British Columbia Osteoarthritis Survey

A joint initiative of:

British Columbia Ministry of Health
The Arthritis Society, BC & Yukon Division
Arthritis Research Centre of Canada

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List of Acronyms

ACR	American College of Rheumatology
ARC	Arthritis Research Centre of Canada
ASMP	Arthritis Self Management Program
BMI	Body Mass Index
EQ-5D	EuroQol Instrument
HSDA	Health Service Delivery Area
MoH	Ministry of Health
MCS	SF-36 Mental Component Summary
MSM	Methylsulfonylmethane
NSAID	Non-steroidal anti-inflammatory drugs
OA	Osteoarthritis
OT	Occupational Therapist
PCS	SF-36 Physical Component Summary
PT	Physical Therapist
RA	Rheumatoid Arthritis
SD	Standard Deviation
TAS	The Arthritis Society, BC & Yukon Division
UBC	University of British Columbia
WOMAC	The Western Ontario and McMaster Universities OA Index

Executive Summary

Osteoarthritis (OA) affects about 433,000 British Columbians, is one of the major reasons for family physician visits, and accounts for almost half of all non-steroidal anti-inflammatory drugs (NSAIDs) prescriptions. Severe OA is one of the main reasons for hip and knee replacement surgery. Despite the impact of the disease, there has been little information about the use of health services by people with OA, making it difficult for policy makers and health care administrators to allocate resources.

The BC OA survey aimed to address this information gap. This project was conducted through the collaboration of the Arthritis Research Centre of Canada, the Primary Health Care Branch of BC Ministry of Health (MoH), and The Arthritis Society (TAS). The objectives were to: (1.) assess the health status and functional disability of people living with OA; (2.) describe the use of services and treatments; and (3.) describe the access barriers to services and treatments.

Six thousand BC residents with OA were randomly selected to receive a mailed questionnaire in June 2007. The main eligibility criteria include: (1) meeting the case definitions for OA or hip/knee replacement surgeries between 1992 and 2006; (2) having at least two medical visits for OA or one hospitalization within a 365-day period; and (3) age 19 or older.

Of the 6000 questionnaires, 2134 (response rate=36%) were returned with usable data, and **1713** reported that they had been told by a health professional that they had arthritis. The average age of participants was 67.3 years. Almost 70% rated their general health as good, very good or excellent. More than 30% continued to work and most of them had not changed their workload. Among those who stopped working, arthritis was not the most common reason for retirement.

The participants used a variety of health services and treatments. The most frequently reported barrier to access a health professional was the long waiting time. Almost 48% of those seeing an orthopaedic surgeon waited longer than three months. Cost was another frequently reported access barrier to health professionals.

Exercise, weight management, and medications are the first-line treatment for OA. This survey found 57% of participants used acetaminophen, 36% used ibuprofen, 17% used aspirin, and 25% used other NSAIDs. However, the use of non-pharmacological treatment was very low, with only 26% of people reported that they exercised in the past year, and only 24% of those who were overweight or obese received weight-loss counselling. The use of community services was also low, with only 24% of the participants using one or more programs offered by TAS.

Results of this survey present a positive picture of the general health of this population. On the other hand, gaps are found in the management of OA, especially the low use of inexpensive interventions that can effectively reduce long term disability and the need for joint replacement surgery. Since interventions that address physical inactivity and obesity often require people to make major life-style changes, consultations for exercise and healthy eating, and information about community resources are essential components of OA care.

Chapter 1: *I*ntroduction

Osteoarthritis (OA) is the most common form of joint disease, affecting about 433,000 British Columbians (1 in 10 people).[1] The prevalence is higher for women of all age groups. About one-third of men and 40% of women had OA in the age 70 to 74 category.[1] People with severe OA may require joint replacement surgeries. In 2004-05, there were 8,734 joint replacement surgeries and the number increased to more than 10,000 in 2006-07. By 2020, this figure is estimated to rise to 20,000 with an annual cost of $230 million.[2] As the population ages, the economic impact of OA is expected to increase proportionately.

In most cases, the onset of OA is insidious and the damage progresses slowly over years. Cartilage acts to cushion the joints and in OA the cartilage is lost prematurely. This causes the bones rub together, resulting in damage and pain. Low grade inflammation of the synovial membrane can also occur.[3] The knees, hips, hands and spine are the most commonly affected joints. People with OA often experience pain, joint stiffness, swelling, and muscle weakness. Arthritis of the knee and hip in particular can compromise activities such as walking, climbing stairs, and self-care.[4]

Treatments for OA consist of education, exercise, weight management, medication, and surgery.[5-7] While most OA cases are treated by primary care physicians, individuals may also seek help from specialists, allied health professionals, and complementary and alternative therapy practitioners. They may also access community resources such as education and exercise programs, and fitness facilities. However, there has been little information about the use of health services by people with OA, making it challenging for policy makers and health care administrators to make decisions about resources allocation.

In May 2007, a research team, led by Drs. Linda Li and Jacek Kopec, received funding from the Healthy Heart Society – IMPACT BC and The Arthritis Society BC & Yukon Division (TAS) to conduct a survey of British Columbians with OA to assess their health status, quality of life, and their use of health services. Adults with OA were identified using the BC medical services plan claims data and were asked to complete a questionnaire.

This project was conducted in partnership with the Primary Health Care Branch of BC Ministry of Health (MoH) and TAS. Prior to this survey, the MoH and TAS provided funding for a pilot study to test the survey methodology and to estimate a response rate for the current survey.

Objectives

This report presents the results of the BC OA survey. Specific objectives of this project were to:

1. Assess the health status and functional disability of people with OA.
2. Describe the use of services and treatments (pharmacological / non-pharmacological treatments, surgical interventions, complementary and alternative therapies, and community services) by people with OA.
3. Describe the access barriers to services and treatments.

Chapter 2: Pilot Study

In 2004, a pilot study was conducted to test the feasibility of a full scale province-wide survey. The questionnaire was sent to 200 people identified as having OA using physician billing data (100 each from the Richmond Health Service Delivery Area (HSDA) and the Northern Health Authority). In addition, 50 people identified as having a hip or knee replacement surgery due to OA were randomly selected.

The study protocol was approved by the University of British Columbia (UBC) Behavioural Research Ethics Board (Application number: B04-0289).

Survey Administration and Process Evaluation

An invitation letter, a questionnaire booklet and a pre-paid addressed envelope were mailed to the 250 potential participants on July 21, 2004. Two and six weeks after the first mailing (August 4 and September 10), reminder postcards were sent to non-responders. A reminder letter along with another copy of the survey was also sent to the non-responders at four weeks (August 18). The cut-off date for data entry was September 10, 2004. If participants had any questions or concerns regarding the study, they could contact staff at ARC, TAS or MoH. To evaluate the feasibility of a full scale survey, we tracked the return rate of the questionnaires and the completion rate for each question.

Summary of Results

Of the 250 questionnaires, we received 123 (49.2%) with usable data by the cut-off date. Eighteen surveys were returned incomplete. Reasons for non-participation included invalid addresses, refusal to participate, or deceased.

Of the 123 questionnaires, 46 (37.4%) were from the Richmond HSDA, 46 (37.4%) from the Northern Health Authority, and 31 (25.2%) from the hip or knee replacement data. The average age of the respondents was 69 $\pm$ 12.7 years (range= 31 to 93 years); the majority were females (n=75; 61%), had OA of the knee (n=80; 65%), and had completed high school or lower (n=69; 56.1%).

Of the 62 questions in the survey booklet, 15 had more than 10% missing data. These questions were reviewed by the research team and the wording was modified when necessary.

Results of the pilot study suggested that a full province-wide survey was feasible and that a reasonable response rate could be achieved.

Chapter 3: British Columbia Osteoarthritis Survey – Methods

The BC OA Survey protocol was approved by the UBC Behavioural Research Ethics Board on April 27, 2007 (application number: H04-80289).

Sample Selection

A random sample of 6,000 people with OA, or hip/knee replacement surgeries due to OA, was selected after stratifying by health authorities (Vancouver Coastal, Vancouver Island, Fraser, Interior, and Northern). This ensured equal numbers of people were included from each region. Random selection was conducted by the MoH using administrative billing data for outpatient physician visits (Medical Services Plan Fee-For-Service Database) and hospitalization (Discharge Abstract Database).

Individuals were included if they: (1) met the case definitions for OA or hip/knee replacement surgeries between April 1, 1992 and March 31, 2006 (Table 1); (2) had at least two medical visits for OA or one hospitalization within a 365-day period; (3) were age 19 or older on March 31, 2006; (4) were living in BC, and (5) were alive (i.e., no date of death recorded on the MoH OA administrative database at the time of sampling). The 365-day period was a moving window. The case date was defined as the first date by which the case definition was met.

Questionnaire

The questionnaire covered five areas related to the use of health services and the health of people with OA, including: (1) the general health and comorbid conditions; (2) visits to health professionals and complementary therapy practitioners; (3) use of medications, traditional non-pharmacological treatments, surgical interventions, complementary and alternative therapies, and community services; (4) physical function; and (5) participation in the work force (Appendix A).

We used existing validated outcome measures where possible. These include:

- **The Western Ontario and McMaster Universities OA Index (WOMAC)**[8] to measure pain, stiffness and physical function in people with hip and/or knee OA. The aggregate score ranges from 0 to 100, with a higher score meaning better outcome.
- **SF-8 Health Survey** to measure the general health status. Developed from the SF-36 Health Survey,[9] SF-8 uses a single item to measure each of the eight health domains in the original SF-36 instrument (limitations in physical activities, limitations in social functioning as a result of physical and/or emotional problems, limitations in the usual role functioning, bodily pain, general mental health, vitality, and general health perception). The SF-8 was scored using norm-based scoring methods. The mean scores, variances and regression weights used to score the SF-8 and the summary measures were derived from studies in the general U.S. population in 2000.[10]

Information on health resource use was collected using a series of questions that were pilot tested in 2004. We also included open-ended questions to examine the services that people found the most helpful in managing OA, problems experienced when accessing services, and reasons for not getting the required care.

Table 1: Osteoarthritis and hip/knee replacement surgeries case definitions

OSTEOARTHRITIS (OA)		
RULE:	One hospitalization or two medical visits in 365 days with an OA diagnostic code	
DIAGNOSTIC CODES:		
ICD-9	715	Osteo-arthrosis and allied disorders
ICD-10	M15	Polyarthrosis
	M16	Coxarthrosis [arthrosis of hip]
	M17	Gonarthrosis [arthrosis of knee]
	M18	Arthrosis of first carpometacarpal joint
	M19	Other arthrosis
EXCLUSIONS:	None	
HIP OR KNEE REPLACEMENTS		
RULE:	At least one hospitalization coded with a hip or knee replacement procedure code	
PROCEDURE CODES:		
CCP	934.1	Total knee replacement
	935	Total hip replacement
CCI	1.VA.53-LA-PN^	Implant dual comp prosthetic hip OA
	1.VA.53-PN-PN^	Implant dual comp prosthetic hip robotic OA
	1.VG.53^^	Implant sing, dual or tri comp prosthetic knee OA
EXCLUSIONS:	Exclude the above procedures if any of the following diagnostic codes exist on the discharge abstract	
ICD 9	800-999	Fractures
	E800-869, E880-E928, E950-E999	Non-medical injury
	140-208	Malignant neoplasms
	235-239	Neoplasm uncertain behaviour
ICD-10	S00-S99, V01-V99, W00-W99, X93-99	Non-medical injury
	C00-C97	Malignant neoplasms
	D37-D48	Neoplasm uncertain behaviour

Survey Administration

Three mailings were conducted in 2007 by the MoH. All participants received a survey package, including an information letter, a questionnaire booklet, and a stamped return envelope during the first mailing (June 20). Reminder cards were sent to everyone at two weeks (July 5) and four weeks (July 19). To protect confidentiality, the MoH assigned an identification number to all participants. The researchers did not have access to the personal contact information.

Analysis

Descriptive analyses, based on frequency distributions and percentages, were calculated to describe the health status and the use of health services by people with OA. Results are presented in aggregate and in gender categories.

All standardized measures were scored according to the instruction of the standardized scoring manuals.[10;11] The WOMAC subscale scores were transformed to a 0-100 scale (100 = no

difficulty, 75 = mild difficulty, 50 = moderate difficulty, 25 = severe difficulty, 0 = extreme difficulty). Differences in WOMAC functional scores of more than 10 points on the transformed scale are generally noticeable by patients.[12] For the SF-8 measure, the raw scores were transformed into a '50/10' scoring, because the means for the U.S. population is 50 with standard deviations of 10. Hence, all scores above and below 50 are above and below the average, respectively, compared to the general US population.[10] The SF-8 physical component summary (PCS) and mental component summary (MCS) scores were calculated using the algorithm in the SF-8 user manual.[10]

To assess the treatment gaps, we applied six of the Arthritis Foundation Quality Indicators for OA, two on assessment (pain and function) and four on non-pharmacological interventions (exercise, weight management, mobility aids, and other assistive devices) (Table 2). Developed by the RAND group, these indicators were based on a comprehensive review of literature and existing quality measures for OA, and were reviewed by a multidisciplinary expert panel.[13] These indicators cover a broad spectrum of care, including assessment, treatment and follow-up. A typical quality indicator includes two components:

- The 'IF' statement determines the eligibility for the care process in question
- The 'THEN' statement specifies what care process should be performed

The passing rate was calculated by dividing the number of people received the care (i.e., those who passed the 'THEN' statement) with the number of those eligible for the care (i.e., those who passed the 'IF' statement).

Table 2: Criteria for meeting a quality indicator for osteoarthritis and the corresponding items on the questionnaire

Arthritis Foundation quality indicators for OA	Denominator (the 'IF' statement)*	Numerator (the 'THEN' statement)*	Rationale & limitation
1. IF a patient is diagnosed with symptomatic OA of the knee or hip THEN his or her pain should be assessed annually and when new to a practice	• Participants were told by a HP that they had arthritis (Q. 8) and were experiencing pain in hip / groin / thigh / knee (Q. 11)	• 1 or more visits to a family physician, rheumatologist or orthopaedic surgeon in the past year (Q. 19 a, b, c)	• Rationale: To be assessed annually for pain, the person must have at least one visit with one physician in the past year. • Limitation: It is possible that the patient saw the physician for other health problems and pain was not assessed during the visit.
2. IF a patient is diagnosed with symptomatic OA of the knee or hip THEN his or her functional status should be assessed annually and when new to a practice.	• Participants were told by a HP that they had arthritis (Q. 8) and were experiencing pain in hip / groin / thigh / knee (Q. 11)	• 1 or more visits to a family physician, rheumatologist or orthopaedic surgeon in the past year (Q. 19 a, b, c)	• Rationale: To be assessed annually for functional status, the person must have at least one visit with one physician in the past year. • Limitation: It is possible that the patient saw the physician for other health problems and function was not assessed during the visit.
3. IF an ambulatory patient has had a diagnosis of symptomatic OA of the knee or hip for > 3 months AND has no contraindication to exercise and is physically and mentally able to exercise THEN a directed or supervised muscle strengthening or aerobic exercise program should have been prescribed at least once and reviewed at least once per year.	• Participants were told by a HP that they had arthritis (Q. 8) and were experiencing pain in hip / groin / thigh / knee (Q. 11) • Health did not limit the person's ability for personal care (Q. 49e)	• Individual had seen a PT (Q. 19d) OR • Had attended Water and/or Joint Works exercise program (Q. 22) OR • Had used fitness facilities (Q. 23)	• Rationale: Patients would have participated in a directed or supervised exercise program at least once if they had seen a PT and/or attended a fitness program. • Limitations: The criteria would not capture individuals with severe dementia or other conditions that would preclude them from participating in programs. Those included in the analysis might or might not have their exercise reviewed in the past year. Also, not all fitness facilities provide supervised programs.
4. IF a patient has symptomatic OA of the knee or hip and is overweight (as defined by BMI >27 kg/m^2)** THEN the patient should be advised to lose weight at least annually AND the benefit of weight loss on the symptoms	• Participants were told by a HP that they had arthritis (Q. 8) and were experiencing hip or knee pain (Q. 11), with a BMI >27kg/m^2 (Q. 5)	• Individual had used a weight-loss program or visited a dietitian' (Q. 23)	• Rationale: Those who used weight-loss program or saw a dietitian would have received weight loss counseling • Limitation: The criteria would not capture those who had been advised to lose weight by other health professionals; hence the passing rate may be under-

* Refer to Appendix A for the specific questions used for the "IF" and "THEN" statements.
** In the US, a BMI score >27 kg/m^2 is defined as overweight.

Arthritis Foundation quality indicators for OA	Denominator (the 'IF' statement)*	Numerator (the 'THEN' statement)*	Rationale & limitation
of OA should be explained to the patient.			estimated. Conversely, among those who received counseling, the visit may be more than a year ago. In this case, the passing rate may be overestimated.
5. IF a patient has had symptomatic OA of the knee or hip and reports difficulty walking to accomplish activities of daily living for more than three months THEN the patient's walking ability should be assessed for need for ambulatory assistive devices.	• Participants were told by a HP that they had arthritis (Q. 8) and were experiencing pain in hip / groin / thigh / knee (Q. 11) • The person has **severe or extreme difficulties** walking on flat surface (Q. 60a)	• 1 or more visits to a PT or OT in the past year (Q. 19 d, e)	• Rationale: The criteria were modified to include people with severe or extreme pain within the first month. There is evidence supporting the use of ambulatory assistive devices as early as possible to improve mobility. Those who used saw a PT or OT would have been assessed for walking ability. • Limitation: The criteria would not capture people who had been assessed for ambulatory assistive devices by other health professionals.
6. IF a patient has a diagnosis of OA and reports difficulties with non-ambulatory activities of daily living THEN the patient's functional ability with problem tasks should be assessed for need of non-ambulatory assistive devices to aid with problem tasks.	• Participants were told by a HP that they had arthritis (Q. 8) and were experiencing pain in hip / groin / thigh / knee (Q. 11) • The person has **severe or extreme difficulties** rising from sitting (Q. 62c), putting on socks/stockings (Q. 62i), taking off socks/stockings (Q. 62k), getting in/out of bath (Q. 62m), getting on/off toilet (Q. 62o)	• 1 or more visits to an OT in the past year (q19e)	• Rationale: OTs perform assessments on activities of daily living and prescribes assistive devices for people with OA • Limitation: The criteria would not capture people who had been assessed for assistive devices by other health professionals.

HP = Health professionals
OA = Osteoarthritis
PT = Physical therapist
OT = Occupational therapist
BMI = Body mass index

Chapter 4: Results

Participant Characteristics

Of the 6000 questionnaires, 2134 (response rate=35.6%) were returned with usable data (Table 3), and **1713** had been told by a health professional that they had arthritis. The average age of participants was 67.3 (SD[a]=11.1), the majority were females (n=1058; 61.8%; Table 4). About half of them had completed high school or lower (n=862; 50.3%). Other than OA, the most common medical problems included high blood pressure (43.8%), osteoporosis (19.0%), and heart problems (17.3%).

Most people were diagnosed six years ago or more (n=1131; 66%; Table 5). The most common joints affected were: knee (n=1088; 63.5%), hand (n=849; 49.6%), low back (n=694; 40.51%), and hip (n=684; 37.8%). About 65% of the participants were overweight or obese. Almost 70% rated their general health as good, very good or excellent, however 27% said that their health was worse than a year ago. The mean SF-8 MCS was similar to that of the general population (49.34, SD=9.92), but the PCS was below the average of the general population (40.67, SD=9.83).

Among those with hip and/or knee OA (n=1349), the majority had mild to moderate pain, stiffness and functional limitation (Tables 6 – 8), with an average aggregate WOMAC score of 66.9 (SD=20.2) (Table 9).

Table 3: Survey response by health authority

Health Authority	Complete (%) n = 2134	RTS (%) n = 443	Decline (%) n = 85	Incomplete address (%) n = 58	Deceased (%) n = 8	Other (%) n = 32
Interior	461 (21.6)	94 (21.2)	15 (17.7)	16 (27.6)	1 (12.5)	6 (18.8)
Fraser	405 (18.9)	83 (18.7)	10 (11.8)	7 (12.1)	1 (12.5)	8 (25.0)
Vancouver Coastal	377 (17.7)	76 (17.2)	22 (25.9)	8 (13.8)	2 (25.0)	7 (21.9)
Vancouver Island	504 (23.6)	77 (17.4)	27 (31.8)	8 (12.8)	3 (37.5)	6 (18.8)
Northern	385 (18.0)	113 (25.5)	11 (12.9)	19 (32.8)	1 (12.5)	5 (15.6)
Unknown*	2 (0.1)	--	--	--	--	--

* Questionnaires were returned with the health authority code removed.

[a] SD = Standard deviation

Table 4: Participant characteristics (N = 1713)

	All n=1713	Female n=1058	Male n=628
Age, Mean (SD)	67.3 (11.1)	67.3 (10.9)	67.4 (11.4)
Education (%)			
Grade 8 or lower	151 (8.8)	94 (8.9)	54 (8.6)
Grade 9 to 10	256 (14.9)	160 (15.1)	94 (15.0)
Grade 11 to 13	455 (26.6)	315 (29.8)	135 (21.5)
Trades certificate, vocational school diploma, apprenticeship	323 (18.9)	160 (15.1)	157 (25.0)
Non-university certificate below Bachelor`s level	221 (12.9)	163 (15.4)	55 (8.8)
Bachelor`s degree	122 (7.1)	61 (5.8)	61 (9.7)
Post-graduate degree	157 (9.2)	91 (8.6)	65 (10.4)
Missing	*28 (1.6)*	*14 (1.3)*	*7 (1.0)*
Language[*] (%)			
English	1663 (97.1)	1025 (96.9)	617 (98.3)
German	94 (5.5)	51 (4.8)	39 (6.2)
French	75 (4.4)	45 (4.3)	29 (4.6)
Punjabi	37 (2.2)	16 (1.5)	21 (3.3)
Spanish	27 (1.6)	15 (1.4)	11 (1.8)
Cantonese	19 (1.1)	17 (1.6)	2 (0.3)
Italian	15 (0.9)	13 (1.2)	2 (0.3)
Mandarin	13 (0.8)	11 (1.0)	2 (0.3)
Tagalog	12 (0.7)	10 (1.0)	2 (0.3)
Other(s)	143 (8.4)	77 (7.3)	65 (10.4)
Co-morbid conditions* (%)			
High blood pressure	751 (43.8)	455 (43.0)	285 (45.4)
Osteoporosis	326 (19.0)	255 (24.1)	67 (10.7)
Heart problems	297 (17.3)	146 (13.8)	148 (23.6)
Diabetes	249 (14.5)	137 (13.0)	109 (17.4)
Depression	239 (14.0)	156 (14.7)	79 (12.6)
Kidney and/or bladder problems	210 (12.3)	142 (13.4)	64 (10.2)
Bowel disorder	207 (12.1)	149 (14.1)	56 (8.9)
Cancer	182 (10.6)	119 (11.3)	63 (10.0)
Intestinal or stomach ulcers	150 (8.8)	88 (8.3)	58 (9.2)
Lung problems	139 (8.1)	89 (8.4)	46 (7.3)
Fibromyalgia	123 (7.2)	107 (10.1)	12 (1.9)
Liver problems	43 (2.5)	22 (2.1)	21 (3.3)
Other(s)	319 (18.6)	207 (19.6)	109 (17.4)
I have not been diagnosed with any other medical problems	287 (16.8)	155 (14.7)	124 (19.8)

[*] Participants may report more than one category

Table 5: Health profile of participants with osteoarthritis (N = 1713)

	All n=1713	Female n=1058	Male n=628
Disease duration (number of years since the physician confirmed diagnosis) (%)			
Less than 1 year ago	54 (3.2)	30 (2.8)	22 (3.5)
1 to 5 years ago	513 (30.0)	323 (30.5)	182 (29.0)
6 to 10 years ago	511 (29.8)	309 (29.2)	194 (30.9)
More than 11 years ago	620 (36.2)	383 (36.2)	228 (36.3)
Missing	*15 (0.9)*	*13 (1.2)*	*2 (0.3)*
Tests to confirm arthritis? (%) [Individuals may report more than one category]			
Had an X-ray	1434 (83.7)	888 (83.9)	525 (83.6)
Had other tests	494 (28.8)	325 (30.7)	165 (26.3)
Did not have any tests	197 (11.5)	119 (11.3)	73 (11.6)
Joints affected (%) – respondents may have more than one affected joint			
Knee	1088 (63.5)	668 (63.1)	404 (64.3)
Hands	849 (49.6)	606 (57.3)	231 (36.8)
Lower back	694 (40.5)	475 (44.9)	207 (33.0)
Hip	648 (37.8)	413 (39.0)	223 (35.5)
Neck	509 (29.7)	342 (32.3)	156 (24.8)
Feet	464 (27.1)	322 (30.4)	137 (21.8)
Other(s)	290 (16.9)	183 (17.3)	100 (15.9)
Body mass index (%)			
<18.5 (Underweight)	21 (1.2)	14 (1.3)	7 (1.1)
18.5 – 24.9 (Normal)	506 (29.5)	352 (33.3)	147 (23.4)
25 – 29.9 (Overweight)	652 (38.1)	343 (32.4)	302 (48.1)
30+ (Obese)	465 (27.2)	301 (28.5)	158 (25.2)
Missing	*69 (4.0)*	*48 (4.5)*	*14 (2.2)*
General health (%)			
Excellent	81 (4.7)	43 (4.1)	37 (5.9)
Very good	379 (22.1)	234 (22.1)	141 (22.5)
Good	735 (42.9)	453 (42.8)	266 (42.4)
Fair	431 (25.2)	268 (25.3)	158 (25.2)
Poor	76 (4.4)	52 (4.9)	24 (3.8)
Missing	*11 (0.6)*	*8 (0.8)*	*2 (0.3)*
General health compared to a year ago (%)			
Much better now	95 (5.6)	58 (5.5)	37 (5.9)
Somewhat better now	182 (10.6)	121 (11.4)	60 (9.6)
About the same	962 (56.2)	574 (54.3)	371 (59.1)
Somewhat worse now	411 (24.0)	260 (24.6)	143 (22.8)
Much worse now	49 (2.9)	36 (3.4)	13 (2.1)
Missing	*14 (0.8)*	*9 (0.9)*	*4 (0.6)*
SF-8 Health Survey [Mean (SD)]			
Physical Component Summary score (50/10 scale)	40.67 (9.83)	40.2 (9.77)	41.5 (9.81)
Mental Component Summary score (50/10 scale)	49.34 (9.92)	48.92 (9.99)	50.01 (9.86)

Table 6: Pain in hip or knee during activities in the past 4 weeks* (N = 1349)

People with hip or knee OA	All n=1349	Female n=816	Male n=511
Walking on a flat surface			
None	341 (25.3)	218 (26.7)	121 (23.7)
Mild	430 (31.9)	245 (30.0)	180 (35.2)
Moderate	380 (28.2)	230 (28.2)	144 (28.2)
Severe	106 (7.9)	66 (8.1)	37 (7.2)
Extreme	14 (1.0)	13 (1.6)	1 (0.2)
Missing	*78 (5.8)*	*44 (5.4)*	*28 (5.5)*
Going up or down stairs			
None	137 (10.2)	71 (8.7)	65 (12.7)
Mild	348 (25.8)	207 (25.4)	136 (26.6)
Moderate	461 (34.2)	279 (34.2)	176 (34.4)
Severe	279 (20.7)	182 (22.3)	90 (17.6)
Extreme	72 (5.3)	52 (6.4)	20 (3.9)
Missing	*52 (3.9)*	*25 (3.1)*	*24 (4.7)*
At night, while in bed			
None	369 (27.4)	200 (24.5)	164 (32.1)
Mild	376 (27.9)	225 (27.6)	148 (29.0)
Moderate	383 (28.4)	250 (30.6)	128 (25.1)
Severe	129 (9.6)	88 (10.8)	37 (7.2)
Extreme	21 (1.6)	14 (1.7)	6 (1.2)
Missing	*71 (5.3)*	*39 (4.8)*	*28 (5.5)*
Sitting or lying			
None	400 (29.7)	224 (27.5)	172 (33.7)
Mild	434 (32.2)	263 (32.2)	168 (32.9)
Moderate	342 (25.4)	216 (26.5)	118 (23.1)
Severe	71 (5.3)	54 (6.6)	16 (3.1)
Extreme	18 (1.3)	14 (1.7)	3 (0.6)
Missing	*84 (6.2)*	*45 (5.5)*	*34 (6.7)*
Standing upright			
None	330 (24.5)	187 (22.9)	140 (27.4)
Mild	398 (29.5)	233 (28.6)	162 (31.7)
Moderate	385 (28.5)	241 (29.5)	137 (26.8)
Severe	133 (9.9)	97 (11.9)	33 (6.5)
Extreme	28 (2.1)	19 (2.3)	8 (1.6)
Missing	*75 (5.6)*	*39 (4.8)*	*31 (6.1)*

* Items from the WOMAC questionnaire

Table 7: Joint stiffness in hip or knee in the past four weeks (N = 1349)

People with hip or knee OA	All n=1349	Female n=816	Male n=511
Severity of the stiffness after first awakening in the morning			
None	185 (13.7)	103 (12.6)	80 (15.7)
Mild	383 (28.4)	221 (27.1)	159 (31.1)
Moderate	488 (36.2)	306 (37.5)	173 (33.7)
Severe	235 (17.4)	155 (19.0)	75 (14.7)
Extreme	29 (2.2)	19 (2.3)	9 (1.8)
Missing	*29 (2.1)*	*12 (1.5)*	*15 (2.9)*
Severity of the stiffness after sitting, lying or resting later in the day			
None	175 (13.0)	99 (12.1)	74 (14.5)
Mild	445 (33.0)	267 (32.7)	175 (34.3)
Moderate	508 (37.7)	307 (37.6)	189 (37.0)
Severe	156 (11.6)	107 (13.1)	47 (9.2)
Extreme	19 (1.4)	11 (1.4)	7 (1.4)
Missing	*46 (3.4)*	*25 (3.1)*	*19 (3.7)*

Table 8: Difficulty with activities involving hips or knees in the past four weeks

People with hip or knee OA	All n=1349	Female n=816	Male n=511
Descending stairs			
None	215 (15.9)	115 (14.1)	97 (19.0)
Mild	404 (30.0)	236 (28.9)	162 (31.7)
Moderate	435 (32.3)	262 (32.1)	165 (32.3)
Severe	198 (14.7)	137 (16.8)	59 (11.6)
Extreme	50 (3.7)	39 (4.8)	10 (2.0)
Missing	*47 (3.5)*	*27 (3.3)*	*18 (3.5)*
Ascending stairs			
None	211 (15.6)	106 (13.0)	103 (20.5)
Mild	373 (27.7)	216 (26.5)	153 (29.9)
Moderate	446 (33.1)	281 (34.4)	157 (30.7)
Severe	217 (16.1)	147 (18.0)	66 (12.9)
Extreme	54 (4.0)	40 (4.9)	14 (2.7)
Missing	*48 (3.6)*	*26 (3.2)*	*18 (3.5)*
Rising from sitting			
None	228 (16.9)	119 (14.6)	108 (21.1)
Mild	416 (30.8)	254 (31.1)	156 (30.5)
Moderate	459 (34.0)	280 (34.3)	171 (33.5)
Severe	173 (12.8)	121 (14.8)	49 (9.6)
Extreme	33 (2.5)	22 (2.7)	11 (2.2)
Missing	*40 (3.0)*	*20 (2.5)*	*16 (3.1)*
Standing			
None	384 (28.5)	223 (27.3)	158 (30.9)
Mild	395 (29.3)	236 (28.9)	153 (29.9)
Moderate	359 (26.6)	221 (27.1)	134 (26.2)
Severe	131 (9.7)	93 (11.4)	33 (6.5)
Extreme	29 (2.2)	18 (2.2)	11 (2.2)
Missing	*51 (3.8)*	*25 (3.1)*	*22 (4.3)*
Bending to the floor			
None	250 (18.5)	143 (17.5)	104 (20.4)
Mild	344 (25.5)	216 (26.5)	124 (24.3)
Moderate	369 (27.4)	223 (27.3)	141 (27.6)
Severe	235 (17.4)	144 (17.7)	87 (17.0)
Extreme	93 (6.9)	63 (7.7)	29 (5.7)
Missing	*58 (4.3)*	*27 (3.3)*	*26 (5.1)*
Walking on flat surface			
None	407 (30.2)	247 (30.3)	158 (30.9)
Mild	448 (33.2)	264 (32.4)	178 (34.8)
Moderate	338 (25.1)	209 (25.6)	120 (23.5)
Severe	88 (6.5)	60 (7.4)	27 (5.3)
Extreme	11 (0.8)	6 (0.7)	5 (1.0)
Missing	*57 (4.2)*	*30 (3.7)*	*23 (4.5)*

People with hip or knee OA	All n=1349	Female n=816	Male n=511
Getting in/out of car			
None	239 (17.7)	135 (16.5)	102 (20.0)
Mild	445 (33.0)	274 (33.6)	165 (32.3)
Moderate	445 (33.0)	270 (33.1)	166 (32.5)
Severe	149 (11.1)	103 (12.6)	44 (8.6)
Extreme	29 (2.2)	18 (2.2)	11 (2.2)
Missing	*42 (3.1)*	*16 (2.0)*	*23 (4.5)*
Going shopping			
None	365 (27.1)	218 (26.7)	146 (28.6)
Mild	374 (27.7)	210 (25.7)	157 (30.7)
Moderate	389 (28.8)	250 (30.6)	131 (25.6)
Severe	118 (8.8)	84 (10.3)	32 (6.3)
Extreme	38 (2.8)	21 (2.6)	17 (3.3)
Missing	*65 (4.8)*	*33 (4.0)*	*28 (5.5)*
Putting on socks/stockings			
None	383 (28.4)	245 (30.0)	135 (26.4)
Mild	397 (29.4)	250 (30.6)	142 (27.8)
Moderate	337 (25.0)	187 (22.9)	142 (27.8)
Severe	126 (9.3)	79 (9.7)	45 (8.8)
Extreme	49 (3.6)	28 (3.4)	21 (4.1)
Missing	*57 (4.2)*	*27 (3.3)*	*26 (5.1)*
Rising from bed			
None	361 (26.8)	215 (26.4)	144 (28.2)
Mild	411 (30.5)	244 (29.9)	161 (31.5)
Moderate	377 (28.0)	233 (28.6)	139 (27.2)
Severe	114 (8.5)	82 (10.1)	28 (5.5)
Extreme	27 (2.0)	14 (1.7)	13 (2.5)
Missing	*59 (4.4)*	*28 (3.4)*	*26 (5.1)*
Taking off socks/stockings			
None	426 (31.6)	268 (32.8)	155 (30.3)
Mild	405 (30.0)	251 (30.8)	148 (29.0)
Moderate	309 (22.9)	176 (21.6)	129 (25.2)
Severe	107 (7.9)	65 (8.0)	39 (7.6)
Extreme	36 (2.7)	22 (2.7)	14 (2.7)
Missing	*66 (4.9)*	*34 (4.2)*	*26 (5.1)*
Lying in bed			
None	499 (37.0)	286 (35.1)	208 (40.7)
Mild	413 (30.6)	249 (30.5)	159 (31.1)
Moderate	292 (21.7)	185 (22.7)	101 (19.8)
Severe	58 (4.3)	42 (5.2)	14 (2.7)
Extreme	20 (1.5)	11 (1.4)	9 (1.8)
Missing	*67 (5.0)*	*43 (5.3)*	*20 (3.9)*
Getting in/out of bath			
None	354 (26.2)	191 (23.4)	160 (31.3)
Mild	361 (26.8)	208 (25.5)	149 (29.2)
Moderate	298 (22.1)	187 (22.9)	106 (20.7)

People with hip or knee OA	All n=1349	Female n=816	Male n=511
Severe	148 (11.0)	105 (12.9)	40 (7.8)
Extreme	88 (6.5)	71 (8.7)	16 (3.1)
Missing	*100 (7.4)*	*54 (6.6)*	*40 (7.8)*
Sitting			
None	492 (36.5)	290 (35.5)	196 (38.4)
Mild	444 (32.9)	263 (32.2)	178 (34.8)
Moderate	276 (20.5)	179 (21.9)	89 (17.4)
Severe	61 (4.5)	48 (5.9)	12 (2.4)
Extreme	12 (0.9)	6 (0.7)	6 (1.2)
Missing	*64 (4.7)*	*30 (3.7)*	*30 (5.9)*
Getting on/off toilet			
None	465 (34.5)	277 (34.0)	183 (35.8)
Mild	418 (31.0)	241 (29.5)	174 (34.1)
Moderate	280 (20.8)	183 (22.4)	88 (17.2)
Severe	90 (6.7)	65 (8.0)	25 (4.9)
Extreme	30 (2.2)	18 (2.2)	11 (2.2)
Missing	*66 (4.9)*	*32 (3.9)*	*30 (5.9)*
Heavy domestic duties			
None	156 (11.6)	78 (9.6)	76 (14.9)
Mild	222 (16.5)	115 (14.1)	105 (20.6)
Moderate	374 (27.7)	221 (27.1)	149 (29.2)
Severe	340 (25.2)	225 (27.6)	107 (20.9)
Extreme	178 (13.2)	134 (16.4)	42 (8.2)
Missing	*79 (5.9)*	*43 (5.3)*	*32 (6.3)*
Light domestic duties			
None	386 (28.6)	216 (26.5)	166 (32.5)
Mild	440 (32.6)	260 (31.9)	175 (34.3)
Moderate	380 (28.2)	247 (30.3)	126 (24.7)
Severe	78 (5.8)	59 (7.2)	17 (3.3)
Extreme	18 (1.3)	14 (1.7)	4 (0.8)
Missing	*47 (3.5)*	*20 (2.5)*	*23 (4.5)*

Table 9: WOMAC score reported by people with hip or knee osteoarthritis (0-100, higher = better)

People with hip or knee OA	All n=1349	Female n=816	Male n=511
Pain, Mean (SD*)	66.5 (21.3)	65.0 (21.7)	69.4 (20.3)
Stiffness, Mean (SD)	60.1 (22.2)	58.9 (22.1)	62.5 (22.1)
Function, Mean (SD)	67.7 (21.3)	66.2 (21.5)	69.9 (20.9)
WOMAC aggregate score, Mean (SD)	66.9 (20.2)	65.2 (20.4)	69.5 (19.7)

* SD = Standard deviation

Work and Osteoarthritis

Five hundred and twenty-four participants (30.6%) were working for pay in the past year (Table 10). The average work time was 33.7 (SD=15.7) hours per week. The majority of them did not reduce their work time (n=333; 63.6%), but almost 18% changed the way they did their work. Among those who did not work (n=1155), the most common reason was retirement, but not due to arthritis.

Table 10: Work and arthritis

	All n=1713	Female n=1058	Male n=628
Working for pay in the past year [n (%)]	***524 (30.6)***	***295 (27.9%)***	***221 (35.2%)***
Average work hours per week (SD)	33.7 (15.7)	31.4 (15)	36.3 (16.4)
Did you reduce the amount that you worked because of your arthritis?* [n (%)]			
No	333 (63.6)	185 (62.7)	143 (64.7)
Yes, I have changed how I do my work	94 (17.9)	49 (16.6)	43 (19.5)
Yes, I have reduced the number of hours I work	65 (12.4)	29 (9.8)	34 (15.4)
Yes, I have changed the kind of work I do because of my arthritis	50 (9.5)	26 (8.8)	23 (10.4)
Yes, I have missed days of work because of my arthritis	49 (9.4)	31 (10.5)	18 (8.1)
Yes, I have completely stopped work because of my arthritis	23 (4.4)	15 (5.1)	7 (3.2)
Yes, I have reduced the number of weeks that I work	10 (1.9)	5 (1.7)	5 (2.3)
Other	60 (11.5)	37 (12.5)	22 (10.0)
Not working for pay in the past year [n (%)]	***1155 (67.4)***	***738 (69.8)***	***399 (63.5)***
Reason for not in paid employment:* [n (%)]			
Retired, but not because of arthritis	734 (63.6)	439 (59.5)	282 (70.7)
Staying at home to care for my family or house	150 (13.0)	134 (18.2)	13 (3.3)
Not working because of other medical reasons	136 (11.8)	86 (11.7)	47 (11.9)
Retired because of arthritis	133 (11.5)	82 (11.1)	49 (12.3)
Volunteering	107 (9.3)	86 (11.7)	17 (4.3)
Not working because of arthritis	103 (8.9)	69 (9.4)	33 (8.3)
Unemployed, but looking for work	10 (0.9)	8 (1.1)	2 (0.5)
Student	4 (0.4)	3 (0.4)	1 (0.3)
Other	150 (13.0)	90 (12.2)	59 (14.8)

* Participants may provide more than one answer.

Use of Health Services and Treatments

Health professional visits

People with OA had used a variety of health services (Table 11). About 90% of the participants saw a family physician (average visits last year = 5), 48.2% visited an orthopaedic surgeon (average visits last year = 1.8), 48.6% visited a physical therapist (average visits last year = 5.5), and 33% visited a pharmacist (average visits last year = 6.7). Among those who saw health professionals, about half found them to be helpful (Table 12). Satisfaction was particularly high for family physician and pharmacist visits, with 66.3% and 66.7%, respectively, rated as helpful.

The majority of participants reported no problems with their visits to health professionals, however 47.6% of those who consulted an orthopaedic surgeon reported a waiting time longer than three months (Table 13). Long waiting time was also reported by participants who saw a rheumatologist (24.6%) or a social worker (13.1%). Cost was another frequently reported barrier, especially among those who saw a chiropractor (16.2%) or a physical therapist (15.9%)

Table 11: Health professional visits

	All N=1713		Female n=1058		Male N=628	
	# visited the health professional (%)	Avg. visit last year (SD*)	# visited the health professional (%)	Avg. visit last year (SD*)	# visited the health professional (%)	Avg. visit last year (SD*)
Family doctor	1538 (89.8)	5.0 (6.7)	959 (90.6)	5.1 (7.2)	553 (88.1)	4.8 (5.8)
Orthopaedic surgeon	842 (49.2)	1.8 (2.1)	487 (46.0)	1.8 (1.9)	344 (54.8)	1.8 (2.3)
Physical therapist	833 (48.6)	5.5 (10.3)	534 (50.5)	5.6 (9.3)	289 (46.0)	5.3 (12.0)
Pharmacist	564 (33.0)	6.7 (11.2)	380 (35.9)	6.1 (10.6)	181 (28.8)	7.6 (12.0)
Chiropractor	468 (27.3)	6.4 (10.3)	308 (29.1)	6.7 (9.5)	150 (23.9)	4.9 (6.9)
Rheumatologist	394 (23.0)	1.8 (2.3)	277 (26.2)	1.7 (2.1)	112 (17.8)	2.1 (2.7)
Occupational therapist	176(10.3)	3.9 (11.6)	120 (11.3)	3.8 (11.9)	55 (8.8)	4.2 (11.2)
Nurse	91 (5.3)	5.7 (11.4)	56 (5.3)	5.7 (11.8)	35 (5.6)	5.7 (11.1)
Social worker	61 (3.6)	3.4 (6.2)	41 (3.9)	2.0 (2.1)	19 (3.0)	6.7 (10.2)
Vocational or Career Counselor	35 (2.0)	4.1 (5.8)	19 (1.8)	3.7 (6.1)	16 (2.6)	4.6 (5.8)
Other service(s)	248 (14.5)	11.7 (24.7)	176 (16.6)	12.4 (27.3)	70 (11.2)	10.2 (17.3)

* SD = Standard deviation

Table 12: Satisfaction with health professionals in managing osteoarthritis

	All		Female		Male	
	# of people visited the HP*	# of people rated the visit helpful (%)	# of people visited the HP*	# of people rated the visit helpful (%)	# of people visited the HP*	# of people rated the visit helpful (%)
Family doctor	1538	976 (63.5)	959	615 (64.1)	553	345 (62.4)
Orthopaedic surgeon	842	456 (54.2)	487	263 (54.0)	344	187 (54.4)
Physical therapist	833	429 (51.5)	534	287 (53.8)	289	136 (47.1)
Pharmacist	564	376 (66.7)	380	248 (65.3)	181	125 (69.1)
Chiropractor	468	256 (54.7)	308	183 (59.4)	150	69 (46.0)
Rheumatologist	394	193 (49.0)	277	133 (48.0)	112	56 (50.0)
Occupational therapist	176	88 (50.0)	120	65 (54.2)	55	23 (41.8)
Nurse	91	48 (52.8)	56	28 (50.0)	35	20 (57.1)
Social worker	61	31 (50.8)	41	19 (46.3)	19	12 (63.2)
Vocational or Career Counselor	35	16 (45.7)	19	9 (47.4)	16	7 (43.8)
Other service(s)	248	153 (61.7)	176	112 (63.6)	70	40 (57.1)

*HP = Health Professional

ms experienced with health services

	No problem (%)	>3 month wait (%)	Too expensive (%)	Not available (%)	Did not know about the service (%)	Not applicable (%)	*Missing (%)*
	975 (63.4)	29 (1.9)	10 (0.7)	8 (0.5)	16 (1.0)	225 (14.6)	*275 (17.9)*
	619 (64.6)	15 (1.6)	4 (0.4)	6 (0.6)	9 (0.9)	138 (14.4)	*168 (17.5)*
	343 (62.0)	13 (2.4)	6 (1.1)	2 (0.4)	6 (1.1)	83 (15.0)	*100 (18.1)*
	268 (31.8)	401 (47.6)	17 (2.0)	27 (3.2)	3 (0.4)	77 (9.1)	*49 (5.8)*
	147 (30.2)	245 (50.3)	7 (1.4)	16 (3.3)	2 (0.4)	34 (7.0)	*36 (7.4)*
	118 (34.3)	150 (43.6)	10 (2.9)	11 (3.2)	1 (0.3)	43 (12.5)	*11 (3.2)*
	421 (50.5)	23 (2.8)	132 (15.9)	4 (0.5)	4 (0.5)	93 (11.2)	*156 (18.7)*
	275 (51.5)	17 (3.2)	93 (17.4)	3 (0.6)	3 (0.6)	48 (9.0)	*95 (17.8)*
	142 (49.1)	5 (1.7)	37 (12.8)	1 (0.4)	1 (0.4)	44 (15.2)	*59 (20.4)*
	222 (47.4)	7 (1.5)	76 (16.2)	1 (0.2)	1 (0.2)	62 (13.3)	*99 (21.2)*
	154 (50.0)	5 (1.6)	56 (18.2)	1 (0.3)	0 (0)	40 (13.0)	*52 (16.9)*
	66 (44.0)	1 (0.7)	20 (13.3)	0 (0)	1 (0.7)	21 (14.0)	*41 (27.3)*
	165 (41.9)	97 (24.6)	8 (2.0)	20 (5.1)	1 (0.3)	54 (13.7)	*49 (12.4)*
	122 (44.0)	68 (24.6)	3 (1.1)	13 (4.7)	1 (0.4)	25 (9.0)	*45 (16.2)*
	41 (36.6)	27 (24.1)	5 (4.5)	7 (6.3)	0 (0)	27 (24.1)	*5 (4.5)*
	82 (46.6)	12 (6.8)	11 (6.3)	2 (1.1)	2 (1.1)	25 (14.2)	*42 (23.9)*
	60 (50.0)	10 (8.3)	7 (5.8)	2 (1.7)	1 (0.8)	13 (10.8)	*27 (22.5)*
	21 (38.2)	2 (3.6)	4 (7.3)	0 (0)	1 (1.8)	12 (21.8)	*15 (27.3)*

	No problem (%)	>3 month wait (%)	Too expensive (%)	Not available (%)	Did not know about the service (%)	Not applicable (%)	*Missing (%)*
Nurse							
All (n=91)	50 (55.0)	4 (4.4)	1 (1.1)	2 (2.2)	0 (0)	16 (17.6)	*18 (19.8)*
Female (n=56)	33 (58.9)	2 (3.6)	1 (1.8)	2 (3.6)	0 (0)	8 (14.3)	*10 (17.9)*
Male (n=35)	17 (48.6)	2 (5.7)	0 (0)	0 (0)	0 (0)	8 (22.9)	*8 (22.9)*
Social worker							
All (n=61)	20 (32.8)	8 (13.1)	3 (4.9)	1 (1.6)	2 (3.3)	11 (18.0)	*16 (26.2)*
Female (n=41)	14 (34.2)	3 (7.3)	2 (4.9)	1 (2.4)	0 (0)	8 (19.5)	*13 (31.7)*
Male (n=19)	5 (26.3)	5 (26.3)	1 (5.3)	0 (0)	2 (10.5)	3 (15.8)	*3 (15.8)*
Other services							
All (n=248)	66 (26.6)	8 (3.2)	33 (13.3)	4 (1.6)	0 (0)	34 (13.7)	*103 (41.5)*
Female (n=176)	50 (28.4)	6 (3.4)	28 (15.9)	3 (1.7)	0 (0)	23 (13.1)	*66 (37.5)*
Male (n=70)	15 (21.4)	2 (2.9)	5 (7.1)	1 (1.4)	0 (0)	10 (14.3)	*37 (52.9)*

Medications, supplements, and non-pharmacological treatments

Among those who used prescription and non-prescription medications in the past year, 57.4% used acetaminophen (Table 14). The use of non-steroidal anti-inflammatory drugs (NSAIDs) was also common (35.7% ibuprofen, 17.3% aspirin, and 24.5% other NSAIDs), with a small percentage of people using Cox-2 selective inhibitors (5.9%).

Many people also tried dietary supplements, with 42.3% using glucosamine, 24.7% chondroitin, 12.6% methylsulfonylmethane (MSM), and 24% using vitamin/mineral supplements. About 14% of respondents did not use any prescription and non-prescription medication or supplement in the past year (Table 14).

The majority of people reported no access problem to medications for OA (80.4%). About 25% used a diary to record their medications and medical appointments at least some of the times. Among those who did not use diaries, most said that their doctors had not suggested using them (Table 14).

Almost 53% of the participants used some form of non-pharmacological treatments in the past year, with 29% using thermotherapy (heat or ice) and 26% using exercise in the past year (Table 14).

Table 14: Use of drugs and non-pharmacological treatments for OA in the past year

	All n=1713	Female n=1058	Male n=628
Medications and supplements:* n (%)			
None	237 (13.8)	109 (10.3)	123 (19.6)
Acetaminophen	984 (57.4)	659 (62.3)	310 (49.4)
Ibuprofen	611 (35.7)	393 (37.2)	211 (33.6)
Aspirin or ASA	296 (17.3)	164 (15.5)	128 (20.4)
Other non-steroidal anti-inflammatory drugs or NSAIDS	420 (24.5)	261 (24.7)	151 (24.0)
Visco supplementation (e.g., Synvisc, Orthovisc)	19 (1.1)	10 (1.0)	9 (1.4)
Cox-2 Inhibitors	101 (5.9)	68 (6.4)	30 (4.8)
Cortisone injections	200 (11.7)	127 (12)	69 (11.0)
Topical agents	384 (22.4)	260 (24.6)	113 (18.0)
Other medications	363 (21.2)	239 (22.6)	122 (19.4)
Glucosamine	724 (42.3)	474 (44.8)	241 (38.4)
Chondroitin	423 (24.7)	279 (26.4)	138 (22.0)
Methylsulfonylmethane (MSM)	216 (12.6)	146 (13.8)	67 (10.7)
Vitamin/mineral supplements	414 (24.2)	299 (28.3)	108 (17.2)
Difficulties accessing medications for OA: n (%)			
No difficulties	1378 (80.4)	855 (80.8)	504 (80.3)
Drug plan does not cover the cost of medications.	143 (8.4)	97 (9.2)	43 (6.9)
Cannot afford to pay for the medicine I need.	90 (5.3)	56 (5.3)	33 (5.3)
Difficulty getting to the drug store or family doctor.	41 (2.4)	31 (2.9)	10 (1.6)
Other(s)	137 (8.0)	91 (8.6)	42 (6.7)
Use of a diary to keep track of medications and medical appointments: n (%)			
Yes	230 (13.4)	166 (15.7)	60 (9.6)
Sometimes	191 (11.2)	126 (11.9)	65 (10.4)
No	124 (7.2)	91 (8.6)	29 (4.6)
No, but doctor had suggested using a diary	4 (0.2)	3 (0.3)	1 (0.2)
No, and doctor had not suggested using a diary	1133 (66.1)	657 (62.1)	457 (72.8)
Non-pharmacological treatments:* n (%)			
None	813 (47.5)	447 (42.3)	352 (56.1)
Heat or ice	499 (29.1)	375 (35.4)	118 (18.8)
Exercise	444 (25.9)	309 (29.2)	132 (21.0)
Physiotherapy	295 (17.2)	215 (20.3)	78 (12.4)
Diet	165 (9.6)	119 (11.3)	45 (7.2)
Splints, supports or other devices	154 (9.0)	111 (10.5)	41 (6.5)
Relaxation techniques	83 (4.9)	70 (6.6)	11 (1.8)
Arthroscopy	60 (3.5)	31 (2.9)	28 (4.5)
Other(s)	195 (11.4)	140 (13.2)	52 (8.3)

* Participants might use more than one type of treatment.

Complementary and alternative therapies

A quarter of the respondents reported using complementary and alternative therapies to manage their OA in the past six months (Table 15). Massage was the most frequently used treatment (12.2%), with an average visit of 7.9 (SD=16.2). About 5% of people tried acupuncture (average visit = 6.6, SD=7.2).

Table 15: **Use of complementary and alternative therapies for OA in the past 6 months**[*]

	All n=1713	**Female n=1058**	**Male n=628**
No complementary or alternative therapies in the past 6 months	1292 (75.4%)	758 (71.6%)	509 (81.1%)
Massage therapy	209 (12.2%)	160 (15.1%)	49 (7.8%)
Visits, Mean (SD)	*7.9 (16.2)*	*7.0 (9.8)*	*10.6 (29.0)*
Acupuncture	79 (4.6%)	55 (5.2%)	23 (3.7%)
Visits, Mean (SD)	*6.6 (7.2)*	*7.65 (8.3)*	*4.5 (3.4)*
Naturopathy	26 (1.5%)	21 (2.0%)	5 (0.8%)
Visits, Mean (SD)	*3.5 (2.3)*	*3.5 (2.4)*	*3.3 (2.2)*
Homeopathy	20 (1.2%)	18 (1.7%)	2 (0.3%)
Visits, Mean (SD)	*3.3 (2.2)*	*3.3 (2.2)*	*4 (0)*
Traditional Chinese Medicine	20 (1.2%)	13 (1.2%)	7 (1.1%)
Visits, Mean (SD)	*6.2 (5.7)*	*6.4 (6.0)*	*5.3 (5.9)*
Herbal therapy	17 (1.0%)	12 (1.1%)	5 (0.8%)
Visits, Mean (SD)	*5.3 (6.5)*	*7.7 (9.1)*	*3 (2.7)*
Ayurvedic medicine	4 (0.2%)	3 (0.3%)	1 (0.2%)
Visits, Mean (SD)	*2 (0)*	*2 (0)*	*2 (0)*
Other(s)	76 (4.4%)	59 (5.6%)	17 (2.7%)

[*] Participants might use more than one type of therapy.

Participation in exercises and physical activities

Regular exercise is beneficial for people with OA.[14;15] In this survey, we asked participants about the amount of time they spent in exercise and physical activities in the past week (Table 16). The majority of the participants reported spending time 'walking for exercise'. However, less than half spent '1 – 3 hours/week', or more, walking. Almost 14% participated in pool exercise (e.g., swimming, aquatic exercise). Also, participation in aerobic exercises was low (17.6% bicycling; 8.1% used other aerobic exercise equipment; 9.7% participated in other aerobic exercise).

Major types of exercise[16]

- Range of motion exercise involves taking the joint through its full available range once or several times without holding the end position.
- Stretching exercise involves taking the joint through its full available range and applying a sustained gentle tension on targeted soft tissue at the end position.
- Strengthening exercise involves the types exercise for increasing muscle strength and size.
- Aerobic exercise refers to exercise which is of relatively low intensity, uses large muscle groups, and places demands on the cardiovascular system. Example includes: brisk walking, swimming, and cycling.

Table 16: Time spent on exercise and physical activities in the past week

	All n=1713	Female n=1058	Male n=628
Stretching, range of motion, or strengthening exercises (%)			
None	619 (36.1)	380 (35.9)	234 (37.3)
Less than 30 minutes/week	344 (20.1)	212 (20.0)	126 (20.1)
30-60 minutes/week	270 (15.8)	179 (16.9)	88 (14.0)
1-3 hours/week	197 (11.5)	135 (12.8)	57 (9.1)
More than 3 hours/week	114 (6.7)	53 (5.0)	58 (9.2)
Missing	*169 (9.9)*	*99 (9.4)*	*65 (10.4)*
Walking for exercise (%)			
None	252 (14.7)	152 (14.4)	97 (15.5)
Less than 30 minutes/week	235 (13.7)	157 (14.8)	76 (12.1)
30-60 minutes/week	367 (21.4)	240 (22.7)	119 (19.0)
1-3 hours/week	367 (21.4)	226 (21.4)	136 (21.7)
More than 3 hours/week	385 (22.5)	219 (20.7)	161 (25.6)
Missing	*107 (6.2)*	*64 (6.0)*	*39 (6.2)*
Swimming or aquatic exercise (%)			
None	1206 (70.4)	739 (69.9)	453 (72.1)
Less than 30 minutes/week	63 (3.7)	40 (3.8)	22 (3.5)
30-60 minutes/week	70 (4.1)	49 (4.6)	20 (3.2)
1-3 hours/week	71 (4.1)	51 (4.8)	17 (2.7)
More than 3 hours/week	35 (2.0)	18 (1.7)	16 (2.6)
Missing	*268 (15.6)*	*161 (15.2)*	*100 (15.9)*
Bicycling (including stationary bike) (%)			
None	1153 (67.3)	751 (71.0)	387 (61.6)
Less than 30 minutes/week	106 (6.2)	59 (5.6)	47 (7.5)
30-60 minutes/week	84 (4.9)	42 (4.0)	39 (6.2)
1-3 hours/week	73 (4.3)	29 (2.7)	44 (7.0)
More than 3 hours/week	38 (2.2)	9 (0.9)	29 (4.6)
Missing	*259 (15.1)*	*168 (15.9)*	*82 (13.1)*
Other aerobic exercise equipment (Stairmaster, rowing, or skiing machine) (%)			
None	1285 (75.0)	803 (75.9)	467 (74.4)
Less than 30 minutes/week	35 (2.0)	24 (2.3)	10 (1.6)
30-60 minutes/week	49 (2.9)	23 (2.2)	23 (3.7)
1-3 hours/week	34 (2.0)	23 (2.2)	11 (1.8)
More than 3 hours/week	20 (1.2)	9 (0.9)	11 (1.8)
Missing	*290 (16.9)*	*176 (16.6)*	*106 (16.9)*
Other aerobic exercises (%)			
None	1098 (64.1)	680 (64.3)	404 (64.3)
Less than 30 minutes/week	17 (1.0)	11 (1.0)	6 (1.0)
30-60 minutes/week	32 (1.9)	21 (2.0)	10 (1.6)
1-3 hours/week	50 (2.9)	37 (3.5)	13 (2.1)
More than 3 hours/week	66 (3.9)	38 (3.6)	27 (4.3)
Missing	*450 (26.3)*	*271 (25.6)*	*168 (26.8)*

Community Services for Self-Management

Local education and exercise programs can facilitate self-management in people with OA; however, the usage rates of these community services are low (Table 17). Only 23.5% of the respondents had used one or more of the programs offered by TAS. About 10% had participated in the TAS-affiliated *Water Works* (pool exercise) or *Joint Works* (land-based exercise) programs. The Arthritis Society website and the Arthritis Self Management Program (ASMP) offer resources and up-to-date information for people with arthritis, but only about 7% of participants had used these services. One in four people had used other community-based exercise facilities and only 14.4% had joined a weight loss program or consulted a dietitian.

Participants were asked to rate on a 10-point scale how confident they felt in performing self-management activities (1=not at all confident, 10=completely confident). The average score for performing gentle strengthening and stretching exercises was 6.9 (SD=2.9), and performing aerobic exercises was 6.3 (SD=3.2) (Table 18). Participants appeared less confident about being able to exercise without aggravating the joint symptoms, with an average confidence score of 5.7. Also, they were only moderately confident about using the internet or other community resources to get information about arthritis and ways to manage symptoms.

Table 17: Community programs used by people with osteoarthritis

	All n=1713	**Female n=1058**	**Male n=628**
Use of The Arthritis Society services* (%)			
Water and/or Joint Works exercise programs	172 (10.0)	125 (11.8)	44 (7.0)
Website	130 (7.6)	100 (9.5)	28 (4.5)
Arthritis Self-Management Program (ASMP)	124 (7.2)	86 (8.1)	34 (5.4)
Other service(s)	78 (4.6)	57 (5.4)	21 (3.3)
Support groups	47 (2.7)	36 (3.4)	11 (1.8)
Public Forums	43 (2.5)	29 (2.7)	14 (2.2)
Arthritis Answers Line (telephone info service)	26 (1.5)	21 (2.0)	5 (0.8)
None	1310 (76.5)	778 (73.5)	517 (82.3)
Other services* (%)			
None	943 (55.1)	541 (51.1)	386 (61.5)
Fitness facilities	428 (25.0)	294 (27.8)	129 (20.5)
Weight-loss programs or a dietitian	247 (14.4)	192 (18.2)	55 (8.8)
Other(s)	293 (17.1)	197 (18.6)	94 (15.0)
Overall satisfaction with arthritis services (%)			
Very satisfied	271 (15.8)	158 (14.9)	108 (17.2)
Somewhat satisfied	433 (25.3)	252 (23.8)	177 (28.2)
Somewhat dissatisfied	146 (8.5)	82 (7.8)	56 (8.9)
Very dissatisfied	108 (6.3)	71 (6.7)	37 (5.9)
Don`t know/unsure	354 (20.7)	232 (21.9)	115 (18.3)
Not applicable	307 (17.9)	196 (18.5)	110 (17.5)
Missing	*94 (5.5)*	*67 (6.3)*	*25 (4.0)*

* Participants might use more than one type of service.

Table 18: Self-reported confidence in managing osteoarthritis

	All n=1713	Female n=1058	Male n=628
Scale 1-10 (1=Not at all confident, 10=Completely confident) [Mean (SD)]			
How confident are you that you can do gentle exercises for muscle strength and flexibility three to four times per week?	6.9 (2.9)	6.7 (2.9)	7.3 (2.8)
How confident are you that you can do an aerobic exercise such as walking, swimming, or bicycling three to four times each week?	6.3 (3.2)	6.1 (3.3)	6.8 (3.1)
How confident are you that you can exercise without making your arthritis symptoms worse?	5.7 (3.1)	5.6 (3.1)	5.9 (3.0)
How confident are you that you can get information about arthritis from community resources or the Internet?	6.7 (3.1)	6.7 (3.1)	6.6 (3.0)
How confident are you that you can keep the physical discomfort or pain from your arthritis from interfering with the things you want to do?	5.4 (2.9)	5.4 (2.9)	5.5 (2.9)
How often do you ask somebody to help you read and understand things you get from health professionals? N (%)			
Always	103 (6.0)	63 (6.0)	40 (6.4)
Sometimes	483 (28.2)	286 (27.0)	185 (29.5)
Never	1092 (63.8)	691 (65.3)	388 (61.8)
Missing	*35 (2.0)*	*18 (1.7)*	*15 (2.4)*

Joint replacement surgeries

One hundred and forty-five individuals (8.5%) were waiting for joint replacement surgery (Table 19), and, of those, 67% were waiting for the knee replacement surgery and 25% for hip surgery. The average wait time for orthopaedic consult was 6.6 (SD=7.5) months if the person was referred by a family physician, and 7.1 (SD=6.4) months if referred by a rheumatologist. Only 13% of those waiting had been given a date for the surgery. When asked how long they expected to wait from the date of the orthopaedic consult to the date of surgery, participants estimated an average of 17.6 (SD=21.6) months. Close to 48% had experienced complications related to arthritis while waiting for the surgery.

A total of 488 participants (28.5%) had received at least one joint replacement surgery (Table 19). The average waiting times between family physician referral and orthopaedic consult, between rheumatologist referral and orthopaedic consult, and between orthopaedic consult to surgery date were 8.0 (SD=13.4) months, 8.2 (SD=12.5) months, and 10.8 (SD=14.3) months, respectively. About 4% of the participants received their surgery outside of BC.

The majority of these participants felt that they received sufficient information to prepare for the surgery (91.4%) and after the surgery (89.3%) (Table 19). About 22% incurred considerable expenses that were related to the surgery. More than one-third of them experienced complications related to arthritis while waiting for it.

Table 19: Access to Joint Replacement Surgery

	All n=1713	Female n=1058	Male n=628
Currently waiting for joint replacement surgery	***145 (8.5%)***	***90 (8.5%)***	***54 (8.6%)***
Location: n (%)†			
Knee	97 (66.9)	61 (67.8)	35 (64.8)
Hip	36 (24.8)	20 (22.2)	16 (29.6)
Other joint	14 (9.7)	11 (12.2)	3 (5.6)
Wait time: months (SD*)			
Family doctor referral to orthopaedic surgeon visit	6.6 (7.5)	7.6 (8.3)	5.3 (6.2)
Rheumatologist referral to orthopaedic surgeon visit	7.1 (6.4)	8.0 (7.3)	4.7 (2.3)
Expected wait time – orthopaedic surgeon visit to the date of surgery	17.6 (21.6)	17.4 (19.4)	18.0 (24.9)
Had been given a surgical date n (%)	19 (13.1)	8 (8.9)	11 (20.4)
Had complications related to arthritis while waiting for joint replacement surgery n (%)	69 (47.6)	44 (48.9)	24 (44.4)
Had joint replacement surgery	***488 (28.5%)***	***276 (26.1%)***	***207 (33.0%)***
Location: n (%)†			
Knee	231 (47.3)	135 (48.9)	95 (45.9)
Hip	212 (43.4)	120 (43.5)	90 (43.5)
Other joint	67 (13.7)	34 (12.3)	31 (15.0)
Wait time: months (SD*)			
Family doctor referral to orthopaedic surgeon visit	8.0 (13.4)	8.0 (11.9)	8.1 (15.4)
Rheumatologist referral to orthopaedic surgeon visit	8.2 (12.5)	7.3 (11.7)	9.8 (14.0)
Orthopaedic surgeon visit to the date of surgery	10.8 (14.3)	11.2 (16.1)	10.4 (11.7)
Received surgery outside of BC, n (%)	20 (4.1)	14 (5.1)	6 (2.9)
Did you have enough information to prepare for the surgery and the recovery? n (%)			
Yes	446 (91.4)	249 (90.2)	192 (92.8)
No	27 (5.5)	15 (5.4)	12 (5.8)
Missing	*15 (3.1)*	*12 (4.3)*	*3 (1.4)*
Did you have enough information after the surgery for recovery? n (%)			
Yes	436 (89.3)	245 (88.8)	187 (90.3)
No	37 (7.6)	21 (7.6)	15 (7.3)
Missing	*15 (3.1)*	*10 (3.6)*	*5 (2.4)*
Did you have expenses related to your surgery that were a burden? n (%)			
Yes	105 (21.5)	66 (23.9)	38 (18.4)
No	361 (74.0)	196 (71.0)	162 (78.3)
Missing	*22 (4.5)*	*14 (5.1)*	*7 (3.4)*
Did you experience any complications related to arthritis while waiting for surgery? n (%)			
Yes	165 (33.8)	93 (33.7)	70 (33.8)
No	299 (61.3)	163 (59.1)	133 (64.3)
Missing	*24 (4.9)*	*20 (7.2)*	*4 (1.9)*

† Participants might be waiting for or have surgery in more than 1 joint. * SD = Standard deviation

Did People with Osteoarthritis Receive the Treatment They Needed?

Data from this survey have allowed us to assess six of the OA quality of care indicators (Table 20). The passing rate varied substantially among indicators, ranging from 70.4% for the assessment of pain and functional status to 7% for addressing difficulties in non-ambulatory activities. There was a trend to lower passing rate among male participants who received the required care compared to female participants.

Table 20: Quality of Osteoarthritis Care

Arthritis Foundation quality indicators for OA	Participants included in analysis (n)	Participant received the care [n (%)]
1. IF a patient is diagnosed with symptomatic osteoarthritis of the knee or hip, THEN his or her pain should be assessed annually and when new to a practice		
All	1349	950 (70.4)
Female	816	581 (71.2)
Male	511	357 (69.9)
2. IF a patient is diagnosed with symptomatic osteoarthritis of the knee or hip, THEN his or her functional status should be assessed annually and when new to a practice.		
All	1349	950 (70.4)
Female	816	581 (71.2)
Male	511	357 (69.9)
3. IF an ambulatory patient has had a diagnosis of symptomatic osteoarthritis of the knee or hip for > 3 months AND has no contraindication to exercise and is physically and mentally able to exercise, THEN a directed or supervised muscle strengthening or aerobic exercise program should have been prescribed at least once and reviewed at least once per year.		
All	1274	800 (62.8)
Female	770	510 (66.2)
Male	482	281 (58.3)
4. IF a patient has symptomatic osteoarthritis of the knee or hip and is overweight (as defined by body mass index of >27 kg/m2), THEN the patient should be advised to lose weight at least annually AND the benefit of weight loss on the symptoms of osteoarthritis should be explained to the patient.		
All	685	165 (24.1)
Female	406	128 (31.5)
Male	270	37 (13.7)
5. IF a patient has had symptomatic osteoarthritis of the knee or hip and reports difficulty walking to accomplish activities of daily living for more than three months, THEN the patient's walking ability should be assessed for need for ambulatory assistive devices.		
All	120	35 (29.2)
Female	79	24 (30.4)
Male	38	10 (26.3)
6. IF a patient has a diagnosis of osteoarthritis and reports difficulties with non-ambulatory activities of daily living, THEN the patient's functional ability with problem tasks should be assessed for need of non-ambulatory assistive devices to aid with problem tasks.		
All	403	28 (7.0)
Female	277	24 (8.7)
Male	120	4 (3.3)

Chapter 5: Conclusion

This survey is the first to provide a comprehensive description on the use of health services by people with OA in British Columbia. Our findings present a positive picture of the general health of this population. Despite having OA, most of the participants viewed themselves as having good health and that their health status was relatively stable compared to a year ago. On the other hand, the results confirm the gaps in the management of OA that have been reported in the literature, especially the poor uptake of inexpensive interventions that can effectively reduce long term disability and the need for joint replacement surgery.[17-19] This survey also documented the challenges experienced by people when seeking access to health professionals and treatments, such as the waiting time for orthopaedic consults and surgeries, and the cost of using rehabilitation treatments.

The following major gaps in OA care are identified in this survey:

- **Use of exercise and physical activity was below international recommendations for the management of OA**

  The American College of Rheumatology's (ACR) recommends that, at minimum, people with arthritis should accumulate 30 minutes of moderate-intensity physical activity (e.g., brisk walking) 3 days a week or the equivalent 90 minutes per week.[20] In this survey, although the majority of participants reported that they walked for exercise, less than half met the ACR recommendation on physical activity.

  Exercise is considered a subcategory of physical activity and is specially designed to maintain or improve joint movement, muscle strength, and physical fitness. Only 26% of the survey participants reported that they exercised in the past year.

- **The majority of people with hip/knee OA had not received weight-loss counseling even if they were overweight**

  Obesity is one of the most important risk factors for the development of severe OA of the knee.[21] This survey found that less than one in four people with knee or hip OA and a BMI >27 (i.e., defined as overweight according to the US Arthritis Foundation OA quality indicators) had seen a dietitian or attended a weight-loss program.

- **Long waiting time for joint replacement surgery**

  One of the most frequently reported access barriers to health professionals is the waiting time, especially for orthopaedic surgeons. Among those who were waiting for joint surgery, the average delay for their initial orthopaedic consult was six to seven months. In addition, these individuals estimated a delay of another 18 months from the surgeon visit to the date of surgery, which exceeded the recommended waiting time of six months or less in this country.[22-24] Among those who already had joint replacement surgery, more than one in three reported arthritis-related complications while waiting.

- **Community education and exercise programs fail to reach people with OA**

  The use of community services is very low among people with OA. For example, The Arthritis Society BC & Yukon Division provides education, exercise program and information support to people with arthritis across the province, but almost 77% of our participants had never used these resources. Furthermore, only one in four people had visited a community fitness centre. Since most of these services can help to facilitate successful self-care, major efforts will be required to increase the awareness of these programs among patients and among health professionals.

- **People with severe disability were not assessed for the necessary assistive devices**

  Only 7% of participants who reported severe difficulties with non-ambulatory activities (e.g., putting on socks; getting in/out of bath) had been assessed by occupational therapists, who are experts in prescribing aids and devices to address functional limitations related to OA.

Recommendations

- **Improve support for people with OA to engage in exercise and physical activities**

  In this survey, participants were only moderately confident in their ability to exercise three to four times a week, or to exercise without aggravating their symptoms. The latter can become an additional barrier to exercise. Although exercise improves OA pain,[25] people in pain may avoid exercise, and therefore, may not adhere to the exercise regime.[26] To address this, health professionals can provide guidance and modify exercises according to the individuals' symptoms and abilities. Also, integrating physical activities and exercise into one's personal lifestyle helps adherence.[15] Health professionals can help a person develop an achievable exercise plan and encourage the use of a diary to monitor the progress. This strategy has been shown to be successful in improving exercise adherence in people after coronary rehabilitation.[27] Information about community exercise programs and facilities should also be provided to people with OA.

- **Focus on weight-loss in people with OA who are overweight**

  Improving weight management in this population is critical. High body mass index (BMI) is associated with deterioration in the functional status in the first three years of follow-up after the diagnosis.[28] Among people with OA who are overweight, even a moderate weight loss of 5% can significantly improve physical disability.[29] Resources such as *Dial-a-Dietitian* (www.dialadietitian.org/index.asp), funded by the MoH, can be recommended to those who require information about nutrition and weight management

- **Educate the public about myths and facts of OA**

  One of the challenges of managing OA is the prevailing perception that it is a part of aging and that little can be done to slow down the progress of joint damage.[30-32] These misconceptions also likely contribute to the low use of effective treatments in the OA

population. Our findings suggest that future research should be directed to the evaluation of interventions that improve the awareness about the myths and facts of OA, improve the quality of OA care in the community, and facilitate the use of inexpensive and effective approaches, such as improving physical fitness and reducing to a healthy weight, as the first-line management.

- **Identify, test and implement alternative models to provide care for people requiring joint replacement surgery**

  A number of health service delivery models involving nurses and rehabilitation professionals in advanced practice roles have been developed to improve the waiting time and care for people who need joint replacement surgery.[33] Examples include the use of advanced practice physical therapist to triage patients referred for orthopedic consults,[34;35] or the use of advanced orthopedic trained therapists to provide post-surgical rehabilitation.[35;36] These models may be considered, taking into account the shortage of arthritis health professionals in this province.

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Appendix A: BC Osteoarthritis Survey Questionnaire