Australian Government
Australian Institute of Health and Welfare

Arthritis and other musculoskeletal conditions across the life stages

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Contents

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Abbreviations

ABS	Australian Bureau of Statistics
ACHI	Australian Classification of Health Interventions
AHS	Australian Health Survey
AIHW	Australian Institute of Health and Welfare
AOA	Australian Orthopaedic Association
CCHS	Canadian Community Health Survey
DMARD	disease-modifying anti-rheumatic drugs
bDMARD	biologic disease-modifying anti-rheumatic drugs
GPs	general practitioners
GBD	global burden of disease
ILAR	International League of Associations for Rheumatism
NHMD	National Hospital Morbidity Database
NHS	National Health Survey
NIAMS	National Institute of Arthritis and Musculoskeletal and Skin Diseases
NMDS	National Minimum Dataset
NPS	National Prescribing Service
NSAIDs	non-steroidal anti-inflammatory drugs
RR	relative risk
SDAC	Survey of Disability, Ageing and Carers
SRS	The Scoliosis Society of Australia
WHO	World Health Organization

Symbol

n.e.c.	not elsewhere classified
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data

Summary

Arthritis and other musculoskeletal conditions are common, affecting an estimated 6.1 million Australians (28% of the total population) in 2011–12. Due to their diverse nature there is considerable variation in the prevalence, treatment and management, and quality of life of people with these conditions across life stages. This report describes how arthritis and other musculoskeletal conditions affect people from five age groups: children (aged 0–15); young adults (aged 16–34); middle years (aged 35–64); older Australians (aged 65–79); and Australians aged 80 or over. Information is presented separately for the four major types of musculoskeletal conditions (osteoarthritis, rheumatoid arthritis, back pain/problems and osteoporosis) wherever possible.

Does prevalence of these conditions vary with age?

- The prevalence of arthritis (including osteoarthritis, rheumatoid arthritis and other forms of arthritis) increases steadily across life stages (from less than 1% in children aged 0–15 to 19% in people aged 35–64 and 51% in those aged 80 or over).
- Other musculoskeletal conditions (including back problems such as disc disorders, back pain/problems not further defined, osteoporosis and other conditions) affect people more consistently across life stages (increasing from 2% in children to 12% in young people, before settling to 14–19% in those aged 35 or over).
- The prevalence of osteoporosis increases sharply in those aged 65 and over (from 3% in people aged 35–64, to 12% in people aged 65–79 and 21% in those aged 80 or over).

Does treatment and management of these conditions vary with age?

- Given the limited detailed information about the management of arthritis and other musculoskeletal conditions in primary health care, this report focuses on hospital data to examine disease management at the more severe end of the treatment spectrum.
- In 2011–12, there were 494,228 hospitalisations for people with a principal diagnosis of musculoskeletal conditions, accounting for 5% of all hospitalisations, with rates increasing with age.
- In 2011–12, 64,946 total joint replacements were performed on people aged 35 or over, with the highest rate of both knee and hip replacements being in people aged 65–79.
- There have been large increases in the rate of joint replacements over the period 2002–03 to 2011–12 (37%), with a particularly large increase in the rate of knee replacements in the 35–64 age group (increasing by 75% in this group compared with 45% in people aged 65–79 and 33% in people aged 80 or over).

How do these conditions affect quality of life?

People with arthritis and other musculoskeletal conditions are more likely to report:

- limitations in performing core activities (particularly self-care and mobility) than the overall population at all life stages
- high or very high psychological distress compared with those without these conditions
- experiencing mental disorders than those without these conditions, with the greatest relative risk being for affective disorders (depression) in all life stages, except for people aged 65–79 who had a relatively higher risk of having a substance use disorder.

1 Introduction

In Australia, arthritis and other musculoskeletal conditions affect more than 6.1 million people (ABS 2012). In addition to being highly prevalent (widely or commonly reported), these conditions are large contributors to illness, pain and disability. They place a substantial burden on the community, both economic and personal, through the need for hospital and primary health-care services, disruption to daily life and lost productivity (AIHW 2005).

Arthritis and other musculoskeletal conditions include a spectrum of conditions, from those of acute onset and short duration to lifelong disorders. There are more than 150 forms of arthritis and other musculoskeletal conditions. These are usually progressive and associated with pain. An overview of the most common musculoskeletal conditions is provided in Box 1.

Although these conditions are diverse with regard to functional changes resulting from the disease, they are linked anatomically by their association with pain and impaired physical functioning. The causes of and risk factors for these conditions include congenital anomalies, metabolic or biochemical abnormalities, infections, inflammatory conditions, overuse of joints, joint injury, cancer and gender. As many of these causes are related to age, a person's life stage is considered a strong factor in the development of many musculoskeletal conditions.

Among the measures used to describe the impact of these conditions, the most commonly used is prevalence, which is the number or proportion of the population with a particular health condition at a point in time. The use of health-care services can also be employed to describe treatment and management of the conditions. A range of measures of quality of life (such as pain, functioning and disability, employment or education restrictions, psychological distress or mental health status) and summary information about the burden of disease (for example, disability-adjusted life years) help to summarise their impact overall.

This report describes the impact of arthritis and other musculoskeletal conditions in terms of:

- prevalence
- treatment and management
- quality of life (functional limitations and disability, and mental health).

Other impacts, such as health expenditure and death associated with musculoskeletal conditions, are not included in this report.

Box 1.1: Common musculoskeletal conditions

Osteoarthritis: A degenerative joint condition that mostly affects the hands, spine and joints such as the hips, knees and ankles. Its main feature is the breakdown of the cartilage that overlies the ends of the bones in the joints. Age is the strongest factor in the development and progression of osteoarthritis. Other more modifiable risk factors are: being overweight, physical inactivity, joint trauma and repetitive joint loading tasks (for example, kneeling, squatting and heavy lifting).

Rheumatoid arthritis: A chronic disease marked by inflammation of the joints, most often affecting the hand joints and both sides of the body at the same time. The immune system attacks the tissues lining the joints, causing pain, swelling and stiffness. Over time progressive and irreversible joint damage result in deformities and disability. The cause of rheumatoid arthritis is not well understood although there is a strong genetic component.

Juvenile arthritis: A common term used to describe arthritis occurring in children under the age of 16. The condition typically has an unpredictable pattern of activity, with periods of being well followed by a resurgence of signs and severe symptoms such as joint swelling, tenderness, heat, stiffness and pain (known as 'flare-ups'). The cause of juvenile arthritis is unknown.

Back pain/problems: Most cases of back pain do not have an identifiable cause and may be referred to by patients and care providers simply as back pain or back problems. While episodes of back pain may be short-lived recurrence is common and in some cases the pain can become chronic and long-lasting. The occurrence of back pain and back problems have traditionally been associated with factors such as age, physical fitness, smoking, being overweight and type of occupation (for example, those requiring lifting, bending, twisting, pulling and pushing). More recently it has become apparent that back problems have a significant genetic component.

Osteoporosis: Thinning and weakening of bones often occurs with age, increasing the risk of fracture. Osteoporosis occurs in both sexes but is more common in women. The risk factors associated with the development of osteoporosis include increasing age, female sex, family history of the condition, low vitamin D levels, low intake of calcium, low body weight, smoking, excess alcohol consumption, physical inactivity, long-term corticosteroid use and reduced oestrogen levels.

Other conditions include systemic lupus erythematosus (SLE), ankylosing spondylitis, tendinitis, carpal tunnel syndrome and fibromyalgia.

Why report arthritis and other musculoskeletal conditions by life stages?

Arthritis and other musculoskeletal conditions can affect people in all stages of life, including children. *Juvenile arthritis* occurs, by definition, in children under the age of 16. *Back pain/problems* are relatively uncommon in children aged 0–15 but many back problems appear in the 16–34 age range. While *rheumatoid arthritis* can occur at any age, onset of the disease is most common between the ages of 30 and 55. *Osteoarthritis* most commonly develops in people aged 45 or over and most cases of *osteoporosis* occur after the age of 55.

Due to the unpredictable nature of these conditions, not everyone is affected in the same way. Depending on the type of condition, age of onset, duration and severity of the disease, the complications and impacts vary at different ages.

As the symptoms and effects of these conditions vary between individuals and from one type of condition to another, so do the resulting physical impairments and limitations caused by reductions in joint function and associated pain and psychological distress. Given the wide variation in the types and severity of disability experienced by people with musculoskeletal conditions, treatment and management decisions need to be tailored to individual needs, which may vary across life stages.

Improved understanding of how arthritis and other musculoskeletal conditions affect people across different stages of life may therefore help to inform service planning and national policies and strategies on their management.

What life stages are reported?

This report focuses on how arthritis and other musculoskeletal conditions affect people in different stages of life. People are classified into five age groups: children (aged 0–15); young adults (aged 16–34); middle years (aged 35–64); older Australians (aged 65–79); and Australians aged 80 or over.

In order to monitor the full impact of these conditions it would be ideal to describe the prevalence, treatment and management, and quality of life of people with each of the specific musculoskeletal conditions of interest and in every life stage. However, such an approach is difficult due to data limitations common to all musculoskeletal monitoring analysis (see *Data sources for monitoring arthritis and musculoskeletal conditions*, AIHW 2007).

Currently, there is a lack of data on prevalence for some conditions and limited information on the various types of common management and treatment options for musculoskeletal conditions, such as medication use, medication adherence and use of primary health-care services (particularly allied health care) and specialist consultation. While data are available on hospitalisation and surgery, only a small proportion of people with arthritis and other musculoskeletal conditions undergo these interventions.

Due to data limitations, this report presents life stages analysis of arthritis and other musculoskeletal conditions in three ways.

1. Where possible, detailed information about a range of specific musculoskeletal conditions is provided. This type of detailed information is generally presented in the chapter on children and is based on literature rather than population health surveys.
2. Information is presented on the four categories of *osteoarthritis, rheumatoid arthritis, back pain/problems* and *osteoporosis,* based on analysis of the Australian Bureau of Statistics 2011–13 Australian Health Survey (AHS) (2011–12 National Health Survey (NHS) component). This type of presentation is generally available only for adult age groups because of the difficulty in generating reliable estimates from household surveys for these relatively low prevalence conditions in children.
3. In the remaining cases (where data are more limited), information is presented in three broad groups:
    - **arthritis** (includes, *osteoarthritis*, *rheumatoid arthritis* and other types of arthritis) either alone or in the presence of other musculoskeletal conditions

- **other musculoskeletal conditions only** (includes *back pain/problems* (a combination of back and neck pain or back problems that are not further defined), *osteoporosis*, rheumatism, sciatica, curvature of the spine, disc disorders, other soft tissue disorders and other conditions) but excludes arthritis, and
- **arthritis and/or other musculoskeletal conditions combined**.

Figure 1.1 illustrates the ways in which musculoskeletal information is presented throughout the report. Note that musculoskeletal conditions in *italicised* font are those for which more detailed estimates are generally available.

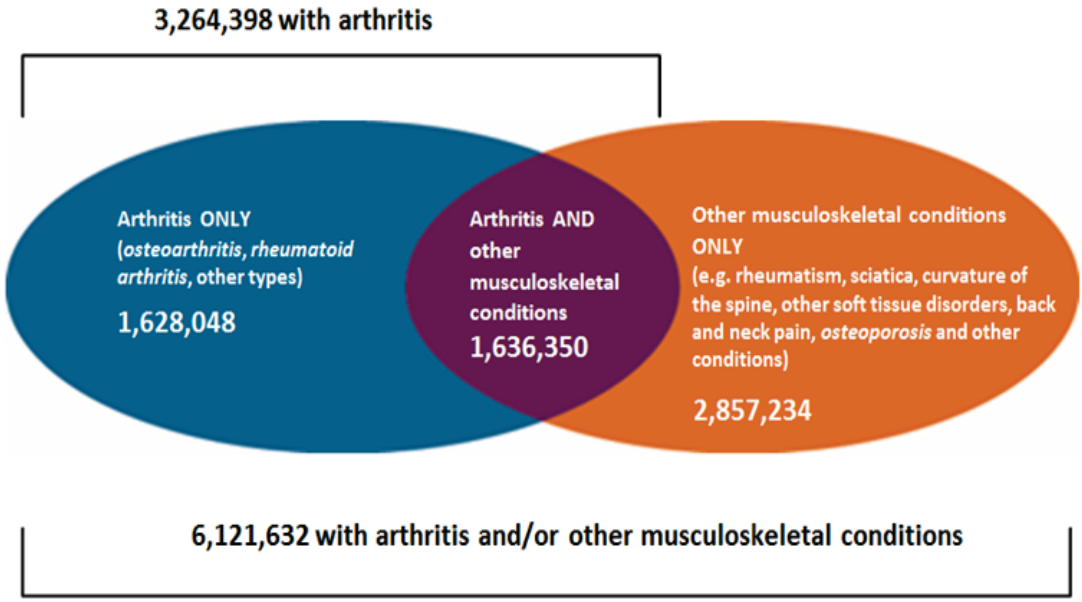


Figure 1.1: Presentation of information for arthritis and/or other musculoskeletal conditions for life stages

Data presented in this report have been compiled from a variety of sources and years, drawing on the latest data available (see Appendix A). Although not directly comparable in all cases, these data sources provide a useful perspective on how arthritis and other musculoskeletal conditions affect people in different stages of their life.

Purpose and structure of this report

The purpose of this report is to describe how the impact of arthritis and other musculoskeletal conditions varies across the life course, including describing what we know about health-service use at various life stages.

The report is organised into 8 chapters. Chapter 1 provides background information on arthritis and other musculoskeletal conditions in Australia and provides a rationale for the importance of monitoring arthritis and other musculoskeletal conditions across life stages. Chapter 2 describes the burden of these conditions in the population as a whole, using available prevalence, treatment and management, and quality of life data.

Chapters 3 to 7 provide information about the prevalence of arthritis and other musculoskeletal conditions, their treatment and management, and quality of life for each life stage (i.e. from childhood to old age). The findings are discussed in Chapter 8.

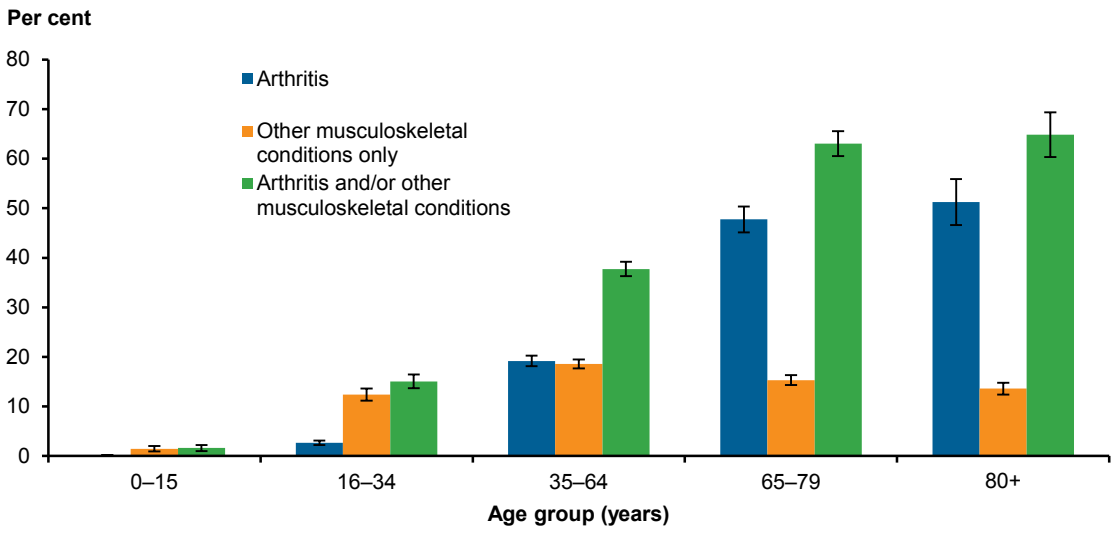
2 Arthritis and other musculoskeletal conditions in Australia

Arthritis and other musculoskeletal conditions constitute a major public health burden as large contributors to illness, pain and disability. They occur frequently, placing a high economic and personal burden on the community. This burden includes lost productivity through functional limitations and pain, disruption to daily life, and the use of hospital and primary care services (AIHW 2012).

Prevalence

An estimated 6.1 million Australians (28% of the total population) have arthritis and/or another musculoskeletal condition, based on the self-reported data from the 2011–12 National Health Survey.

The prevalence of these conditions (that is, the number or proportion of people with the conditions) is higher at older ages (Figure 2.1, Table B1). Relatively few children report having arthritis and/or another musculoskeletal condition but the prevalence of these conditions rises sharply with each group post childhood, particularly after the age of 35. Arthritis is the most common musculoskeletal condition group, affecting 3.3 million people (15% of the population) and rising sharply in each of the adult age groups. In contrast, the prevalence of other musculoskeletal conditions only (that is, musculoskeletal conditions without a diagnosis of some form of arthritis) is more consistent across age groups post childhood, with the highest prevalence being reported in the 35–64 years group, declining thereafter.



Note: The thin bars attached to each vertical column are 95% confidence intervals. We can be 95% confident that the true value is within the interval depicted.

Source: National Health Survey 2011–12.

Figure 2.1: Prevalence of musculoskeletal conditions, by age group, 2011–12

Analysis of the prevalence of specific musculoskeletal conditions across the life stages shows that:

- *Back pain/problems* are very common in Australia, affecting about 1.7 million (8%) people. More commonly reported by men overall, the rates are highest among men aged 65–79 (Table 2.1). The prevalence is even greater (3.0 million people or 14% of the population) when we consider a broader definition of back problems that also includes diagnosed disc disorders, curvature of the spine and sciatica.
- More than half of the people with arthritis (1.8 million) reported having *osteoarthritis.* Osteoarthritis is reported more frequently by females than males (10% compared with 6%). The difference persists across all ages.
- An estimated 728,188 Australians (3%) report having *osteoporosis*. The majority of these cases occur after the age of 55 and 82% of those reporting a diagnosis of the condition are females. However, because osteoporosis has no overt symptoms, it is often not diagnosed until a fracture occurs. Therefore, information about 'diagnosed cases' is believed to underestimate the actual prevalence of the condition.
- An estimated 444,967 Australians (2%) reported having *rheumatoid arthritis*. Young people can be affected by rheumatoid arthritis, but it is more common in the older population (less than 1% in people aged 16–34 compared with 6% in people aged 65 or over). The prevalence of rheumatoid arthritis is highest in females aged 65 or over.

- The prevalence of musculoskeletal conditions is higher in women than men, especially for osteoarthritis, rheumatoid arthritis and osteoporosis. For back pain/problems the overall prevalence is higher in men than women although this is not the case for all age groups.

People with osteoporosis are at much greater risk of bone fracture. Known as 'minimal trauma fractures', these fractures occur following little or no trauma (i.e. equivalent to a fall from a standing height or less). Osteoporosis and falls are common among the elderly. Postmenopausal women with osteoporosis, in particular, have greater risk of fracture after a fall than women without osteoporosis (da Silva et al. 2010).

Fractures from minimal trauma are more likely to occur in some body sites than others. The most common fractures in people with osteoporosis include bones that are under strain because they bear weight (such as the spine, pelvis and hips) or that take the stress when a person catches him- or herself when falling (such as the wrists, forearms and upper arms). Hip fractures are a common result of longstanding osteoporosis in people aged 40 or over (AIHW 2011). Because of this association, information on minimal trauma fractures is also presented in this report.

Table 2.1: Age-sex-specific prevalence of selected arthritis and other musculoskeletal conditions, 2011–12

Type of condition	Sex	Age group (in years)					
		0–15	16–34	35–64	65–79	80 and over	All ages
		%					
Osteoarthritis	Males	0.0	0.8*	7.2	19.1	27.6	5.6
	Females	0.0	0.7*	13.4	38.1	39.6	10.2
	Persons	0.0	0.8	10.3	28.8	34.9	8.0
Rheumatoid arthritis	Males	0.1**	0.2*	1.9	5.1	5.1	1.5
	Females	0.2**	0.5*	3.6	6.5	6.6	2.4
	Persons	0.1**	0.4*	2.8	5.7	5.8	1.9
Back pain/problems	Males	0.4**	6.3	12.5	14.7	5.1*	8.3
	Females	0.2*	7.8	10.1	11.2	7.8	7.3
	Persons	0.4*	7.0	11.3	13.0	6.3	7.7
Osteoporosis	Males	0.0	0.0	1.4	4.2	9.0	1.2
	Females	0.0	0.3*	5.1	20.5	29.1	4.9
	Persons	0.0	0.2*	3.3	12.3	21.2	3.1
Population	Males	2,280,322	3,043,427	4,308,565	1,083,263	290,632	11,006,925
	Females	2,189,064	2,946,680	4,422,954	1,142,595	401,753	11,099,662
	Persons	**4,470,416**	**5,989,173**	**8,723,162**	**2,228,491**	**694,374**	**22,102,034**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

*Estimate is subject to high standard errors (relative standard error of 25–50%) and should be used with caution.

**Estimate is subject to sampling variability too high for practical purposes (relative standard error greater than 50%).

Notes

1. Based on self-reports of having a doctor's diagnosis of the type of disease. Back pain/problems refer to 'back pain/problems not elsewhere classified' and therefore exclude back problems for which the respondent has received a diagnosis, such as for a disc disorder or sciatica.
2. Total was age standardised to the Australian population as at 30 June 2001.
Source: National Health Survey 2011–12.

Treatment and management

The negative effects of arthritis and many other musculoskeletal conditions can be reduced through prevention, early diagnosis and initiation of treatment, and appropriate long-term management. Over recent decades, better understanding of the causes and risk factors of various conditions has led to new strategies for primary prevention and improved management.

Osteoarthritis and osteoporosis can be prevented or at least have their onset delayed through specific lifestyle approaches. Regular physical activity, maintenance of healthy weight, avoidance or limitation of repetitive load-bearing activities and prevention of trauma can reduce the risk of developing osteoarthritis. For osteoporosis, this includes getting enough calcium and vitamin D, keeping physically active, maintaining a healthy weight, and not smoking. Preventing falls is also important for people who have low bone mineral density.

Treatment and management for arthritis and other musculoskeletal conditions is mostly aimed at controlling pain and improving functioning and health-related quality of life. The

treatment and management options for these conditions cover a wide variety of settings, health professionals and types of care (for details see AIHW 2008b). These include primary care provided by general practitioners (GPs) and allied health service providers (such as physiotherapists, exercise physiologists and podiatrists), care delivered by medical specialists in the community and care provided in hospitals. Clinical guidelines for musculoskeletal diseases (osteoarthritis, rheumatoid arthritis, juvenile arthritis and osteoporosis) have been developed by the Royal Australian College of General Practitioners (RACGP 2010; 2009a; 2009b).

Treatment plans vary according to condition and other factors. General treatment and management of some conditions are described in Box 2.1.

Box 2.1: Treatment and management of common musculoskeletal conditions

Osteoarthritis: At present there is no cure for osteoarthritis. The management of osteoarthritis of the hip and/or knee (and other sites) includes the use of both non-pharmacological and pharmacological interventions (RACGP 2007). For people unresponsive to medication, joint replacement surgery is a cost-effective intervention (AOA 2011; Gartlan et al. 2007). The American College of Rheumatology guidelines strongly recommend that people with osteoarthritis participate in cardiovascular (aerobic) and/or resistance land-based and aquatic exercises (Hochberg et al. 2012).

Rheumatoid arthritis: At present there is no cure for rheumatoid arthritis. The Australian guidelines for the management of the disease focus on early diagnosis, early management, and coordination of multidisciplinary care needs (RACGP 2009a). The availability of new medications known as biologic disease-modifying anti-rheumatic drugs (bDMARDs) for rheumatoid arthritis since 2003 has also changed the way the condition is managed (AIHW 2011). These medications have been shown to halt or slow the disease process sufficiently to reduce joint destruction and the disability associated with early rheumatoid arthritis. In 2011–12, about 148,000 units of bDMARDs were dispensed (AIHW 2013b).

Juvenile arthritis: There is currently no cure for juvenile arthritis. Early diagnosis and management can, however, control the disease to minimise pain and function loss, and maximise quality of life of the affected child. Since 2003, the availability of bDMARDs) has broadened the treatment options for juvenile arthritis (AIHW 2013a). In 2011, more than 2,800 units were dispensed.

Back pain/problems: With most cases there is no identifiable disease or injury to treat. Instead generic treatments are used for pain relief, improved function and quality of life. In Australia, the United States and Britain, the clinical practice guidelines for management of low back pain recommend regular use of paracetamol as the first choice. When paracetamol provides insufficient pain relief, regular use of non-steroidal anti-inflammatory drugs (NSAIDs) is recommended (Williams et al. 2010). The Australian guidelines note that oral opioids may be necessary to relieve severe back pain.

Osteoporosis: Osteoporosis is largely a preventable disease. Primary prevention includes getting enough calcium and vitamin D, keeping physically active, maintaining a healthy weight, and not smoking. Established osteoporosis is usually managed with medicines. In Australia, bisphosphonates such as alendronate and risedronate are the main medicines recommended to manage osteoporosis (NPS 2011). Avoiding falls, preventing fractures and prompt management of fractures, in particular hip fractures, is very important (RACGP 2010; Oliver et al. 2007).

Use of medications is often among the first actions taken when managing these conditions. A wide variety of medicines is available to manage arthritis and other musculoskeletal conditions (Box 2.2) and can be administered in many different formats. Topical treatments and ointments are used to alleviate inflammation and mild pain, tablets to modify symptoms (for example, analgesics) or the disease (for example, bisphosphonates), and injections can be administered directly into the affected joints to lubricate them or to slow disease progression.

Box 2.2: Types of medications used for musculoskeletal conditions

- Non-steroidal anti-inflammatory drugs (**NSAIDs**) are used to relieve symptoms of pain, stiffness and inflammation in the muscles, joints and bones. NSAIDs can be selective or non-selective (see Box 2.1) and are commonly used to manage arthritis. Medications within this group include celecoxib, meloxicam, ibuprofen, diclofenac and naproxen.
- Disease-modifying anti-rheumatic drugs (**DMARDs)** are immunosuppressant drugs used for rheumatoid arthritis. These types of medicines alter the disease progression, suppressing proteins of the immune system. Medications from this group include methotrexate, sulfasalazine, leflunomide and hydroxychloroquine.
- Biological disease-modifying anti-rheumatic drugs (**bDMARDs)** are specialised immunosuppressant medications used for rheumatoid arthritis. They alter disease progression by stopping cellular communication in the immune system. Medicines from this group include etanercept, adalimumab, infliximab, anakinra and rituximab.
- **Anti-resorptives** are commonly used for osteoporosis. This group of medicines binds to bone to stop the removal of calcium, assisting in restoring bone density. Common medicines from this group include bisphosphonates such as alendronate, risedronate and other medications such as strontium ranelate.
- **Analgesics** are medications that relieve pain. These types of medications are used to relieve the symptoms of mild, moderate and severe pain. Common medications used to manage arthritis and osteoporosis include paracetamol, tramadol and paracetamol combinations.
- **Complementary medicines** or alternative medications are vitamin, mineral or herbal supplements. This type of medication is commonly used in osteoporosis to increase levels of vitamin D and calcium. For arthritis, glucosamine and fish oils are commonly used to relieve pain and swelling.

Little is known in detail about treatment and management of specific musculoskeletal conditions outside hospital settings. In 2011–12, arthritis and musculoskeletal conditions were managed in general practice at a rate of 17 per 100 GP-patient encounters, making it one of the most commonly managed conditions by GPs (Britt et. al. 2012).

Quality of life

Arthritis and other musculoskeletal conditions can have a major impact on the health and overall quality of life of the affected person. Pain is the strongest correlate of quality of life (Laslett et al. 2012) affecting overall health, sleep quality and psychological health (Kamaleri et al. 2008).

Pain, functioning and disability

Pain is the key symptom in most arthritis and other musculoskeletal conditions. The pain may originate from sources such as inflammation of the synovial membrane (tissue that lines the joints), the tendons, or the ligaments; muscle strain, and fatigue (AIHW 2005).

Musculoskeletal pain can be acute or chronic. Acute pain lasts a few seconds or longer but wanes as healing occurs. Chronic pain, on the other hand, ranges from mild to severe, and can last weeks, months, years or a lifetime. A combination of the above mentioned factors may contribute to the intensity of the pain.

Pain also varies greatly from joint to joint, depending on the swelling within the joint, the amount of heat or redness present, or damage that has occurred within the joint. In addition, different activities may be associated with pain; some people note pain in their joints after first getting out of bed in the morning while others develop pain only after prolonged use of the joint (Woolf & Pfleger 2003).

For example, a study revealed that low back pain has a larger impact than knee pain on quality of life. Vertebral fracture with low back pain, in particular, was strongly associated with loss of physical quality of life (Shigeyuki et al. 2011).

Musculoskeletal pain has been found to be strongly associated with difficulty performing tasks. Widespread musculoskeletal pain has been associated with the risk of falls, with the risk being 60% higher in women who had widespread musculoskeletal pain than in those who had no or mild pain (Leveille et al. 2002).

The 2009 Survey of Disability, Ageing and Carers (SDAC) shows that 44% of all people with musculoskeletal conditions report activity limitations in daily tasks, 67% reporting mild to moderate and 33% reporting severe or profound activity limitations (AIHW 2012). Activity limitations are described in Box 2.3.

Box 2.3: Levels of activity limitations

Profound activity limitation: people are unable to perform or always need help with one or more core activities, such as self-care, mobility, and communication.

Severe activity limitation: people sometimes needed help with a core activity.

Moderate activity limitation: people did not need assistance but had difficulty performing a core activity.

Mild activity limitation: people had no difficulty performing a core activity but used aids or equipment because of their disability. These people were unable to:

- walk 200 metres
- walk up and down stairs without a hand rail
- easily bend to pick up an object from the floor
- use public transport, and
- use public transport without help.

Source: ABS 2011.

Not everyone is affected in the same way by these conditions. As the symptoms and effects of arthritis and other musculoskeletal conditions vary between individuals and from one type of condition to another, so do the resulting physical impairments and restrictions caused by reduction in joint function and associated pain. There is, therefore, wide variation in the type and severity of disability experienced by people with these conditions (Box 2.4).

Box 2.4: Impact of musculoskeletal conditions

Osteoarthritis: The type of activity a person with osteoarthritis finds difficult is determined by which joints are affected. Hand and arm problems may lead to a need for help with self-care tasks involving personal hygiene, dressing or other household chores. When the hip or knee is affected, mobility can be restricted, making tasks such as going up and down stairs, rising from a chair or bed, and walking very painful and difficult.

Rheumatoid arthritis: Deterioration in physical functioning can occur rapidly in the first couple of years after diagnosis. As with osteoarthritis, specific limitations are determined by the joints affected. In rheumatoid arthritis, multiple joints are often involved, resulting in a greater range of restrictions. Being unable to perform common tasks can lead to high levels of anxiety and depression. A loss of positive body image due to joint deformities can also reduce a person's wellbeing.

Juvenile arthritis: The condition can interrupt a child's daily activities, such as attending school and participating in play or exercise. Sufferers might find it difficult to sit on the floor, hold pens and pencils, carry books and open their lunch box. Pain and functional limitations can also prevent children with arthritis participating in sport, and the physical appearance of swollen and deformed joints can affect their psychosocial wellbeing. This can in some cases result in social isolation and poor social development, which may lead to problems with employment, social interaction and personal relationships in adulthood.

Back pain/problems: Back pain and back problems affect the ability to participate in self-care, work and family and social activities. People with back problems usually are limited in activities that involve the trunk such as bending, twisting, stooping, crouching, lifting, dressing and picking up objects. Persisting back problems, like other forms of chronic pain, can affect people's mood and general wellbeing.

Osteoporosis: Disability in osteoporosis is usually related to fractures, and may be short-term or ongoing. The site and severity of a fracture will determine how a person's functioning may be limited. Wrist and forearm fractures may affect the ability to write or type, prepare meals, perform personal care tasks and manage household chores. Fractures of the spine and hip usually affect mobility, making activities such as walking, bending, lifting, pulling or pushing difficult. Hip fractures, in particular, often lead to a marked loss of independence, and this reduces wellbeing.

In older people, the risk of functional limitation increases substantially with multiple joint problems. Evidence suggested that people with knee and feet problems were 14 times as likely to experience difficulty standing and walking than those without knee problems; knee and hip problems increased the risk 12 times; and knee, back, feet and hip problems increased the risk 60 times (Keenan et al. 2006).

Psychological health

Arthritis and other musculoskeletal conditions can also cause psychological distress and be associated with increased likelihood of mental health conditions. For example, the

limitations imposed by arthritis, in particular, can be detrimental to a person's self-esteem and self-image, leading to negative emotional status, anxiety, depression and feelings of helplessness (Sheehy et al. 2006).

Studies have also found depression, anxiety, distress and related emotions to be related to arthritis (Murphy et al. 2012), spinal pain and disability (Linton 2000) and neck and low back pain (Holmberg & Thelin 2006).

Data from the Canadian Community Health Survey (CCHS) found the prevalence of depression, bipolar disorder, panic disorder, social phobia and substance use disorder to be higher in people reporting back pain or fibromyalgia than in those reporting arthritis or rheumatism (Patten et al. 2006).

Workforce participation

Low back pain is a leading cause of work absence and inability to work (Costa-Black et al. 2010). Severe pain has been found to be a strong predictor of long-term work disability (Krimer & van Tulder 2007).

More generally, physical impairments and activity limitations associated with arthritis and other musculoskeletal conditions may adversely affect workforce participation. These conditions have been found to be the most frequent causes of sickness and absence from work (Brage et al. 2010).

A study of labour force participation among Australians reported that back pain and arthritis were the top two reasons for people aged 45–64 not being in the labour force (Schofield et al. 2008).

Arthritis also affects the capacity of working-age people to work or gain employment (Lacaille et al. 2007), with evidence suggesting this impact is greatest for middle-aged people with arthritis (Yelin 2003).

For osteoarthritis, the difficulty in participating fully in the workforce generally occurs gradually, and mainly affects those aged 50 or over (Arden & Nevitt 2006). People with rheumatoid arthritis are at risk of experiencing work limitations from the very start of their symptoms (Eberhardt et al. 2007), with the majority of affected people reducing work hours and changing work tasks.

Information about the employment status of people with long-term health conditions was obtained from people aged 15 and over (mainly people aged 15–64) in the 2011–12 National Health Survey (NHS). While there were no significant differences in employment status for young adults (people aged 16–34) with and without musculoskeletal conditions, people aged 35–64 with musculoskeletal conditions were less likely to be employed and more likely not to be in the labour force than those without these conditions (Table B2).

Burden of disease

Due to their relatively high prevalence, long-lasting and generally non-fatal nature arthritis and other musculoskeletal conditions are a major burden to the individual and society. The Global Burden of Disease Study 2010 provides information on the burden of chronic diseases worldwide. Box 2.5 describes the method used to measure disease burden and brief information on the Global Burden of Disease Study 2010 (GBD 2010).

Box 2.5: Measuring disease burden

Burden of disease analysis is used to assess and compare the relative impact of different diseases and injuries on people or population. The unit of measure commonly used is a DALY—a disability-adjusted life year. One DALY is essentially one year of 'healthy life' lost due to premature death (YLL), prolonged illness or disability (YLD), or a combination of these factors. The more DALYs, the greater the burden.

The Global Burden of Disease Study 2010 (GBD 2010) is the largest ever systematic effort to describe the global distribution and causes of a wide array of major diseases, injuries, and health risk factors.

The Global Burden of Disease Study was updated in 2010 and is significantly broader in scope than previous versions. It includes:

- estimates from 21 regions
- 241 diseases and injuries and
- 57 risk factors.

According to the Global Burden of Disease Study 2010, musculoskeletal conditions accounted for 6.7% of global burden with:

- low back pain contributing 3%
- neck pain contributing 1%
- other musculoskeletal conditions contributing 1%
- osteoarthritis contributing 1% (Table 2.2).

Table 2.2: Global burden of disease due to musculoskeletal conditions, 2010

Condition	Disability adjusted life years (DALYs)		Years lived with disability (YLD)	
	Number	%*	Number	%*
Low back pain	83,063	3.2	83,063	10.5
Neck pain	33,640	1.3	33,640	4.2
Other musculoskeletal conditions	30,856	1.2	28,226	3.7
Osteoarthritis	17,135	0.7	17,135	2.2
Rheumatoid arthritis	4,815	0.2	3,776	0.5
Gout	114	0.0	114	0.0
All musculoskeletal conditions	169,624	6.7	165,955	21.1

*Global Burden.

Source: Murray et al. 2012; Vos et al. 2012.

Much regional variation is noted in the ranking of global burden of musculoskeletal conditions. The burden of *low back pain* is ranked sixth in the world and first in Australasia (includes Australia and New Zealand). *Neck pain* is ranked 21st in the world and 10th in Australasia, while the burden of *osteoarthritis* is ranked 38th in the world and 23rd in Australasia (Murray et al. 2012).

Further refinement and update of Australian estimates is the subject of current collaborative work being undertaken by the Australian Institute of Health and Welfare (AIHW) and others. The revised estimates are expected to be finalised in 2015.

3 Children (aged 0–15)

In Australia most children enjoy good health. This is indicated by low and declining rates of infant and childhood deaths, and a decline in specific conditions such as communicable diseases and injuries. There are, however, some cases where children are affected by long-term health conditions such as arthritis and other musculoskeletal conditions. Detailed descriptions of some of these conditions are provided in Appendix C.

These conditions can affect children in the prime of their growth and development. This may lead to activity limitations and deformities early in life, requiring a greater and long-term need for health-care services. The disability associated with arthritis and other musculoskeletal conditions may also have a significant effect on the child's own health perception and body image, and on family dynamics and peer relationships.

This chapter briefly describes childhood musculoskeletal conditions and their impact on children aged 0–15.

Prevalence

In Australia, 2% of children aged 0–15 have arthritis or another musculoskeletal condition, according to self-reported data from the 2011–12 National Health Survey.

Juvenile arthritis affects less than 1% of Australian children (AIHW 2013). However, compared to other paediatric-onset chronic illnesses, juvenile arthritis is relatively common, affecting approximately the same number of children as juvenile diabetes, at least 4 times as many children as cystic fibrosis, and at least 10 times as many as haemophilia, acute lymphatic leukaemia, chronic renal failure, or muscular dystrophy (Klippel 2008). Overall, girls are more likely to develop juvenile arthritis than boys.

Juvenile scoliosis is rare in Australia (Scoliosis Australia 2013). According to the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS 2013), 3 to 5 in 1,000 children will develop scoliosis severe enough to be treated.

The overall prevalence of clubfoot is 1.29 per 1,000 live births (Parker et al. 2009). Legg-Calve-Perthes disease is a rare condition occurring in approximately 4 in 100,000 children. It is more common in white than in Asian or Black African children (Perry & Hall 2011).

Treatment and management

Childhood musculoskeletal conditions cover a wide variety of presentations and outcomes. Many conditions are benign and self-limiting, others run a chronic relapsing and remitting course and some are fatal. Children with onset of systemic juvenile arthritis before the age of 5 have elevated risk of dying from infection and amyloidosis (a type of bone marrow disease) (AIHW 2008a).

As children with musculoskeletal conditions are still growing, age- and development-appropriate care and management is important. Treatment varies according to the type of disease, the age of onset, the stage, and the classification of disease severity. A multidisciplinary team approach is beneficial to arriving at the correct diagnosis and appropriate treatment plan. The team may consist of a GP, rheumatology consultant,

specialist nurse, occupational therapist, physiotherapist, podiatrist, ophthalmologist and orthopaedic consultant.

According to the Royal Australian College of General Practitioners Clinical Practice Guidelines, management of these conditions in children focuses on early detection, early referral to a paediatric rheumatologist, prevention of complications associated with the condition, reduction of pain, optimal management of acute exacerbations, prevention and management of joint damage, and maximisation of function (RACGP 2009b).

Conservative treatment consists of medications (see Box 2.1), rest, physical therapy, and limited weight-bearing or bracing, casting, and use of splints. Most children need a combination of medication and non-medication treatments to reach these goals.

Hospitalisation

Children with musculoskeletal conditions sometimes need to be admitted to hospital (see Box A3 for terms). This may be for treatment of severe cases with soft-tissue deformity, leg length inequality or joint destruction or for specialised forms of therapy such as joint injections. Rarely, some children may be hospitalised for surgery such as soft-tissue release or joint replacement. Some of the common procedures are described in Box 3.1.

Box 3.1: Procedures performed in hospitals for childhood musculoskeletal conditions

Joint aspiration involves taking fluid out of the joint with a needle and syringe. This can be a diagnostic procedure (where a sample of fluid is sent for testing to determine if there is infection in the joint or to confirm a diagnosis) or a therapeutic procedure. Draining of a badly swollen joint can relieve pain and improve joint mobility.

Joint injections deliver medication directly into the joint. These are usually corticosteroids, which are anti-inflammatory drugs that slow down the accumulation of cells that cause inflammation. Often both joint aspiration and joint injection procedures will be recorded in the same hospitalisation. A joint injection will not be performed if the joint is infected, so aspiration may be performed first to make sure there is no infection in the joint.

Soft tissue release is a treatment to relieve severe joint contracture. It involves division of the nerves and lengthening or division of the muscles and tendons around the affected joint. This allows the joint to regain movement and can improve posture and mobility.

Joint replacement refers to the replacement of damaged joint structures with artificial components.

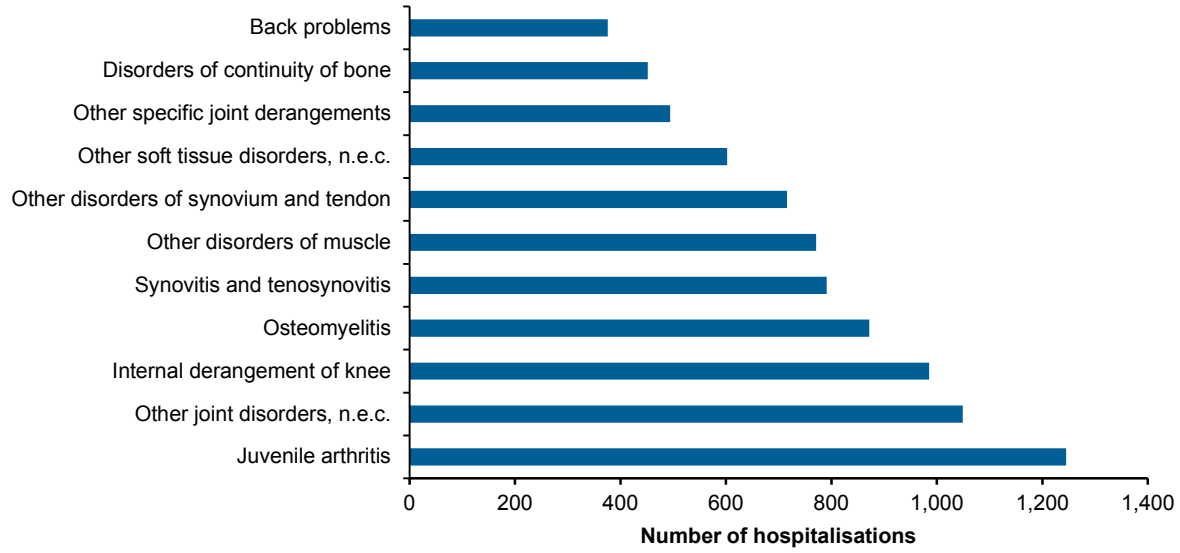
Osteotomy involves removing a wedge of bone to allow more normal alignment of the joint. An osteotomy may be recommended for children who have severe joint contractures.

Epiphysiodesis is a procedure when the portion of extra growth in a long leg bone is removed in order to stop growth.

Source: AIHW 2013.

In 2011–12, for the 13,892 hospitalisations for children aged 0–15 with the principal diagnosis of musculoskeletal conditions:

- the average length of stay was 2.7 days
- the hospitalisation rate was higher in 10–15 year olds, accounting for almost half of all hospitalisations
- boys were hospitalised slightly more than girls (315 and 303 per 100,000 children respectively)
- the main reason (principal diagnosis) for these hospitalisations was treatment for juvenile arthritis and joint disorders (Figure 3.1).



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Source: AIHW National Hospital Morbidity Database.

Figure 3.1: Hospitalisations with the principal diagnosis of arthritis and other musculoskeletal conditions, children aged 0–15, 2011–12

Surgical procedures

A total of 12,089 surgical procedures was performed during these hospitalisations. Table 3.1 lists the top 10 surgical procedures.

Table 3.1: Top ten surgical procedures performed for arthritis and other musculoskeletal conditions in children aged 0–15, 2011–12

Type of procedure	Surgical procedures	
	Number	%[(a)]
Aspiration of joint/other synovial cavity	378	3.1
Release of tendon sheath of hand	376	3.1
Arthroscopy of knee	238	2.0
Posterior spinal fusion, >= 3 levels	225	1.9
Arthroscopic meniscectomy of knee	219	1.8
Percutaneous central vein catheterisation	214	1.8
Insertion internal fixation device	185	1.5
Epiphysiodesis of femur	182	1.5
Osteotomy proximal femur with internal fixation	164	1.4
Arthroscopic reconstruction of knee	164	1.4
Subtotal	*2,345*	*19.4*
Other	*9,744*	*80.6*
Total surgical procedures	**12,089**	**100.0**

(a) % of total surgical procedures (N = 12,089) performed in children aged 0–15 with arthritis and other musculoskeletal conditions as the principal diagnosis.
Note: Procedures have been counted only once for each hospitalisation, although those may have been performed more than once during that particular hospital stay.
Source: AIHW National Hospital Morbidity Database.

Impact

Living with arthritis or another musculoskeletal condition can be challenging for both the affected child and their family. The pain, stiffness and joint inflammation can significantly affect the child's health and functional status. These conditions usually affect fine and gross motor skills, contributing to reduced activities and physical functioning. Parents, siblings and other family members also experience a range of effects and adjustments related to the affected child's symptoms, management and prognosis.

The pain and stiffness in children can change from day to day or from morning to afternoon and affect children differently. They may find everyday tasks difficult one day but have no trouble with the same task the day after. As the symptoms wax and wane, so will the child's limitations. This unpredictability can also affect the child emotionally (Shaw et al. 2006).

Health and growth

Children with arthritis or another musculoskeletal condition may experience considerable negative health outcomes. Children with juvenile arthritis in particular can experience a lot of pain, mostly resulting from joint inflammation and stiffness. Children usually describe the pain as hurting, stinging, warm and uncomfortable. These symptoms can come and go many times over the course of the condition. There may be times when symptoms improve or disappear (remissions) and times when symptoms worsen (flare-ups). Sometimes, a child may have one or two flare-ups and never have symptoms again. Other children may have frequent flare-ups and symptoms that never go away. Increased disease activity may also lead to anaemia, fatigue and sleep disturbance, which then adversely affects pain and quality of life (Aviel et al. 2011).

The juvenile arthritis itself or the use of corticosteroids can affect the child's growth and alter physical appearance, with sufferers often experiencing fatigue, anorexia, weight loss and growth failure (Boros & Whitehead 2010). Joint inflammation can lead to damage of cartilage and bone, and bony overgrowth resulting in limb length discrepancies (Minden 2009).

Studies have showed many children with juvenile arthritis have infantile body proportions, leading to delayed puberty (Umlawska & Prusek-Dudkiewicz 2010). Some children develop an eye condition called uveitis that can lead to cataracts, glaucoma, macular oedema and even blindness (Sabri et al. 2008). Many children can experience problems with the heart, respiratory system, nerves and eyes (Cassidy et al. 2011).

Lumbar scoliosis can cause children to appear to have an uneven waist, with one hip sitting higher than the other. In severe cases the hips may even twist to the side, potentially causing lower back pain and difficulty walking. If scoliosis is left untreated, the degree of spinal curve may worsen as the child grows, in rare cases leading to restricted space in the ribcage needed for optimal heart and lung function (Good 2009).

A child with clubfoot will usually walk on the sides or even on the top part of the foot instead of the sole. The part walked on may become infected and develop a large, hard callus. Painful arthritic changes can also develop.

Other physical features of some musculoskeletal conditions may be: small jaws, shortening of fingers, hands, forearms, toes or feet; weight gain; skin changes; surgical scars; awkward movements such as limping, or the need to wear splints or braces.

Functioning

Activity limitation is common in children with arthritis and other musculoskeletal conditions. Joint pain, heel pain, swelling of joints and morning stiffness, contractures and fatigue can affect the child's mobility, strength and endurance, making them unable to perform daily activities such as going to school or playing with peers.

Foot problems such as gait defects, deformity or abnormal foot posture, and/or active foot disease can also lead to disability and activity limitation (Hendry et al. 2011). The limitations range from complete inability to attend school or inability to engage in play for pre-schoolers to limited ability to engage in athletics or other social activities (Arthritis Care 2011).

Psychological health

Several studies have evaluated the relationship between disease activity and health-related quality of life of children. Children with severe juvenile arthritis have low health-related quality of life, with the disability and pain affecting their physical, emotional, and social wellbeing (Prince et al. 2010). Moreover, these children have lower self-esteem, are more likely to have behavioural problems and experience social isolation and depression and/or anxiety than their peers (Muller-Godeffroy et al. 2005).

Children with disease onset at 6–12 years of age are more likely to have depressive symptoms (Shaw et al. 2006). Feeling frustrated or angry, becoming withdrawn or clingy and sudden and strong mood swings are some other emotional reactions of children with arthritis (Arthritis Care 2011a).

Children with scoliosis may have poor quality of life and psychological impairment due to perceptions of self and body image, in particular those who are undergoing brace treatment (Reichel & Schanz 2003). School-aged children with low back pain have been found to have high levels of psychosocial difficulties, conduct problems, or other somatic disorders (Lynch et al. 2006; Jones et al. 2003).

Family

Caring for a child with arthritis or another musculoskeletal condition can lead to considerable emotional, financial and logistic burden for the parents. For example, parents often have to be absent from work or reschedule other activities to care for their sick child, attend regular appointments with physicians or additional urgent emergency department visits during disease flare-ups or infections (Arthritis Care 2011a).

Anecdotal evidence suggests that when a child is diagnosed with arthritis, parents feel emotional responses such as guilt, fear, confusion, disbelief and anxiety (Arthritis Care 2011b). They may also be concerned with their child's overall health and susceptibility to sickness; their child's overall physical, emotional, mental and social functioning. Some parental concerns include:

> *'We thought our son can't have arthritis – old people get arthritis'* [parents of son (7) with juvenile arthritis].
>
> *'She kept crying all the time. She was getting teased because she couldn't do things'* [mother of daughter (10) with juvenile arthritis].
>
> *'It makes me sad when she's doing an activity and I see her fingers are swollen, and I know she is in pain'* [mother of daughter (2) with juvenile arthritis].

Source: Arthritis Care 2011a.

Congenital malformation of clubfoot has also been found to have a negative impact on mothers' psychological wellbeing, with these mothers reporting more stress and depression than other mothers (Coppola et al. 2012).

A child's health condition also affects siblings. They may be concerned about their own health, for example worrying they might develop the condition themselves. Some resent the changes in family routine or more parental attention to the sick child, and thus try to compete for attention.

> *'Our two older boys are very caring but they get fed up with it. She gets more time with me, and if she loses weight she gets to eat ice cream'* [mother of daughter (2) with juvenile arthritis].

Source: Arthritis Care 2011a.

Long-term outcomes

Many musculoskeletal conditions tend to be chronic, resulting in poor functional outcomes later in life. Juvenile arthritis often continues into adulthood. Young adults with ongoing active disease are likely to experience medication-related morbidity, long-term disability and risk of emotional and social dysfunction (Moorthy et al. 2010).

Sufferers also show a distinctive pattern of growth disturbances, with over one-third experiencing disability and organ damage (Minden 2009). Preparing for the future can be very challenging:

> *'You have to grow up quite fast if you have juvenile arthritis – you are constantly negotiating things to do with your body and other people's perceptions'* [Young woman (23), who was diagnosed with juvenile arthritis at 13].
>
> *Source*: Arthritis Care 2011a.

The disability associated with juvenile arthritis is likely to influence educational attainment and the ability to secure and maintain employment (Malviya et al. 2012). Fertility is significantly reduced, with an increased rate of miscarriage in adult females with juvenile-onset arthritis (Jancin 2011). Many adults with juvenile arthritis during childhood experience decreased bone mass and have an increased risk of fragility fracture (Maresova 2011).

The long-term outcome for children with scoliosis (when the spinal curve measure is less than 40°) is favourable. However, untreated cases with curves exceeding 50° can result in severe adult idiopathic scoliosis leading to serious cardiopulmonary complications and premature death (Mohar 2012; Asher & Burton 2006).

Legg-Calve-Perthes disease in children presenting before the age of 6 can result in significant femoral head deformity causing premature osteoarthritis and painful dysfunctional hip joint. These people may need a joint replacement before the age of 50 (Trania et al. 2011).

The long-term outcome for children with clubfoot is generally favourable. Surgical correction is usually successful in providing a functional plantigrade foot (i.e. walking with the entire sole of the foot on the ground) as they reach adulthood. However, there are some limitations such as foot pain, limited foot range of motion, and weakness.

Kohler's disease is generally a benign, self-limiting condition that does not lead to residual deformity or disability in adulthood.

Possible complications from osteomyelitis include disturbances in bone growth, limb-length discrepancies, arthritis, abnormal gait, and pathologic fractures. In patients with chronic osteomyelitis, bone necrosis and fibrosis can occur.

4 Young adults (aged 16–34)

Young adulthood, defined in this report as aged 16–34, is a period in which many physical, intellectual, emotional and social changes take place. People in the age group are likely to want to be socially independent and think about occupation selection, selecting a life-partner, starting a family, accepting responsibilities, and social networking (Nevid & Rathus 2005).

Young adulthood, for some, can be considered the healthiest time of life, with attributes such as strength, speed, fitness and many cognitive abilities at their peak. Concerns such as long-term health conditions, mental health problems, substance abuse, and injury can, however, affect people during this period and influence their health later in life.

Being affected by arthritis or another musculoskeletal condition in this life stage can have considerable impact on quality of life. Pain, fatigue, depression and anxiety about the future can affect employment, social life and relationships.

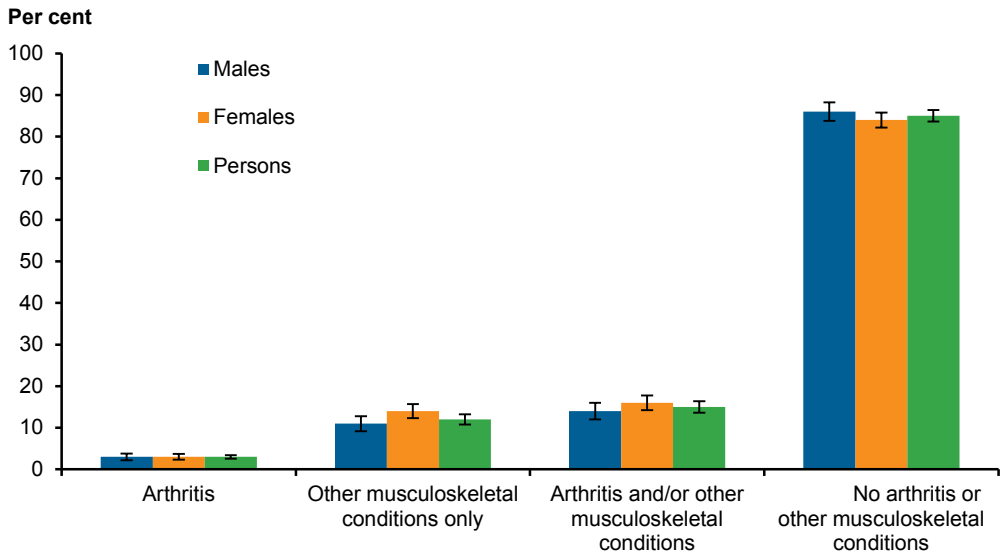
As noted previously, juvenile arthritis often continues into adulthood. Between 10% and 20% of sufferers enter adulthood with active disease, some with moderate to severe activity limitations. The disease also recurs in adulthood (AIHW 2008a). When continuing or recurring post childhood, the disease is most likely to be referred to as one of a number of different forms of inflammatory arthritis, such as rheumatoid arthritis, psoriatic arthritis or ankylosing spondylitis.

Due to the structure of the 2009 Survey of Disability, Ageing and Carers (SDAC), data on physical impairment and activity limitation are provided for people aged 15–34 with arthritis and/or other musculoskeletal conditions. Due to data limitations no breakdown of information is provided for people with arthritis and those with other musculoskeletal conditions for this age group.

Prevalence

In Australia, an estimated 902,282 people (15% of the total population) in the 16–34 age group had arthritis and/or other musculoskeletal conditions, based on self-reported data from the 2011–12 National Health Survey. The prevalence did not differ between males and females (Figure 4.1; Table B4).

While the prevalence of arthritis was relatively low in young adults (3%, up from 0.1% in children aged 0–15), the proportion of young adults reporting other musculoskeletal conditions only was 12% (up from 2% in children aged 0–15).



Note: The thin bars attached to each vertical column are 95% confidence intervals. We can be 95% confident that the true value is within the interval depicted.

Source: National Health Survey 2011–12.

Figure 4.1: Prevalence of arthritis and other musculoskeletal conditions, people aged 16–34, 2011–12

In terms of specific musculoskeletal conditions for which prevalence estimates are available:

- *back pain/problems* were reported by 7% of people in this age group, with the prevalence being higher in the 25–34 age group (Table 4.1). The condition was more common among females than males
- *osteoarthritis* affected 1% of people in this age group, with the prevalence being similar for females and males
- *rheumatoid arthritis* was reported by 0.5% of people aged 16–34 and osteoporosis by 0.2% of people in this age group.

Table 4.1: Age-specific prevalence of selected musculoskeletal conditions, people aged 16–34, 2011–12

Type of condition	Sex	Age group (in years)		
		16–24	25–34	Total 16–34
		%		
Osteoarthritis	Males	0.0	1.4*	0.8
	Females	0.3**	1.4*	0.9
	Persons	0.2**	1.3	0.8
Rheumatoid arthritis	Males	0.2**	0.7**	0.5
	Females	0.0	0.7*	0.4
	Persons	0.1*	0.8*	0.5
Back pain/problems	Males	4.1	8.0	6.2
	Females	6.0	9.1	7.7
	Persons	4.9	8.7	7.0
Osteoporosis	Males	0.0	0.0	0.0
	Females	0.2**	0.3**	0.3
	Persons	0.1**	0.3*	0.2
Population	Males	1,444,644	1,603,557	3,043,427
	Females	1,339,817	1,600,132	2,946,680
	Persons	**2,784,178**	**3,203,936**	**5,989,173**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

*Estimate is subject to high standard errors (relative standard error of 25–50%) and should be used with caution.

**Estimate is subject to sampling variability too high for practical purposes (relative standard error greater than 50%).

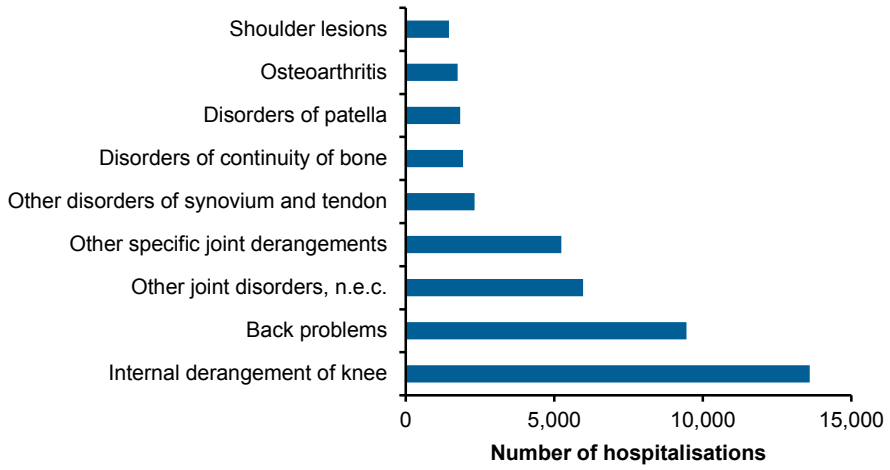
Note: Rates for all ages was age standardised to the Australian population as at 30 June 2001.
Source: National Health Survey 2011–12.

Treatment and management

Most musculoskeletal conditions cannot be cured. The aim of management is therefore to relieve pain, reduce inflammation, protect the joints from damage and maintain joint function. Management generally comprises a combination of medication, physical therapy, self-management education and (where necessary) surgery (AIHW 2008b).

Hospitalisation

In 2011–12, there were 59,176 hospitalisations for people aged 16–34 with the principal diagnosis of musculoskeletal conditions, with an average length of stay of 1.7 days. Within this age group, the hospitalisation rate was highest in 30–34 year olds and higher in men (1,405 per 100,000 population) than women (942 per 100,000 population). The main reasons (principal diagnosis) for these hospitalisations were internal derangement of knee (23%), back problems (16%) and other joint disorders (10%) (Figure 4.2).



n.e.c. – not elsewhere classified.
Source: AIHW National Hospital Morbidity Database.

Figure 4.2: Hospitalisations with the principal diagnosis of arthritis and other musculoskeletal conditions, people aged 16–34, 2011–12

Surgical procedures

A total of 75,269 surgical procedures was performed during these hospitalisations. Arthroscopic meniscectomy of knee with debridement, osteoplasty or chondroplasty was the most common procedure (Table 4.2). Arthroscopy is usually performed to look inside the joint. It is used in the early stages of the disease for temporary symptom relief and to know what is happening in the joint. A meniscectomy is done when all or part of a torn meniscus is removed; debridement is the surgical removal of lacerated, devitalised or contaminated tissue; and osteoplasty is the replacement of lost bone tissue or reconstruction of defective bony parts.

Spinal rhizolysis, which accounted for 3% of all surgical procedures for musculoskeletal conditions in people aged 16–34, is surgery of the lower back to disrupt the nerves that transmit pain information, and so provide pain relief.

Table 4.2: Top ten surgical procedures performed for arthritis and other musculoskeletal conditions in people aged 16–34, 2011–12

Type of procedure	Surgical procedures	
	Number	%[(a)]
Arthroscopic meniscectomy of knee with debridement, osteoplasty or chondroplasty	3,624	4.8
Arthroscopic stabilisation of shoulder	3,032	4.0
Arthroscopic meniscectomy of knee	2,846	3.8
Arthroscopic reconstruction of knee	2,450	3.3
Spinal rhizolysis	2,211	2.9
Discectomy, 1 level	1,689	2.2
Arthroscopic reconstruction of cruciate ligament of knee with repair of meniscus	1,410	1.9
Arthroscopic removal of loose body of knee with debridement, osteoplasty or chondroplasty	1,251	1.7
Arthroscopic debridement of knee	1,186	1.6
Arthroscopy of knee	1,183	1.6
Subtotal	*20,882*	*27.7*
Other	54,387	72.3
Total surgical procedures	**75,269**	**100.0**

(a) % of total surgical procedures (N = 75,269) performed in people aged 16–34 with arthritis and other musculoskeletal conditions as the principal diagnosis.
Note: Procedures have been counted only once for each hospitalisation, although those may have been performed more than once during that particular hospital stay.
Source: AIHW National Hospital Morbidity Database.

Quality of life

Young adults are an important group to consider, often falling between established boundaries for 'adolescent' and 'adult' age distinctions (Nevid & Rathus 2005). At a time when they may be embarking on full-time paid employment or engaging in further and higher education, and making decisions that will affect their subsequent personal and career development, severely disabling chronic pain may be particularly disruptive (Mallen et al. 2005).

Studies demonstrated that the health-related quality of life of young adults with arthritis was poor in the domains of gross motor and systemic functioning, with 39% reporting frustration and 64% reporting depression (Shaw et al. 2006). Young females were reported to have worse health-related quality of life and delayed psychosocial development (Haverman et al. 2011).

Concerns for the future may be more pronounced in young people with arthritis, focusing on the disease course and how long they will be able to keep working and remain independent (Ostlie et al. 2009). Some expressions include:

> *'I thought only old people got rheumatoid arthritis. When the doctor told me this was what I had, I couldn't stop crying. I cried all the way to work'.*

'I am only 21 and while marriage and children are a long way off, what scares me is having to go off medication during pregnancy. Even in remission, that would terrify me. Then there is caring for the baby. What happens if you can't walk or are in the middle of a flare?' [Woman (21)].

Source: Arthritis Australia 2010.

Although most young adults manage their condition, for some participation in outdoor activities can be restricted, and school and work endurance and capacity restrained. Bodily limitations may lead to continued dependency on parents or partners for daily activities. For some people the future can be uncertain.

'I was angry at the world and everyone in it. I could no longer do the things I loved doing and I couldn't see a future for myself' [Woman (34) with rheumatoid arthritis].

Source: Arthritis Australia 2010.

Physical impairment

According to the 2009 SDAC, people aged 15–34 with arthritis and/or other musculoskeletal conditions were more likely to report physical impairments than the overall population of that age. The most common physical impairments associated with these conditions are chronic or recurrent pain and restrictions in physical activities (Table 4.3).

Table 4.3: Physical impairments in people aged 15–34, 2009

Type of impairment	Arthritis and/or other musculoskeletal conditions (N = 280,863)[(a)]	Overall population (N = 5,973,711)
	%	
Chronic or recurrent pain or discomfort	25.1	9.8
Difficulty gripping or holding things	5.0	0.6
Restriction in physical activities or work	21.5	2.3
Incomplete use of feet or legs	5.0	0.6
Incomplete use of arms or fingers	2.9	0.5

(a) People reporting these conditions as a long-term health condition.

Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.

Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Activity limitation

People aged 15–34 with arthritis and/or other musculoskeletal conditions were 6 times as likely as those in the overall population to experience core activity limitations (30% compared with 5%) (Table 4.4). About 1 in 5 (20%) people with arthritis and/or other musculoskeletal conditions experienced mild to moderate core activity limitation (approximately 56,101 people) and 10% experienced severe to profound core activity limitation (approximately 28,062 people) (Table B36).

Table 4.4: Core activity limitations in people aged 15–34, 2009

Level of activity limitation	Arthritis and/or other musculoskeletal conditions (N = 280,863)[(a)]	Overall population (N = 5,973,711)
	%	
Core activity limitation	**29.9**	**4.5**
Mild/moderate	20.2	2.7
Severe/profound	9.7	1.8
No core activity limitation	**70.0**	**95.5**

(a) People reporting these conditions as a long-term health condition.

Notes
1. Core activities are self-care, mobility and communication. Core activity limitations (such as profound, severe, moderate, mild) are determined based on whether a person needs help, has difficulty, or uses aids or equipment with any of the 3 core activities.
2. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation
3. Age standardised to the Australian population as at 30 June 2001.
Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Young people with arthritis and/or other musculoskeletal conditions were more likely to report having difficulty or need assistance with most daily activities than young adults in the overall population (Table 4.5). This was particularly prominent for mobility (8 times as likely as the overall population), household chores (5.1 times), health care (4.4 times) and cognitive or emotional tasks (3.9 times).

Table 4.5: Broad activities where people aged 15–34 have difficulty or need assistance, 2009

Activities	Arthritis and/or other musculoskeletal conditions (N = 280,863)[(a)]	Overall population (N = 5,973,711)
	%	
Property maintenance	14.6	3.6
Health care	12.8	2.9
Mobility	14.4	1.8
Household chores	15.3	3.0
Self-care	8.0	2.1
Cognitive or emotional tasks	19.2	4.9
Private transport	7.5	2.7
Meal preparation	3.7	1.2
Paperwork	2.9	1.8
Communication	1.1	0.8

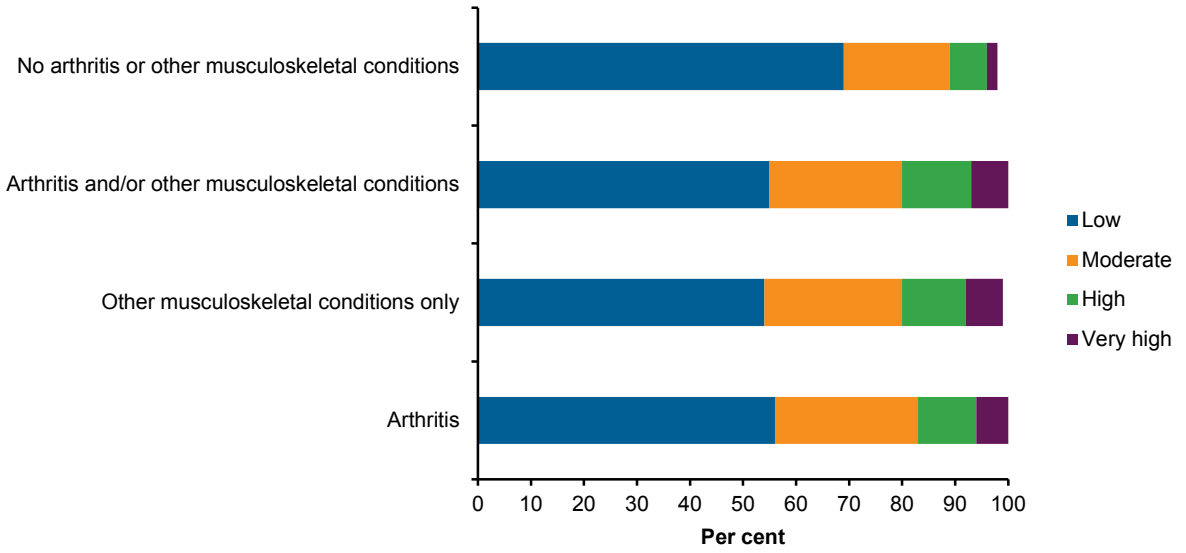
(a) People reporting these conditions as a long-term health condition.

Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.
Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Psychological effects

Among respondents aged 18–34 to the 2011–12 NHS, high or very high psychological distress was more frequently reported by people with these conditions (20%) than those without (9%) (Figure 4.3). Very little difference is noted in the level of reported psychological distress between people in this age group with arthritis or other musculoskeletal conditions (Table B6).



Note: Age standardised to the Australian population as at 30 June 2001.

Source: National Health Survey, 2011–12.

Figure 4.3: Psychological distress in people aged 18–34 with arthritis and other musculoskeletal conditions, 2011–12

Mental disorders

According to the 2007 Survey of Mental Health and Wellbeing, young people aged 16–34 with arthritis and/or other musculoskeletal condition were twice as likely to report having mental disorders than those without these conditions (Table 4.6). The strongest association was between arthritis and affective disorders (mainly depression), followed by other musculoskeletal conditions and affective disorders. Young adults with arthritis were slightly more at risk of having anxiety, affective and substance use disorders than those with other musculoskeletal conditions.

Table 4.6: Mental disorders in people aged 16–34 with arthritis and other musculoskeletal conditions, 2007

Type of mental disorder	Arthritis	Other musculoskeletal conditions only	Arthritis and/or other musculoskeletal conditions
	Relative risk	Relative risk	Relative risk
Any anxiety disorder	2.4	2.0	2.0
Any affective disorder	3.7	2.7	2.9
Any substance use disorder	2.4	1.9	2.0
Any mental disorder	1.9	1.9	1.9

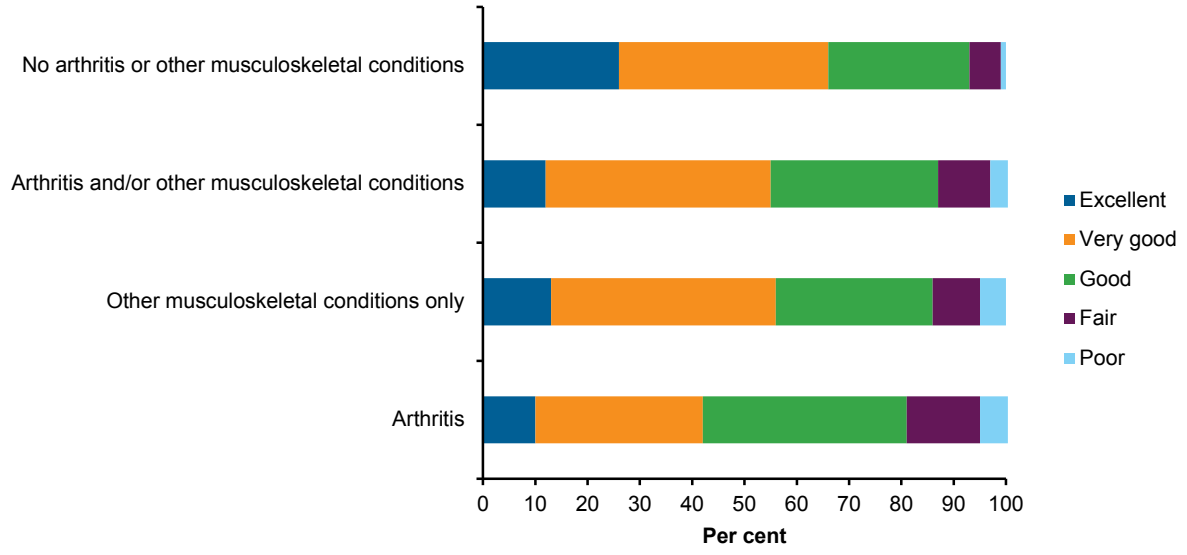
Notes

1. Lifetime disorder with 12-month symptoms
2. Comparison group is people without arthritis and other musculoskeletal conditions.
3. Relative risk in this context is the risk of someone with a musculoskeletal condition reporting having a mental disorder compared with the risk of someone without a musculoskeletal condition reporting having a mental disorder.

Source: AIHW analysis of ABS 2007 Survey of Mental Health and Wellbeing.

Self-assessed health

From the 2011–12 NHS, although most young people with arthritis and/or other musculoskeletal conditions perceive their health to be good, very good or excellent, they were twice as likely to report fair or poor health as those without these conditions (Figure 4.4). People with arthritis were more likely to consider their health as fair or poor than those with other musculoskeletal conditions (21% compared with 14% respectively) (Table B7).



Note: Age standardised to the Australian population as at 30 June 2001.

Source: National Health Survey, 2011–12.

Figure 4.4.: Self-assessed health status of people aged 16–34 with arthritis and other musculoskeletal conditions, 2011–12

5 Middle years (aged 35–64)

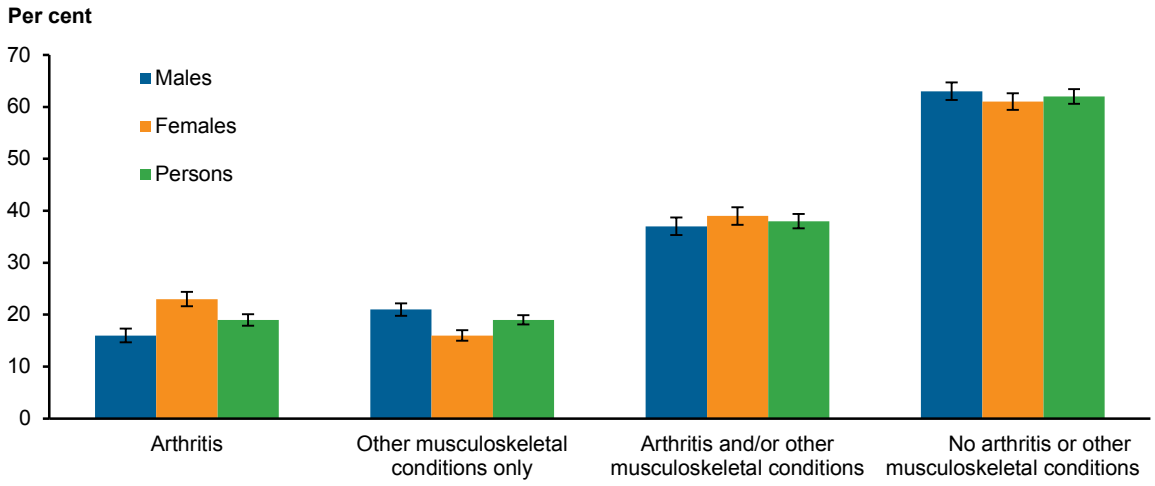
The 30 years of life included in this age group span a wide range of life events, milestones and transitions. These may include establishing or changing workforce roles (including retirement for some) and performing a range of family and friendship roles such as raising children and caring for other family members, for example ageing parents.

This is also a significant stage because it is during this period that health conditions are likely to emerge. For example, this age group represents the turning point in the prevalence of arthritis and other musculoskeletal conditions. From the age of 40 onwards many different forms of arthritis, such as *rheumatoid arthritis*, *osteoarthritis* and gout, start developing.

People aged 55 and over with *osteoporosis* are more likely than others to sustain a fracture known as 'minimal trauma fracture'. As a result, their health may start to deteriorate and daily routines might change. The effects of musculoskeletal conditions can feel daunting (Salaffi et al. 2005) and the fear of physical changes (like stiffness, pain and fatigue) can become more challenging to deal with (Woolf & Pfleger 2003).

Prevalence

According to the 2011–12 National Health Survey, an estimated 3.3 million Australians (38% of the total population) aged 35–64 reported having arthritis or another musculoskeletal condition (Table B8). In this age group, 19% reported arthritis (up from 3% in those aged 16–34) and 19% reported other musculoskeletal conditions only (up from 12% in the 16–34 age group). In general the prevalence for men and women did not differ statistically. For specific condition groups, the prevalence was higher for women reporting arthritis and for men reporting other musculoskeletal conditions only (Figure 5.1).



Note: The thin bars attached to each vertical column are 95% confidence intervals. We can be 95% confident that the true value is within the interval depicted.

Source: National Health Survey 2011–12.

Figure 5.1: Prevalence of arthritis and other musculoskeletal conditions, people aged 35–64, 2011–12

In terms of specific musculoskeletal conditions for which prevalence estimates are available:

- *back pain/problems* remained the most common musculoskeletal condition (as for children and young adults), affecting 11% of people in this age group (up from 7% in young adults). Back pain/problems occurred more frequently in men at all ages
- *osteoarthritis* affected almost 10% of people in this age group (up from 1% in young adults aged 16-34 (Table 5.1). The condition was more common among women than men, with prevalence increasing with age, being highest in people aged 55–64
- the prevalence of *osteoporosis* was 3% among people aged 35–64 (up from 0.2% in young adults) increasing with age across the middle years. The prevalence of this condition was higher for women at all ages within this life stage, rising sharply in women aged 55–64
- the prevalence of *rheumatoid arthritis* is also higher in this age group (3%, up from 0.4% in young adults) and increased sharply with age across the middle years, with a particularly steep rise in prevalence after the age of 55 for women. The prevalence rate for women was greater than that for men at nearly all ages.

Table 5.1: Age-specific prevalence of selected musculoskeletal conditions, people aged 35–64, 2011–12

Type of condition	Sex	Age group (in years)			
		35–44	45–54	55–64	Total 35–64
		%			
Osteoarthritis	Males	2.7	5.8	14.2	6.6
	Females	2.9	14.1	25.2	12.3
	Persons	2.7	10.1	19.7	9.5
Rheumatoid arthritis	Males	1.0*	1.7*	3.0	1.8
	Females	1.8	4.1	5.4	3.5
	Persons	1.5	2.9	4.4	2.7
Back pain/ problems	Males	13.3	12.7	11.3	12.6
	Females	11.1	8.7	10.2	10.0
	Persons	12.3	10.7	10.8	11.4
Osteoporosis	Males	0.7*	1.6*	1.9*	1.3
	Females	0.9*	3.7	11.8	4.6
	Persons	0.8*	2.7	7.1	3.0
Population	Males	1,554,185	1,492,460	1,262,189	4,308,565
	Females	1,585,651	1,536,937	1,301,358	4,422,954
	Persons	**3,137,600**	**3,019,870**	**2,566,643**	**8,723,162**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

*Estimate is subject to high standard errors (relative standard error of 25–50%) and should be used with caution.

Note: Rates for all ages was age standardised to the Australian population as at 30 June 2001.
Source: National Health Survey 2011–12.

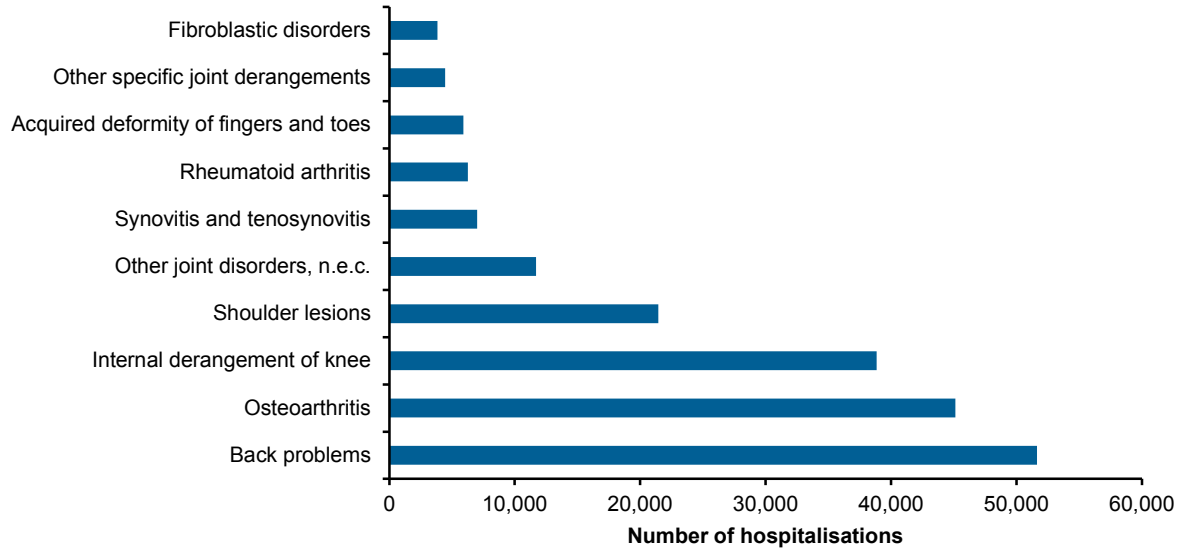
Treatment and management

Among middle-aged people, the most important predictors of future health and functioning are appropriate management of their musculoskeletal condition or conditions. The treatment and care options for these conditions can cover a wide variety of settings and phases of care including primary care, allied health services, specialist surgeries and hospital.

People in this age group may require regular consultation with their GPs for diagnostic assessments, prescriptions, referrals and advice on self-management. Over the course of the disease and depending on its severity, GPs may seek support from specialists such as orthopaedic surgeons, rheumatologists and endocrinologists in treating their patients (Rheumatology Expert Group 2006).

Hospitalisation

In 2011–12, there were 244,762 hospitalisations of people aged 35–64 with the principal diagnosis of musculoskeletal conditions, the average length of stay being 2.5 days. Men were more likely to be hospitalised for these conditions than women (2,768 per 100,000 compared with 2,568 per 100,000 population). Principal diagnoses of back problems (21%) and *osteoarthritis* (18%) accounted for the largest proportion of these hospitalisations (Figure 5.2).



n.e.c. – not elsewhere classified.
Source: AIHW National Hospital Morbidity Database.

Figure 5.2: Hospitalisations with the principal diagnosis of arthritis and other musculoskeletal conditions, people aged 35–64, 2011–12

Hospitalisation for minimal trauma fractures

In 2011–12, according to the AIHW National Hospital Morbidity Database:

- there were 17,649 hospitalisations for minimal trauma fractures in people aged 35–64
- the hospitalisation rate was higher in women (227 per 100,000 population) than in men (153 per 100,000 population)
- the most common sites of fracture were the forearm (28%), lower leg including ankle (28%) and femur (10%).

Surgical procedures

People of this age group are mostly hospitalised for surgical intervention. These procedures are generally required to relieve pain or to restore function in a joint damaged by arthritis or an injury (NIAMS 2001).

In 2011–12, 308,642 surgical procedures were performed on people aged 35–64 with a principal diagnosis of arthritis and other musculoskeletal conditions. The average length of stay in hospital was 2.5 days. Arthroscopic surgery (e.g. surgery in which bones in the joint are fused or joined together), spinal rhizolysis (surgery of lower back) and arthroplasty of the knee (known as total joint replacement) were the most common surgical procedures during these hospitalisations (Table 5.2).

Table 5.2: Top ten surgical procedures performed for arthritis and other musculoskeletal conditions, people aged 35–64, 2011–12

Type of procedure	Surgical procedures	
	Number	%[(a)]
Arthroscopic meniscectomy of knee with debridement, osteoplasty or chondroplasty	32,047	10.4
Spinal rhizolysis	13,485	4.4
Total arthroplasty of knee, unilateral	11,941	3.9
Arthroscopic reconstruction of shoulder	9,845	3.2
Total arthroplasty of hip, unilateral	9,317	3.0
Arthroscopic decompression of subacromial space	8,958	2.9
Arthroscopic meniscectomy of knee	8,623	2.8
Discectomy, 1 level	6,514	2.1
Percutaneous neurotomy for facet joint denervation by radiofrequency	4,864	1.6
Release of tendon sheath of hand	4,568	1.5
Sub total	*110,162*	*35.7*
Other	198,480	64.3
Total procedures	**308,642**	**100.0**

(a) % of total surgical procedures (N = 308,642) performed in people aged 35–64 with arthritis and other musculoskeletal conditions as the principal diagnosis.
Note: Procedures have been counted only once for each hospitalisation, although those may have been performed more than once during that particular hospital stay.
Source: AIHW National Hospital Morbidity Database.

The types of surgical procedures differ for different principal diagnoses (Table 5.3). For example, arthroscopy was more common in people with arthritis, followed by joint replacements (hip and knee) which were mainly performed for people with a principal diagnosis of *osteoarthritis*. Spinal rhizolysis (surgery of the lower back) was mainly performed in people with a principal diagnosis of back problems. A very small number of procedures were performed in people with a principal diagnosis of osteoporosis.

Table 5.3: Most common surgical procedures performed in hospitalisations for specific type of musculoskeletal conditions, people aged 35–64, 2011–12

Principal diagnosis	Type of procedure	Number of procedures performed	% of total surgical procedures for musculoskeletal conditions
Arthritis	Arthroscopic meniscectomy of knee with debridement, osteoplasty	32,047	10.4
	Total arthroplasty of knee, unilateral	12,793	4.1
	Arthroscopic meniscectomy of knee	8,826	2.9
	Total arthroplasty of hip, unilateral	8,767	2.8
Osteoarthritis	Total arthroplasty of knee, unilateral	12,455	4.0
	Total arthroplasty of hip, unilateral	8,558	2.8
	Arthroscopic meniscectomy of knee with debridement, osteoplasty	6,884	2.2
Rheumatoid arthritis	Total arthroplasty of knee, unilateral	155	n.p.
	Total arthroplasty of hip, unilateral	91	n.p.
	Aspiration of joint or other synovial cavity n.e.c.	64	n.p.
Back problems	Spinal rhizolysis	13,385	4.3
	Discectomy, 1 level	6,514	2.1
	Administration of agent into zygo-apophyseal joint	4,458	1.4
Osteoporosis	Internal fixation of fracture trochanteric or subcapital femur	10	n.p.
	Panendoscopy to duodenum	7	n.p.
	Total arthroplasty of hip, unilateral	4	n.p.
Total surgical procedures for people aged 35–64		**308,642**	

n.e.c. – not elsewhere classified.

n.p. – not publishable.

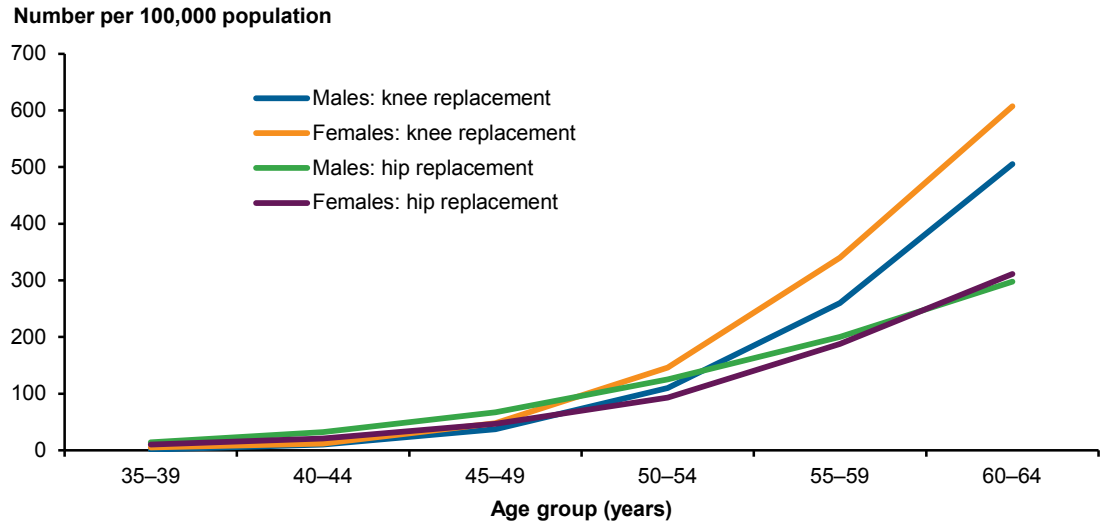
Note: Procedures have been counted only once for each hospitalisation, although those may have been performed more than once during that particular hospital stay.
Source: AIHW National Hospital Morbidity Database.

Joint replacements

Total joint replacements are the most common surgical intervention for people with arthritis particularly when a person no longer responds to less invasive forms of management and the pain and/or loss of function experienced makes normal daily living difficult.

In 2011–12 there were about 23,160 total joint replacements performed on people aged 35–64 (59% knee and 41% hip replacements) with a principal diagnosis of musculoskeletal conditions, performed at the rate of 231 per 100,000 population. Of these:

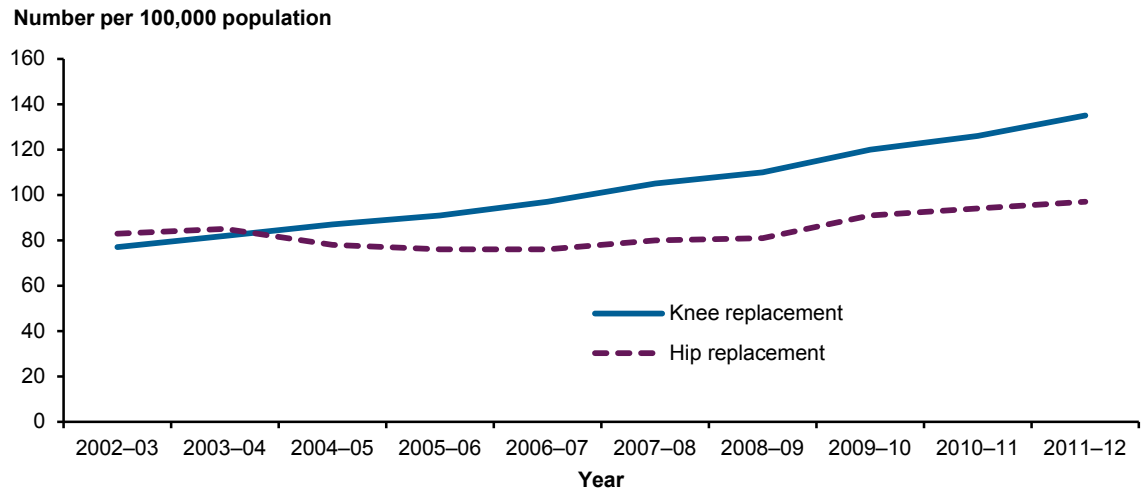
- knee replacement was more common in women than men
- hip replacement was more common in men than women
- both procedures were more common among people aged 60–64 than at other ages within this life stage (Figure 5.3).



Source: AIHW National Hospital Morbidity Database.

Figure 5.3: Total knee and hip replacements with the principal diagnosis of musculoskeletal conditions, people aged 35–64, 2011–12

The use of joint replacements in people aged 35–64 is increasing. Over the period 2002–03 to 2011–12, the rate for knee replacement increased from 77 per 100,000 to 135 per 100,000 population, an increase of 75% (Figure 5.4). A slight upward trend is also noted in hip replacement, increasing by 17% (from 83 to 97 per 100,000 population) over this period.



Source: AIHW National Hospital Morbidity Database.

Figure 5.4: Trends in knee and hip replacements with the principal diagnosis of musculoskeletal conditions, people aged 35–64, 2002–03 to 2011–12

Quality of life

Arthritis and other musculoskeletal conditions can have a large impact on the functioning and quality of life of people aged 35–64. These conditions not only limit mobility but also can cause difficulty in carrying out a wide range of daily tasks. The quality of day-to-day life can be low in terms of physical functioning, bodily pain and role performance. Many people may feel helpless and try to live with the pain.

> *'I'd promised to make a salad but my hand and wrists were so painful I couldn't slice the lettuce. I felt so helpless. All I could do was stand there and sob'* [Woman (35) with rheumatoid arthritis]

> *'I didn't want to be seen as a whinger. With rheumatoid arthritis no matter how excruciating the pain, you learn to live with it. It's the fatigue that knocks you rotten'* [Woman (37)].

Source: Arthritis Australia 2010.

Having arthritis or other musculoskeletal conditions can also affect relationships. It can be very difficult for a partner or carer. People with *rheumatoid arthritis* in particular feel guilty about burdening the family and the compromises they have to make.

> *'Rheumatoid arthritis doesn't just affect the person who has it. It's a strain on the whole family. I spent three years in a haze. All I could think about was pain'* [Woman (35)].

Source: Arthritis Australia 2010.

Physical impairment

According to the 2009 SDAC, physical impairments were much more commonly reported by people aged 35–64 with arthritis and/or other musculoskeletal conditions than by the overall

population of that age. The most common physical impairments associated with these conditions are chronic or recurrent pain and restrictions in physical activities (Table 5.4).

Chronic or recurrent pain and restriction in physical activities were more common in people with arthritis than those with other musculoskeletal conditions only. People with arthritis were also 3 times as likely to report problems with difficulty gripping or holding things than those reporting other musculoskeletal conditions only (23% compared with 8%). Incomplete use of arms or fingers or feet or legs were the other commonly reported physical impairments by people with arthritis.

Table 5.4: Physical impairments in people aged 35–64, 2009

Type of impairment	Arthritis (N = 850,897)[(a)]	Other musculoskeletal conditions only (N = 935,053)[(a)]	Arthritis and/or other musculoskeletal conditions (N = 1,785,950)[(a)]	Overall population (N = 8,417,063)
		%		
Chronic or recurrent pain or discomfort	34.0	32.6	33.2	8.3
Difficulty gripping or holding things	23.3	7.5	14.6	4.3
Restriction in physical activities or work	31.2	30.9	31.0	9.1
Incomplete use of feet or legs	10.6	4.3	6.9	2.3
Incomplete use of arms or fingers	8.4	3.6	5.7	1.9

(a) People reporting these conditions as a long-term health condition.

Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.

Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Activity limitation

People aged 35–64 with arthritis and/or other musculoskeletal conditions were more likely to experience core activity limitations compared to the overall population (42% compared with 14%) (Table 5.5). About 29% of people with arthritis and other musculoskeletal conditions experienced mild to moderate activity limitation (approximately 557,795 people) and 13% experienced severe to profound activity limitation (approximately 247,355 people) (Table B36). A similar pattern was noted for people with arthritis and those with other musculoskeletal conditions only.

Table 5.5: Core activity limitations in people aged 35–64, 2009

Level of activity limitation	Arthritis (N = 850,897)[(a)]	Other musculoskeletal conditions only (N = 935,053)[(a)]	Arthritis and/or other musculoskeletal conditions (N = 1,785,950)[(a)]	Overall population (N = 8,417,063)
	%			
Core activity limitation	**47.0**	**39.0**	**42.1**	**13.8**
Mild/moderate	31.9	27.3	28.9	9.5
Severe/profound	15.1	11.7	13.2	4.4
No core activity limitation	**53.0**	**61.0**	**57.9**	**86.2**

(a) People reporting these conditions as a long-term health condition.

Notes
1. Core activities are self-care, mobility and communication. Core activity limitations (such as profound, severe, moderate, mild) are determined based on whether a person needs help, has difficulty, or uses aids or equipment with any of the 3 core activities.
2. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation
3. Age standardised to the Australian population as at 30 June 2001.
Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Relative to the overall population, people aged 35–64 with arthritis and/or other musculoskeletal conditions were more likely to report difficulty or need for assistance with daily activities. This was particularly prominent for household chores (3.6 times as likely as the general population), property maintenance (3.5 times), self-care (3.3 times), and mobility (3.1 times) (Table 5.6). The need for assistance was slightly higher for people with arthritis.

Table 5.6: Broad activities where people aged 35–64 have difficulty or need assistance, 2009

Activities	Arthritis (N = 850,897)[(a)]	Other musculoskeletal conditions only (N = 935,053)[(a)]	Arthritis and/or other musculoskeletal conditions (N = 1,785,950)[(a)]	Overall population (N = 8,417,063)
		%		
Property maintenance	27.3	25.6	26.5	7.4
Health care	24.9	17.4	20.9	6.3
Mobility	25.7	20.4	22.7	7.2
Household chores	23.0	21.3	22.2	6.1
Self-care	19.2	13.7	16.2	4.9
Cognitive or emotional tasks	23.7	22.8	23.3	7.9
Private transport	12.8	11.1	12.1	4.1
Meal preparation	5.8	4.4	5.1	1.6
Paperwork	4.7	4.1	4.4	1.8
Communication	0.4	0.5	0.5	0.5

(a) People reporting these conditions as a long-term health condition.

Notes

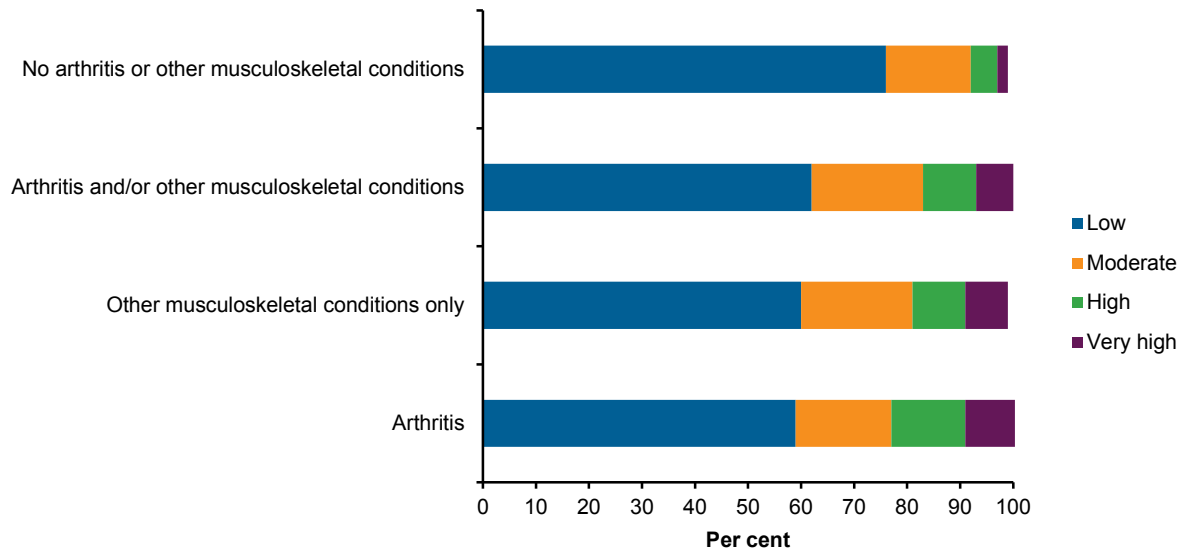
1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation
2. Age standardised to the Australian population as at 30 June 2001.

Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Psychological effects

Among respondents aged 35–64 in the 2011–12 NHS, psychological distress was much higher in people who reported having arthritis and/or other musculoskeletal conditions than among those with other long-term conditions (Figure 5.5). About 18% of people with arthritis and/or other musculoskeletal conditions reported high or very high levels of psychological distress compared to those without the conditions (7%).

People with arthritis were more likely to report high or very high psychological distress (24%) than those with other musculoskeletal conditions (18%) (Table B12).



Note: Age standardised to the Australian population as at 30 June 2001.

Source: National Health Survey, 2011–12.

Figure 5.5: Psychological distress in people aged 35–64 with arthritis and other musculoskeletal conditions, 2011–12

Mental disorders

According to the 2007 Survey of Mental Health and Wellbeing, mental disorders were almost twice as likely (1.9 times) to occur in people aged 35–64 with arthritis and/or other musculoskeletal conditions than those without these conditions (Table 5.7).

Of the various types of mental disorders, affective disorders (depression) had the greatest relative risk followed by anxiety disorders in all groups other than arthritis (1.3 times). People with other musculoskeletal conditions had greater risk of having these disorders compared to people with arthritis (1.9 times compared to 1.4 times).

Table 5.7: Mental disorders in people aged 35–64 with arthritis and other musculoskeletal conditions, 2007

Type of mental disorder	Arthritis	Other musculoskeletal conditions only	Arthritis and/or other musculoskeletal conditions
	Relative risk	Relative risk	Relative risk
Any anxiety disorder	1.5	1.9	1.9
Any affective disorder	1.3	2.6	2.3
Any substance use disorder	1.1	1.7	1.5
Any mental disorder	1.4	1.9	1.9

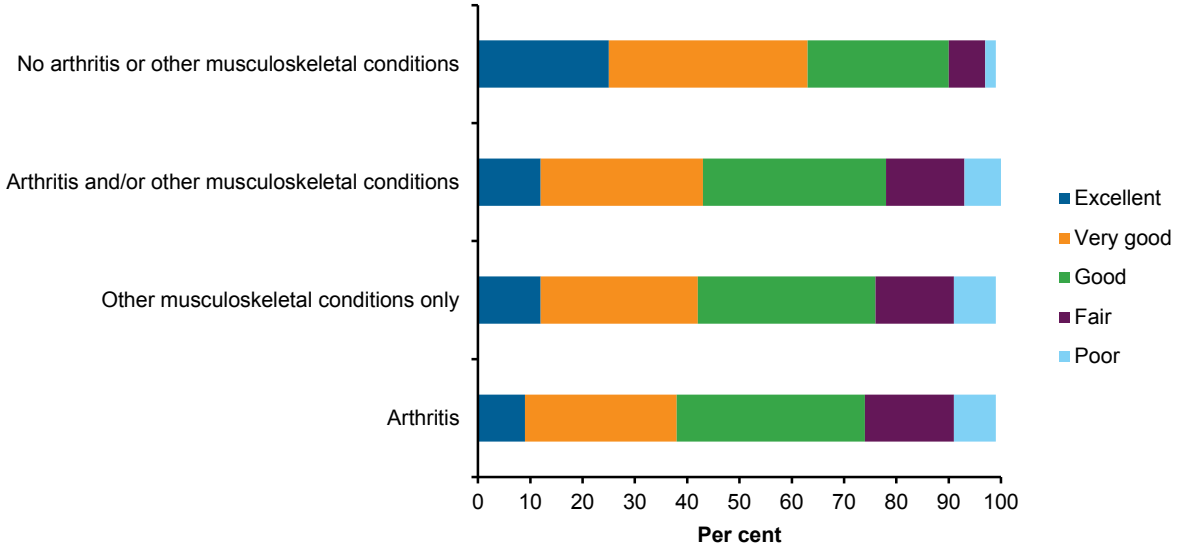
Notes

1. Lifetime disorder with 12-month symptoms
2. Comparison group is people without arthritis and other musculoskeletal conditions.
3. Relative risk in this context is the risk of someone with a musculoskeletal condition reporting having a mental disorder compared with the risk of someone without a musculoskeletal condition reporting having a mental disorder.

Source: AIHW analysis of ABS 2007 Survey of Mental Health and Wellbeing.

Self-assessed health

Estimates from the 2011–12 NHS show that perceived health among people aged 35–64 with arthritis and/or other musculoskeletal conditions was poorer than those without these conditions. People with these conditions were more likely to report fair or poor health than those without these conditions (22% compared with 9%) (Figure 5.6). People with arthritis are more likely to report their health as fair or poor compared with those with other musculoskeletal conditions (26% compared with 23% respectively) (Table B13).



Note: Age standardised to the Australian population as at 30 June 2001.
Source: National Health Survey, 2011–12.

Figure 5.6: Self-assessed health status of people aged 35–64 with arthritis and other musculoskeletal conditions, 2011–12

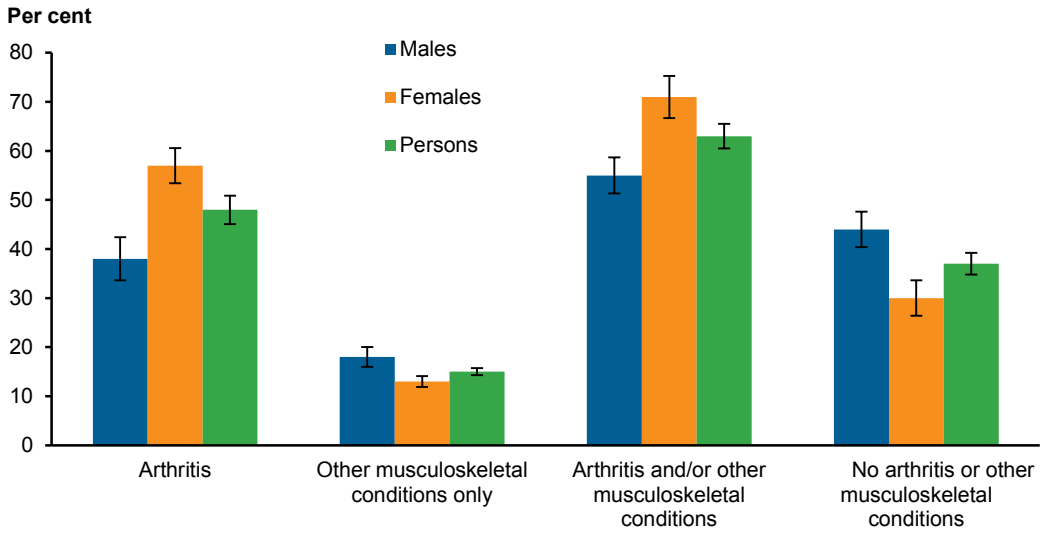
6 Older Australians (aged 65–79)

In the age group 65–79 people typically change their daily routine or retire. As work responsibilities abate, for many people it is a time to explore hobbies and activities that there was little or no time for earlier in life. This stage of life is also a period when many people experience normal, age-related changes that may affect their lifestyle. Common age-related physical changes include hearing impairment, weakening vision and the increasing probability of arthritis, hypertension, heart disease, diabetes, respiratory conditions, and osteoporosis (Covinsky et al. 2003).

With arthritis or another musculoskeletal condition, in particular, health may worsen and physical activity begin to decline (Morone et al. 2009). The physical impairments and activity limitations associated with these conditions can have considerable impact on social participation, leading to loss of independence and social isolation. In some cases this might result in institutionalisation (Nihtila et al. 2007).

Prevalence

Based on self-reported data from the 2011–12 National Health Survey, an estimated 1.4 million Australians aged 65–79 (63% of the total population in this age group) reported having arthritis or another musculoskeletal condition. Arthritis and/or other musculoskeletal conditions were more common among women than men overall, although men were more likely than women to report other musculoskeletal conditions only (for example, back pain or other back problems; Figure 6.1; Table B14). This is the first broad age group in which the prevalence of arthritis (48%, up from 19% in those aged 35–64) exceeds the prevalence of other musculoskeletal conditions only (15%, down slightly from 19% in those aged 35–64).



Note: The thin bars attached to each vertical column are 95% confidence intervals. We can be 95% confident that the true value is within the interval depicted.

Source: National Health Survey 2011–12.

Figure 6.1: Prevalence of arthritis and other musculoskeletal conditions, people aged 65–79, 2011–12

In terms of specific musculoskeletal conditions for which prevalence estimates are available:

- this is the first life stage in which *osteoarthritis* overtakes *back pain/problems* as the most common musculoskeletal condition, with osteoarthritis reported by 29% of people aged 65–79, up from 10% in those aged 35–64 (Table 6.1). Osteoarthritis was reported more frequently by women than men (38% compared with 20% respectively) across all ages within the 65–79 year age group
- *osteoporosis* also emerges as a condition of relatively high prevalence in this age group (reported by 13% of the population aged 65–79, up from 3% in those aged 35–64). Women reported osteoporosis 5 times as often as men in this age group. For women, the prevalence of osteoporosis rises sharply with age within this life stage.
- about 13% of people aged 65–79 reported having *back pain/problems*. The prevalence decreases with age for men in this age group but appears to be slightly higher for women aged 70–74 than for those aged 65–69 or 75–79
- the prevalence of *rheumatoid arthritis* also increases in this age group (6%, up from 3% in those aged 35–64). This condition was more commonly reported by women than men in this age group.

Table 6.1: Age-specific prevalence of selected musculoskeletal conditions, people aged 65–79, 2011–12

Type of condition	Sex	Age group (in years)			
		65–69	70–74	75–79	Total 65–79
			%		
Osteoarthritis	Males	20.0	17.5	21.3	19.5
	Females	37.0	35.3	43.8	38.3
	Persons	28.6	27.2	32.2	29.1
Rheumatoid arthritis	Males	5.6*	4.8*	5.2*	5.2
	Females	6.7	6.3	6.4*	6.5
	Persons	5.9	5.4	6.6	6.0
Back pain/problems	Males	16.6	13.4	13.0	14.5
	Females	10.7	12.5	11.5	11.6
	Persons	13.4	13.1	12.1	12.9
Osteoporosis	Males	3.9*	2.8*	5.8*	4.1
	Females	14.8	21.6	28.5	21.0
	Persons	9.2	12.7	17.5	12.8
Population	Males	475,633	350,961	256,843	1,083,263
	Females	483,865	370,674	288,075	1,142,595
	Persons	**959,282**	**723,333**	**544,023**	**2,228,491**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

*Estimate is subject to high standard errors (relative standard error of 25–50%) and should be used with caution.

Note: Rates for all ages was age standardised to the Australian population as at 30 June 2001.
Source: National Health Survey 2011–12.

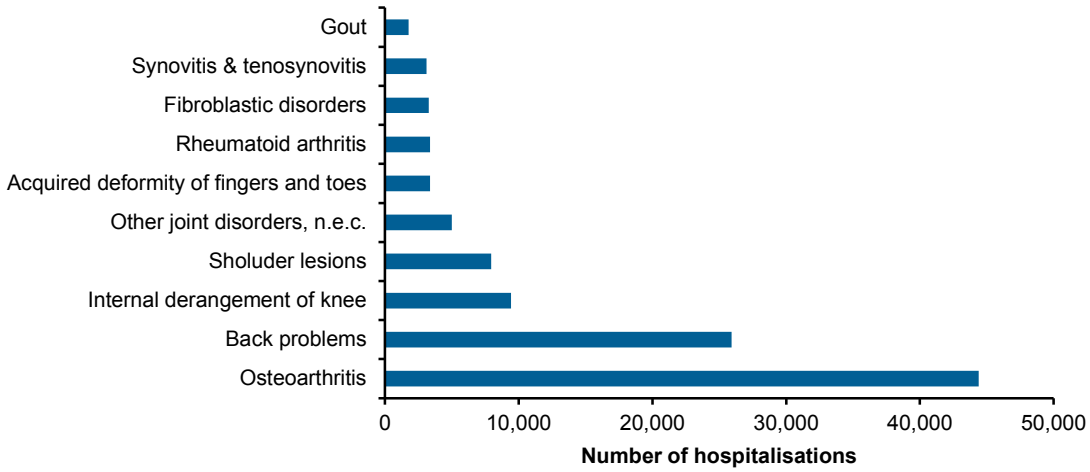
Treatment and management

People aged 65–79 are most likely to have lived with arthritis or another musculoskeletal condition for some period. In people with established musculoskeletal conditions best outcomes are achieved with good pain management, disease management and rehabilitation. Rehabilitation programs mainly aim to improve function, activities and participation, through active mobilisation using strengthening, flexibility and endurance exercise programs (Geffen 2003). The use of aids, braces or devices can also be considered, including environmental adaptations in the home.

Hospitalisation

In 2011–12, according to the AIHW National Hospital Morbidity Database, among people aged 65–79:

- there were 129,156 hospitalisations with a principal diagnosis of arthritis and other musculoskeletal conditions—a rate of 5,663 per 100,000 population
- hospitalisation rates were higher for women than men (6,098 and 5,196 per 100,000 population respectively)
- the most common reasons for hospitalisations among these people were *osteoarthritis* (34%), back problems (20%) and internal derangement of knee (7%) (Figure 6.2).



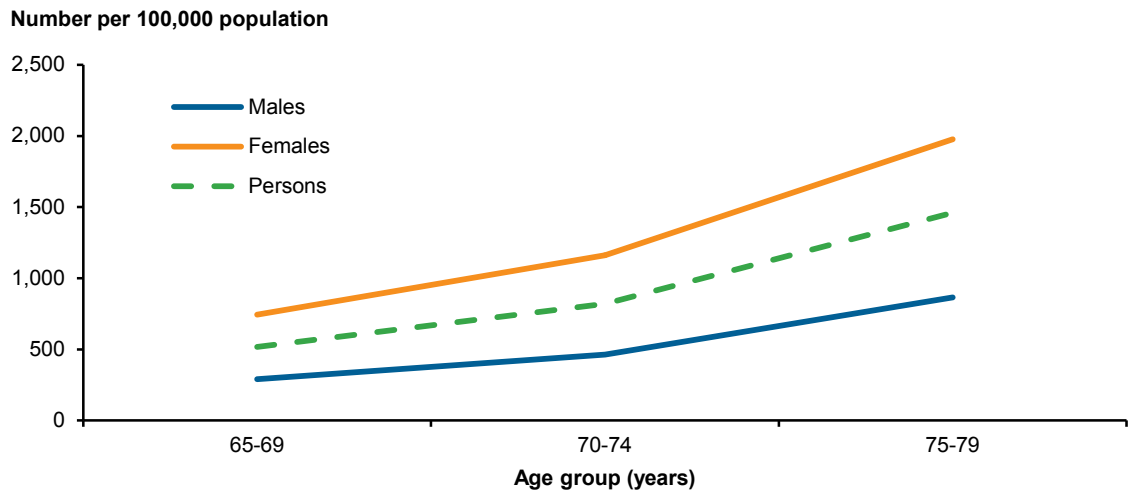
n.e.c. – not elsewhere classified.

Source: AIHW National Hospital Morbidity Database.

Figure 6.2: Hospitalisations with the principal diagnosis of arthritis and other musculoskeletal conditions, people aged 65–79, 2011–12

Hospitalisation for minimal trauma fractures

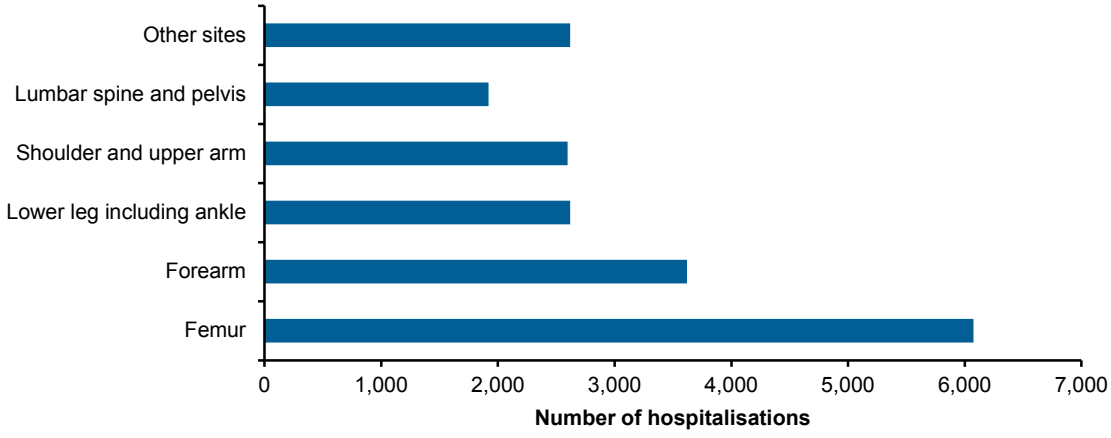
There were 19,447 hospitalisations for minimal trauma or osteoporotic fractures of people aged 65–79 in 2011–12. The average length of stay was 8.2 days. Minimal trauma fractures requiring hospitalisation vary with age and by sex (Figure 6.3). Of all hospitalisations for osteoporotic hip fractures for people aged 65–79, 42% were for people aged 75–79. The hospitalisation rate was higher for women than men in all age groups.



Source: AIHW National Hospital Morbidity Database.

Figure 6.3: Hospitalisations with the principal diagnosis of minimal trauma fracture, people aged 65–79 , 2011–12

Hip fracture (fracture of the neck of the femur) was the most common reason for hospitalisation in 2011–12, followed by fractures of the forearms and lower legs including ankles following minimal trauma (Figure 6.4).



Source: AIHW National Hospital Morbidity Database.

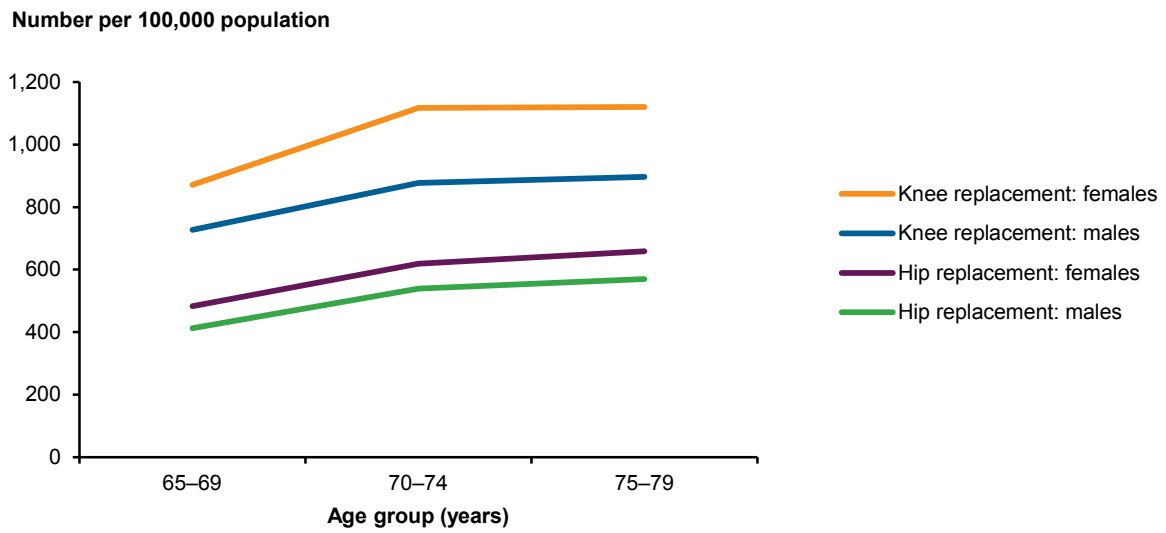
Figure 6.4: Distribution of fracture sites with the principal diagnosis of minimal trauma fracture, people aged 65–79 , 2011–12

Surgical procedures

In 2011–12, 150,817 surgical procedures were performed on people aged 65–79 with a principal diagnosis of musculoskeletal conditions. The average length of hospital stay was 5 days, with the most common procedures (shown as a percentage of all procedures for musculoskeletal conditions) being:

- total knee replacement (14%)
- total hip replacement (8%)
- arthroscopy (exploratory surgery to diagnose the reason for the pain and damage to the joint) (7%), and
- spinal rhizolysis (surgery of the lower back) (5%).

Total joint replacements are the most common surgical procedures for people aged 65–79 with musculoskeletal conditions, with 33,302 total joint replacements performed (21,080 knee replacements and 12,222 hip replacements). Knee replacement was most common among people aged 75–79 (Figure 6.5).



Source: AIHW National Hospital Morbidity Database.

Figure 6.5: Rate of total knee and hip replacement with the principal diagnosis of musculoskeletal conditions, people aged 65–79, 2011–12

The number of total joint replacements for this age group has increased over the 10 years to 2011–12. The rate of knee replacement has increased by 45% (from 642 per 100,000 in 2002–03 to 931 per 100,000 population in 2011–12). The number of hip replacements increased from 463 to 542 per 100,000 population, an increase of 17%.

Quality of life

Musculoskeletal problems are the most common cause of disability in older people. The pain, functional limitations and need for assistance with daily activities can lead to feelings of anger, sadness, hopelessness and helplessness, reduced self-confidence and self-esteem, embarrassment and loss of dignity (Sitoh et al. 2005). Living with arthritis can be debilitating. People with rheumatoid arthritis in particular may be severely affected physically, emotionally and financially.

> *'I tried to continue at the coffee shop for more than two years after I was diagnosed with rheumatoid arthritis but ultimately I had no choice other than resign. I was no use to anyone. I couldn't even stand'.*
>
> *'I developed severe respiratory problem due to rheumatoid arthritis. I have to use a puffer to help me breathe better. My doctor says if I lost a little weight it would help but it's hard to lose weight when you can't walk any distance and your knees are in bad shape'.*
>
> *'Rheumatoid arthritis is not an easy disease to live with. The medications can be expensive. Some people find it a real struggle to make ends meet'* [Woman (74)].
>
> *Source*: Arthritis Australia 2010.

Quality of life can be severely compromised particularly if people fall and sustain a fracture. Fractures may affect bodily movement and functioning, which can result in disability, affect social interaction and quality of life, and lead to a loss of independence. The fear of falling and fracturing a bone may lead to emotional distress (Visschedijk et al. 2010). In a small proportion of cases the fracture and its after-effects may increase the risk of re-fracture and premature mortality (Bliuc et al. 2009).

Physical impairment

According to the 2009 SDAC, people aged 65–79 with arthritis and/or other musculoskeletal conditions were more likely to report physical impairments than the overall population (Table 6.2). The two groups had the same proportions of people with the two most commonly reported physical impairments (chronic or recurrent pain; restriction in physical activities or work). The differences were in the three less commonly reported types of impairments that were more likely to be associated with arthritis.

Table 6.2: Physical impairments/limitations in people aged 65–79, 2009

Type of impairment	Arthritis (N = 676,869)[(a)]	Other musculoskeletal conditions only (N = 284,012)[(a)]	Arthritis and/or other musculoskeletal conditions (N = 960,882)[(a)]	Overall population (N = 2,080,018)
		%		
Chronic or recurrent pain or discomfort	32.6	32.4	32.5	16.9
Difficulty gripping or holding things	28.7	10.9	23.5	12.5
Restriction in physical activities or work	37.1	37.3	37.2	22.9
Incomplete use of feet or legs	14.0	10.2	12.9	8.0
Incomplete use of arms or fingers	9.1	6.0	8.2	5.2

(a) People reporting these conditions as a long-term health condition.

Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.

Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Activity limitation

People aged 65–79 with arthritis and/or other musculoskeletal conditions were more likely to experience core activity limitations than the overall population (Table 6.3) based on data from the 2009 SDAC. The level of activity limitation was higher in people with arthritis (60%) than those with other musculoskeletal conditions only (57%). People in both condition groups generally experienced mild to moderate core activity limitation.

Table 6.3: Core activity limitations in people aged 65–79, 2009

Level of activity limitation	Arthritis (N = 676,869)[(a)]	Other musculoskeletal conditions only (N = 284,012)[(a)]	Arthritis and/or other musculoskeletal conditions (N = 960,882)[(a)]	Overall population (N = 2,080,018)
		%		
Core activity limitation	**60.2**	**57.1**	**60.2**	**40.4**
Mild/moderate	41.0	38.9	40.4	27.2
Severe/profound	19.1	18.2	19.8	13.2
No core activity limitation	**39.8**	**42.9**	**40.7**	**59.6**

(a) People reporting these conditions as a long-term health condition.

Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.

Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Relative to the overall population, people with arthritis and other musculoskeletal conditions were more likely to report difficulty or need assistance with daily activities. This was particularly prominent for health care, household chores and self-care (1.8 times as likely as the overall population), property maintenance and mobility (1.6 times) (Table 6.4). People with arthritis were more likely than people with other musculoskeletal conditions only to report difficulty with these activities.

Table 6.4: Broad activities where people aged 65–79 have difficulty or need assistance, 2009

Activities	Arthritis (N = 676,869)[(a)]	Other musculoskeletal conditions only (N = 284,012)[(a)]	Arthritis and/or other musculoskeletal conditions (N = 960,882)[(a)]	Overall population (N = 2,080,018)
		%		
Property maintenance	26.9	23.8	39.5	23.7
Health care	25.6	22.1	37.6	21.4
Mobility	20.2	19.0	28.0	17.1
Household chores	20.1	19.8	30.2	16.9
Self-care	17.5	15.4	24.4	13.9
Cognitive or emotional tasks	12.8	19.2	18.3	11.9
Private transport	16.1	16.1	17.2	11.7
Meal preparation	4.1	3.9	5.8	3.9
Paperwork	3.4	6.2	5.9	4.7
Oral communication	2.0	2.1	2.1	2.1

(a) People reporting these conditions as a long-term health condition.

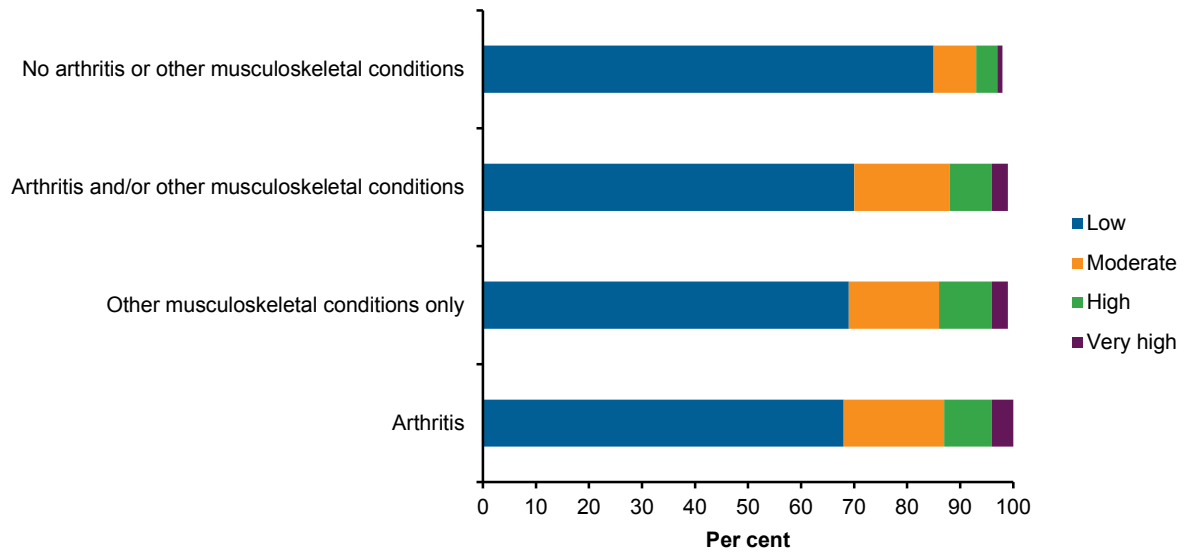
Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.

Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Psychological effects

According to the 2011–12 NHS, people aged 65–79 with arthritis and/or other musculoskeletal conditions were 2.1 times as likely to report high or very high level of psychological distress as those without these conditions (11% compared with 5% respectively) (Figure 6.6). There is little difference in the level of reported psychological distress between people in this age group with arthritis and those with other musculoskeletal conditions (Table B19).



Note: Age standardised to the Australian population as at 30 June 2001.

Source: National Health Survey, 2011–12.

Figure 6.6: Psychological distress in people aged 65–79 with arthritis and other musculoskeletal conditions, 2011–12

Mental disorders

According to the 2007 Survey of Mental Health and Wellbeing mental disorders were twice as likely to occur in people aged 65–79 with arthritis and/or other musculoskeletal conditions than in those without these conditions (Table 6.5).

For people with arthritis in this age group, the greatest relative risk was of anxiety disorders (1.4) followed by affective disorders (1.2). People with other musculoskeletal conditions only were at greater risk of all mental disorders, particularly substance use disorders, compared to people with arthritis.

Table 6.5: Mental disorders in people aged 65–79 with arthritis and other musculoskeletal conditions, 2007

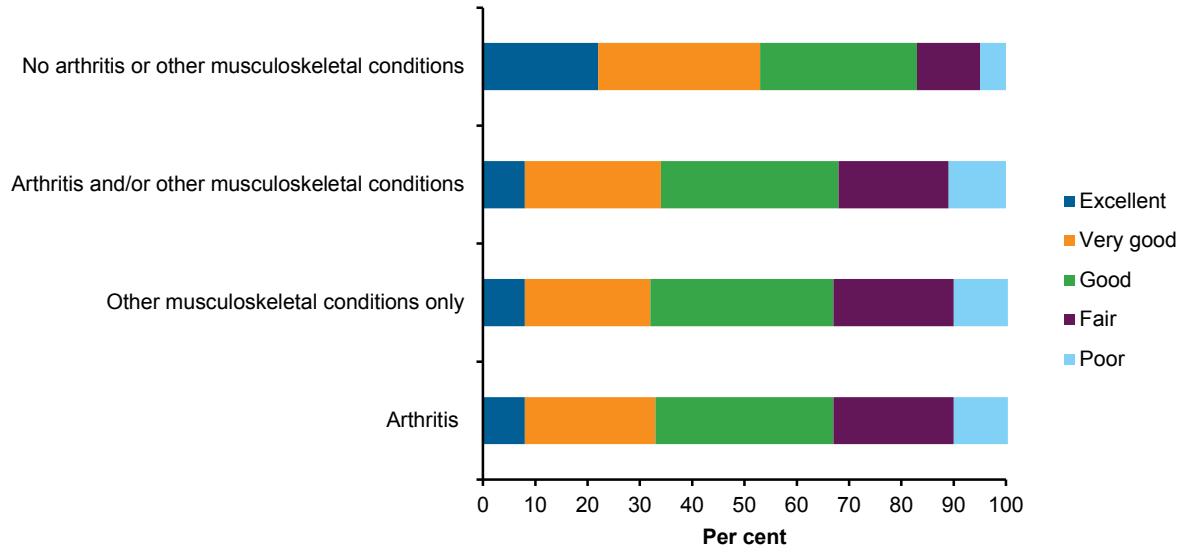
Type of mental disorder	Arthritis	Other musculoskeletal conditions only	Arthritis and/or other musculoskeletal conditions
	Relative risk	Relative risk	Relative risk
Any anxiety disorder	1.4	1.8	1.7
Any affective disorder	1.2	1.6	1.4
Any substance use disorder	0.8	1.8	1.8
Any mental disorder	1.7	1.8	2.0

Notes
1. Lifetime disorder with 12-month symptoms.
2. Comparison group is people without arthritis and other musculoskeletal conditions.
3. Relative risk in this context is the risk of someone with a musculoskeletal condition reporting having a mental disorder compared with the risk of someone without a musculoskeletal condition reporting having a mental disorder.

Source: AIHW analysis of ABS 2007 Survey of Mental Health and Wellbeing.

Self-assessed health

Data from the 2011–12 NHS show that people aged 65–79 with arthritis and/or other musculoskeletal conditions are more likely to rate their health as fair or poor compared with people without these conditions (32% compared with 17% respectively) (Figure 6.7). Rating of health status, however, does not differ much between people reporting arthritis and those reporting other musculoskeletal conditions (Table B20).



Note: Age standardised to the Australian population as at 30 June 2001.

Source: National Health Survey, 2011–12.

Figure 6.7: Self-assessed health status of people aged 65–79 with arthritis and other musculoskeletal conditions, 2011–12

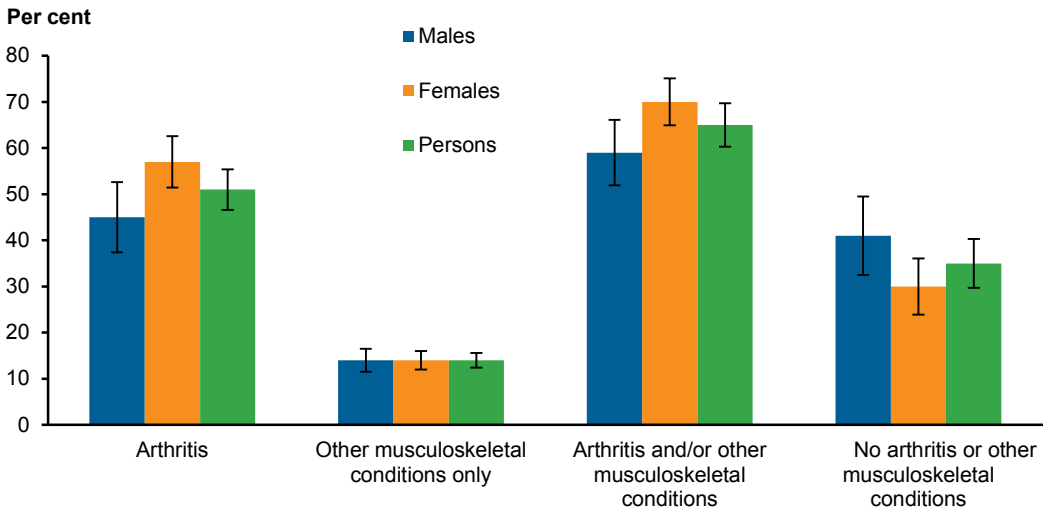
7 Australians aged 80 or over

People aged 80 or over are more likely than any other people to experience frailty and multiple morbidities, and to be more reliant on formal and informal health and social support. This can present great challenges to the health care and broader support of older people. The health, family circumstances, physical abilities, financial status and service needs of older people are generally very different from those of young people.

Musculoskeletal pain and disorders are a major cause of physical disability in very old people, although conditions such as dementia, cardiovascular disease and sensory impairment may contribute to their decreasing physical ability (Covinsky et al. 2003).

Prevalence

According to the 2011–12 National Health Survey data, an estimated 450,153 people aged 80 or over (65% of the total population in this age group) reported having arthritis or another musculoskeletal condition (up from 63% for older people aged 65–79) (Table B21). This included 51% reporting arthritis (up from 48% in those aged 65–79) and 14% reporting other musculoskeletal conditions only (very similar to the 15% reporting these conditions in the 65-69 year age group). The prevalence of arthritis and other musculoskeletal conditions was higher in women than men (Figure 7.1).



Note: The thin bars attached to each vertical column are 95% confidence intervals. We can be 95% confident that the true value is within the interval depicted.

Source: National Health Survey 2011–12.

Figure 7.1: Prevalence of arthritis and other musculoskeletal conditions, people aged 80 or over, 2011–12

In terms of specific musculoskeletal conditions for which prevalence estimates are available:

- *osteoarthritis* is the most commonly reported condition in this age group, reported by 35% of people aged 80 or over (up from 29% in people aged 65–79) (Table 7.1)

- the prevalence of *osteoporosis* increases sharply in this age group, reported by 21% of people (up from 13% in people aged 65–69)
- *back pain/problems* affects 6% of people aged 80 or over (down slightly from 13% in those aged 65–79)
- *rheumatoid arthritis* was reported by 6% of people in this age group (the same as by those aged 65–79).

All of the above conditions were more commonly reported by women than men in this age group.

Table 7.1: Age-specific prevalence of selected musculoskeletal conditions, people aged 80 or over, 2011–12

Type of condition	Sex	Age group (in years))		
		80–84	85 or over	Total 80 or over
		%		
Osteoarthritis	Males	23.6	33.6	28.1
	Females	37.0	42.2	39.3
	Persons	31.2	39.9	35.1
Rheumatoid arthritis	Males	7.4*	2.5**	5.2
	Females	6.5*	7.6*	7.0
	Persons	6.2*	4.7*	5.6
Back pain/problems	Males	3.5*	7.8*	5.4
	Females	9.0*	4.6*	7.0
	Persons	6.1*	6.4*	6.2
Osteoporosis	Males	8.0*	11.2*	9.5
	Females	31.7	27.2	29.7
	Persons	20.8	20.2	20.5
Population	Males	181,688	111,661	290,632
	Females	238,790	162,069	401,753
	Persons	**422,366**	**269,618**	**694,374**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

*Estimate is subject to high standard errors (relative standard error of 25–50%) and should be used with caution.

**Estimate is subject to sampling variability too high for practical purposes (relative standard error greater than 50%).

Note: Rates for all ages was age standardised to the Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

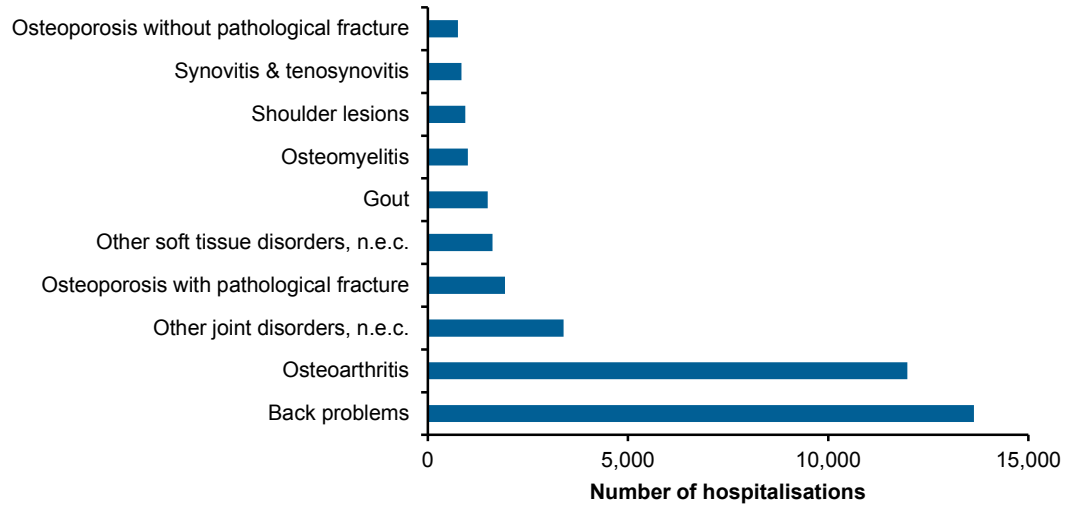
Treatment and management

Managing musculoskeletal pain in general including choosing an appropriate therapy regimen for people in this age group can be complicated. These complications may arise from the use of multiple medications for various diseases, potential drug interactions, a decrease in cognitive function, and altered pharmacokinetics (Delafuente 2008). All of these factors can lead to challenges in achieving good treatment and management outcomes.

Hospitalisation

In 2011–12, there were 47,242 hospitalisations of people aged 80 or over with the principal diagnosis of musculoskeletal conditions, with an average length of stay of 6.4 days. Women were more likely to be hospitalised for these conditions than men (5,881 per 100,000 compared with 5,058 per 100,000 population). The hospitalisation rate was higher for people aged 80–84 than for those aged 85 or over. Principal diagnoses of back problems (29%) and *osteoarthritis* (25%) accounted for the largest proportion of these hospitalisations (Figure 7.2).

During this period there were 2,679 hospitalisations for *osteoporosis* (1,926 with pathological fracture and 753 without pathological fracture [i.e. broken bone that occurs in an area of weakened bone]). This accounted for 6% of hospitalisations for people aged 80 or over with the principal diagnosis of musculoskeletal conditions.



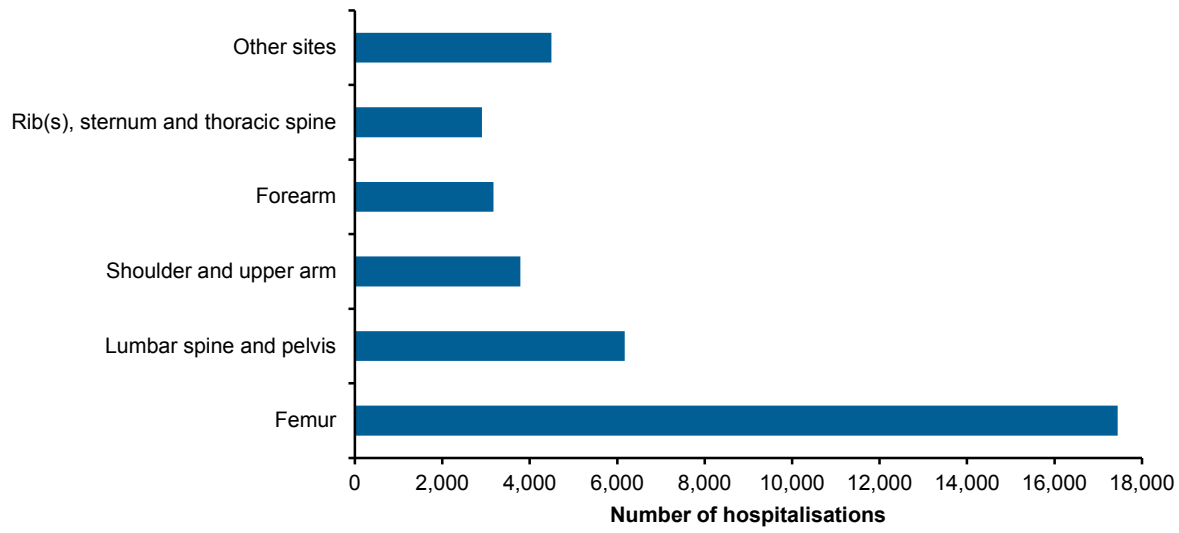
Source: AIHW National Hospital Morbidity Database.

Figure 7.2: Hospitalisations with the principal diagnosis of arthritis and other musculoskeletal conditions, people aged 80 or over, 2011–12

Hospitalisation for minimal trauma fractures

In 2011–12, there were 37,977 hospitalisations for minimal trauma fractures for people aged 80 or over. The average length of stay in hospital was 10.9 days. The hospitalisation rate in general was higher for people aged 85 or over (6,116 per 100,000) than for those aged 80–84 (2,862 per 100,000). The rate was much higher for women (5,304 per 100,000) than men (2,728 per 100,000).

The most common fracture sites were the hip (femur) (46%) and lumbar spine and pelvis (16%) (Figure 7.3).



Source: AIHW National Hospital Morbidity Database.

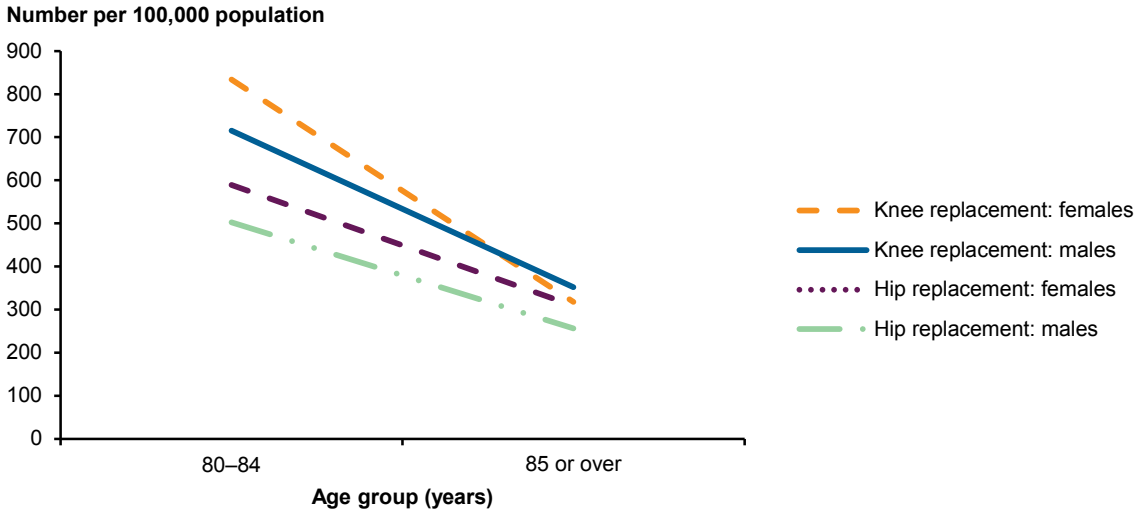
Figure 7.3: Distribution of fracture sites with the principal diagnosis of minimal trauma fracture, people aged 80 and over, 2011–12

Surgical procedures

In 2011–12, 35,459 surgical procedures were performed on people aged 80 or over with the principal diagnosis of musculoskeletal conditions. The average length of hospital stay was 8.2 days. The most common surgical procedures were total knee replacement (13%), total hip replacement (10%) and spinal rhizolysis (surgery of the lower back) (5%).

Total joint replacements were the most common surgical procedures performed on people aged 80 or over with the principal diagnosis of musculoskeletal conditions. A total of 8,484 total joint replacements were performed (4,835 knee replacements and 3,649 hip replacements).

Rates of total knee and hip replacements were highest in people aged 80–84 (Figure 7.4). The procedure rate of total joint replacements was higher among women than men (1,068 and 945 per 100,000 population respectively). This corresponds with the higher prevalence of osteoarthritis and osteoporosis in women.



Source: AIHW National Hospital Morbidity Database.

Figure 7.4: Rate of total knee and hip replacement with the principal diagnosis of musculoskeletal conditions, people aged 80 or over, 2011–12

The number of joint replacements in people aged 80 or over has increased over the 10 years to 2011–12. The rate of knee replacement has increased by 33% (from 437 per 100,000 in 2002–03 to 581 per 100,000 population in 2011–12). The number of hip replacements increased by 21% (from 359 to 435 per 100,000 population).

Quality of life

Although disability is not an inevitable part of ageing, it does become more common at older ages. This is particularly true for people who suffer from arthritis or another musculoskeletal condition. It has also been reported that because the effects of these conditions are generally insidious, development of arthritis or another musculoskeletal condition in middle age predicts the earlier onset of functional difficulties (i.e. difficulty with activities of daily living and walking) that are associated with loss of independence in older people (Covinsky et al. 2008).

Physical impairment

According to the 2009 SDAC people aged 80 or over with arthritis and/or other musculoskeletal conditions were more likely to report physical impairments than the overall population (Table 7.2). People with arthritis were more likely to report these impairments than those with other musculoskeletal conditions only.

Table 7.2: Physical impairments in people aged 80 or over, 2009

Type of impairment	Arthritis (N = 341,389)[(a)]	Other musculoskeletal conditions only (N = 126,757)[(a)]	Arthritis and/or other musculoskeletal conditions (N = 468,146)[(a)]	Overall population (N = 806,165)
		%		
Chronic or recurrent pain or discomfort	41.8	34.8	39.9	26.2
Difficulty gripping or holding things	34.5	10.2	27.9	19.6
Restriction in physical activities or work	59.3	53.2	57.6	44.3
Incomplete use of feet or legs	28.2	19.8	25.9	20.1
Incomplete use of arms or fingers	17.0	10.8	15.3	11.4

(a) People reporting these conditions as a long-term health condition.

Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.
Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Activity limitation

According to the 2009 SDAC, 82% of people aged 80 or over with arthritis and/or other musculoskeletal conditions experienced core activity limitations compared to 70% in the overall population (Table 7.3). Of people with arthritis and/or other musculoskeletal conditions, 48% (approximately 229,968 people) experienced severe or profound core activity limitation and 34% (approximately 153,929) experienced mild to moderate core activity limitation (Table B36). People with arthritis were more likely to experience core activity limitations than those with other musculoskeletal conditions only.

Table 7.3: Core activity limitations in people aged 80 or over, 2009

Level of activity limitation	Arthritis N = 341,389)[(a)]	Other musculoskeletal conditions only (N = 126,757)[(a)]	Arthritis and/or other musculoskeletal conditions (N = 468,146)[(a)]	Overall population (N = 806,165)
		%		
Core activity limitation	**83.8**	**75.7**	**81.6**	**69.8**
Mild/moderate	33.6	33.4	33.5	30.5
Severe/profound	50.2	42.3	48.1	39.3
No core activity limitation	**16.2**	**24.3**	**18.4**	**30.2**

(a) People reporting these conditions as a long-term health condition.

Notes
1. Core activities are self-care, mobility and communication. Core activity limitations (such as profound, severe, moderate, mild) are determined based on whether a person needs help, has difficulty, or uses aids or equipment with any of the 3 core activities.
2. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
3. Age standardised to the Australian population as at 30 June 2001.
Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

In 2009, people aged 80 or over with arthritis and other musculoskeletal conditions were much more likely than the overall population of that age to report difficulty or need assistance with daily activities, except for oral communication (Table 7.4). A slight difference was noted in the reporting of difficulty and need for assistance by people with arthritis and those with other musculoskeletal conditions only. Except for oral communication, people with arthritis were more likely to report difficulty with all of the activities than those with other musculoskeletal conditions only.

Table 7.4: Broad activities where people aged 80 or over have difficulty or need assistance, 2009

Activities	Arthritis N = 341,389)[(a)]	Other musculoskeletal conditions only (N = 126,757)[(a)]	Arthritis and/or other musculoskeletal conditions (N = 468,146)[(a)]	Overall population (N = 806,165)
		%		
Property maintenance	53.7	45.1	51.4	32.7
Health care	67.0	56.3	64.1	39.6
Mobility	57.5	45.7	54.3	36.9
Household chores	49.2	41.4	47.1	34.2
Self-care	47.0	38.8	44.8	30.3
Cognitive or emotional tasks	32.5	26.6	30.9	26.0
Private transport	44.0	37.2	42.1	27.6
Meal preparation	16.7	12.1	15.4	10.4
Paperwork	27.5	25.7	27.0	23.0
Communication	9.0	11.2	11.7	10.3

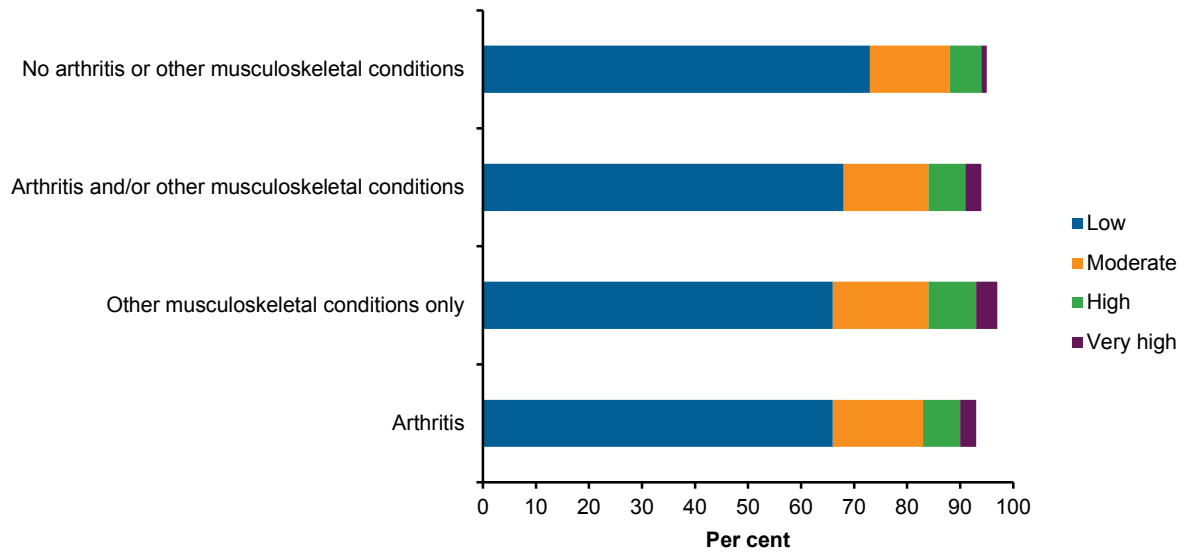
(a) People reporting these conditions as a long-term health condition.

Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.
Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Psychological effects

According to the 2011–12 NHS, people aged 80 or over with arthritis and/or other musculoskeletal conditions were more likely to report high or very high levels of psychological distress (10%) than those without these conditions (7%). High or very high levels of psychological distress were more frequently reported by people with other musculoskeletal conditions (13%) than those with arthritis (9%) (Figure 7.5) (Table B25).



Note: Age standardised to the Australian population as at 30 June 2001.

Source: National Health Survey, 2011–12.

Figure 7.5.: Psychological distress in people aged 80 or over with arthritis and other musculoskeletal conditions, 2011–12

Mental disorders

People aged 80 or over with arthritis and/or other musculoskeletal conditions were 6 times as likely to report mental disorders as those without these conditions (Table 7.5). According to the 2007 National Survey of Mental Health and Wellbeing estimates the strongest association was between arthritis and mental disorders. People with arthritis were 5.8 times as likely to report having affective disorders (mainly depression), followed by anxiety disorders (3.4 times). In comparison to arthritis, the association between mental disorders and other musculoskeletal conditions among this age group was relatively low.

Table 7.5: Mental disorders in people aged 80 or over with arthritis and other musculoskeletal conditions, 2007

Type of mental disorder	Arthritis	Other musculoskeletal conditions only	Arthritis and/or other musculoskeletal conditions
	Relative risk	Relative risk	Relative risk
Any anxiety disorder	3.4	1.1	2.4
Any affective disorder	5.8	2.4	4.1
Any substance use disorder	n.p	n.p	n.p
Any mental disorder	6.6	2.1	5.9

n.p. Not publishable because of small numbers and very high Relative Standard Errors (RSEs).

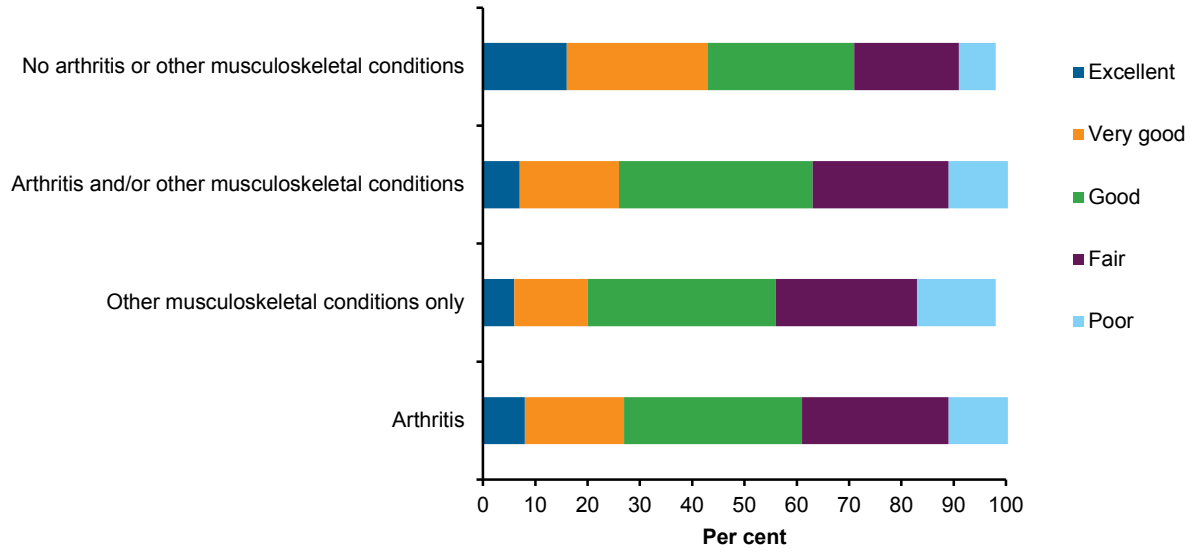
Notes

1. Lifetime disorder with 12-month symptoms.
2. Comparison group is people without arthritis and other musculoskeletal conditions.
3. Relative risk in this context is the risk of someone with a musculoskeletal condition reporting having a mental disorder compared with the risk of someone without a musculoskeletal condition reporting having a mental disorder.

Source: AIHW analysis of ABS 2007 Survey of Mental Health and Wellbeing.

Self-assessed health

Data from the 2011–12 NHS indicate that people aged 80 or over with arthritis and/or other musculoskeletal conditions are more likely to report their health as fair or poor (39%) compared to people without these conditions (27%) (Figure 7.6). Rating of health status, however, does not differ much between people reporting arthritis and those reporting other musculoskeletal conditions (Table B26).



Note: Age standardised to the Australian population as at 30 June 2001.

Source: National Health Survey, 2011–12.

Figure 7.6: Self-assessed health status of people aged 80 or over with arthritis and other musculoskeletal conditions, 2011–12

8 Discussion

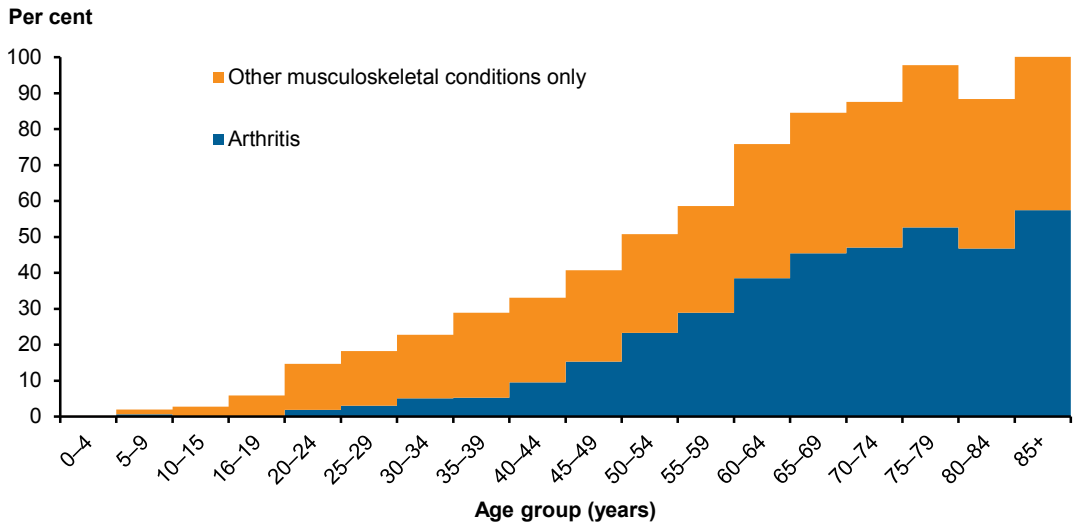
This report provides an overview of the impact of arthritis and other musculoskeletal conditions across various life stages. Taking a life stage approach to monitoring these conditions is important because, while they affect people in all stages of life, the overall prevalence and relative prominence of various conditions and their associated impact changes quite dramatically over the life course. Understanding these variations will better inform service planning and national strategies and policies on management of arthritis and other musculoskeletal conditions.

This report describes how arthritis and other musculoskeletal conditions affect people (in terms of prevalence, treatment and management, and quality of life) in five age groups: children (aged 0–15); young adults (aged 16–34); middle years (aged 35–64); older Australians (aged 65–79); and Australians aged 80 or over. Information is presented separately for the four major types of musculoskeletal conditions (osteoarthritis, rheumatoid arthritis, back pain/problems and osteoporosis) wherever possible. In remaining cases information is presented according to the summary groups of 'arthritis' (either alone or in the presence of other musculoskeletal conditions) and 'other musculoskeletal conditions only'.

Prevalence

As might be expected, the prevalence of arthritis and other musculoskeletal conditions is higher in the older age groups (Figure 8.1). The general pattern, based on the 2011–12 National Health Survey, is that:

- the prevalence of arthritis and other musculoskeletal conditions overall increases steadily for males and females in every age group, from 2% in children aged 0–15, to 15% in people aged 16–34, to 38% in those aged 35–64, to 63% in those aged 65–79 and 65% in people aged 80 or over (Table B1)
- the prevalence of arthritis (including osteoarthritis, rheumatoid arthritis and other forms of arthritis) increases steadily over the life course (from less than 1% in children aged 0–15, to 19% in those aged 35–64 and 51% in those aged 80 years or more)
- other musculoskeletal conditions as a broad category of conditions (including back pain/problems, osteoporosis and various other conditions) affect people more consistently across the life course (from 2% in children aged 0–15, to 12% in young people aged 16–34 before settling at between 14% and 19%% in the broad age groups beyond age 35) (Table B1).

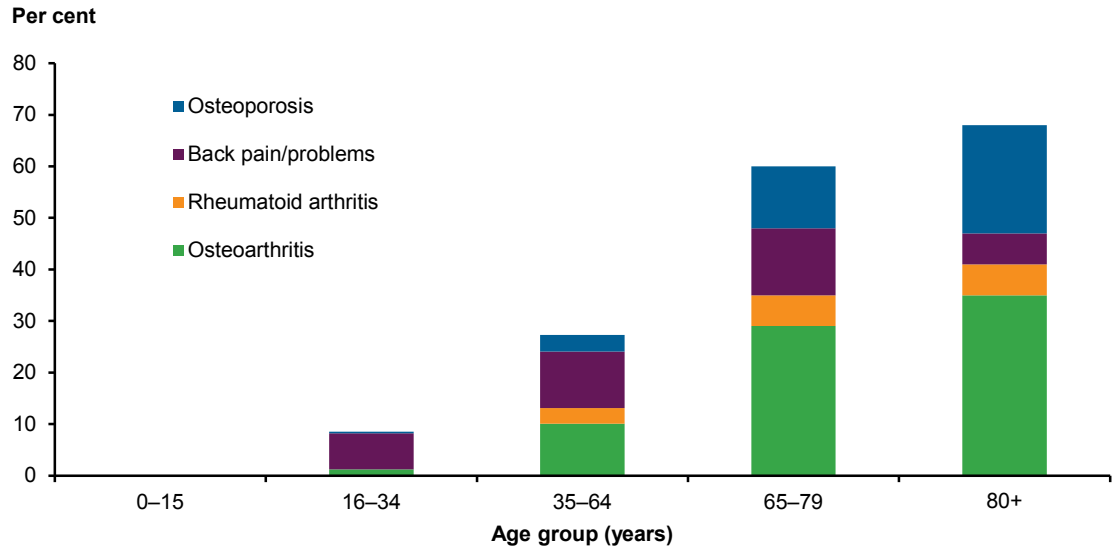


Source: National Health Survey 2011–12.

Figure 8.1: Prevalence of arthritis and other musculoskeletal conditions by age, 2011–12

There are notable changes in the relative prominence of the prevalence of specific musculoskeletal conditions over the life course:

- the prevalence of *osteoarthritis, rheumatoid arthritis* and *osteoporosis* is relatively low in people aged less than 35
- the prevalence of *osteoarthritis* rises sharply with each age group from 35–64 onwards and is highest in people aged 80 or over
- the prevalence of *rheumatoid arthritis* peaks in people aged 65 or over
- *back pain/problems* are most commonly reported by people aged 65–79, with the prevalence declining from 80 onwards
- the prevalence of *osteoporosis* increases sharply with age in people aged 65 or over. The prevalence is highest in people aged 80 or over (Figure 8.2).



Source: National Health Survey 2011–12.

Figure 8.2: Prevalence of selected arthritis and other musculoskeletal conditions by age, 2011–12

Treatment and management

The treatment and management of arthritis and other musculoskeletal conditions can take place in a variety of health-care settings, including general practice, community health centres, outpatient clinics, private allied health clinics and in specialist clinics and hospitals.

While Australia has comprehensive information about people who are admitted to hospital (including information about the patient, the health conditions treated, the procedures administered and the length of hospital stay), the same is not true for information about primary health care. Given that musculoskeletal conditions are, on the whole, long-term chronic conditions where much of the primary and secondary prevention, treatment and management activity is undertaken in primary health care settings (in conjunction with specialists in many cases), this represents a significant information gap.

This report focused, therefore, only on available hospitalisation data to describe treatment and management of these conditions. For further information on uptake of selected pharmaceutical interventions also noted in this report see related publications (AIHW 2013a; AIHW 2013b; AIHW 2011; AIHW 2010a).

Hospitalisation

In 2011–12, there were 494,228 hospitalisations of people with the principal diagnosis of musculoskeletal conditions, accounting for 5% of all hospitalisations. While same day hospitalisations are common for some procedures (such as administration of pharmacotherapy), overnight hospitalisation occurs usually when surgical intervention is involved (such as knee and hip replacement).

Considerable variation is noted in the rate of hospitalisation for musculoskeletal conditions across the life stages, with:

- the rate being higher for older people, ranging from 309 per 100,000 population for children aged 0–15 to 5,539 per 100,000 population for people aged 80 or over
- the principal diagnoses of *osteoarthritis* and back problems accounting for the largest proportions of these hospitalisations among people aged 35 or over
- young people aged 16–34 being mainly hospitalised for the principal diagnoses of internal derangement of knee, back problems and other joint disorders
- children being mainly hospitalised for the management of *juvenile arthritis* and other joint disorders.

Joint replacements

Joint replacement has been one of the most significant advancements in the treatment of musculoskeletal conditions, mainly arthritis, in recent decades.

In 2011–12, 64,946 total joint replacements were performed on people aged 35 or over, with the highest rate of both knee and hip replacements being in people aged 65–79. In this period:

- the number of knee replacements for people with musculoskeletal conditions increased from 13,686 (135 per 100,000 population) in people aged 35–64 to 21,080 (931 per 100,000) in people aged 65–79, declining to 4,835 (581 per 100,000 population) in people aged 80 or over
- the number of hip replacements for people with musculoskeletal conditions also increased from 9,474 (97 per 100,000 population) in people age 35–64 to 12,222 (542 per 100,000) in people aged 65–79, declining to 3,649 (435 per 100,000 population) in people aged 80 or over
- for both knee and hip replacements for people with these conditions, the rate was much higher for women aged 65 or over than among men.

Over the period 2002–03 to 2011–12, the overall rate of joint replacements increased by 37%. The rate of knee replacements increased by 75% in people aged 35–64 compared with 45% in people aged 65–79 and 33% in people aged 80 or over. In contrast, the rate of hip replacement increased by 17% in people aged 35–64 and those aged 65–79 compared with 21% in people aged 80 or over.

Hospitalisation for minimal trauma fractures

Older people, particularly those aged 65 and over, are more likely to report having osteoporosis, and are more at risk of falls and resulting fractures known as 'minimal trauma fractures'. In 2011–12:

- the rate of hospitalisations for minimal trauma fractures was higher for people aged 80 or over (4,312 per 100,000 population) than those aged 65–79 (889 per 100,000 population) and 35–64 (189 per 100,000 population) (Table B29)
- women had a higher hospitalisation rate for minimal trauma fractures than men across these three life stages

- the main sites with principal diagnosis of minimal trauma fracture were forearm and lower leg including ankle for people aged 35–64; the hip (neck of femur) and forearm for people aged 65–79; and hip and lumbar spine for people aged 80 or over.

Quality of life

Impairments and limitations

Arthritis and other musculoskeletal conditions cause a range of physical impairments. According to the 2009 SDAC, the most commonly reported physical impairments across all life stages are chronic or recurrent pain and restrictions in physical activity.

People with arthritis or other musculoskeletal conditions were more likely to report core activity limitations (mainly self-care and mobility) than those without these conditions across all life stages. For people with these conditions, as for overall population, the presence of activity limitation increased with age. Among people with arthritis or other musculoskeletal conditions:

- limitations in performing core activities (such as self-care and mobility) increased with age, from 30% in people aged 15–34 to 42% in people aged 35–64, 60% in people aged 65–79 and 82% in those aged 80 or over
- there were marked increases across life stages in the proportion of people reporting severe or profound core activity limitations (where assistance is always or sometimes needed with everyday activities such as self-care and mobility), from 10% in those aged 15–34, to 13% for those aged 35–64, 20% in age group 65–79 and 48% for those aged 80 or over.

A similar pattern was noted for the overall population, with the gap closing between people with arthritis and other musculoskeletal conditions and the overall population in older age groups (tables B30 & B31). This is likely to relate to the fact that the proportion of people in the overall population with several health problems at once increases with age and this can present challenges to their health and ability to function (AIHW 2010).

Mental health

The mental health of people with arthritis and other musculoskeletal conditions is also likely to be affected by chronic pain, other physical impairments, the unpredictability of the disease and reactions to treatment.

Results from the 2011–12 NHS indicate that:

- across all age groups people with arthritis and/or other musculoskeletal conditions were more likely to report high or very high psychological distress than those without these conditions
- reporting of high or very high level of psychological distress was highest in people aged 18–34 (20%), declining thereafter to 18% in those aged 35–64, 11% in 65–79 and 10% in those aged 80 or over
- a general decline in the reporting of high or very high psychological distress was also noted for the overall population except for people aged 80 or over, and the gap between those with and without arthritis and/or other musculoskeletal conditions closes with each advancing age group (Table B32).

Across all life stages people with arthritis and other musculoskeletal conditions were also more likely to report having mental disorders than those without these conditions. Results from the 2007 National Survey of Mental Health and Wellbeing show that the relative risk of having mental disorders among people with arthritis and/or other musculoskeletal conditions varied across the life stages.

People aged 80 or over with these conditions were most likely to be at risk of having a mental disorder (5.9 times) compared with people in other age groups (1.9 times). No difference was noted in the relative risk of having mental disorders amongst people aged 16–34 and 65–79 with arthritis compared with other musculoskeletal conditions, although people aged 35–64 with other musculoskeletal conditions had a higher risk (1.9 times) than those with arthritis (1.4 times). The risk was higher in people aged 80 or over with arthritis (6.6 times) than in those with other musculoskeletal conditions (2.1 times).

Of the various types of mental disorders, affective disorders (depression) had the greatest relative risk in all life stages, except for people aged 65–79 who had a higher risk of having a substance use disorder.

Self-assessed health

The chronic, potentially debilitating nature of arthritis and other musculoskeletal conditions is also likely to affect a person's perception of their own health.

Data from the 2011–12 NHS show that across all life stages people with these conditions were more likely to rate their health as fair or poor compared to those without these conditions.

Consistent with the overall population, there are marked increases across life stages in the proportion of people reporting fair or poor health (from 15% in those aged 16–34 to 22% in those aged 35–64, 32% in 65–79 and 39% in those aged 80 or over) (Table B33).

Appendix A: Data sources and methods

Data sources

Four data sources were used for the analysis presented in this report:

- National Health Survey (NHS)
- Survey of Disability, Ageing and Carers (SDAC)
- National Survey of Mental Health and Wellbeing, and
- AIHW National Hospital Morbidity Database.

National Health Survey

The NHS, conducted every three years by the Australian Bureau of Statistics, is designed to obtain national information on the health status of Australians, their use of health services and facilities, and health-related aspects of their lifestyle (ABS 2009c). The most recent survey was conducted in 2011–12. This NHS is part of the broader 2011–13 Australian Health Survey (AHS) that includes a nationally representative sample of 35,000 people from the general population as well as a specific survey of 13,250 Aboriginal and Torres Strait Islander people. The content of the AHS also covers topics such as: nutrition, physical activity, and biomedical measures (the National Nutrition and Physical Activity Survey, and the National Health Measures Survey).

Previous NHS surveys were conducted in 2007–08, 2004–05, 2001, 1995, 1989–90, 1983 and 1977. The survey is community-based and does not include information from people living in nursing homes or otherwise institutionalised.

Data available from the NHS include self-reports of various forms of arthritis, back pain, osteoporosis and other diseases of the musculoskeletal system and connective tissues. The survey also collected information about health services and medicine use, and any other health-related action taken to manage these conditions.

In this report, data from the 2011–12 NHS have been used to provide information on the prevalence of arthritis and other musculoskeletal conditions in the Australian population, psychological distress, and self-assessed health status. Note that estimates for *back pain/problems* presented in this report exclude disc disorders (which are included instead in the category 'other musculoskeletal conditions'). The estimates for *back pain/problems* presented here may therefore be lower than those published in some Australian Bureau of Statistics reports (for example ABS 2012).

While the NHS provides a vast array of nationally-representative data some limitations need to be considered, namely, the self-reported sourcing of some data, and the cross-sectional nature of the survey.

The analysis in this report relies upon the quality of the data available. Much of the data collected by the NHS is self-reported by respondents, and therefore relies heavily on the respondents knowing and providing accurate information. In some cases the survey relies on the respondents' ability to recall their behaviours, such as physical activity or alcohol consumed in the week before the interview. The NHS is designed to prompt respondents so that the most accurate information is collected, but there may be reasons why the information may be compromised.

More information on the data quality of this survey can be found in: the National Health Survey 2011–12 (Cat. no. 4363.0.55.001) <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4363.0.55.001>.

Survey of Disability, Ageing and Carers

Conducted by the Australian Bureau of Statistics (ABS), the Survey of Disability, Ageing and Carers collects national information on people with disability, older people (aged 65 or over) and their carers (ABS 2011).

The survey is now in a three-yearly program with iterations delivered in 2012 and planned for 2015 and 2018. Previous surveys conducted every 5 years were in 1988, 1993, 1998, 2003 and 2009, and cover people in private and non-private dwellings, including people in cared accommodation establishments, but excluding those in correctional institutions. The survey collects data on disability due to impairments, activity limitations and/or participation restrictions (Box A1), and also collects information about the role of various diseases and health conditions.

Box A1: Impairments, limitations and restrictions

- loss of sight (not corrected by glasses or contact lenses)
- loss of hearing where communication is restricted, or an aid to assist with, or substitute for, hearing is used
- speech difficulties
- shortness of breath or breathing difficulties causing restriction
- chronic or recurrent pain or discomfort causing restriction
- blackouts, fits, or loss of consciousness
- difficulty learning or understanding
- incomplete use of arms or fingers
- difficulty gripping or holding things
- incomplete use of feet or legs
- nervous or emotional condition causing restriction
- restriction in physical activities or in doing physical work
- disfigurement or deformity
- mental illness or condition requiring help or supervision
- long-term effects of a head injury, stroke or other brain damage causing restriction
- receiving treatment or medication for any other long-term conditions or ailments and still being restricted
- any other long-term conditions resulting in a restriction.

Source: ABS 2011.

In this report, data from the 2009 SDAC have been used to provide information on the level of disability and activity restrictions in people with disability due to arthritis and other musculoskeletal conditions.

The data quality statement for the Survey of Disability, Ageing and Carers can be found at

<http://www.abs.gov.au/Ausstats/abs@.nsf/0/FB632AC7C773292BCA2577FA0011C48D?OpenDocument>.

Differences in survey methods between the ABS 2009 Survey of Disability, Ageing and Carers) and the ABS 2011–12 National Health Survey

There is considerable difference in the estimates on long-term health conditions derived from the SDAC and NHS. It is therefore necessary to highlight some main differences.

The SDAC is specifically designed to collect comprehensive information about disability in the Australian population. The main purpose of the NHS is to obtain information on the health status of Australians and their use of health services and facilities. These surveys have been used mainly as a source for the analysis of health and health service use differentials in Australia.

In the SDAC, a long-term health condition is defined as 'a disease or disorder which has lasted or is likely to last for at least six months; or a disease, disorder or event (e.g. stroke, poisoning, accident, etc.), which produces an impairment or restriction which has lasted or is likely to last for at least six months' (ABS 2011). In other words, people may have a long-term health condition but not a disability if the health condition does not result in an impairment or restriction which has lasted or is likely to last for at least six months. Long-term health conditions have been coded to a classification based on the World Health Organization's ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines (WHO 1992).

In the NHS, a long-term condition is defined as one which, in the respondent's opinion, has lasted, or is expected to last, for six months or more (ABS 2013). In this report, data on long-term conditions coded to the ICD-10 are used.

In the SDAC, information about health conditions was collected using the screening questions about impairments and limitations. The screening questions were designed mainly to select a potential population group which may have limitations in, or need for assistance with, activities and participation in various life domains, in particular the core activities (self-care, mobility and communication) and schooling or employment. The range of the long-term conditions collected in the survey was, to some extent, constrained by the scope of the screening questions on specific impairments and certain limitations such as loss of sight or hearing, incomplete use of arms or fingers, speech difficulties and difficulty learning or understanding.

Hence, the long-term health conditions reported in the SDAC were those more likely to be associated with an impairment or activity limitations. Unlike the SDAC, the NHS used a general question about any long-term condition, and the conditions recorded in the NHS are not necessarily associated with disabilities.

The NHS covers only people in households and excludes people in hospitals, nursing homes and other institutions. Therefore, the NHS underestimates the prevalence of some particular

long-term conditions in the Australian population, especially among older Australians. For example, a large proportion of people with dementia are living in institutions.

National Survey of Mental Health and Wellbeing

Conducted by the Australian Bureau of Statistics from August to December 2007, the survey collected information on mental disorders from approximately 8,800 Australians aged 16–85 using the World Health Organization's Composite International Diagnostic Interview, version 3.0 (WMH-CIDI 3.0) (ABS 2009).

The survey provides information on the prevalence of selected lifetime and 12-month mental disorder, by the major disorder groups (Box A2).

Box A2: Types of mental disorders

Anxiety disorders: Disorders that involve feelings of tension, distress or nervousness. These are:

- Panic disorder
- Agoraphobia
- Social phobia
- Generalised anxiety disorder
- Obsessive-compulsive disorder
- Post-traumatic stress disorder.

Affective (mood) disorders: Disorders that involve mood disturbance. These include:

- Depressive episode
- Dysthymia
- Bipolar affective disorder.

Substance use disorders: These disorders include harmful use and/or dependence on drugs and/or alcohol.

Source: WHO 1992.

The survey also provides information on the level of impairment, health services used for mental health problems, comorbidity with physical conditions, social networks and caregiving, as well as demographic and socio-economic characteristics.

It should be noted that the 2007 survey was based on a widely used survey instrument—the Composite International Diagnostic Interview—developed by the World Health Organisation for use by participants in the World Mental Health Survey Initiative—a global study aimed at monitoring mental and addictive disorders.

The data quality statement for the National Survey of Mental Health and Wellbeing can be found at

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/4326.0Quality%20Declaration02007?opendocument&tabname=Notes&prodno=4326.0&issue=2007&num=&view=>.

AIHW National Hospital Morbidity Database

The National Hospital Morbidity Database (NHMD) is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals.

The data supplied are based on the National Minimum Data Set (NMDS) for Admitted patient care and include demographic, administrative and length of stay data, as well as data on the diagnoses of the patients, the procedures they underwent in hospital and external causes of injury and poisoning.

The purpose of the NMDS for Admitted patient care is to collect information about care provided to admitted patients in Australian hospitals. The scope of the NMDS is episodes of care for admitted patients in all public and private acute and psychiatric hospitals, free-standing day hospital facilities and alcohol and drug treatment centres in Australia. Hospitals operated by the Australian Defence Force, corrections authorities and in Australia's off-shore territories are not in scope but some are included.

The reference period for this data set is 2011–12. The data set includes records for admitted patient separations between 1 July 2011 and 30 June 2012.

Terms relevant to admitted patient care data are summarised in Box A3.

Box A3: Admitted patient care

Separation is the term used to refer to the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example from acute to rehabilitation). Separation also means the process by which an admitted patient completes an episode of care by being discharged, dying, and transferring to another hospital of changing type of care. Here, the term *hospitalisation* is used to describe a separation.

Length of stay: the length of stay of an overnight patient is calculated by subtracting the date the patient is admitted from the date of separation and deducting days the patient was on leave. A same-day patient is allocated a length of stay of 1 day.

A same-day separation occurs when a patient is admitted and separated from the hospital on the same date. **An overnight separation** occurs when a patient is admitted to and separated from the hospital on different dates.

The principal diagnosis is the main reason why a patient is admitted. An additional diagnosis is a condition or complaint that either coexists with the principal diagnosis or arises during the episode of care. Additional diagnoses are reported if the conditions affect patient management. Diagnoses and external causes were classified, coded and reported to the National Hospital Morbidity Database by all states and territories using the relevant editions of the International Statistical Classification of Diseases and Related Health Problems.

An additional diagnosis is a condition or complaint that either coexists with the principal diagnosis or arises during the episode of care. Additional diagnoses are reported if the conditions affect patient management.

A procedure is a clinical intervention which may be surgical in nature, carry an anaesthetic risk, require specialised training and/or require special facilities or services available only in an acute-care setting. This includes surgical procedures and non-surgical investigative and therapeutic procedures such as X-rays, as well as patient support interventions such as anaesthesia. Surgical separations are defined as acute-care separations with a 'surgical' procedure' reported, based on the procedures used to define 'surgical' DRGs in Australian Refined Diagnosis Related Groups (AR-DRG), version 6.0 (DoHA 2008).

In 2011–12, diagnoses and external causes of injury were recorded using the 7th edition of the International statistical classification of diseases and related health problems, 10th revision, Australian modification (ICD-10-AM) (NCCH 2010). It comprises classifications of diseases and external causes of injuries and poisoning, based on the World Health Organization's version of ICD-10. The ICD-10-AM classification is hierarchical, with 20 summary disease chapters that are divided into a large number of more specific disease groupings (represented by 3-character codes).

Most of the 3-character codes are divided into even larger numbers of very specific disease categories represented by 4- and 5-character codes, grouped according to chapters, covering broad groups of conditions. In this publication, most diagnosis information is presented at the chapter and 3-character level.

Procedures were recorded using the 7th edition of the Australian Classification of Health Interventions (ACHI) (NCCH 2010). The ACHI classification is divided into 20 chapters by anatomical site. These subchapters are further divided into more specific procedure blocks, ordered from the least invasive to the most invasive. The blocks, which are numbered sequentially, group the very specific procedure information.

Metadata information for the National Minimum Data Sets that are the basis for the AIHW National Hospital Databases—METeOR, and the National health data dictionary.

METeOR and the National health data dictionary can be accessed on the AIHW website:

<http://meteor.aihw.gov.au/content/index.phtml/itemId/181162><http://www.aihw.gov.au/publication-detail/?id=6442468385>.

Complete data quality statements for the AIHW National Hospital Databases are available online at <www.aihw.gov.au/hospitals/>.

Statistical methods

Prevalence

Prevalence refers to the number or proportion (of cases, instances, etc.) present in a population at a given time.

Age-specific rates

Age-specific rates are calculated by dividing the number of events (such as deaths, disease cases or hospital separations) occurring in each specified age group by the estimated resident population for the corresponding age group. The rates are expressed as events per 100 (that is, a percentage or proportion), per 1,000 or per million population.

Age-standardised rates

Age standardisation is a method of removing the influence of age when comparing populations with different age structures. Age-standardised rates in this report generally use the direct age-standardisation method. The directly age-standardised rate is the weighted sum of age-specific (five-year age group) rates, where the weighting factor is the corresponding age-specific standard population. For this report, the Australian estimated residential population as at 30 June 2001 was used as the standard population. The same population was used for males and females to allow valid comparison of age-standardised rates both between the sexes and over time.

Direct age standardisation

Direct age standardisation is the most common method of age standardisation, and is used throughout this report for comparing different population groups (i.e. arthritis only, other musculoskeletal conditions only, arthritis and other musculoskeletal conditions, and no arthritis or other musculoskeletal conditions). This method is generally used when the population under study is large and the age-specific rates are reliable. The calculation of direct age-standardised rates comprises three steps:

Step 1: Calculate the age-specific rate for each age group.

Step 2: Calculate the expected number of cases in each age group by multiplying the age-specific rate by the corresponding standard population for each age group.

Step 3: Sum the expected number of cases in each age group and divide this sum by the total of the standard population to give the age-standardised rate.

In interpreting age-standardised rates, some issues need to be taken into consideration:

- The age-standardised rate is for comparison purposes only. The magnitude of an age-standardised rate has no intrinsic value since it is only an index measure. Therefore an age-standardised rate is not a substitute for age-specific rates.
- An age-standardised rate is not only influenced by the frequency of the underlying diseases, but is also dependent on the differences between the age structure of the population of interest and the standard population selected. Therefore, the results of comparisons based on age-standardised rates may not only reflect the difference in the frequency of the diseases compared, but also will be partly dependent on the standard population used. However, since the standard population used in this report is the total Australian population in 2001, the age distribution closely reflects that of the current Australian population. The results of comparisons based on these age-standardised rates are valid.

Relative Risk

Relative risk (RR) is the risk of an event (or of developing a disease) relative to exposure. Relative risk is a ratio of the probability of the event occurring in the exposed group versus a non-exposed group.

The formula to calculate Relative Risk (Risk Ratio) is:

Relative Risk (Risk Ratio) = Risk of group of primary interest/Risk for comparison group*1

The Relative Risk of occurrence of anxiety disorders in people with arthritis can be calculated using the data below. For this a two-by-two table is set up. For example

Study group	Anxiety disorders		
	Yes	No	Total
People with arthritis	a. 46	b.1,438	1,484
People without arthritis	c. 18	d. 1,401	1,419

The steps of calculating Relative Risk are:

- Calculate the risk of mental disorders among people with arthritis

  Risk among people with arthritis = a/a+b = 46/1,484 = .031*100 = 3.1%

- Calculate the risk of mental disorders among people without arthritis

  Risk among people without arthritis = c/c+d = 18/1,419 = .013*100 = 1.3%

- Calculate the Relative Risk for people with arthritis vs those without arthritis

  Relative Risk (Risk Ratio) = 3.1%/1.3% = 2.4.

If the RR is 1.0, that means the risk of disease is equal in the two groups. If the RR is greater than 1.0, then the group of interest has a higher risk of disease. If the RR is less than 1.0, then the group of interest has a lower risk of disease.

Therefore, from the above example we can say that the risk of occurrence of anxiety disorders appears to be 2.4 times higher among people with arthritis than those without arthritis.

P value

The probability that an observed difference has arisen by chance alone. By convention, a P value of 0.05 or less is usually considered statistically significant because the difference it relates to would occur by chance alone only 1 in 20 times or less often.

For hospital data analyses

Hospitalisations for which the care type as reported as *Newborn with no qualified days*, and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded.

Appendix B: Detailed statistical tables

The statistical tables provided in this appendix present data that were used to draw the figures included in the report. Additional detailed information included in the tables provides greater clarity and insight into the issues being addressed. The tables have been organised by chapter, according to the location of the Figure in the body of the report. A reference to the respective Figure is also given.

Chapter 2: Burden of arthritis and other musculoskeletal conditions

Table B1: Prevalence of musculoskeletal conditions, by age group, 2011–12

Age group (years)	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions	
	Number	%	Number	%	Number	%
0–15	5,868	0.1	66,120	1.5	71,988	1.6
16–34	158,692	2.6	743,590	12.4	902,282	15.1
35–64	1,673,593	19.2	1,618,147	18.6	3,291,740	37.7
65–79	1,063,796	47.7	340,508	15.3	1,404,304	63.0
80 or over	355,844	51.2	94,309	13.6	450,153	64.8
All ages	**3,264,398**	**14.8**	**2,857,234**	**12.9**	**6,121,632**	**27.7**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

Notes

1. See Figure 2.1

2. Prevalence for all ages was age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Table B2: Workforce status of people aged 16–64 with arthritis and other musculoskeletal conditions, 2011–12

Workforce status	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
16–34								
Employed	124,382	83.3	601,315	74.7	725,697	76.3	3,775,296	74.8
Unemployed	5,429	2.3	18,556	2.6	23,985	2.9	297,314	5.7
Not in the labour force	26,582	18.4	118,883	15.2	145,465	16.5	361,584	19.7
34–64								
Employed	1,072,629	67.8	1,251,032	55.6	2,323,661	73.4	4,471,417	82.1
Unemployed	36,169	2.9	32,692	1.6	68,861	2.4	110,059	2.0
Not in the labour force	572,170	29.4	320,877	12.8	893,047	24.0	855,839	15.9

Rates were age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Chapter 3: Children (aged 0–15)

Table B3: Hospitalisation with the principal diagnosis of arthritis and other musculoskeletal conditions, children aged 0–15, 2011–12

Name of condition	Number of hospitalisation	%
Juvenile arthritis	1,245	9.0
Other joint disorders, n.e.c.	1,049	7.6
Internal derangement of knee	985	7.1
Osteomyelitis	872	6.3
Synovitis and tenosynovitis	791	5.7
Other disorders of muscle	771	5.6
Other disorders of synovium and tendon	716	5.2
Other soft tissue disorders, n.e.c.	602	4.3
Other specific joint derangements	494	3.6
Disorders of continuity of bone	452	3.3
Back problems	376	2.7
Other conditions	5,539	39.9
Total	**13,892**	**100.0**

n.e.c. – not elsewhere classified.

Note: See Figure 3.1.

Source: AIHW National Hospital Morbidity Database.

Chapter 4: Young adults (aged 16–34)

Table B4: Prevalence of arthritis and other musculoskeletal conditions, people aged 16–34, 2011–12

Sex	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Males	85,816	2.8	339,947	11.2	425,763	14.0	2,623,181	86.2
Females	74,323	2.5	407,257	13.8	481,580	16.3	2,462,386	83.6
Persons	**158,692**	**2.6**	**743,590**	**12.4**	**902,282**	**15.1**	**5,086,722**	**84.9**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

Note: See Figure 4.1.

Source: National Health Survey 2011–12.

Table B5: Hospitalisation with the principal diagnosis of arthritis and other musculoskeletal conditions, people aged 16–34, 2011–12

Reason for hospitalisation	Number of hospitalisation	%
Internal derangement of knee	13,594	23.0
Back problems	9,446	16.0
Other joint disorders, n.e.c.	5,964	10.1
Other specific joint derangements	5,234	8.8
Other disorders of synovium and tendon	2,314	3.9
Disorders of continuity of bone	1,933	3.3
Disorders of patella	1,827	3.1
Osteoarthritis	1,741	2.9
Shoulder lesions	1,458	2.5
Other	15,665	26.5
Total	**59,176**	**100.0**

n.e.c. – not elsewhere classified.

Note: See Figure 4.2.

Source: AIHW National Hospital Morbidity Database.

Table B6: Psychological distress in people aged 18–34 with arthritis and other musculoskeletal conditions, 2011–12

Level of distress	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Low	87,952	55.6	416,813	53.8	479,606	54.9	3,127,486	69.4
Moderate	41,422	26.6	200,131	25.8	218,423	25.3	930,740	20.3
High	24,089	11.3	95,418	12.2	115,655	13.1	330,402	7.2
Very high	12,698	5.9	46,063	6.5	58,576	7.2	97,670	2.2

Notes

1. See Figure 4.3.

2. Rates were age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Table B7: Self-assessed health status of people aged 16–34 with arthritis and other musculoskeletal conditions, 2011–12

Self-rated health status	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Excellent	16,071	10.1	102,686	12.7	112,036	12.4	1,298,807	25.6
Very good	48,475	32.1	337,330	43.0	372,070	42.6	2,013,598	39.7
Good	69,475	39.1	253,819	30.4	297,324	31.5	1,433,186	27.1
Fair	17,007	14.4	73,114	9.2	82,854	9.7	298,503	5.8
Poor	16,013	6.7	35,547	4.8	43,823	5.1	51,022	1.0

Notes

1. See Figure 4.4.

2. Rates were age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Chapter 5: Middle years (ages 35–64)

Table B8: Prevalence of arthritis and other musculoskeletal conditions, people age 35–64, 2011–12

Sex	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Males	671,058	15.6	901,395	20.9	1,572,453	36.5	2,731,790	63.4
Females	1,003,487	22.7	714,926	16.2	1,718,413	38.9	2,703,709	61.1
Persons	**1,673,593**	**19.2**	**1,618,147**	**18.6**	**3,291,740**	**37.7**	**5,432,420**	**62.3**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

Note: See Figure 5.1.

Source: National Health Survey 2011–12.

Table B9: Hospitalisations with the principal diagnosis of arthritis and other musculoskeletal conditions, people aged 35–64, 2011–12

Reason for hospitalisation	Number of hospitalisation	%
Back problems	51,629	21.1
Osteoarthritis	45,123	18.4
Internal derangement of knee	38,858	15.9
Shoulder lesions	21,442	8.8
Other joint disorders, n.e.c.	11,696	4.8
Synovitis and tenosynovitis	7,012	2.9
Rheumatoid arthritis	6,274	2.6
Acquired deformity of fingers and toes	5,909	2.4
Other specific joint derangements	4,451	1.8
Fibroblastic disorders	3,848	1.6
Other	48,520	19.8
Total	**244,762**	**100.0**

n.e.c. – not elsewhere classified.

Note: See Figure 5.2.

Source: AIHW National Hospital Morbidity Database.

Table B10: Hospitalisation for total knee and hip replacements with the principal diagnosis of musculoskeletal conditions, people aged 35–64, 2011–12

Age group (years)	Total knee replacement		Total hip replacement	
	Males	Females	Males	Females
	Rate per 100,000 population			
35–39	1	5	14	10
40–44	10	12	32	21
45–49	37	48	67	47
50–54	110	146	125	93
55–59	260	340	200	188
60–64	505	607	298	311
Total 35–64	**119**	**150**	**103**	**91**

Notes

1. See Figure 5.3.

2. Rates for all ages were age-standardised to Australian population as at 30 June 2001.

Source: AIHW National Hospital Morbidity Database.

Table B11: Trends in knee and hip replacements with the principal diagnosis of musculoskeletal conditions, people aged 35–64, 2002–03 to 2011–12

Year	Total knee replacement	Total hip replacement
	Rate per 100,000 population	
2002–03	77	83
2003–04	82	85
2004–05	87	78
2005–06	91	76
2006–07	97	76
2007–08	105	80
2008–09	110	81
2009–10	120	91
2010–11	126	94
2011–12	135	97

Notes

1. See Figure 5.4.

2. Rates were age-standardised to Australian population as at 30 June 2001.

Source: AIHW National Hospital Morbidity Database.

Table B12: Psychological distress in people aged 35–64 with arthritis and other musculoskeletal conditions, 2011–12

Level of distress	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Low	1,016,459	58.6	1,456,529	60.0	2,052,069	61.5	4,115,504	75.8
Moderate	315,476	17.9	498,570	21.2	672,646	20.7	884,513	16.2
High	190,201	13.8	253,319	10.4	333,545	10.4	277,066	5.1
Very high	149,291	10.0	184,419	7.7	230,916	7.3	123,578	2.3

Notes

1. See Figure 5.5.

2. Rates were age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Table B13: Self-assessed health status of people aged 35–64 with arthritis and other musculoskeletal conditions, 2011–12

Self-rated health status	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Excellent	164,332	9.0	289,637	12.1	393,726	12.0	1,365,822	25.1
Very good	477,908	28.9	701,868	30.0	1,007,663	31.3	2,072,575	38.1
Good	595,478	35.8	822,054	34.3	1,132,781	34.5	1,490,796	27.4
Fair	272,066	17.1	379,179	15.2	504,457	15.0	403,404	7.4
Poor	162,155	8.4	209,469	8.1	249,021	7.0	96,917	1.8

Notes

1. See Figure 5.6.

2. Rates were age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Chapter 6: Older Australians (aged 65–79)

Table B14: Prevalence of arthritis and other musculoskeletal conditions, people aged 65–79, 2011–12

Sex	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Males	406,555	37.5	193,542	17.9	600,097	55.4	480,186	44.3
Females	656,215	57.4	149,831	13.1	806,046	70.5	342,847	30.0
Persons	**1,063,796**	**47.7**	**340,508**	**15.3**	**1,404,304**	**63.0**	**822,308**	**36.9**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

Note: See Figure 6.1.

Source: National Health Survey 2011–12.

Table B15: Hospitalisations with the principal diagnosis of arthritis and other musculoskeletal conditions, people aged 65–79, 2011–12

Reason for hospitalisation	Number of hospitalisation	%
Osteoarthritis	44,389	34.4
Back problems	25,910	20.1
Internal derangement of knee	9,433	7.3
Shoulder lesions	7,933	6.1
Other joint disorders, n.e.c.	4,991	3.9
Acquired deformity of fingers and toes	3,372	2.6
Rheumatoid arthritis	3,361	2.6
Fibroblastic disorders	3,276	2.5
Synovitis & tenosynovitis	3,091	2.4
Gout	1,754	1.4
Other	21,646	16.8
Total	**129,156**	**100.0**

n.e.c. – not elsewhere classified.

Note: See Figure 6.2.

Source: AIHW National Hospital Morbidity Database.

Table B16: Hospitalisations with the principal diagnosis of minimal trauma fracture, people aged 65–79, 2011–12

Age group (years)	Males	Females	Persons
	Rate per 100,000 population		
65–69	290	744	518
70–74	464	1,161	819
75–79	865	1,977	1,460
Total 65–79	**512**	**1,237**	**889**

*Note*s

1. See Figure 6.3.

2. Rates for all ages were age-standardised to Australian population as at 30 June 2001.

Source: AIHW National Hospital Morbidity Database.

Table B17: Distribution of fracture sites with the principal diagnosis of minimal trauma fracture, people aged 65–79, 2011–12

Site of fracture	Number of hospitalisation	%
Femur	6,074	31.2
Forearm	3,620	18.6
Lower leg including ankle	2,618	13.5
Shoulder and upper arm	2,597	13.4
Lumbar spine and pelvis	1,919	9.9
Other sites	2,619	13.5
Total	**19,447**	**100.0**

Note: See Figure 6.4.

Source: AIHW National Hospital Morbidity Database.

Table B18: Rate of total knee and hip replacements with the principal diagnosis of musculoskeletal conditions, people aged 65–69, 2011–12

Age group (years)	Total knee replacement		Total hip replacement	
	Males	Females	Males	Females
	Rate per 100,000 population			
65–69	727	871	413	483
70–74	877	1,118	539	619
75–79	897	1,121	570	659
Total 65–79	**827**	**1,027**	**501**	**580**

Notes

1. See Figure 6.5

2. Rates for all ages were age-standardised to Australian population as at 30 June 2001.

Source: AIHW National Hospital Morbidity Database.

Table B19: Psychological distress in people aged 65–79 with arthritis and other musculoskeletal conditions, 2011–12

Level of distress	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Low	724,272	68.3	628,977	68.8	989,359	70.3	706,481	85.3
Moderate	196,049	18.5	152,193	16.7	245,063	17.5	66,382	8.0
High	99,062	9.3	91,955	9.9	114,216	8.0	39,319	4.4
Very high	36,958	3.6	28,728	3.2	42,682	3.1	9,124	0.9

Notes

1. See Figure 6.6.

2. Rates were age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Table B20: Self-assessed health status of people aged 65–79 with arthritis and other musculoskeletal conditions, 2011–12

Self-rated health status	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Excellent	79,146	7.5	69,015	7.5	118,691	8.4	177,079	21.6
Very good	269,015	25.1	220,561	24.1	373,297	26.4	257,418	30.6
Good	354,120	33.6	321,923	35.3	474,317	33.9	246,370	29.9
Fair	245,839	23.2	205,843	22.6	296,019	21.0	101,471	12.3
Poor	119,422	11.3	102,114	11.2	147,830	10.6	40,096	4.7

Notes

1. See Figure 6.7.

2. Rates were age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Chapter 7: Australians aged 80 or over

Table B21: Prevalence of arthritis and other musculoskeletal conditions, people aged 80 or over, 2011–12

Sex	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Males	129,192	44.5	41,172	14.2	170,364	58.6	118,384	40.7
Females	226,952	56.5	54,116	13.5	281,068	70.0	121,509	30.2
Persons	**355,844**	**51.2**	**94,309**	**13.6**	**450,153**	**64.8**	**240,877**	**34.7**

Cells in this table have been randomly adjusted to avoid the release of confidential data. Discrepancies may occur between sums of the component items and totals.

Note: See Figure 7.1.

Source: National Health Survey 2011–12.

Table B22: Hospitalisations with the principal diagnosis of arthritis and other musculoskeletal conditions, people aged 80 or over, 2011–12

Reason for hospitalisation	Number of hospitalisation	%
Back problems	13,635	28.9
Osteoarthritis	11,977	25.4
Other joint disorders, n.e.c.	3,389	7.2
Osteoporosis with pathological fracture	1,926	4.1
Other soft tissue disorders, n.e.c.	1,621	3.4
Gout	1,499	3.2
Osteomyelitis	1,000	2.1
Shoulder lesions	941	2.0
Synovitis & tenosynovitis	839	1.8
Osteoporosis without pathological fracture	753	1.6
Other	9,662	20.5
Total	**47,242**	**100.0**

n.e.c. – not elsewhere classified.

Note: See Figure 7.2.

Source: AIHW National Hospital Morbidity Database.

Table B23: Distribution of fracture sites with the principal diagnosis of minimal trauma fracture, people aged 80 or over, 2011–12

Site of fracture	Number of hospitalisation	%
Femur	17,448	45.9
Lumbar spine and pelvis	6,170	16.2
Shoulder and upper arm	3,787	10.0
Forearm	3,170	8.3
Rib(s), sternum and thoracic spine	2,907	7.7
Other sites	4,495	11.8
Total	**37,977**	**100.0**

Note: See Figure 7.3.

Source: AIHW National Hospital Morbidity Database.

Table B24: Hospitalisation for total knee and hip replacements with the principal diagnosis of musculoskeletal conditions, people aged 80 or over, 2011–12

Age group (years)	Total knee replacement		Total hip replacement	
	Males	Females	Males	Females
	Rate per 100,000 population			
80–84	715	834	502	589
85 or over	352	318	256	309
Total 80 or over	**540**	**584**	**383**	**454**

Notes

1. See Figure 7.4.

2. Rates for all ages were age-standardised to Australian population as at 30 June 2001.

Source: AIHW National Hospital Morbidity Database.

Table B25: Psychological distress in people aged 80 or over with arthritis and other musculoskeletal conditions, 2011–12

Level of distress	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Low	234,096	66.4	198,727	65.5	307,335	68.1	175,383	72.7
Moderate	60,287	17.1	54,192	17.8	74,590	16.4	37,696	14.9
High	22,818	6.5	26,844	8.8	33,078	7.3	14,193	5.8
Very high	9,614	2.8	11,439	3.8	13,532	3.0	3,103	1.0

Notes

1. See Figure 7.5.

2. Rates were age-standardised to Australian population as at 30 June 2001.

Source: ABS National Health Survey 2011–12.

Table B26: Self-assessed health status of people aged 80 or over with arthritis and other musculoskeletal conditions, 2011–12

Self-rated health status	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions	
	Number	%	Number	%	Number	%	Number	%
Excellent	26,536	7.5	19,459	6.4	33,211	7.4	41,447	16.1
Very good	65,085	18.5	42,484	14.0	87,336	19.3	66,935	27.3
Good	120,919	34.3	110,798	36.4	165,901	36.7	67,277	27.5
Fair	99,414	28.2	82,743	27.0	117,203	25.9	46,422	20.0
Poor	44,208	12.6	44,054	14.7	56,956	12.7	17,525	7.1

Notes

1. See Figure 7.6.

2. Rates were age-standardised to Australian population as at 30 June 2001.

Source: ABS National Health Survey 2011–12.

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Table B27: Prevalence of arthritis and other musculoskeletal conditions by age, 2011–12

Age group (years)	Arthritis	Other musculoskeletal conditions only	Arthritis and/or other musculoskeletal conditions
		%	
0–4	0	0.2	0.2
5–9	0.6	1.4	1.5
10–15	0.1	2.7	2.9
16–19	0.2	5.7	6.1
20–24	1.9	12.8	13.9
25–29	3	15.2	16.5
30–34	5.1	17.7	20.6
35–39	5.3	23.6	26
40–44	9.5	23.6	30.1
45–49	15.3	25.4	33.1
50–54	23.3	27.5	40.1
55–59	28.9	29.7	46.5
60–64	38.5	37.3	55.2
65–69	45.4	39.1	59.7
70–74	47	40.6	63.8
75–79	52.6	45.2	68.5
80–84	46.8	41.6	61
85+	57.4	47.5	72
All ages	**14.8**	**12.9**	**27.7**

Notes

1. See Figure 8.1.

2. Prevalence for all ages was age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Table B28: Prevalence of selected arthritis and other musculoskeletal conditions by age, 2011–12

Age group (years)	Osteoarthritis	Rheumatoid arthritis	Back pain/problems	Osteoporosis
		%		
0–15	0.0	0.1**	0.4*	0.0
16–34	0.8	0.4*	7.0	0.2*
35–64	10.3	2.8	11.3	3.3
65–79	28.8	5.7	13.0	12.3
80+	34.9	5.8	6.3	21.2
All ages	**8.0**	**1.9**	**7.7**	**3.1**

*Estimate is subject to high standard errors (relative standard error of 25–50%) and should be used with caution.

**Estimate is subject to sampling variability too high for practical purposes (relative standard error greater than 50%).

Notes

1. See Figure 8.2.

2. Prevalence for all ages was age-standardised to Australian population as at 30 June 2001.

Source: National Health Survey 2011–12.

Table B29: Hospitalisations with the principal diagnosis of minimal trauma fracture, people aged 35 or over, 2011–12

Age group (years)	Males	Females	Persons
	Rate per 100,000 population		
35–64	153	227	189
65–69	512	1,236	889
80 or over	2,728	5,304	4,312

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

Source: AIHW National Hospital Morbidity Database.

Table B30: Core activity limitations in people with and without arthritis and musculoskeletal conditions, 2009

Age group	Arthritis and/or other musculoskeletal conditions		Overall population		Rate ratio
	Number	%	Number	%	
15–34	92,882	30.2	267,334	4.5	6.7*
35–64	1,090,308	46.0	1,223,306	13.8	3.3*
65–79	802,653	63.0	828,244	40.4	1.6*
80 or over	532,700	83.4	564,541	69.8	1.2*

*Statistically significant.

Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.
Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Table B31: Severe or profound core activity limitations in people with and without arthritis and musculoskeletal conditions, 2009

Age group	Arthritis and/or other musculoskeletal conditions		Overall population		Rate ratio
	Number	%	Number	%	
15–34	32,692	10.3	108,882	1.8	5.7*
35–64	349,904	14.9	385,446	4.4	3.4*
65–79	268,385	21.1	267,508	13.2	1.6*
80 or over	327,387	50.3	319,737	39.3	1.3*

*Statistically significant.

Notes

1. The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.
2. Age standardised to the Australian population as at 30 June 2001.
Source: AIHW analysis of ABS 2009 Survey of Disability, Ageing and Carers.

Table B32: High or very high psychological distress reported by people with and without arthritis and musculoskeletal conditions, 2011–12

Age group	Arthritis and/or other musculoskeletal conditions		No arthritis or other musculoskeletal conditions		Rate ratio
	Number	%	Number	%	
18–34	174,231	20.3	428,072	9.4	2.2*
35–64	564,461	17.8	400,644	7.3	2.4*
65–79	156,898	11.1	48,443	5.3	2.1*
80 or over	46,610	10.3	17,296	6.8	1.5*

*Statistically significant.

Note: Age standardised to the Australian population as at 30 June 2001.
Source: National Health Survey, 2011–12.

Table B33: Perception of fair or poor health in people with and without arthritis and musculoskeletal conditions, 2011–12

Age group	Arthritis and/or other musculoskeletal conditions		Overall population		Rate ratio
	Number	%	Number	%	
16–34	126,677	14.9	349,525	6.8	2.2*
35–64	753,478	22.0	500,321	9.2	2.4*
65–79	443,849	31.7	141,567	17.1	1.9*
80 or over	174,159	38.6	63,947	27.1	1.4*

*Statistically significant.

Note: Age standardised to the Australian population as at 30 June 2001.
Source: National Health Survey, 2011–12.

Survey based sample estimates

2011–12 National Health Survey (NHS)

Table B34: People with arthritis and other musculoskeletal conditions, by age group

Age group (years)	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions	
	Number	95% CI	Number	95% CI	Number	95% CI
0–15	5,868**	5,868–5,868	66,120	41,627–90,613	71,988	44,333–99,643
16–34	158,692	130,699–186,685	743,590	669,261–817,919	902,282	822,701–981,863
35–64	1,673,593	1,581,746–1,765,440	1,618,147	1,545,201–1,691,093	3,291,740	3,169,156–3,414,324
65–79	1,063,796	1,001,245–1,126,347	340,508	317,149–363,867	1,404,304	1,340,998–1,467,610
80 or over	355,844	316,787–394,901	94,309	83,958–104,660	450,153	407,803–492,503
All ages	**3,264,398**	**3,142,832–3,385,964**	**2,857,234**	**2,773,231–2,941,237**	**6,121,632**	**5,965,653–6,277,611**

**The Relative Standard Error (RSE) for this estimate is greater than 50% and subject to sampling variability and therefore too high for practical purposes.

2009 Survey of Disability, Ageing and Carers

Table B35: People with arthritis and other musculoskeletal conditions, by age group

Age group (years)	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions	
	Number	95% CI	Number	95% CI	Number	95% CI
0–14	1,712*	403–3,021	9,609	6,,026–13,192	11,321	7,450–15,191
15–34	51,585	42,122–61,048	229,287	209,573–248,982	280,863	258949–302,777
35–64	850,897	818,292–883,503	935,053	899,924–970,180	1,785,950	1,738,347–1,833,553
65–79	676,869	650,247–703,492	284,013	266,261–301,763	960,882	931,251–990,512
80 or over	341,389	327,442–355,336	126,757	114,905–138,608	468,146	454,801–481,490
All ages	**1,922,453**	**1,877,784–1,967,122**	**1,584,710**	**1,544,628–2,560,784**	**3,507,163**	**3,452,682–3,561,642**

*The Relative Standard Error (RSE) for this estimate is between 25% and 50% and should be treated with caution.

Note: The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.

Table B36: People with arthritis and other musculoskeletal conditions, by level of core activity limitation

Level of core activity limitation	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions	
	Number	95% CI	Number	95% CI	Number	95% CI
15–34						
Severe/profound	n.p	-	n.p	-	28,061	18,042–38,080
Mild/moderate	n.p	-	n.p	-	56,100	42,308–69,892
No core activity limitation	n.p	-	n.p	-	196,699	168,164–225,234
35–64						
Severe/profound	136,557	123687–149,427	110,797	91,711–129,883	247,355	220,860–273,850
Mild/moderate	290,832	268,802–312,862	266,962	238,233–295691	557,795	509,046–606,542
No core activity limitation	423,508	395,746–451,269	557,288	511,166–623,410	980,796	919,987–1,041,605
65–79						
Severe/profound	129,417	115,168–143,665	51,726	40,615–92,341	181,143	159,382–202,904
Mild/moderate	277,492	257023–297,962	110,611	95,094–126,128	388,103	355715–420,488
No core activity limitation	269,960	252,449–287,471	121,673	104,179–139,167	391,634	363,695–419,573
80 years or over						
Severe/profound	175,265	162,889–355,336	54,702	42,956–66,448	229,968	208,693–251,243
Mild/moderate	112,268	102,568–121,967	41,662	30,873–52,451	153,929	134,504–173,354
No core activity limitation	53,855	44,868–62,843	30,390	19,773–40,947	84,245	67,584–100,906

n.p. – not publishable . Due to data restriction no breakdown of information is provided for people with arthritis and those with other musculoskeletal conditions for 15–34 age group.

Note: The population estimates for people with arthritis and/or other musculoskeletal conditions differ markedly between the National Health Survey (NHS) and the Survey of Disability, Ageing and Carers (SDAC). While the NHS is designed to provide prevalence estimates for health conditions, this is not the purpose of the SDAC. The SDAC used 17 screening questions about impairments and limitations to identify the population group that may have limitations in or need assistance with activities and participation restrictions in various life areas. Hence, the long-term health conditions reported in the SDAC are those more likely to be associated with an impairment or activity limitation.

2007 National Survey of Mental Health and Wellbeing

Table B37: People with arthritis and other musculoskeletal conditions, by type of mental disorder

Type of mental disorder	Arthritis		Other musculoskeletal conditions only		Arthritis and/or other musculoskeletal conditions	
	Number	95% CI	Number	95% CI	Number	95% CI
16–34						
Any anxiety disorder	61,050	33,236–88,863	232,412	180,614–284,211	256,650	201,594–311,705
Any affective disorder	40,517	15,736–65,297	126,614	82,675–170,552	148,513	105,238–191,789
Any substance use disorder	37,395	11,091–63,697	137,620	97,593–177,647	159,687	115,946–203,428
Any mental disorder	80,694	49,487–111,901	353,413	286,425–420,402	395,138	324,502–465,774
35–64						
Any anxiety disorder	380,885	299,003–462,766	664,072	569,431–758,713	806,506	700,944–912,067
Any affective disorder	144,075	107,383–180767	318,293	243,717–392,868	365,205	286,624–443,785
Any substance use disorder	61,972	34,098–89,846	127,159	86,764–167,554	150,311	107,996–192,626
Any mental disorder	456,043	369,314–542,773	822,927	715,101–930,753	995,909	876,673–1,115,144
65–79						
Any anxiety disorder	80,363	58,284–102,442	60,067	43,320–76,814	96,075	74,181–117,970
Any affective disorder	27,904	13,321–42,486	22,978	12,688–33,268	34,827	19,829–49,825
Any substance use disorder	6,986	648–13,324	7,232	1,375–13,089	11,062	3,128–18,996
Any mental disorder	103,446	79,540–127,352	80,473	61,606–99,339	126,904	101,779–152,030
80 or over						
Any anxiety disorder	6,263	2,062–10,464	2,521	605–5,647	8,263	4,062–11,464
Any affective disorder	5,894	963–10,926	4,075	637–8,789	7,894	863–14,926
Any substance use disorder	n.p	-	n.p	-	n.p	-
Any mental disorder	10,741	6,808–20,674	8,180	888–15,473	15,741	9,807–24,674

n.p. not publishable because of small numbers, confidentiality or other concerns about the quality of the data.

Appendix C: Childhood musculoskeletal conditions

As mentioned in Chapter 3, many children are likely to be affected by arthritis and other musculoskeletal conditions. Descriptions of those musculoskeletal conditions are provided below.

Juvenile idiopathic arthritis (JIA): some forms of arthritis occur exclusively in children, although some children can have most types of arthritis found in adults. The type of childhood arthritis that occurs under the age of 16 is called juvenile idiopathic arthritis: in other words, juvenile arthritis.

Juvenile arthritis is not a single condition, but a group of conditions with some similar features. In Australia, the International League of Associations for Rheumatology (ILAR) classification system for juvenile arthritis is followed. The different subtypes of juvenile arthritis distinguished by the number and site of joints affected during the first six months of onset, and the presence of other symptoms are:

- Oligoarthritis
- Systemic onset arthritis
- Polyarticular arthritis (rheumatoid factor positive & negative)
- Enthesitis-related arthritis
- Psoriatic arthritis, and
- Undifferentiated arthritis.

More detailed information can be found in *Juvenile arthritis in Australia* (AIHW 2008).

Kohler's disease: is a painful foot disorder where the foot becomes sore, swollen and difficult to walk on due to damage to mid foot bone (navicular bone). The exact cause of this disease has not yet been determined, but it is thought to be related to a disruption of blood flow in the navicular bone, which eventually leads to bone decay. Its usual onset is between the ages of 4 and 9 but it can present as early as age 2. Kohler's disease affects boys more than girls. Typically just one foot is affected. The main symptoms are pain and swelling in the middle part of the foot, resulting in a limp and walking with increased weight on the lateral side of the foot.

Scoliosis: is characterised by an abnormal sideways S or C curve of the spine. The Scoliosis Research Society (SRS) defines scoliosis as a curvature of the spine measuring 10 degrees or greater on X-ray. Curves tend to bend to the right in children with juvenile scoliosis. Juvenile scoliosis affects children between the ages of 3 and 10. It is more often seen in girls than boys. The exact cause of juvenile scoliosis is unknown, but children with this condition have delayed bone age, disproportionate growth and a mildly shortened stature. The main symptoms are: aches, limping, pain in hip, knee or pelvis, and pain worsening at the end of the day and over time.

Legg-Calve-Perthes disease: is a disorder of the hip in young children aged 4 to10. The disease occurs when the head of the thighbone (femur) in the hip deteriorates due to insufficient blood supply to the area. Usually the condition affects one hip; in about 15% of all diagnosed cases both hips are affected (Perry & Hall 2011).

Clubfoot: (also known as congenital talipes equinovarus) describes a range of congenital foot abnormalities that cause a newborn baby's feet to point down and inward. Clubfoot can be mild or severe. About half of children with clubfoot have it in both feet. It is more common in boys than girls. The cause of clubfoot is not well understood. While it can be associated with other congenital malformations (for example spina bifida or arthrogryposis), it may also occur independently.

Hip dysplasia or developmental dysplasia of the hip (DDH): refers to an abnormality in the size, shape, orientation, or organisation of the hip. It can cause uneven leg lengths, limping, and hip clicks. The left hip is affected in 60% of children, the right hip in 20%, and both hips in 20% (Storer & Skaggs 2006). Intrauterine position, sex, race, and positive family history are the most important risk factors.

Osteomyelitis: or inflammation of the bone is usually caused by bacterial infection. Long bones, including the femur, tibia, and humerus, are most commonly affected. Common symptoms are: fever, bone pain, swelling, redness, and guarding the affected body part. Inability to support weight and asymmetric movement of extremities are often early signs in newborns and young infants. As noted in recent studies, children with osteomyelitis may develop deep vein thrombosis and fractures (Belthur et al. 2012; Hollmig et al. 2007).

Back pain/problems: many children also suffer from back problems. Low back pain is more common in school-age children (Jones et al. 2003). Common causes of back pain in children include non-specific pain or muscle strain, herniated disk and scoliosis. It has also been suggested that carrying a heavy backpack can cause back pain (Skaggs et al. 2006).

Other minor leg and foot problems during childhood are:

- **in-toeing and out-toeing**: the condition known as in-toeing, in which the feet point inwards, is common, particularly in infancy and early childhood. Out-toeing, in which the feet point away from each other, is less common but may occur from 6 months
- **bow legs**: when both tibias (shinbones) curve outwards, a child's knees cannot touch when he or she stands with the feet together. This condition is common in children up to 3. Severe bowing is uncommon but may be caused by a deficiency of vitamin D
- **knock-knees**: the child's legs curve in at the knees, so that the feet are wide apart even when the knees are touching. Knock-knees are common in children aged 3–7, and
- **flat feet**: most children have flat feet until the arch develops between 2 and 3 years of age. Children also have a pad of fat beneath the foot that accentuates the flat-footed appearance. However, some children have persistent flat feet.

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Related publications

The following AIHW publications relating to arthritis and musculoskeletal conditions might also be of interest:

- AIHW 2013a. A snapshot of juvenile arthritis, January 2013. Bulletin no. 113.
- AIHW 2013b. A snapshot of rheumatoid arthritis.
- AIHW 2011. A snapshot of osteoporosis in Australia 2011. Arthritis series no. 15. Cat. no. PHE 137. Canberra: AIHW
- AIHW 2011. Use of antiresorptive agents for osteoporosis management. Cat. no. PHE 148. Canberra: AIHW.
- AIHW 2010a. Medication use for arthritis and osteoporosis. Arthritis series no. 11. Cat. no. PHE 121. Canberra: AIHW.
- AIHW 2010b. When musculoskeletal conditions and mental disorders occur together. Cat. no. AUS 129. Canberra: AIHW.
- AIHW 2010c. A snapshot of arthritis in Australia 2010. Arthritis series no. 13. Cat. no. PHE 126. Canberra: AIHW.

  AIHW 2010d. Use of health services for arthritis and osteoporosis. Arthritis series no. 14. Cat. no. PHE 130. Canberra: AIHW.
- AIHW 2007. Data sources for monitoring arthritis and musculoskeletal conditions. Arthritis series no. 3. Cat. no. PHE 84. Canberra: AIHW.

Web-based products:

- AIHW 2013. A snapshot of osteoarthritis.
- AIHW 2013. A snapshot of back problems.

Arthritis and other musculoskeletal conditions affect an estimated 6.1 million Australians (approximately 28% of the total population) across all ages. Due to their diverse nature, there is considerable variation in the prevalence, treatment and management, and quality of life of people with these conditions across various life stages. This report describes these impacts in the following age groups: childhood (0–15), young adulthood (16–34), middle years (35–64), older Australians (65–79) and Australians aged 80 or over.