Special Report:

The Burden of Osteoarthritis in Canada

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FINAL VERSION

Executive Summary

Osteoarthritis (OA) is the most common type of arthritis and affects more Canadians than all other forms of arthritis combined. OA is characterized by stiffness, swelling and pain of the joints that leads to disability, poorer physical and mental health and an overall reduced quality of life.

This report is the first of its kind as a national report on the burden of OA in Canada. The report pulls together data from multiple representative Canadian population-based surveys to provide information about the current state of OA in Canada and the impact faced by people with OA.

How common is OA?

- About 15% of Canadians aged 20+ have OA.
  - More than 4 million Canadians, or about 1 in every 7 adults, have OA.

Who has OA?

- OA is more common in women than men.
  - 18% of Canadian women aged 20+ have OA.
  - 11% of Canadian men aged 20+ have OA.
- OA is not just a disease of the elderly.
  - More than half of Canadians who have OA are under the age of 65.
  - On average, Canadian adults with OA report being diagnosed with the disease at age 50.
  - Nearly one-third of people with OA report being diagnosed before the age of 45.

Symptoms and severity of OA

- Once diagnosed, a large proportion of people with OA experience pain and disability, regardless of age.
  - The impact of OA among younger adults is similar to, if not worse than, the impact among older adults.
- OA is a disease most often affecting more than one joint.
  - The average number of symptomatic joint sites reported by people with OA is relatively consistent across age groups.
- The most common symptomatic joint site reported is the knee followed by the hand, back, and hip.

Impact of OA

- The majority of people with OA report that OA has at least some impact on their lives, with nearly one-quarter reporting that OA impacts their lives quite a bit or extremely.
- People of working age with OA are more likely to report not being in the labour force or in school than those in the general population.

Overall health and OA

- People with OA report worse general and mental health outcomes compared to the general population.
    - Young people with OA are more likely to report poorer general and mental health compared to their older counterparts and the general population of the same age.
    - People with OA are more likely to report having additional chronic health conditions compared to the general population.

OA and healthcare use

- A significant proportion of people with OA report consulting a health professional for their arthritis and using medication for their arthritis.

Table of Contents

Preamble

Arthritis is a serious disease that can have devastating impacts on people's lives. As one of the most common long-term health conditions in Canada, it places a tremendous burden on the healthcare system and Canadian society at large. About 6 million Canadians live with arthritis, along with their caregivers, families and friends.

Osteoarthritis (OA) is the most common type of arthritis. OA is a joint disease that progresses to the breakdown of surrounding cartilage and underlying bone. It was once described as a "wear-and-tear" arthritis, however it is now described as the effect of the body's failed attempt to heal damaged joint tissues. OA is characterized by stiffness, swelling and pain of the joints that can lead to disability, poor physical and mental health and an overall reduced quality of life. OA is typically diagnosed through a physical examination to assess symptoms, and sometimes followed-up with X-rays for confirmation of diagnosis. There is currently no cure for OA, however there are ways to manage the symptoms and improve daily function.

There are currently no national reports on the burden of OA in Canada. This report presents data and explanations from the most recent Canadian health surveys containing information about OA and is intended to inform stakeholders on the current state of OA in Canada. It reports on the burden of OA and describes the range of impacts of OA on the lives of Canadians.

Introduction to the data

The information in this report comes from integrating data from several representative national population surveys. These included the 2017-2018 Canadian Community Health Survey (CCHS), the 2009 Survey on Living with Chronic Disease in Canada – Arthritis Component (SLCDC-A), and the ongoing Canadian Longitudinal Study on Aging (CLSA). Full details of the surveys are provided in the appendix.

The prevalence of OA was derived from individuals aged 20+ in the SLCDC-A who reported health professional-diagnosed OA or reported health professional-diagnosed arthritis of unknown type with OA-like pain in the knee, hip, or hand. The base population for estimating prevalence was the CCHS, the most recent and comprehensive source of the number of people with arthritis in Canada. Estimates were verified by comparison with estimates from the CLSA. Further details are provided in the appendix.

Prevalence of OA in Canada

OA is one of the most common long-term health conditions in Canada and is the most common form of arthritis. Of the 6 million Canadians aged 20 years or older who have arthritis, the majority — just over 4 million — have OA. This means that about 15% of all Canadians aged 20 years or older have OA.

OA is more common in women than men, with nearly 1 in 5 women (18%) and 1 in 9 men (11%) reporting OA in Canada. The proportion of people reporting OA increases substantially with increasing age. Even so, an examination of the numbers of people reporting OA (represented by the line on the graph), indicates that over half (52%) are under the age of 65 years.

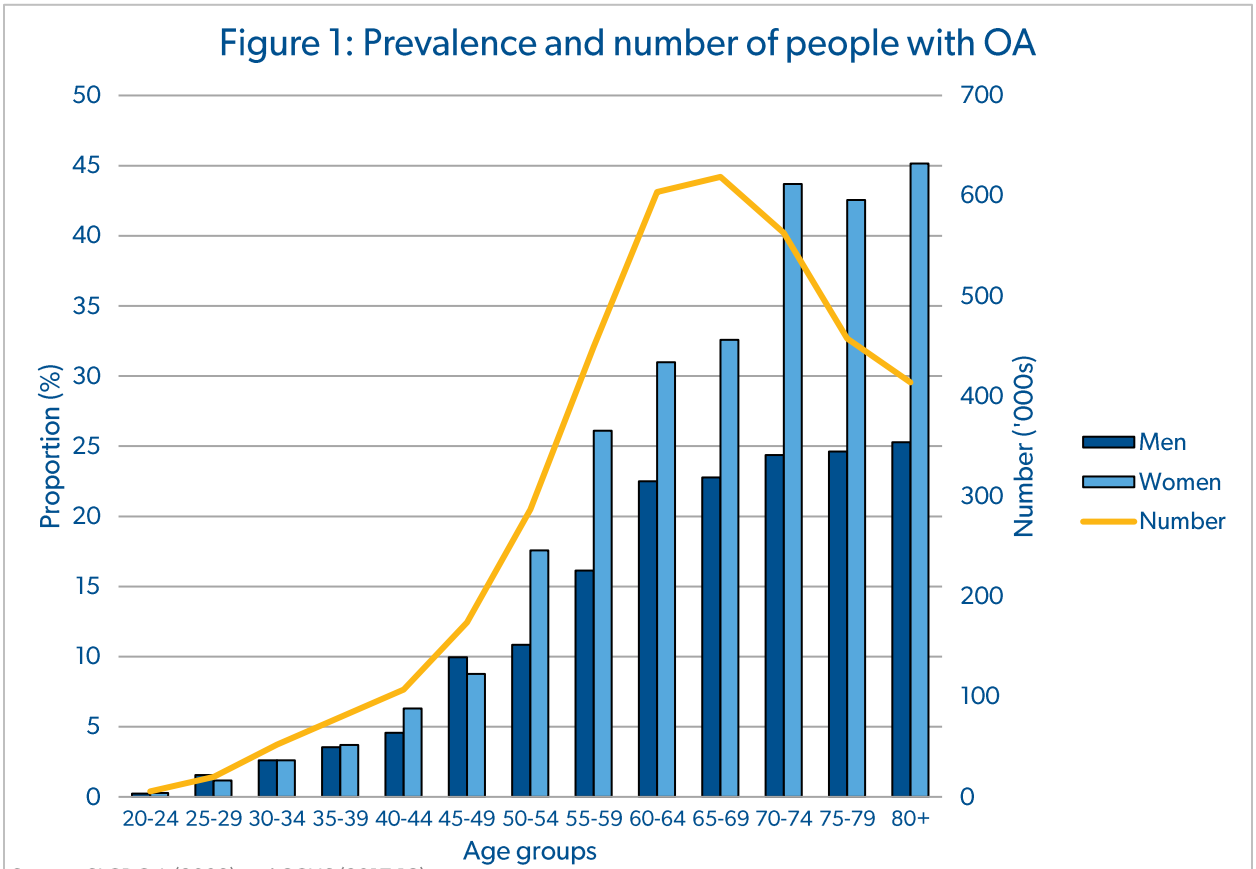


Figure 1: See appendix for details on calculation of prevalence and number of people with OA. In the figure the yellow line depicts a two age group moving average for the number of people with OA in Canada.

Who has OA in Canada?

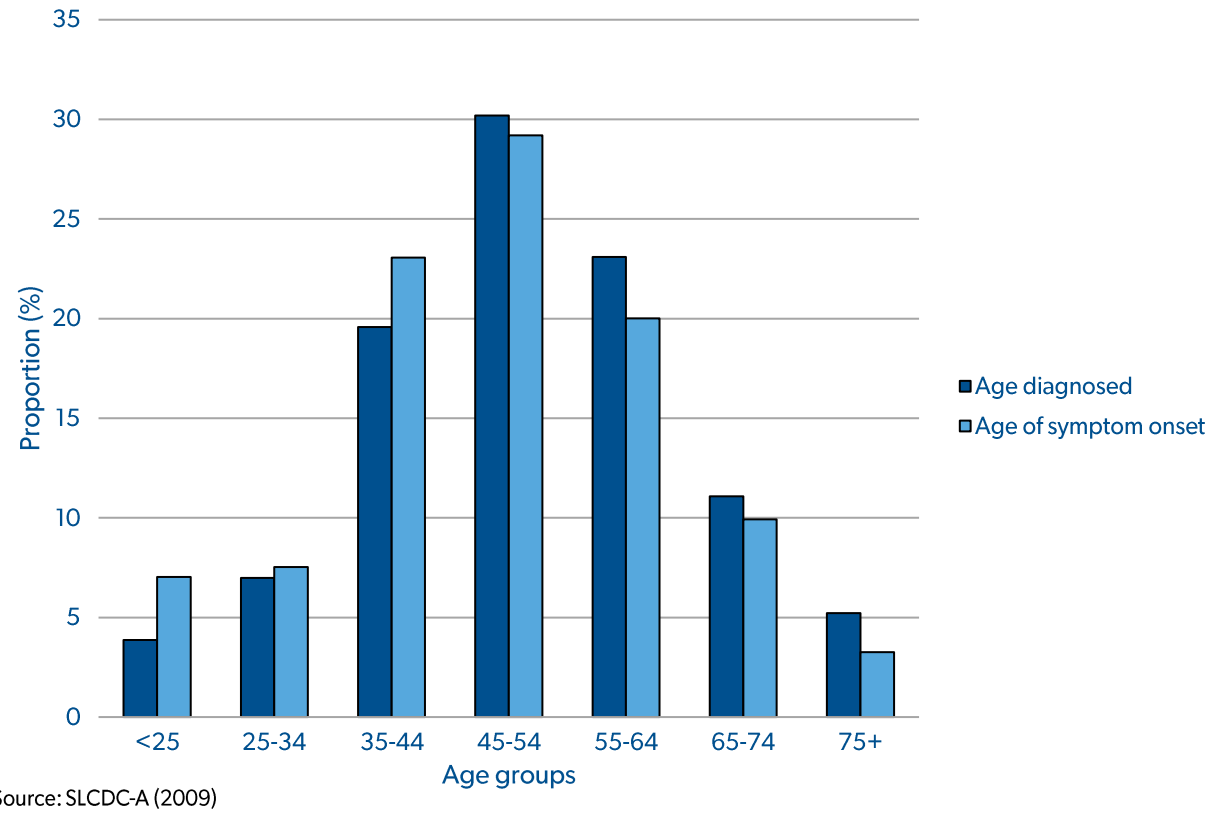
Age of Diagnosis and Symptom Onset

OA is not just a disease among the elderly.

The mean age at which both men and women report receiving a diagnosis of OA was 50 years, with nearly one-third (30.4%) reporting a diagnosis before the age of 45.

The mean age at which both men and women report experiencing their first joint symptoms was 48 years, with nearly two-fifths (37.6%) experiencing symptoms for the first time before the age of 45.

Figure 2: Age of OA diagnosis and symptom onset



Source: SLCDC-A (2009)

Figure 2: People were asked in the SLCDC-A "How old were you when you were first diagnosed with arthritis?" and "How old were you when you first started experiencing joint symptoms (of pain, aching or stiffness)?"

Duration of OA

OA is a long-term health condition with no known cure.

On average, people with OA report living with their diagnosis for just over 12 years and their symptoms for nearly 15 years. About one in three (34.2%) people with OA report living with the disease for five years or less, while nearly one in five (19.8%) report living with the disease for at least 20 years.

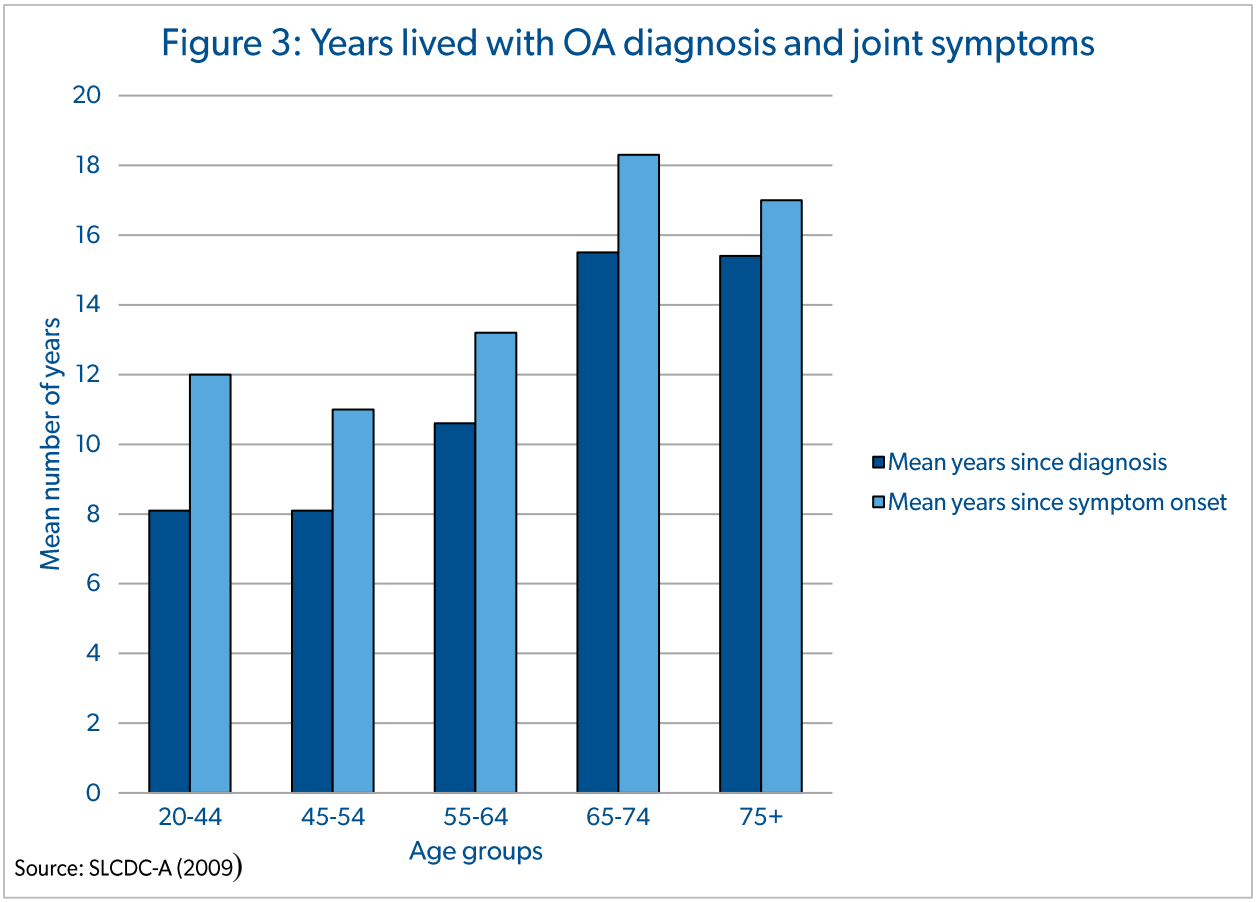
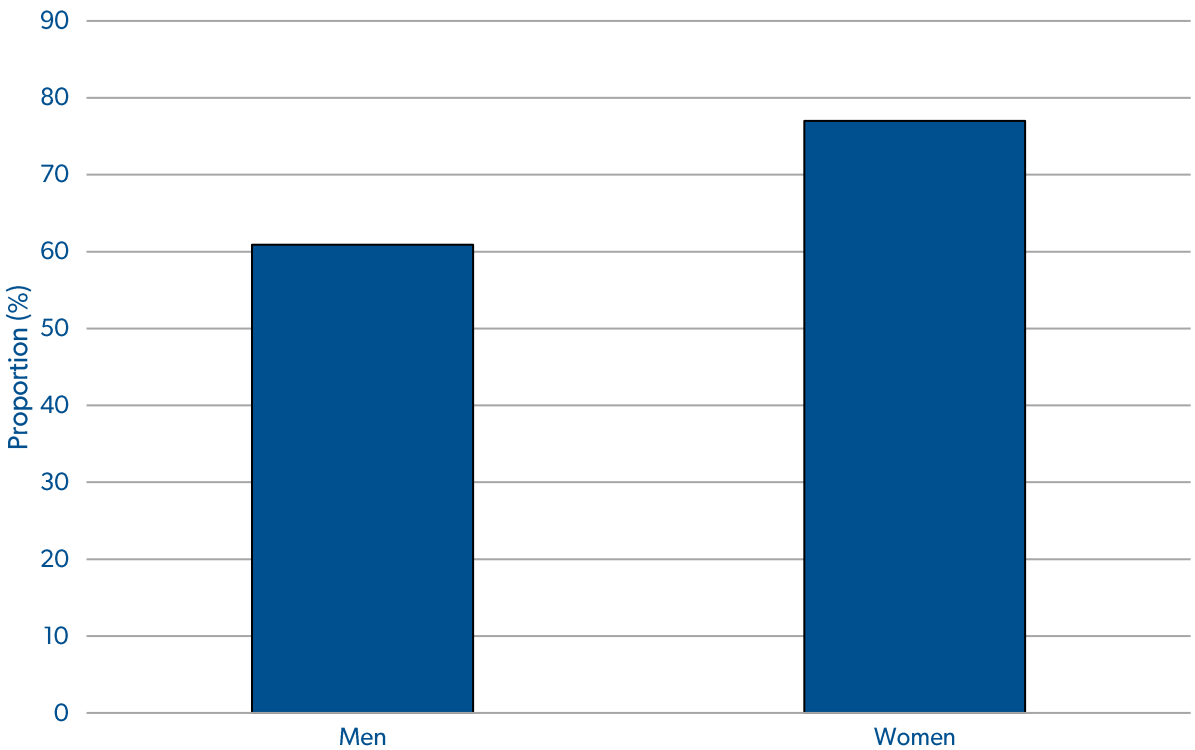


Figure 3: A derived variable in the SLCDC-A calculated the difference between a person's recorded age and the age at which they reported being diagnosed with OA to determine the duration they had lived with their diagnosis. Another derived variable calculated the difference between a person's recorded age and the age at which they reported first experiencing joint symptoms to determine the duration they had lived with their symptoms.

Family History

Overall, nearly three quarters (72.5%) of people with OA report having a close blood relative (i.e. parent, sister, child, grandparent, aunt or uncle) that had a diagnosis of arthritis or had chronic joint symptoms. Women with OA report this more frequently than men with OA (77.0% compared to 60.9%).

Figure 4: Proportion of people with a close blood relative who has arthritis or chronic joint symptoms



Source: SLCDC-A (2009)

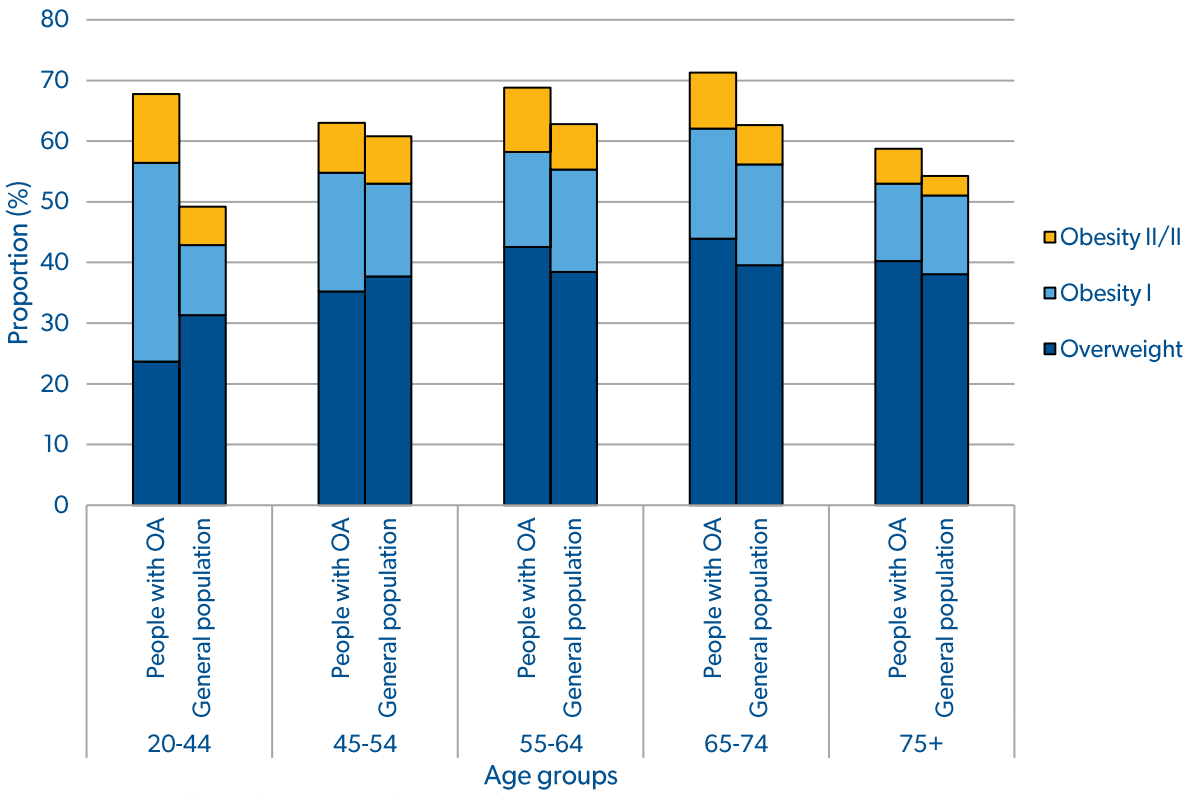
Figure 4: In the SLCDC-A people were asked "Do you have a blood relative, that is, a parent, sister, brother, child, grandparent, aunt or uncle that you are related to by birth, who has ever been diagnosed with arthritis, or who has chronic joint symptoms?"

Overweight and Obesity

People with OA are more likely to have overweight or obesity status compared to the general population.

Overall, people with OA are more likely to have body mass indexes (BMI) indicative of overweight or obesity (66.2%) compared to the general population (55.9%). The greatest difference occurs in the youngest age group (20-44 years old) where more than two-thirds (67.7%) of people with OA have overweight or obesity status compared to just 49.2% in the general population. In particular, obesity in this age group is considerably more prevalent among people with OA. Among those with OA in the youngest age group, 32.8% are in obesity class I and 11.3% in obesity class II/III, compared to 11.6% and 6.3%, respectively, in the general population.

Figure 5: Proportion of overweight and obese people



Source: SLCDC-A (2009) and CCHS (2017-18)

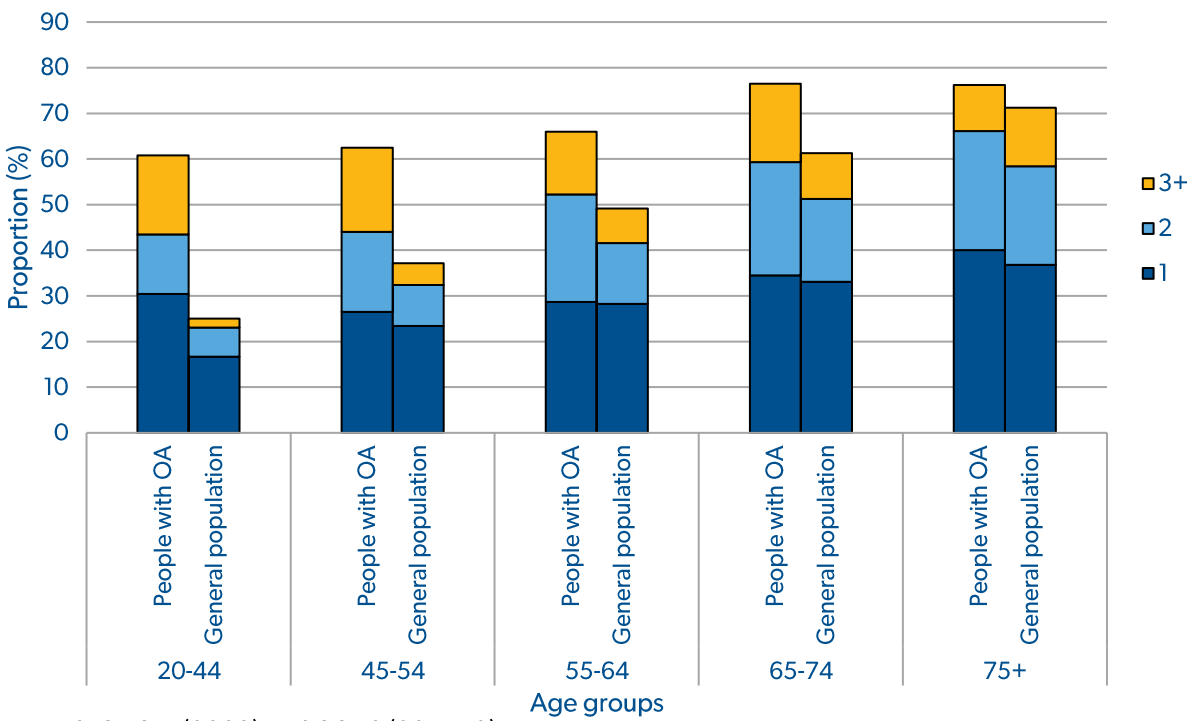
Figure 5: Overweight and chronic status was based on body mass index (BMI) calculated from self-reported weight and height. BMI was calculated by dividing weight in kilograms by height in metres squared. Pregnant women were excluded from calculations. People in the SLCDC-A and CCHS with 25≤BMI<30 were classified as overweight, 30≤BMI<35 were classified as obesity class I, and BMI≥35 were classified as obesity class II and III according to international standards.

Additional Chronic Conditions

People with OA are more likely to report having additional chronic conditions than the general population.

More than two-thirds (69.5%) of people with OA report having at least one other chronic condition, compared to 40.1% among the general population, with a higher proportion reporting three or more additional conditions. This is found in every age group, and particularly for those aged under 55. Other kinds of arthritis were not considered as additional chronic conditions in this group.

Figure 6: Proportion of people reporting additional chronic conditions



Source: SLCDC-A (2009) and CCHS (2017-18)

Figure 6: Respondents were prompted in the SLCDC-A and CCHS: "Now I'd like to ask about certain long-term health conditions which you may have. We are interested in 'long-term conditions' which are expected to last or have already lasted 6 months or more and that have been diagnosed by a health professional." This was followed by a list of individual chronic conditions. Included in the count above were 10 conditions: asthma, high blood pressure, migraine headaches, chronic obstructive pulmonary disease, diabetes, heart disease, cancer, stroke, mood disorder, and anxiety disorder. "Yes" responses were used to calculate the number of other chronic conditions.

Symptoms and Severity of OA

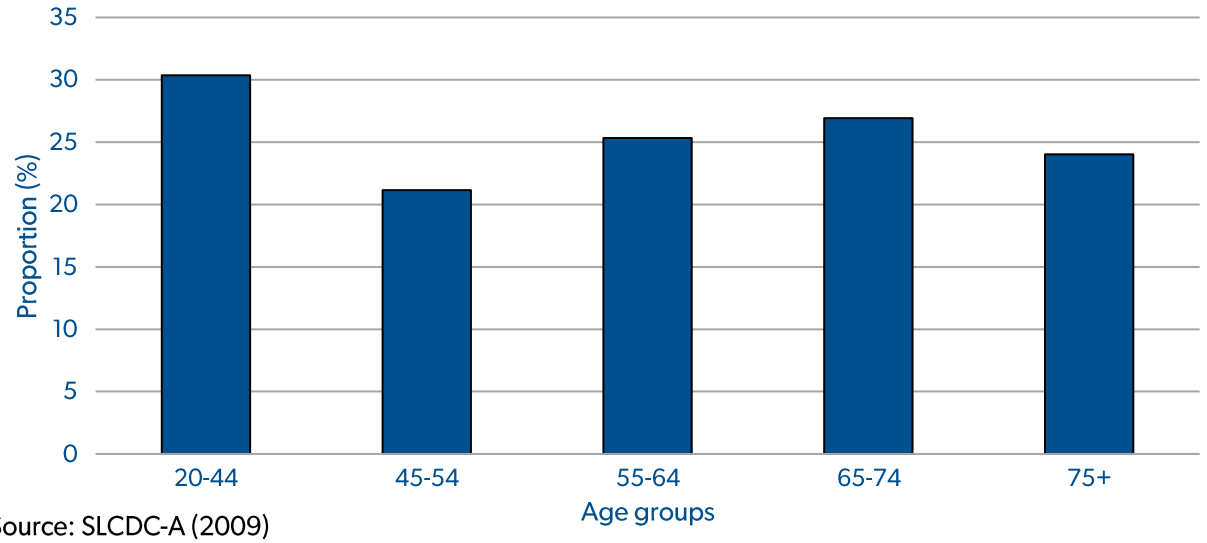
Joint Pain

Once diagnosed, a large proportion of people with OA experience pain and disability, regardless of age.

The SLCDC-A asked respondents to report whether they experienced joint symptoms of pain, aching or stiffness due to their arthritis. As expected, most (96.0%) report experiencing joint symptoms because of their OA.

Those who report joint pain were asked to rate their joint pain on a scale of one to ten and report how frequently they experienced joint pain. Nearly one-third (30.4%) of people aged 20-44 with OA report having severe and frequent joint pain (i.e., pain which occurs often or always and is rated at an intensity of seven or more out of ten). The proportion of people reporting severe and frequent joint pain varies little across age groups.

Figure 7: Proportion of people with OA reporting severe and frequent joint pain



Source: SLCDC-A (2009)

Figure 7: In the SLCDC-A, people were asked “Have you ever experienced joint symptoms of pain, aching or stiffness, related to your arthritis?” with response options: “yes”, “no”.
Those who responded yes were then asked, “In the past month, how often have you experienced joint pain?” with response options: “always”, “often”, “sometimes”, “rarely”, “never”. People were then asked “Please tell me what number best describes, on average, how bad your joint pain was during the past month. Answer with a number between 1 and 10; 1 means "little pain", while 10 means "pain as bad as it could be". On average, in the past month, how bad was your joint pain?”
Severe and frequent joint pain was defined as pain which occurs “always” or “often” and severity rated as 7 or more out of 10.

Number of Painful Joints

OA commonly affects more than one joint site.

Respondents with joint pain indicated any joints that had been painful in the past month. Nearly four-fifths (79.1%) of people with OA report pain in two or more joint sites, and 42.4% report four or more sites.

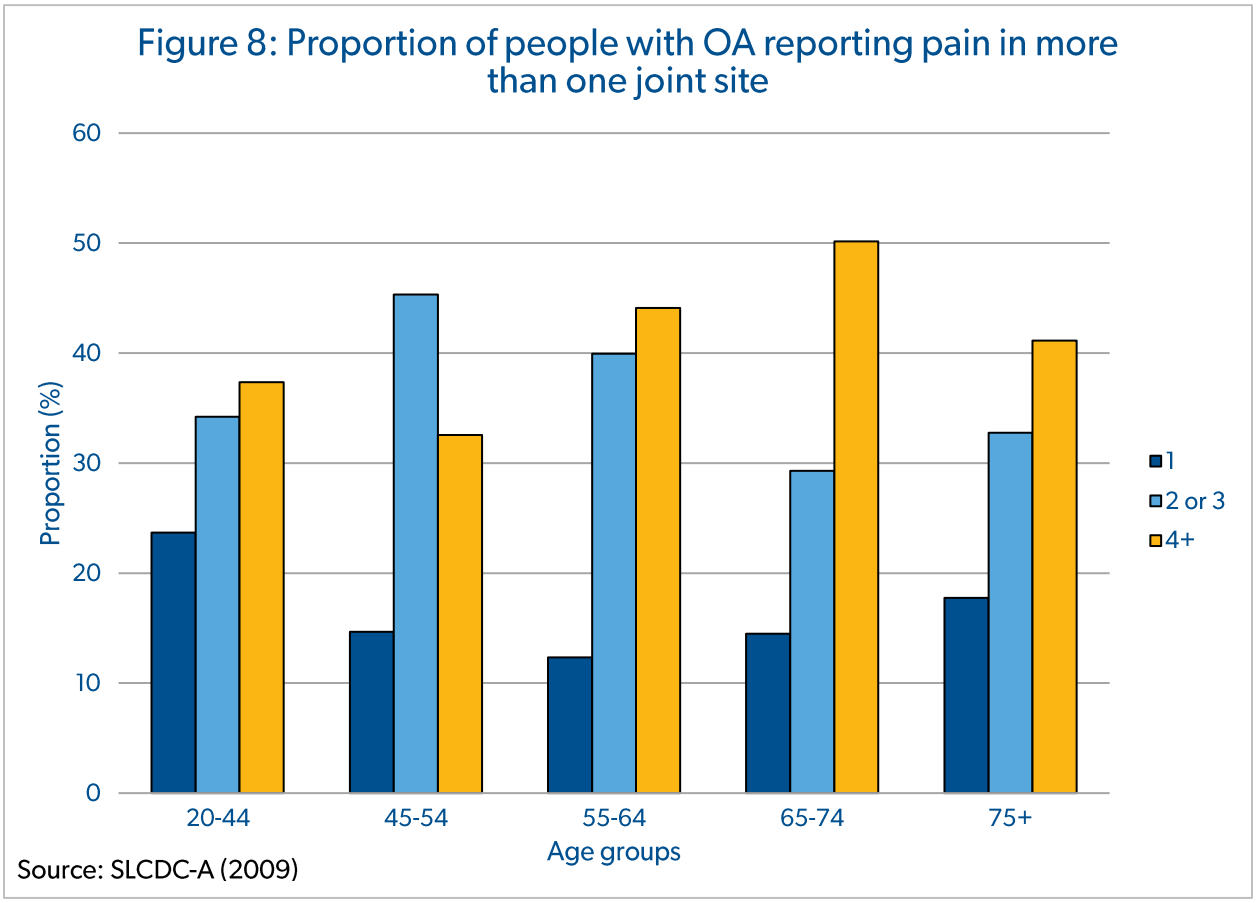
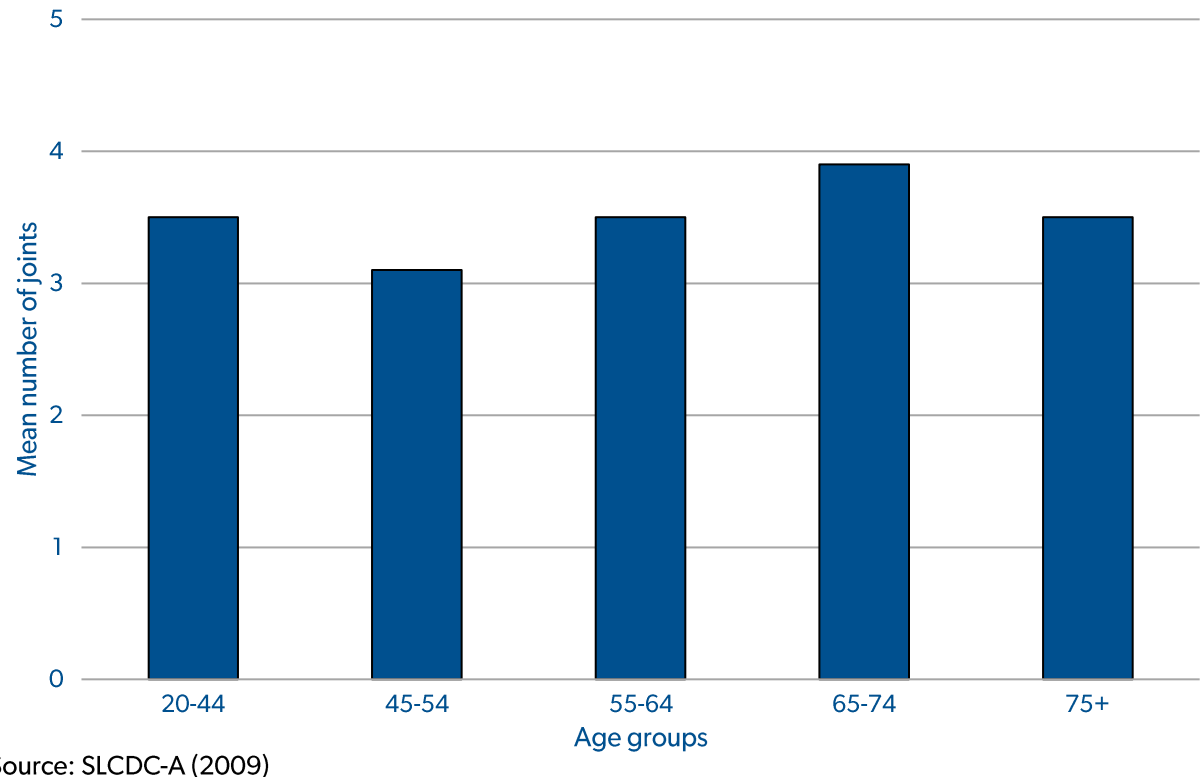


Figure 8: In the SLCDC-A, people were asked "In the past month, which joints have been painful?" The joints were: right and left shoulder, elbow, wrist, hand/fingers/thumb, hip, knee, ankle, foot and toes, neck, back, and other. Individual joints were grouped into sites (i.e., one or both knees) for a total of 11 sites including the neck and back. The number of joint sites reported was summed and categorized as "1", "2 or 3", and "4+".

The mean number of painful joint sites reported does not differ across age groups, with an average of 3.5 painful joint sites reported.

Figure 9: Mean number of painful joint sites reported by age group



Source: SLCDC-A (2009)

Figure 9: In the SLCDC-A, people were asked "In the past month, which joints have been painful?" The joints were right and left shoulder, elbow, wrist, hand/fingers/thumb, hip, knee, ankle, foot and toes, neck, back, and other. Individual joints were grouped into sites (i.e., one or both knees) for a total of 11 sites including the neck and back. Mean number of joints by age group was calculated.

Most Commonly Reported Painful Joints

Among people with OA who experience joint pain, the most commonly reported painful joint site is the knee (61.9%) followed by the hand (51.9%), back (51.5%), and hip (43.6%).

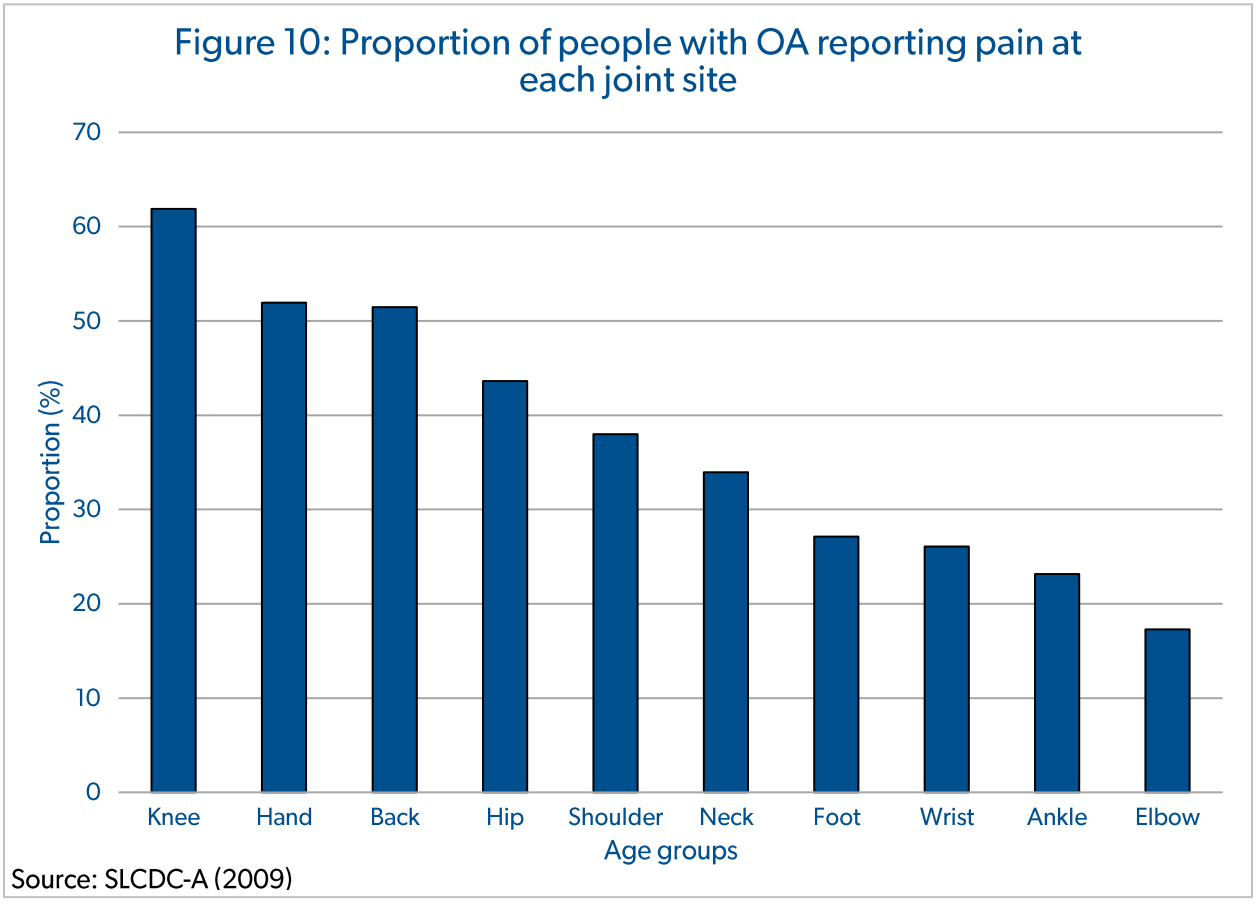


Figure 10: In the SLCDC-A, people were asked "In the past month, which joints have been painful?" The joints were right and left shoulder, elbow, wrist, hand/fingers/thumb, hip, knee, ankle, foot and toes, neck, back, and other. Individual joints were grouped into sites (i.e., one or both knees) for a total of 11 sites including the neck and back.

Impact of OA

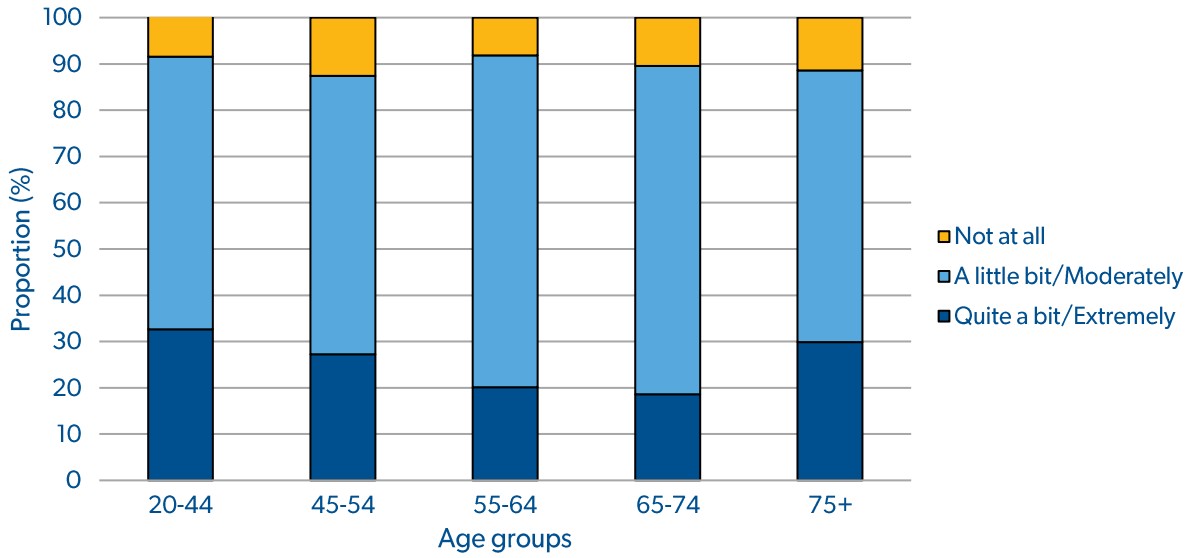
Overall Impact of OA

OA impacts the lives of younger and older Canadians to a similar extent.

About one-quarter (23.9%) of people with OA report that their arthritis impacts their life "quite a bit" or "extremely". The proportion of people with OA reporting extreme impact is the same for the youngest and oldest age groups (32.6% and 29.9%, respectively).

Only one in ten (10.3%) people with OA report that their OA has no impact on their lives, with little variability across age groups.

Figure 11: Proportion of people with OA reporting the degree to which OA impacts their life overall



Source: SLCDC-A (2009)

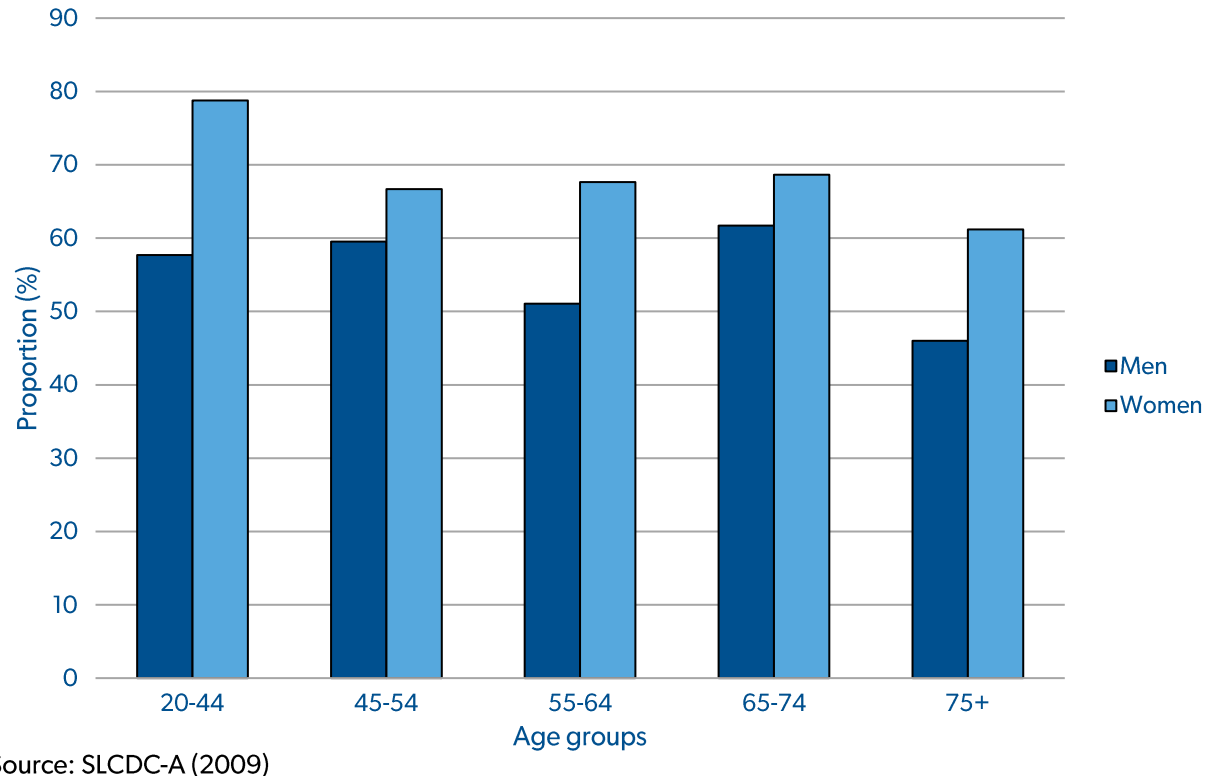
Figure 11: In the SLCDC-A, people were asked "Overall, how much does your arthritis affect your life?" with response options: "Not at all", "A little bit", "Moderately", "Quite a bit", or "Extremely".

Sleep Limitations and Fatigue

People living with OA report their arthritis limits their sleep.

Nearly two-thirds (63.7%) of people with OA report that their arthritis limits them in getting a good night's sleep. Overall, women with OA were more likely to report having limited sleep (67.0%) compared to men with OA (55.3%).

Figure 12: Proportion of people with OA reporting their arthritis limits them a little/a lot in getting a good night's sleep

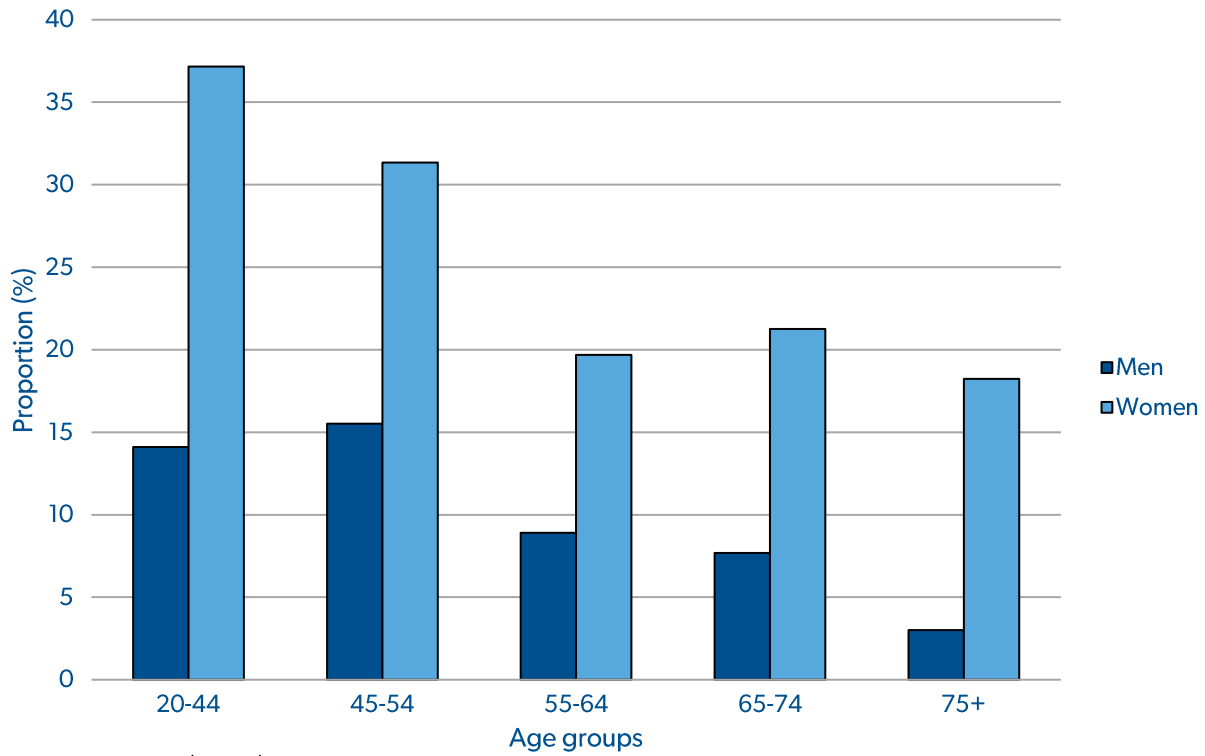


Source: SLCDC-A (2009)

Figure 12: In the SLCDC-A, people were asked "In the past month, how much did your arthritis limit you in getting a good night's sleep?" with response options: "A lot", "A little", "Not at all".

Similar to the questions on joint pain, people with OA were asked to rate their fatigue on a scale of one to 10 and report how frequently they experienced fatigue. More than one-quarter (27.7%) of people aged 20-44 with OA report having severe and frequent fatigue; that is fatigue that occurs often or always and is rated at an intensity of seven or more out of 10. Overall, women were more likely to report severe and frequent fatigue (23.0%) compared to men (10.0%).

Figure 13: Proportion of people with OA reporting severe and frequent fatigue



Source: SLCDC-A (2009)

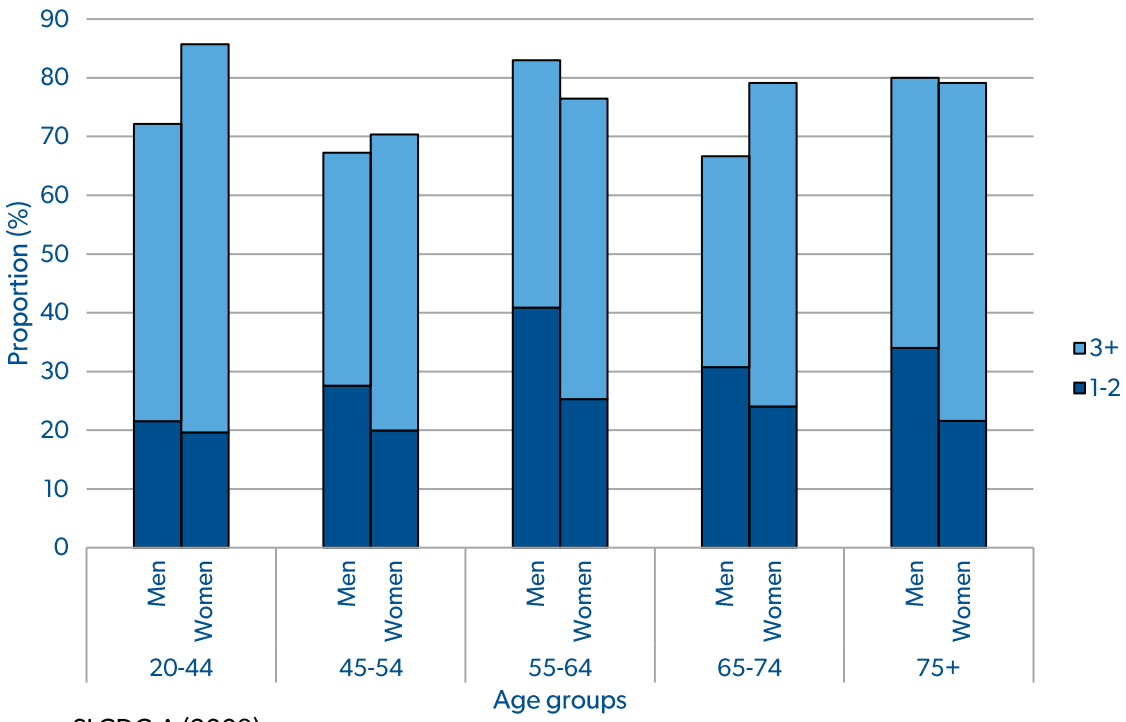
Figure 13: In the SLCDC-A, people were asked "In the past month, how often have you experienced fatigue?" with response options: "always", "often", "sometimes", "rarely", or "never". People were then asked "Please tell me what number best describes, on average, how bad your fatigue was during the past month. Answer with a number between 1 and 10; 1 means 'little fatigue', while 10 means 'fatigue as bad as it could be'. On average, in the past month, how bad was your fatigue?"

Activity Limitations

People living with OA report reductions in activities due to their arthritis.

Respondents were asked if their arthritis, in the past month, had limited them in bathing or dressing, getting around the house, doing household chores, running errands or shopping, and participating in recreation, leisure, hobbies or social activities. Overall, more than three-quarters (76.4%) of people with OA report at least some reduction in their activities because of their arthritis, the majority of whom reported limitations in three or more of the five activities.

Figure 14: Proportion of people with OA reporting any reduction of activities due to their arthritis



Source: SLCDC-A (2009)

Figure 14: In the SLCDC-A, people were asked "In the past month, how much did your arthritis limit you: …in bathing or dressing yourself?; …in getting around the house?; …in doing household chores?; …in running errands or shopping?; … in activities such as recreation, leisure, hobbies or social activities?" with response options: "A lot", "A little", or "Not at all".

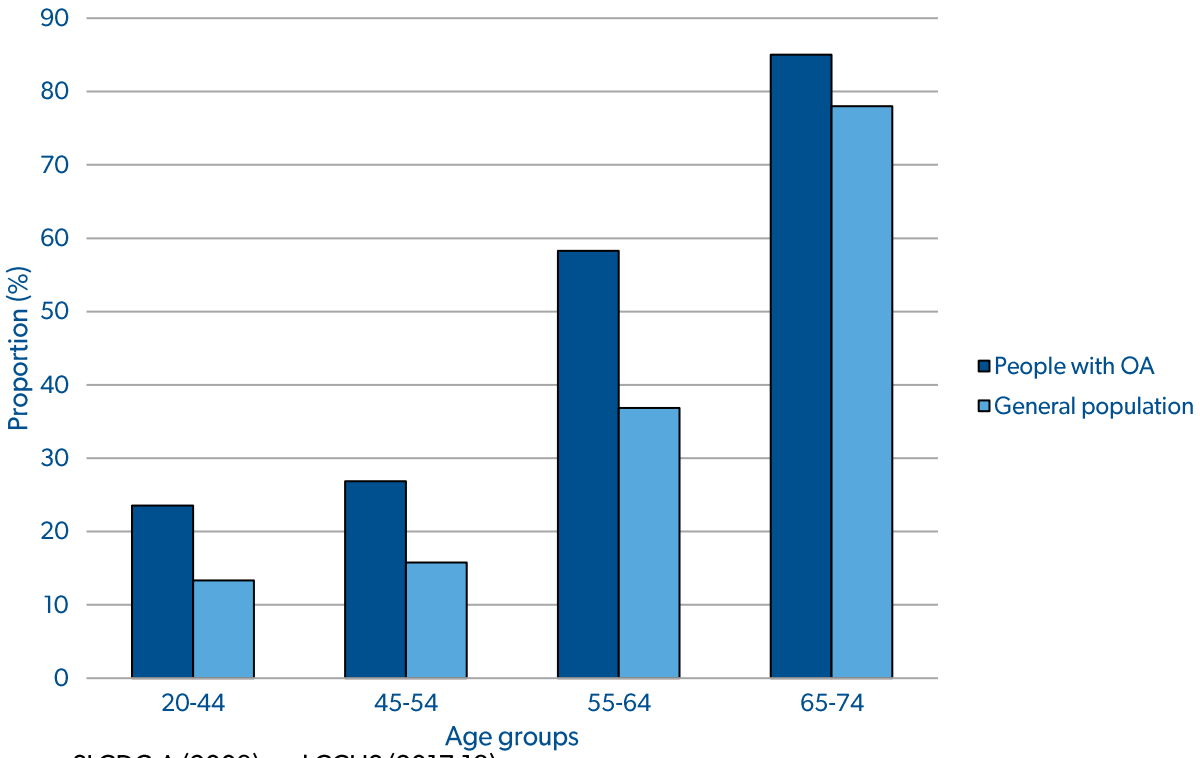
Labour Force Participation

People with OA are more likely to report not being in the labour force or in school than those in the general population.

More than two-fifths of the working-age population with OA (42.4%) reports not being the labour force or in school, compared to less than one-fifth (19.3%) of the general population. Relative comparisons between OA and the general population were consistent across the 20-64 age groups.

The large proportion of people with arthritis not in the labour force or in school points to the importance of considering strategies to help people with OA remain in or re-enter the workforce.

Figure 15: Proportion of people not in the labour force or in school



Source: SLCDC-A (2009) and CCHS (2017-18)

Figure 15: Labour force participation was determined from the survey questions on employment and schooling. Respondents who were working-aged (20-64 years old) and in school or who worked through all or part of the year were considered as being in the labour force.

Work Activity Impact

People living with OA report their arthritis impacts their work.

People with OA who report ever working for pay at a job or business since their OA diagnosis were asked if their arthritis changed the number of hours worked, type of work, the way they carried out tasks at work, or whether they stopped working all together because of their arthritis.

Overall, 18.2% report changing the number of hours they worked, 22.5% report changing the type of work they did, 42.0% report changing the way they carried out tasks at work, and nearly one-quarter (23.9%) report stopping work altogether because of their arthritis.

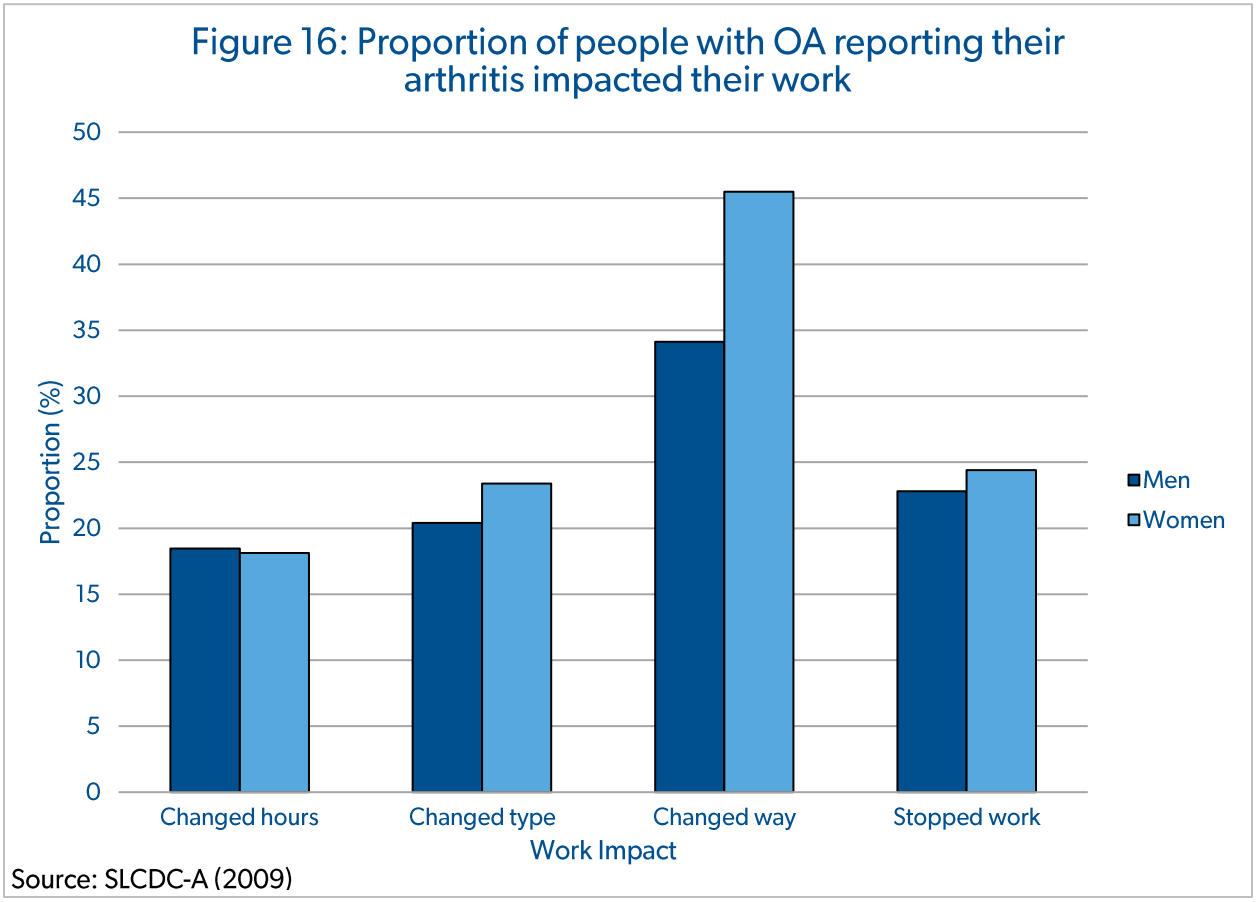


Figure 16: In the SLCDC-A, people were asked "Because of your arthritis, did you ever: …change the number of hours you work/worked?; …change the type of work you do/did?; … change the way in which you carry/carried out your tasks at work?; … stop work altogether?" with response options: "yes" or "no".

OA and General Health

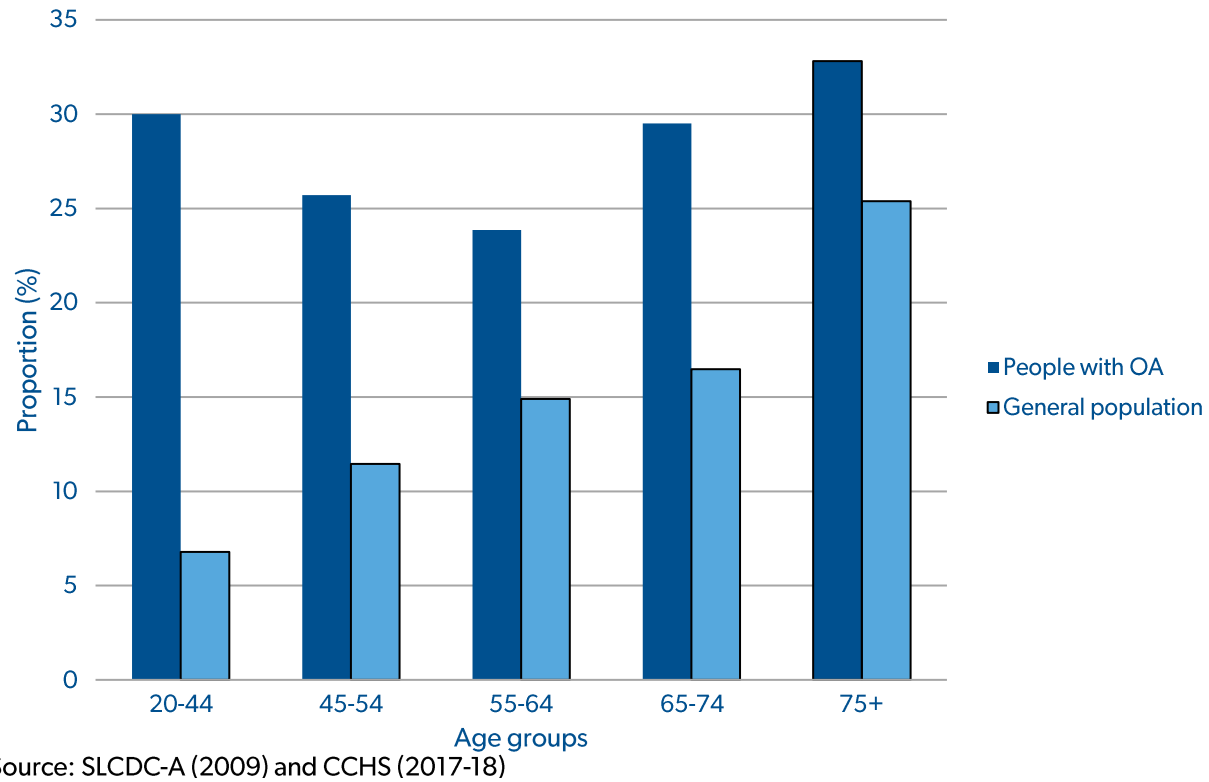
Self-Rated General Health

People with OA report worse self-rated health compared to the general population.

Self-rated health refers to a person's perception of their general health and is an indicator of overall health status.

Overall, more than 1 in 4 (27.8%) of people with OA report having only "fair" or "poor" self-rated health compared to only about 1 in 9 (11.9%) of people in the general population. Fair or poor self-rated health is consistently high across ages among people with OA, unlike in the general population where the proportion is lowest in younger ages and increases with age.

Figure 17: Proportion of people reporting fair/poor self-rated general health



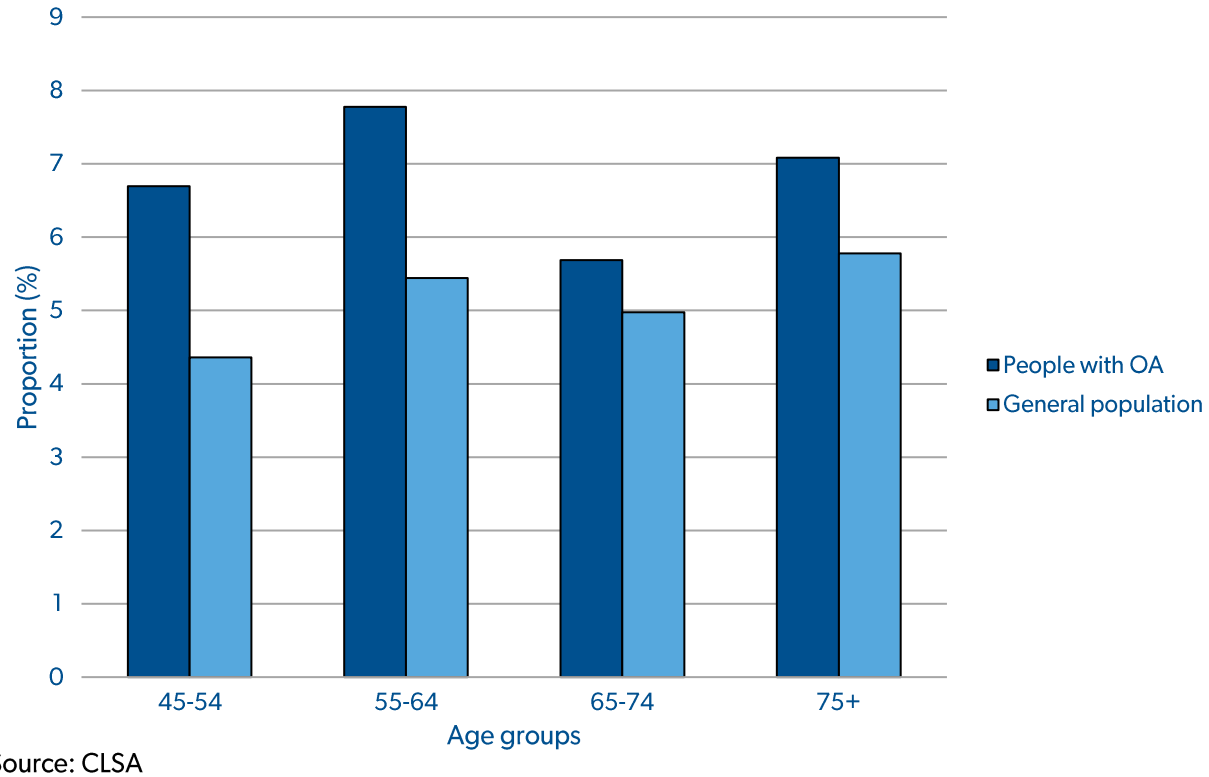
Source: SLCDC-A (2009) and CCHS (2017-18)

Figure 17: In the SLCDC-A and CCHS, people were asked, "In general, would you say your health is: excellent, very good, good, fair, or poor?" Responses of "fair" or "poor" were combined.

Recent Falls

In the CLSA, people were asked if they had a fall in the past year that caused an injury. Among 45- to 64-year-olds, a higher proportion of people with OA report having an injurious fall (7.5%) than in the general population (5.0%).

Figure 18: Proportion of people reporting a fall in the past 12 months



Source: CLSA

Figure 18: Respondents in the CLSA were asked, "In the last 12 months, have you had any injuries that were serious enough to limit some of your normal activities? For example, a broken bone, a bad cut or burn, a sprain or a poisoning." Those who said "yes" were then asked "Was this injury (Were any of these injuries) caused by a fall?".

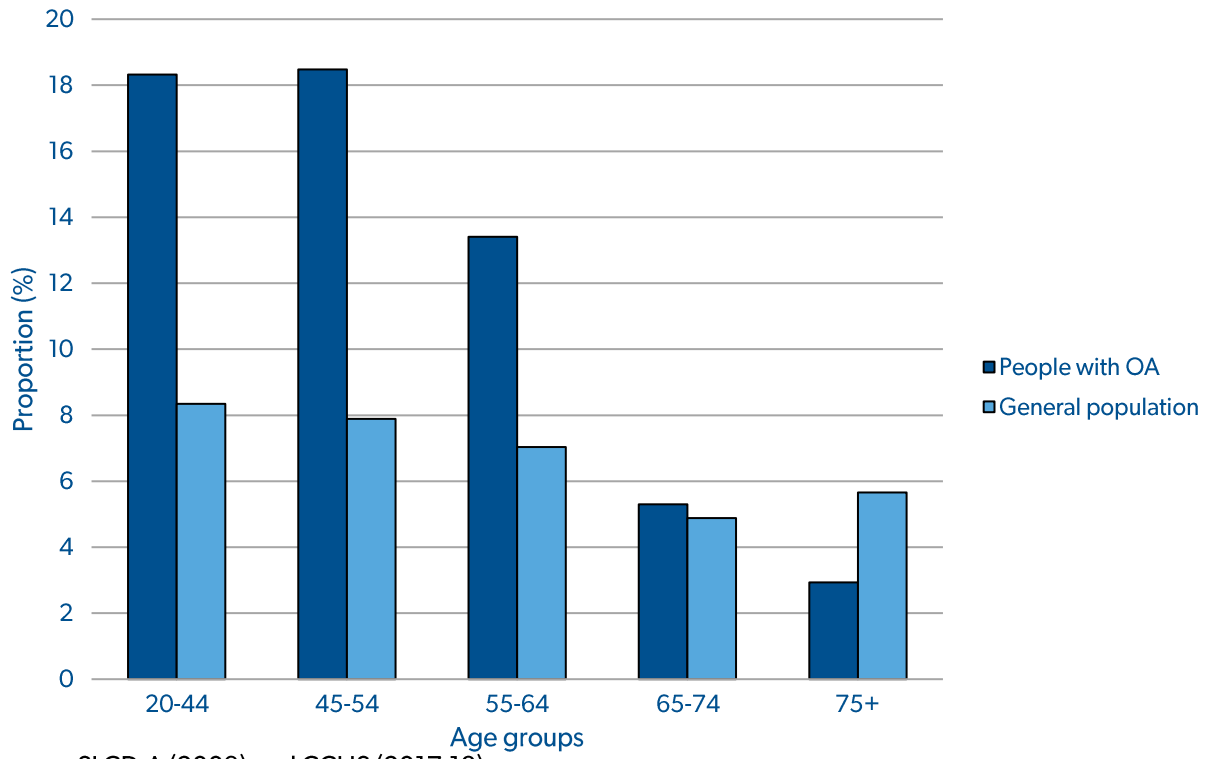
OA and Mental Health

Self-Rated Mental Health

People with OA report worse self-rated mental health compared to the general population among young and middle-aged adults.

Survey participants were asked to rate their mental health. Overall, people with OA self-rated their mental health as "fair" or "poor" more often than the general population: 10.7% compared to 7.4%. Differences were especially notable among age groups under 65, with the greatest difference seen in the 20-44 and 45-54 age groups. Among people with OA, younger and middle-aged adults (20-64 years) report worse self-rated mental health than older adults (65+ years).

Figure 19: Proportion of people reporting fair or poor self-rated mental health



Source: SLCD-A (2009) and CCHS (2017-18)

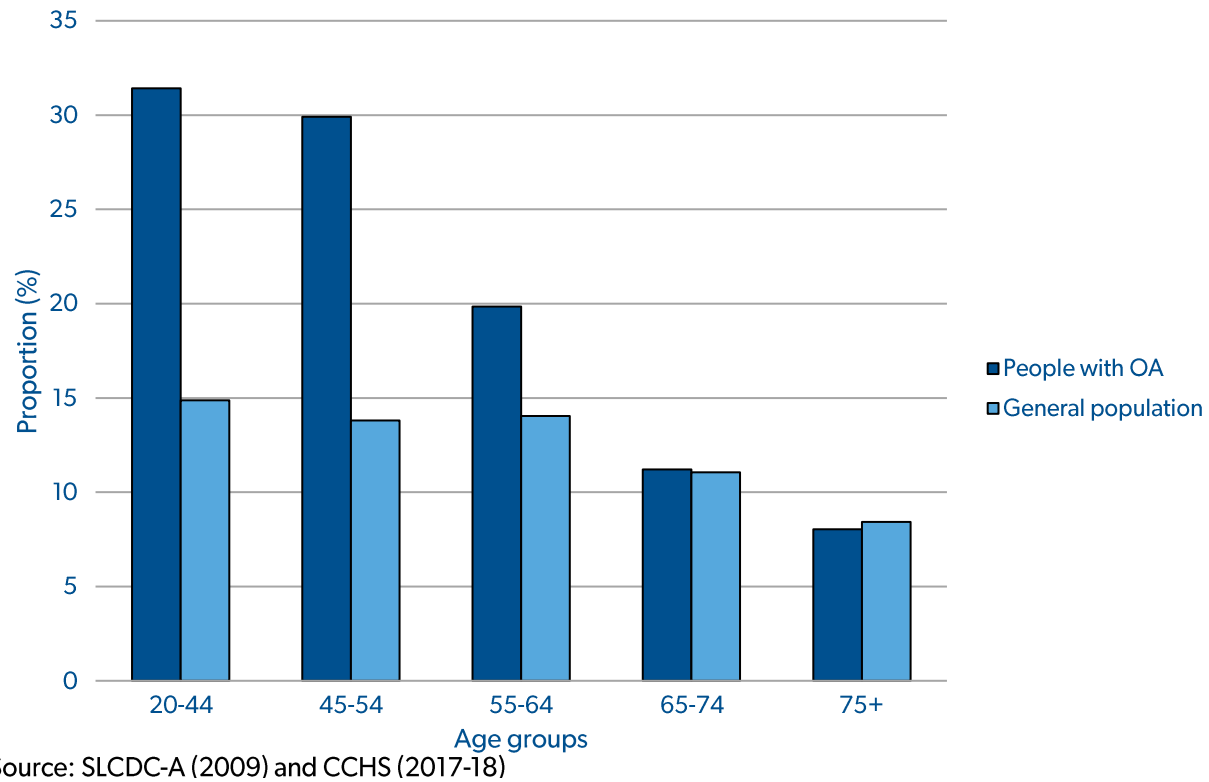
Figure 19: Respondents in the SLCDC-A and CCHS were asked, "In general, would you say your mental health is: excellent, very good, good, fair, or poor?" Reponses of "fair" or "poor" were combined.

Mood and Anxiety Disorders

Respondents were asked to indicate if they had ever been diagnosed by a health professional with a mood and/or anxiety disorder. Mood disorders include depression, bipolar disorder, mania, and others. Anxiety disorders include panic disorders, generalized anxiety disorder, and others.

Overall, 18.2% of people with OA report being diagnosed with a mood and/or anxiety disorder compared to 13.5% in the general population. Consistent with the other measures of mental health, people with OA in the youngest age groups (20-54 years) were much more likely to report mood and/or anxiety disorders compared to people with OA in the oldest age groups.

Figure 20: Proportion of people reporting mood and anxiety disorders



Source: SLCDC-A (2009) and CCHS (2017-18)

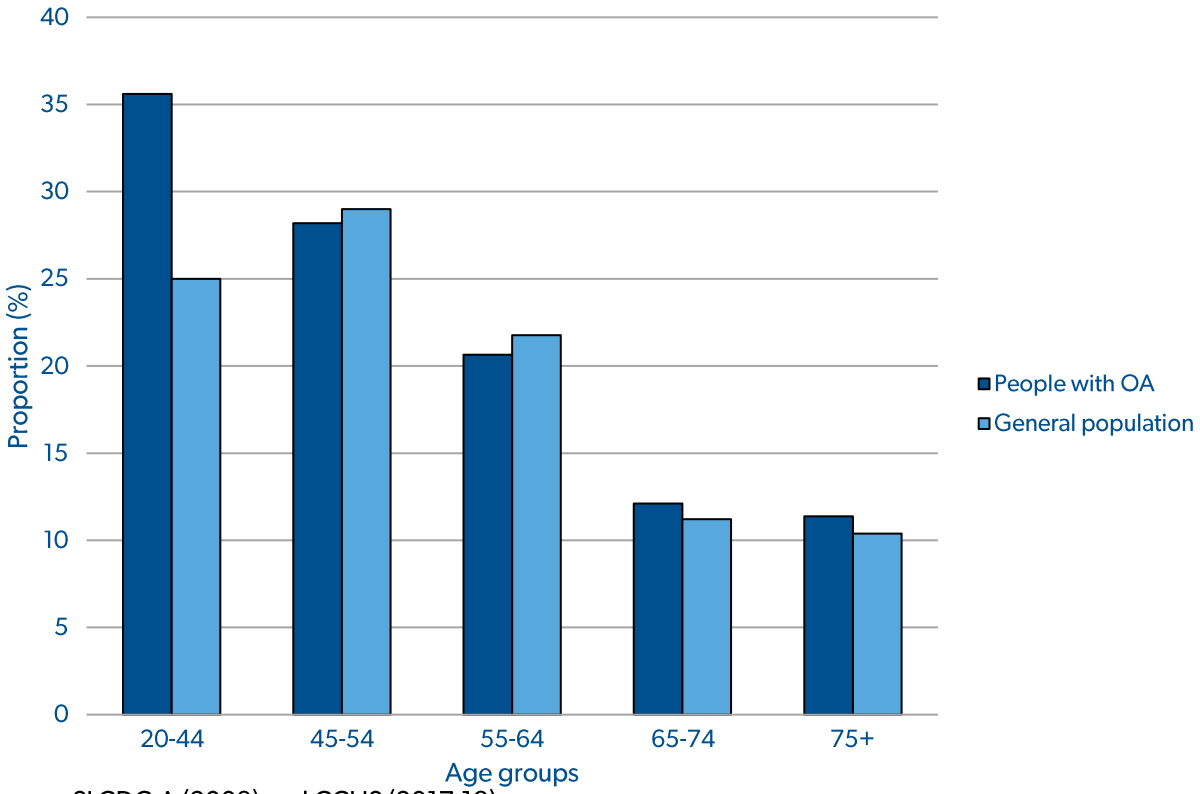
Figure 20: Respondents in the SLCDC-A and CCHS were asked, "We are interested in conditions diagnosed by a health professional. Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?" and "Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?"

Life Stress

When asked to rate their perceived stress in life, 19.3% of people with OA and 22.1% of people in the general population report that they find that life is stressful. While the proportion was similar overall, young adults (ages 20-44) with OA were much more likely to report that they find life stressful compared to young adults in the general population (35.6% compared to 25.0%, respectively).

This data is consistent with prior research suggesting that younger and middle-aged adults experience more stress related to arthritis as compared to older adults with the condition.

Figure 21: Proportion of people perceiving life as stressful



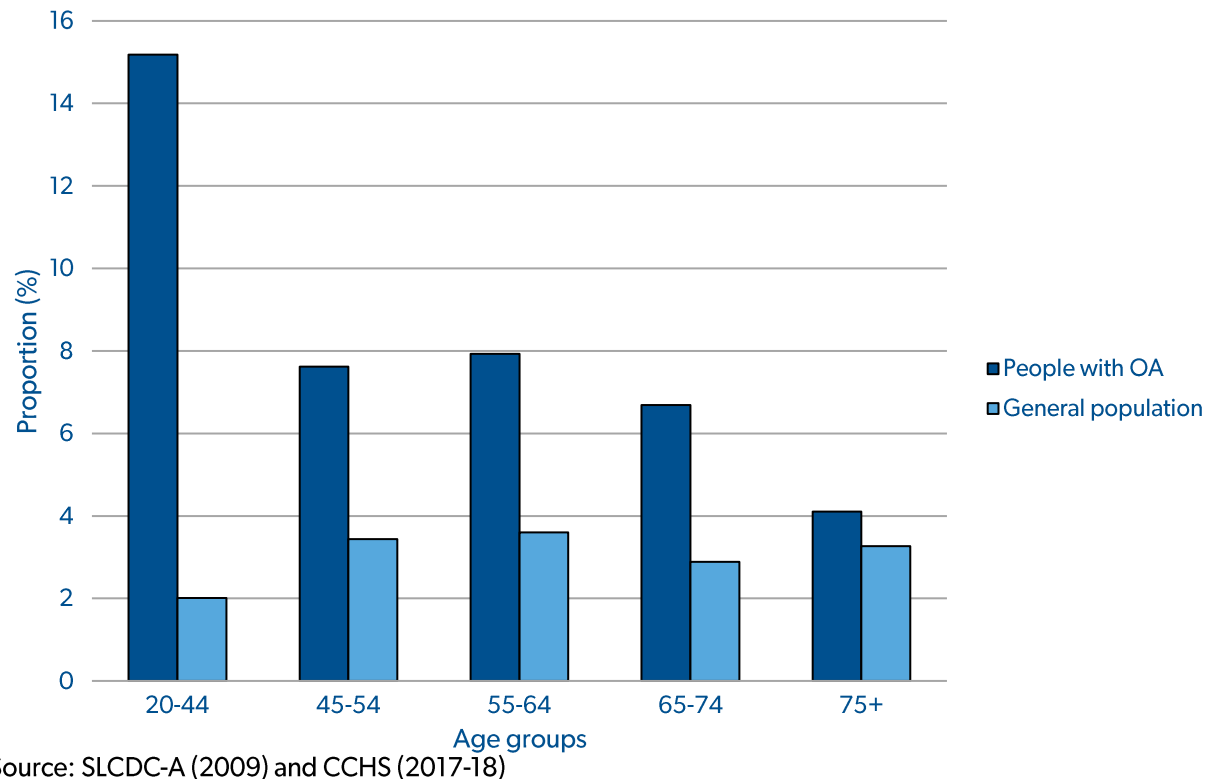
Source: SLCDC-A (2009) and CCHS (2017-18)

Figure 21: Respondents in the SLCDC-A and CCHS were asked, "Thinking about the amount of stress in your life, would you say that most days are: not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful?" Responses of "quite a bit stressful" and "extremely stressful" were combined.

Life Satisfaction

When asked to rate how satisfied they are with life, people with OA were more likely to report dissatisfaction (7.3%) compared to the general population (2.8%). Similar to the self-rated measures of mental health, among people with OA, individuals in the youngest age group (20-44 years) were the most likely to report life dissatisfaction.

Figure 22: Proportion of people reporting being dissatisfied with life



Source: SLCDC-A (2009) and CCHS (2017-18)

Figure 22: Respondents in the SLCDC-A and CCHS were asked, "How satisfied are you with your life in general?" with response options: "Very satisfied", "Satisfied", "Neither satisfied or dissatisfied", "Dissatisfied", "Very dissatisfied". Responses of "dissatisfied" and "very dissatisfied" were combined.

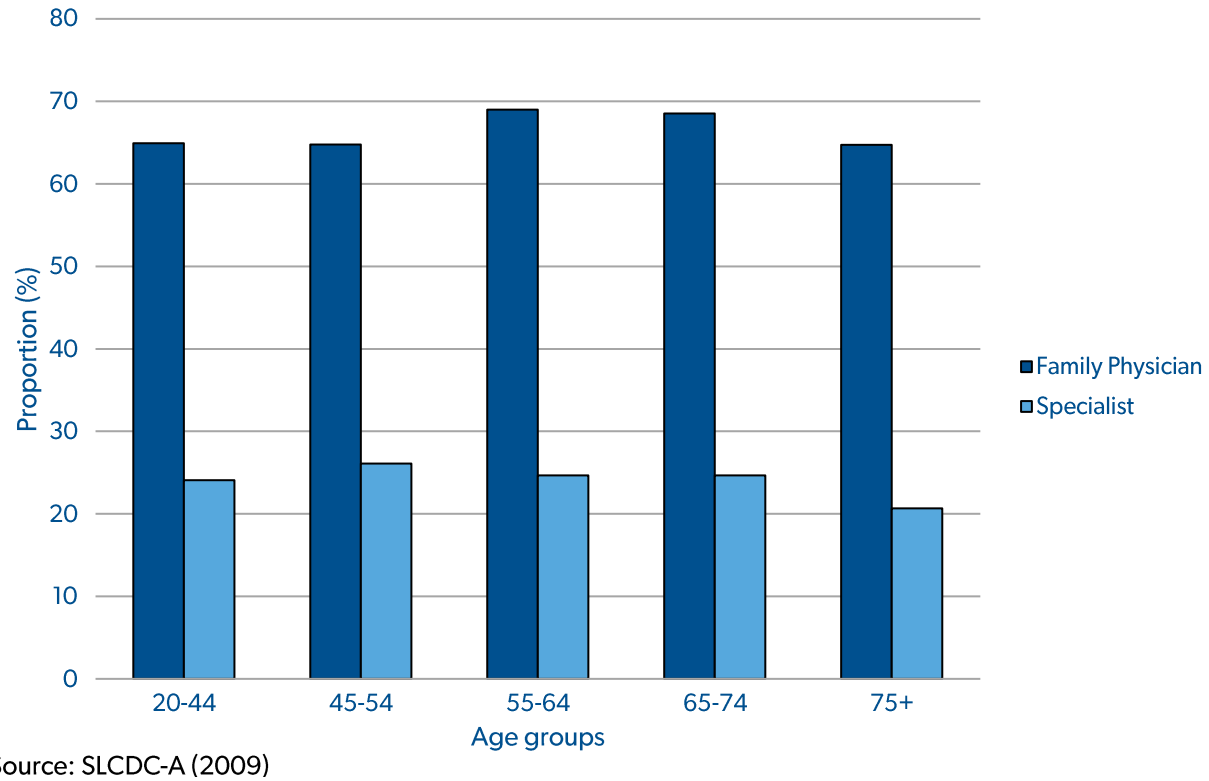
Healthcare Utilization for OA

Health Professional Consultations for OA

The SLCDC-A gathered information pertaining to healthcare use specifically for arthritis. Questions asked about visits to a range of health professionals in the previous year. These included family physicians and specialists (orthopedic surgeons, rheumatologists and general internists).

Overall, two-thirds (66.9%) of people with OA report seeing a family physician for their arthritis in the past year and one-quarter (24.1%) saw a specialist.

Figure 23: Proportion of people with OA who reported seeing a family physician or specialist for their arthritis in the past year



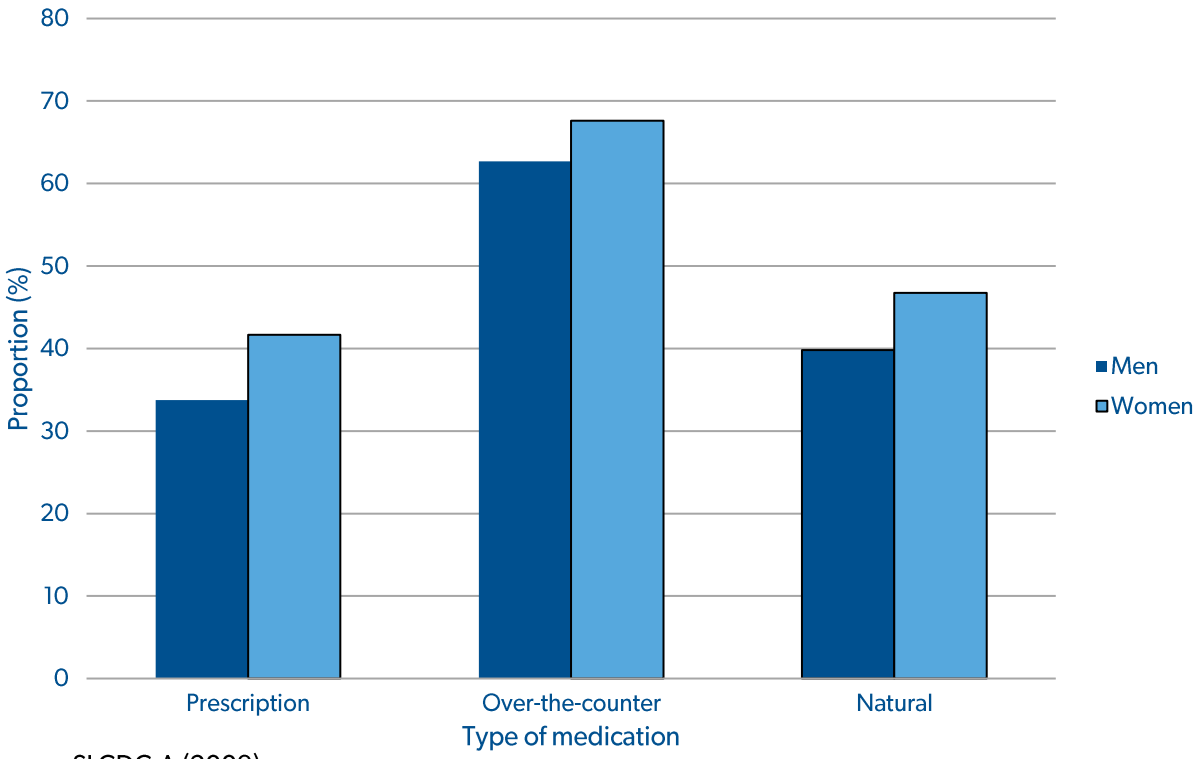
Source: SLCDC-A (2009)

Figure 23: Respondents in the SLCDC-A were asked "In the past 12 months, have you seen, or talked to any of the following health professionals about your arthritis:" including "a family doctor or general practitioner"; "an orthopaedic surgeon"; "a rheumatologist"; or "a general internist". A specialist was defined as an orthopedic surgeon, a rheumatologist, or a general internist.

Medication Use for OA

In the SLCDC-A, people with OA were asked whether they used prescription medication, over-the-counter products, or natural products for their arthritis. About two-fifths (39.4%) of people with OA used prescription medication, and two-thirds (66.2%) used over-the-counter products (pills, rubs or creams). Finally, more than two-fifths (44.8%) used natural products (vitamins, mineral or herbal supplements or other natural treatments) for their arthritis. Overall, women were more likely to use any type of medication for their arthritis than men.

Figure 24: Proportion of people with OA who take some form of medication for their arthritis



Source: SLCDC-A (2009)

Figure 24: Respondents in the SLCDC-A were asked "Now I'd like to ask a few questions about your use of medications for your arthritis. We are interested in your use of both prescription and non-prescription medications. In the past month, did you take prescription medications for your arthritis; non-prescription medications (that is over-the-counter products) such as pills,
rubs or creams, excluding natural health products, for your arthritis; or natural health products, that is vitamin, mineral or herbal supplements or other natural treatments for your arthritis?"

Conclusion

OA is not an uncommon experience among young and middle-aged adults in Canada, despite the frequently held perception that it is a condition predominantly of older people. OA is associated with greater disability, poorer physical and mental health, and diminishing quality of life at all ages. Irrespective of age, OA is accompanied by a similar degree of symptoms and severity. However, the overall impact of OA on physical and mental well-being is much greater for younger people with OA when comparing their health status to the general population.

OA affects more than 4 million Canadians and about half of all people with OA receive their diagnosis at or before the age of 50. It is likely that many older people with OA have been living with its symptoms and severity for a significant proportion of their adulthood. Therefore, awareness by doctors and other health professionals that young adults presenting with joint symptoms may have a life-long health condition could be important for providing the foundation for ongoing OA management strategies. Furthermore, for younger adults experiencing joint symptoms, ignoring symptoms will not improve them. OA education, engaging in OA self-management and physical activities, and seeing a healthcare professional can help alleviate symptoms and improve overall quality of life.

Appendix

Data Sources

Canadian Community Health Survey

The Canadian Community Health Survey (CCHS) is a cross-sectional survey conducted annually by Statistics Canada and collects information related to health status, healthcare utilization and health determinants for the Canadian population. The CCHS includes people from all the provinces and territories, but excludes children under 12 years of age, people living on reserves, and members of the Canadian Armed Forces. The estimated national prevalence of arthritis in the CCHS was relatively stable between 2000 and 2014 but was substantially higher in 2015 and 2016. This increase coincided with a change in the wording of the arthritis question to include examples using three of the most frequent arthritis diagnoses: osteoarthritis (OA), rheumatoid arthritis and gout. The change in the arthritis question likely reminded respondents of what was included under the arthritis umbrella and helped provide a more accurate estimate of the prevalence of arthritis in Canada (1). The change in question has remained in subsequent CCHS surveys. Therefore, for the purposes of this report we used the 2017-2018 CCHS, the most recently available survey at the time of analysis, for our population size estimates in order to calculate the prevalence of OA in the Canadian population from the Survey on Living with Chronic Diseases in Canada – Arthritis Component (SLCDC-A; see next section) and to calculate the general and mental health status of the general population of Canada.

Survey on Living with Chronic Diseases in Canada – Arthritis Component

The 2009 Survey on Living with Chronic Diseases in Canada – Arthritis Component (SLCDC-A) is a cross-sectional survey sponsored by the Public Health Agency of Canada (PHAC) that was conducted as an extension to the 2008 Canadian Community Health Survey (CCHS). Participants' responses from the CCHS 2008 questionnaire were linked to the SLCDC-A. The sample for the SLCDC-A was drawn from respondents aged 20 years and older and living in Canada's 10 provinces who self-reported having doctor-diagnosed arthritis on the 2008 CCHS questionnaire. (The Territories, people living on reserves, and members of the Canadian Armed Forces were not included.) The SLCDC-A collected information about individuals' experiences related to their arthritis. This is the most recent and comprehensive survey that examines Canadians' experiences living with arthritis.

Canadian Longitudinal Study on Aging

The Canadian Longitudinal Study on Aging (CLSA) collects medical, physical, psychological, and sociodemographic information from a representative sample of Canadians aged 45 to 85 years. The CLSA began in 2011 and will follow respondents every 3 years for 20 years or until death. The baseline CLSA data were used in this report as a confirmatory sample of Canadians for our estimates of the prevalence of OA.

Methods

Prevalence of OA

The sample for the SLCDC-A were individuals reporting arthritis in the 2008 CCHS. SLCDC-A respondents were asked: "Do you know the kind of arthritis you have?" with response options: "Yes" or "No". Those who indicated they knew the type of arthritis they had were then asked to identify the type(s) from a list of 13 forms of arthritis. Of note, a considerable proportion of respondents reported not knowing their type of arthritis.

Previous research has shown that many people living with OA may report having arthritis but cannot recall whether they have OA specifically (2-5). Nearly half of SLCDC-A respondents (42.1%) reported not knowing the specific arthritis diagnosis they received. Therefore, we also included respondents who did not know the kind of arthritis they had if they responded affirmatively to the question, "Have you ever experienced joint symptoms of pain, aching or stiffness related to your arthritis?" and specifically indicated symptoms/pain in the knee, hip, or hand. Although OA can present in any synovial joint, OA commonly affects the knees, hips and hands compared to other joints, and textbook definitions of OA often focus on these three joints. One study found that including the foot, for example, did not add to their calculation of the prevalence of disabling OA (6). Previous work with the SLCDC-A has shown that the characteristics of individuals not knowing their specific type of arthritis diagnosis are virtually identical to those who report having OA (7).

The baseline for estimates for OA in the current report is derived from people in the SLCDC-A who report having doctor-diagnosed OA and people who report not knowing what type of arthritis they have but report joint symptoms and/or pain in their knee, hip, or hand. To calculate an up-to-date estimate for OA, the proportion of people considered to have OA in the SLCDC-A were applied to the estimate for the prevalence of arthritis in the 2017-2018 CCHS by sex and 5-year age group (Table 1). The estimated number of people with OA was then applied to the population estimates from the CCHS 2017-2018 of Canadians aged 20+ years living in one of the 10 provinces to estimate the current population prevalence of OA in Canada.

The overall calculated prevalence estimate was similar to that reported in the United States of America (2). Prevalence estimates from the SLCDC-A and CCHS for people aged 45+ (the youngest age available in the CLSA) were confirmed with estimates from the representative tracking sample of the CLSA.

Characteristics of OA

In the remainder of the report, "People with OA" refers to SLCDC-A respondents who report having health professional-diagnosed OA and no other form of arthritis. This excludes any individuals who report OA and another type of arthritis as well as all individuals who report not knowing the type of arthritis they have.

General Population

The general population was defined as respondents in the CCHS 2017-2018 aged 20+ living in one of the provinces in Canada.

Table 1. Calculation of the prevalence of OA in Canada using data from the SLCDC-A (2009) and CCHS 2017-2018.

		Proportion of OA SLCDC-A*	Number of people with arthritis CCHS†	Estimated number of people with OA CCHS‡	Canadian population§	Population prevalence of OA‖
Sex	Age groups	%	n	n	n	%
Male	20-24	16.0	14,500	2,500	1,118,000	0.2
	25-29	63.6	30,500	19,500	1,249,500	1.6
	30-34	66.7	52,000	34,500	1,327,000	2.6
	35-39	60.0	70,500	42,500	1,202,500	3.5
	40-44	47.8	110,500	53,000	1,159,000	4.6
	45-49	80.6	146,000	117,500	1,179,500	10.0
	50-54	67.0	198,500	133,000	1,228,000	10.8
	55-59	66.7	317,000	211,500	1,311,500	16.1
	60-64	77.4	351,000	271,500	1,207,000	22.5
	65-69	67.7	319,000	216,000	949,000	22.7
	70-74	67.5	281,500	190,000	780,000	24.4
	75-79	59.1	209,500	123,500	501,500	24.6
	80+	57.4	238,000	136,500	540,000	25.3
Female	20-24	16.7	17,500	3,000	1,045,500	0.3
	25-29	45.7	32,000	14,500	1,229,000	1.9
	30-34	72.1	50,000	36,000	1,376,000	2.6
	35-39	64.9	71,000	46,000	1,245,000	3.7
	40-44	61.9	117,000	72,500	1,149,000	6.3
	45-49	58.6	179,500	105,000	1,196,500	8.8
	50-54	75.4	290,000	218,500	1,244,000	17.6
	55-59	82.7	406,500	336,000	1,287,000	26.1
	60-64	77.9	499,500	388,500	1,254,000	31.0
	65-69	69.2	522,500	361,500	1,109,500	32.6
	70-74	82.1	436,500	358,000	819,500	43.7
	75-79	77.6	313,000	243,000	571,000	42.6
	80+	75.1	431,500	324,000	717,500	45.2
Total				4,058,000	27,996,000	14.5

All estimates in the table are rounded to the nearest 500.

*Proportion of people considered to have OA among those with health professional-diagnosed arthritis from the SLCDC-A 2009

†Number of people reporting arthritis in the CCHS 2017-2018

‡Number of people estimated to have OA based on the proportion of people considered to have OA in the SLCDC-A among the number of people reporting arthritis in the CCHS 2017-2018 (denominator)

§Number of people aged 20+ living in a province of Canada from the CCHS 2017-2018

‖Estimate of the prevalence of OA as a proportion of the number of people estimated to have OA in the CCHS 2017-2018 (numerator) among the population of Canada from the CCHS 2017-2018 (denominator)

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