Indigenous background (21 per cent of Indigenous Australians live in remote areas compared to 2 per cent of non-Indigenous Australians) and are also more likely to be of lower socioeconomic status. This means that many of the health concerns for people of Indigenous and low socioeconomic status are carried over to those living outside major cities.

Classifying people based on geographical location is difficult in Australia as a result of the various landscapes and characteristics of this vast country. For the sake of this course, the population living inside major cities relates to those living in cities classified as ‘major cities’ according to the Australian Bureau of Statistics. In Victoria, this includes Melbourne and Geelong. In other states, major cities are Sydney, Newcastle, Wollongong, Tweed Heads and the Tweed Coast, Brisbane, most of the Gold Coast and much of the Sunshine Coast, Adelaide, Perth, and Canberra and Queanbeyan. Hobart and Darwin are not included in the major cities group.

‘Those living outside major cities’ relates to those in or near regional centres (such as Hobart, Darwin, Bendigo and Ballarat) and those in remote and very remote areas (such as Genoa and Murrayville; note that, unlike other states, Victoria contains no ‘very remote’ areas). As this definition encompasses many different groups, the variations in health status between those living outside major cities is considerable. Using this classification, about one-third of Australia’s population lives outside of major cities (AIHW, 2016): 18 per cent in Inner regional areas, 8.9 per cent in Outer regional areas, 1.4 per cent in Remote areas and 0.9 per cent in Very remote areas.

**4.8.1 Key differences in health status**

Health status decreases as remoteness increases, so those living in remote areas generally experience poorer health outcomes than those living in regional areas.

Those living outside major cities experience the following differences in health status when compared to their major city counterparts:

- lower life expectancy (life expectancy decreases as the level of remoteness increases: one to two years less for rural areas and up to seven years less for remote areas)
- higher burden of disease from both fatal and non-fatal causes. The rate of DALY attributed to each group increases with remoteness (see table 4.3).
- mortality rates 1.4 times higher than those in major cities
- higher rates of preventable cancers (lung, melanoma and detectable cancers, such as cervical cancer)
- higher death rates from cardiovascular disease, including coronary heart disease
- higher rates of avoidable deaths
- higher rates of injury, including a mortality rate 4 times higher than those in major cities for land transport accidents
- higher rates of diabetes
- higher rates of arthritis
- higher rates of suicide
• higher rates of asthma and chronic obstructive pulmonary disease
• higher rates of dental decay.

As can be seen in figure 4.53, the DALY age-standardised rate for many conditions increases with remoteness.

**TABLE 4.3** DALY, YLL and YLD counts, age-standardised rates and rate ratios, by remoteness, 2011

<table>
<thead>
<tr>
<th>Remoteness area</th>
<th>Total burden</th>
<th>Non-fatal burden</th>
<th>Fatal burden</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DALY (’000)</td>
<td>Age-standardised rate (per 1000 people)</td>
<td>Rate ratio*</td>
</tr>
<tr>
<td>Major cities</td>
<td>2961</td>
<td>181.4</td>
<td>1.0</td>
</tr>
<tr>
<td>Inner regional</td>
<td>950</td>
<td>205.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Outer regional</td>
<td>456</td>
<td>206.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Remote</td>
<td>73</td>
<td>242.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Very remote</td>
<td>52</td>
<td>300.8</td>
<td>1.7</td>
</tr>
<tr>
<td>Australia</td>
<td>4494</td>
<td>189.9</td>
<td></td>
</tr>
</tbody>
</table>

* The rate ratio indicates how many DALY, YLL or YLD were contributed in each area for every 1 DALY, YLL or YLD that was contributed by those in major cities. For example, a rate ratio of 1.7 for total DALY for those in very remote areas indicates that for every 1 DALY contributed by those in major cities, there were 1.7 DALY contributed by those in very remote areas. The rate ratios are scaled to the number of people living in each area and therefore provide a fair way of comparing the total contribution in each area.

**Source:** AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, page 86.

**FIGURE 4.53** Age-standardised DALY rate (per 1000 people) of the top 10 diseases, by remoteness, 2011

**Source:** AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, page 95.
4.8.2 Factors contributing to variations in health status for those living within and outside of Australia’s major cities

A number of factors contribute to poorer health status due to the location in which people live. People living outside Australia’s major cities experience a range of environmental risk factors as well as higher rates of many biological and sociocultural risk factors.

**Biological factors**

The biological factors that contribute to the variations in health status experienced by those living outside of Australia’s major cities include body weight, blood cholesterol, glucose regulation, birth weight, and blood pressure.

**Body weight**

Overweight and obesity levels are higher in those living outside of major cities (about 10 per cent higher than in major cities). This puts this group at higher risk of developing type 2 diabetes, cardiovascular disease and some cancers.

**Blood cholesterol**

Those living outside of major cities are 10 per cent more likely to experience high blood cholesterol than their city-dwelling counterparts. This contributes to the higher rates of cardiovascular disease, including hypertension, experienced by those living outside Australia’s major cities.

**Glucose regulation**

People living outside of major cities are more likely to experience impaired glucose regulation than those in major cities, and the rate increases with remoteness. This raises the risk of conditions such as type 2 diabetes and kidney disease.

**Birth weight**

The percentage of low birth weight infants is higher in remote and very remote areas (about 8.4 per cent) compared with rates for those in major cities (6 per cent in 2009). This may in part be attributable to higher maternal smoking rates among those living outside of Australia’s major cities.

**Blood pressure**

People living outside of major cities experience higher rates of hypertension (1.2 times the rate of those in major cities). This increases the risk of cardiovascular disease and contributes to the higher burden of disease seen in these areas.

**Sociocultural factors**

The sociocultural factors that contribute to variations in health status among people living outside of Australia’s major cities include socioeconomic status, unemployment, access to healthcare, food security, early life experiences, and social isolation.

**Socioeconomic status**

Over half of outer regional, remote, and very remote residents live in areas of socioeconomic disadvantage, while the corresponding figure in major cities is about one-quarter. Limited opportunities for education and employment account for part of this difference. This contributes to higher rates of risky behaviours such as smoking and low levels of physical activity. These in turn influence health status outcomes such as rates of preventable diseases, including cancer and cardiovascular disease and lower life expectancy.

People living outside Australia’s major cities are more likely to rely on social security payments than those in major cities, indicating that more people struggle financially in rural and remote areas. This can impact on access to an adequate food supply and healthcare.

**Unemployment**

People living outside Australia’s major cities experience higher rates of unemployment compared with those in major cities. Unemployment is one aspect that results in people from rural and remote areas experiencing
lower socioeconomic status, which in turn contributes to lower health status.

**Access to healthcare**

Outside Australia's major cities, it is much more difficult to access healthcare professionals. According to the Australian Bureau of Statistics (2014), in 2011 the proportion of GPs in major cities was twice that of remote areas (227.8 compared to 113.0 per 100,000), and considerably higher than the ratio of GPs in rural areas (144.9 per 100,000). This further reduces access to GPs for those in rural and remote areas, and contributes to higher morbidity and mortality rates. In addition, if specialist health services are required or hospitalisation is needed, family members often have to take time off work to transport those who are ill to these services. This adds additional costs and increases the level of stress and anxiety experienced.

**Food security**

People in rural and remote areas are 1.2 times more likely to experience food insecurity than their city counterparts. This is largely due to high costs and lack of access. Transporting food to remote areas adds significant costs, particularly to fresh foods. This can lead to the consumption of more processed food items with a long shelf life such as canned and packaged foods, which often have high levels of fat, salt and/or sugar. This can contribute to higher rates of obesity, type 2 diabetes and cardiovascular disease.

**Early life experiences**

According to AIHW data (2012), about one-third (36 per cent) of mothers in very remote areas who gave birth in 2009 smoked during pregnancy — three times the percentage in major cities (11 per cent). This contributes to higher rates of low birth weight babies, babies with asthma, and infant and under-five mortality.

**Social isolation**

People living outside Australia’s major cities often have higher rates of community participation and feel like they are part of a community, but they may still be socially isolated due to geographic distances. Social isolation results from a lack of contact with other people such as family, neighbours and friends. Social isolation contributes to higher rates of mental health disorders and suicide as the individual may experience feelings of loneliness and have no-one to talk to in times of trouble.

**Environmental factors**

Factors within the physical environment that contribute to variations in health status for people living outside Australia’s major cities include infrastructure, geographic location, climate and climate change, and work environments.

**Infrastructure**

In rural and remote areas, roads are generally in poorer condition, driving times and distances are longer, wildlife is more likely to cross the path of vehicles, and roads may be poorly lit at night. All of these factors contribute to higher mortality and morbidity rates due to injuries in these areas.
Many communities in remote areas do not have access to mains water supplies from towns or cities, which is often fluoridated. Non-fluoridated water supplies can increase dental health issues such as dental caries.

**Geographic location**
Proximity to resources is a significant challenge for many living outside of major cities.

The location of health services can influence whether a person living outside major cities can access healthcare in times of need. Conditions can go undiagnosed and untreated, which can increase morbidity and mortality rates.

The area in which a person lives may determine the type of foods that they can access. Living in remote areas may make it difficult to access fresh food items such as fish, fruit and vegetables. As a result, some people may rely on processed foods, which are often higher in fat, salt and sugar. This can increase the risk of overweight, obesity, cardiovascular disease and type 2 diabetes.

Those living outside Australia’s major cities also experience geographical barriers to recreation facilities, transport and employment opportunities. This can contribute to a range of issues such as low socioeconomic status, unemployment, increased risk of morbidity and mortality, and lower life expectancy. Geographical isolation also contributes to social isolation, a sociocultural factor that was explored in the previous section.

**Climate and climate change**
People living in rural and remote areas may experience greater hardship in regard to climate. Droughts, floods and fires can disrupt farmers and lead to unstable income. This in turn lowers socioeconomic status and increases stress levels. Climate change is also predicted to have a greater impact on those living in rural and remote areas compared to those in major cities (Climate Commission, 2011). Increased frequency of natural disasters such as fires, floods and droughts can affect health status by increasing the risk of injuries and mental health disorders. The relative isolation of people in remote areas can particularly reduce access to support services to deal with climate change.

Rainfall patterns in many parts of Australia are unpredictable. For example, from 2000 until about 2012, many parts of south-eastern Australia, including Victoria, experienced ongoing drought. This reduced the availability of water for agriculture and livestock, which affected the livelihoods of those living in many rural and remote areas. Mental health disorders increased during this time, as did rates of self-harm.

**Work environments**
Common occupations in rural and remote areas include farming, mining and fishing. All of these industries have certain risks (including a higher risk of injuries) associated with the physical environments in which they occur. According to the AIHW (2005), an undersupply of work may mean that workers accept working conditions that are more hazardous. Many jobs in rural and remote areas are based outdoors, which can increase UV exposure and the incidence of skin cancer.

**Summary of factors contributing to variations in health status for those living within and outside of Australia’s major cities**

Figure 4.56 summarises the factors affecting the health status of those living within and outside of Australia’s major cities.
Those living outside of Australia’s major cities

**Biological**
- Higher rates of overweight and obesity
- High blood cholesterol
- Impaired glucose regulation
- Higher rates of low birth weight babies
- Higher rates of hypertension

**Sociocultural**
- Lower incomes
- Less access to education
- Higher rates of unemployment
- Fewer healthcare professionals
- Higher levels of social isolation
- Food insecurity
- Early life experiences including higher rates of maternal smoking

**Environmental**
- Poorer road quality
- Poorly lit roads
- Greater driving distances
- Reduced proximity to resources such as healthcare, transport, recreation facilities, supermarkets, and employment
- Greater exposure to harsh climates and the effects of climate change
- Less access to fluoridated water
- More dangerous working environments
- Lower incomes
- Less access to education
- Higher rates of unemployment
- Fewer healthcare professionals
- Higher levels of social isolation
- Food insecurity
- Early life experiences including higher rates of maternal smoking

**4.8 Activities**

**Test your knowledge**

1. Outline the relationship between health status and remoteness.
2. Approximately what percentage of Australians live in areas that would be classified as major cities?
3. List three health status concerns of people living outside of major cities in Australia.
4. (a) Why might some families living outside of major cities in Australia rely on processed foods to feed themselves?
   (b) What is the disadvantage of relying on processed foods? How can they impact health status?
5. Using data, outline one trend in relation to the burden of disease and remoteness as shown in table 4.3.

**Apply your knowledge**

6. (a) What proportion of Indigenous people live in remote areas compared to non-Indigenous people?
   (b) Explain how this difference impacts health status data for those living outside of Australia’s major cities.
7. What role does the natural environment play in the health status of people living outside of major cities in Australia?
8. Would you expect the health status of those living outside of major cities in Victoria to be better than the health status of those living outside of major cities in Western Australia? Justify your response.
9. How could access to GPs be improved for people living outside of major cities in Australia?
10. Why is providing healthcare for people living outside of major cities a constant challenge for countries such as Australia?
11. With a partner, brainstorm some ideas that could equalise the differences in health status between people living outside of major cities compared to those living in major cities.
12. Discuss two biological, two socioeconomic and two environmental factors that may contribute to higher rates of cardiovascular disease for people living outside of major cities in Australia.
13. Referring to table 4.3, discuss three reasons that may account for the relationship between remoteness and the rate ratio of the fatal component of burden of disease.
14. Access the Losing the farm weblink and worksheet in the Resources tab in your eBookPLUS, then complete the worksheet.
15. Access the Geography and health status weblink and worksheet in the Resources tab in your eBookPLUS, then complete the worksheet.

4.9 Topic 4 review
4.9.1 Key skills

**KEY SKILL** Analyse patterns in morbidity and mortality in Australia over time

This skill requires the ability to analyse patterns in both morbidity and mortality over time. Analysis is a skill that requires careful examination of patterns presented in data. Often, data are provided to assist in demonstrating this skill. Possible reasons to explain patterns may also be required.

Relevant WHO prerequisites (explored in topic 1) and factors explored in topics 2 and 3 can be used to explain patterns in morbidity and mortality over time.

The following example analyses patterns in the under-five mortality rate for Indigenous and non-Indigenous children over time (see figure 4.57).

The rate for Indigenous children fluctuated over time, but decreased overall from around 220 per 100,000 people in 1998 to around 160 per 100,000 in 2014. For non-Indigenous, the rate remained more stable and decreased gradually from around 115 per 100,000 in 1998 to around 75 per 100,000 in 2014.¹

Once the patterns in mortality are discussed, an explanation of possible reasons for the trends may be required. Read the question carefully to ensure the reasons are appropriate to the focus of the question. In this example, the decrease in under-five mortality rates in Australia is the focus of the discussion, and reasons for the difference in under-five mortality rates between Indigenous and non-Indigenous Australians will not receive marks as this information is not relevant here.

Source: AIHW, Australia’s health 2016, page 229.

Possible reasons for this change in under-five mortality rates over time could include:

Education — education relating to maternal nutrition and the importance of maternal healthcare may have improved over time. This can mean that babies are more likely to develop optimally, which decreases the under-five mortality rate.

Access to healthcare — improvements in access to and quality of healthcare can mean that conditions may be prevented more easily, and this may have contributed to decreased under-five mortality rates in Australia over time.

Practise the key skill
1. Describe the pattern in the prevalence of diabetes as shown in figure 4.58.
2. Identify two factors and explain how each may have contributed to the pattern described in question 1.

FIGURE 4.58 Prevalence of diabetes over time

Source: AIHW, Diabetes indicators, Australia.
Analysing health information and having knowledge about the factors that contribute to the variations in health status is important so that interventions can be put in place to promote health status for all.

Analysing health information is the first step in this skill — such analysis is required to identify differences in health status and/or risk factors that exist between population groups. In addition to differences in health status and/or risk factors, health information may relate to differences between two groups over time. Information can be presented in many different forms including written text, graphs, tables and charts. Practising identifying trends, similarities and differences in health status and/or risk factors is important to develop this skill.

The possible impacts of a range of factors on health status must be understood so reasons for differences in health status can be explained. Once these are known, it is possible to identify and explain the factors that may contribute to specific differences in health status between groups.

For example, if information relating to rates of heart attacks for males and females were provided (see figure 4.59), the factors that may have led to the differences between males and females could be discussed.

Males had higher rates of heart attacks than females for each age group. For example, the rate of heart attack for males in the 35–44 age group was around 100 per 100 000 population compared to around 30 per 100 000 for females. In the 65–74 age group, the rate for males was around 1100 per 100 000 compared to around 500 per 100 000 for females in the same age group.

**FIGURE 4.59** Rates of heart attacks among people aged 25 years and over, 2013

![Graph showing rates of heart attacks by age group and gender](image)


The next step is to brainstorm all of the factors that contribute to differences in health status between males and females (see figure 4.60).
Once a list of options has been created, the ones that contribute to differences in the rates of heart attack can be used as the basis for discussion. Choose factors that are easy to discuss in terms of their relationship to heart attack.

The next step in this process is to re-read the question. Can any factors be used for the discussion, or did the question specify that particular factors (i.e. biological, sociocultural or environmental) had to be used? In this case, biological and sociocultural factors must be used in the discussion. If no types of factors are specified, it is recommended to include a mix of biological, sociocultural and/or environmental factors to demonstrate a greater level of understanding.

The conclusion can be drawn that there are numerous factors that could contribute to the differences in heart attack rates as experienced by males compared to females:

- **Biological** — males are more likely to store fat around the abdomen compared to females. Fat stored around the abdomen increases the risk of heart attack and may contribute to the difference in the rate of heart attacks experienced between males and females.9

- **Sociocultural** — gender stereotypes and peer pressure play a role in health outcomes for males compared to females. Males are often portrayed as having to be strong, and this contributes to males being less likely to access healthcare. As a result, risk factors for heart attack such as hypertension may go untreated, and this can increase the rate of heart attacks for males compared to females.10

Practise the key skill

3. Identify two trends with in the overweight/obesity rates shown in figure 4.61.
4. Using two biological, sociocultural and/or environmental factors as a basis of your discussion, discuss possible reasons for the difference in rates of overweight/obesity between Indigenous and non-Indigenous Australians.
4.9.2 Topic summary

• There are three categories of factors that influence health status: biological, sociocultural and environmental. These factors influence overall health and wellbeing and lead to variations in health status between individuals and population groups.

• Factors affecting health are interrelated and can affect each other. For example, lack of education (sociocultural) can contribute to obesity (biological) by not having the knowledge and skills to consume healthy foods.

• Biological factors include factors that usually have both genetic and lifestyle causes. Examples include body weight, blood pressure, blood cholesterol, glucose regulation, birth weight, sex, predisposition to disease, and hormones.

• High blood pressure is one of the leading contributors to the overall burden of disease in Australia.

• Excessive cholesterol production can be caused by genetics and poor diet, and elevated cholesterol levels are associated with a range of cardiovascular conditions.

• Impaired glucose regulation is becoming more common in Australia and can be thought of as a precursor to type 2 diabetes.

• Babies born with a low birth weight (under 2.5 kilograms) are more likely to have an underdeveloped immune system, making them more susceptible to infections. Low birth weight also increases the risk of some conditions later in life including hypertension, type 2 diabetes and cardiovascular disease.

• Genetic factors such as sex, predisposition to disease and hormones all play a role in putting people at greater risk of, or protecting them from, ill health.

• Sociocultural factors include socioeconomic status (SES), unemployment, social exclusion, social isolation, cultural influences, food security, early life experiences, and access to culturally appropriate, affordable healthcare.

Socioeconomic status (SES) refers to a person’s income, occupation and education in relation to others in their society. People with low socioeconomic status (SES) generally have poorer health status.

• Unemployment can lead to stress and financial hardship. People without secure employment are at higher risk of a range of health issues.

• Social exclusion occurs when a person cannot or does not participate adequately in the society in which they live. Social exclusion often forms part of a vicious cycle with other health issues such as mental illness.
• Social isolation occurs when individuals are not in regular contact with others. Social isolation increases the risk of mental health issues and psychological distress.

• Cultural influences include customs, ideas, values and traditions of particular social groups. Examples include factors relating to gender stereotypes, dietary choices, attitudes towards employment, education and healthcare, all of which impact health status.

• Food availability and affordability (called food security) has a relationship with health status. Those who cannot afford or access healthy foods are at higher risk of chronic conditions.

• Early life experiences impact health status in both the short and long term. Maternal tobacco, alcohol and drug use, and maternal nutrition and exposure to certain chemicals, bacteria and viruses during pregnancy can contribute to a range of health issues in the individual after birth and into adulthood.

• Being able to access affordable and culturally appropriate healthcare is an important part of promoting health status. Many conditions can be avoided or treated effectively with regular checkups and early diagnosis.

• Environmental factors relate to the physical environment and include housing, work environment, urban design and infrastructure, climate and climate change.

• The housing environment can promote or detract from health and wellbeing. Poor quality housing is associated with higher rates of injury, mental health problems and infectious diseases.

• Many Australians are employed and spend significant periods of time in their work environment. All working environments have associated risks. Factors such as UV exposure, accidents and injuries, and exposure to hazardous substances can all impact on health status.

• Urban design and infrastructure relate to the features and structures in the areas in which people live. They include aspects such as geographical location of resources (including healthcare), and the quality of infrastructure relating to roads and transport systems, electricity and communications systems, water and sanitation.

• Australia’s varying climates affect health status. Aspects such as extreme temperatures, rainfall patterns, and natural disasters such as bushfires, floods, droughts and high winds all affect Australian communities.

• Like all countries, Australia is experiencing a change in climate. The resulting greater extremes in climate and increased frequency of natural disasters can affect health status in numerous ways.

• Even though health status is generally good in Australia, there are certain population groups who do not share the same level of health as the rest of the population.

• Indigenous Australians, males, people from lower socioeconomic status groups and those living outside of Australia’s major cities suffer worse health status in relation to almost all health indicators.

• Indigenous people have higher death rates at every age compared with non-Indigenous people.

• The life expectancy of Indigenous people is about ten years less than that of the non-Indigenous population.

• Indigenous people suffer from cardiovascular disease, cancer, type 2 diabetes, kidney disease and asthma at significantly higher rates than the rest of the population.

• The factors that contribute to Indigenous people’s lower health status are complex, but include higher rates of low birth weight babies, overweight/obesity, poor housing conditions, low socioeconomic status and social exclusion.

• Men are more likely to die at every stage of the lifespan when compared with women.

• Males experience higher mortality rates due to cardiovascular disease, cancer, injuries and diabetes.

• Males experience lower rates of osteoporosis, arthritis and mental health disorders.

• The factors that contribute to the poor health status of males include overweight, hypertension, impaired glucose regulation, genetics, cultural stereotypes, peer pressure and work environments.

• Generally, the higher the socioeconomic status, the better the health status.

• People with low socioeconomic status have lower life expectancy and higher mortality rates than those with a higher socioeconomic status.
• People with low socioeconomic status also experience higher rates of many conditions such as cardiovascular disease, cancer and diabetes.
• Some of the factors contributing to the lower health status of those with low socioeconomic status include obesity, a higher rate of low birth weight babies, lower levels of education, poorer housing including greater exposure to environmental tobacco smoke, and less access to and use of healthcare services.
• People living outside of major cities experience higher mortality rates and higher rates of conditions such as cancers, cardiovascular disease and diabetes.
• People living outside of major cities face a number of challenges to their health and wellbeing such as the natural environment, the nature of work in these areas and geographical barriers.
• Other factors contributing to the lower health status experienced by people living outside of major cities include higher levels of obesity, dangerous occupations, social isolation, food insecurity and lack of access to healthcare services.
• People living outside of major cities consist of relatively high numbers of Indigenous Australians and people from low socioeconomic status groups, which contributes to the poorer health status of people in rural and remote areas.
4.9.3 Exam preparation

Question 1
Refer to figure 4.62 below.
(a) Outline the difference in the proportion of indigenous and non-Indigenous Australians who assess their health status as fair or poor. (1 mark)
(b) Identify two factors and explain how each contributes to the difference outlined in part (a) (4 marks)

FIGURE 4.62 Self-assessed health status among people aged 15 and over, by Indigenous status, 2012–13

Source: AIHW 2015, The health and welfare of Australia’s Aboriginal and Torres Strait Islander peoples 2015, page 83.

Question 2
Those from low socioeconomic groups experience a significantly higher U5MR than those in high socioeconomic groups.
Identify two factors and explain how each contributes to a higher U5MR among low socioeconomic groups when compared to high socioeconomic groups. (4 marks)

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