



Musculoskeletal Conditions

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Project for an Ontario Women's Health Evidence-Based Report

A Tool for Monitoring and Improvement

The **P**roject for an **O**ntario **W**omen's Health **E**vidence-Based **R**eport (**POWER**) is designed to serve as a tool to help policymakers and providers to improve the health of and reduce inequities among the women of Ontario.

Overarching Objectives

- Use of performance measurement and reporting
 - as a mechanism for knowledge translation
 - as a tool to drive equity in health care
- Provide evidence for use by a diverse group of stakeholders for use to improve women's (and men's) health in the province

Ontario Women's Health Equity Report

Volume 1

- Burden of Illness
- Cancer
- Depression
- Cardiovascular disease (CVD)
- Access to Health Care

Volume 2

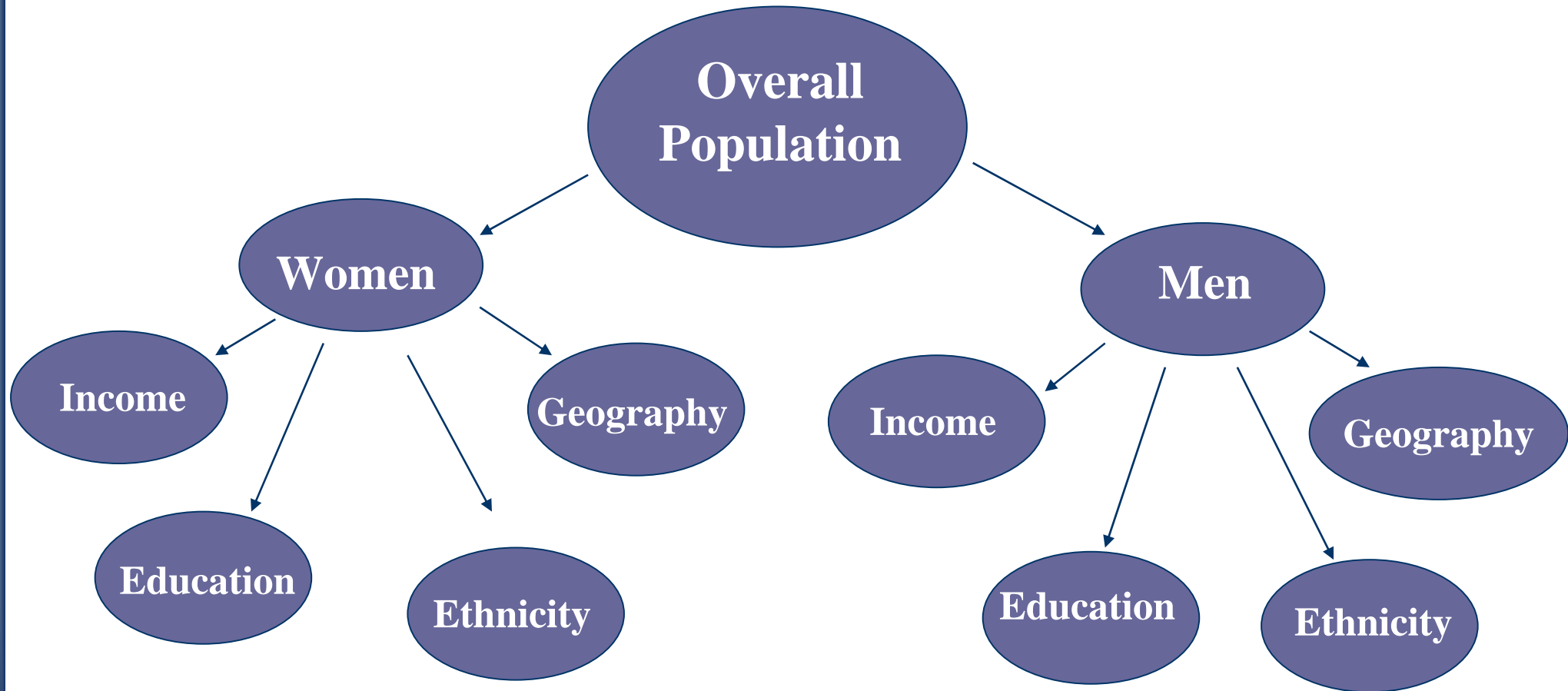
- Musculoskeletal Disorders (arthritis, osteoporosis)
- Reproductive and Gynecological Health
- Diabetes
- HIV Infection
- Special Populations (low income, immigrant and older women)
- Social Determinants of Health
- Conclusions and Policy Implications

Web-based reporting

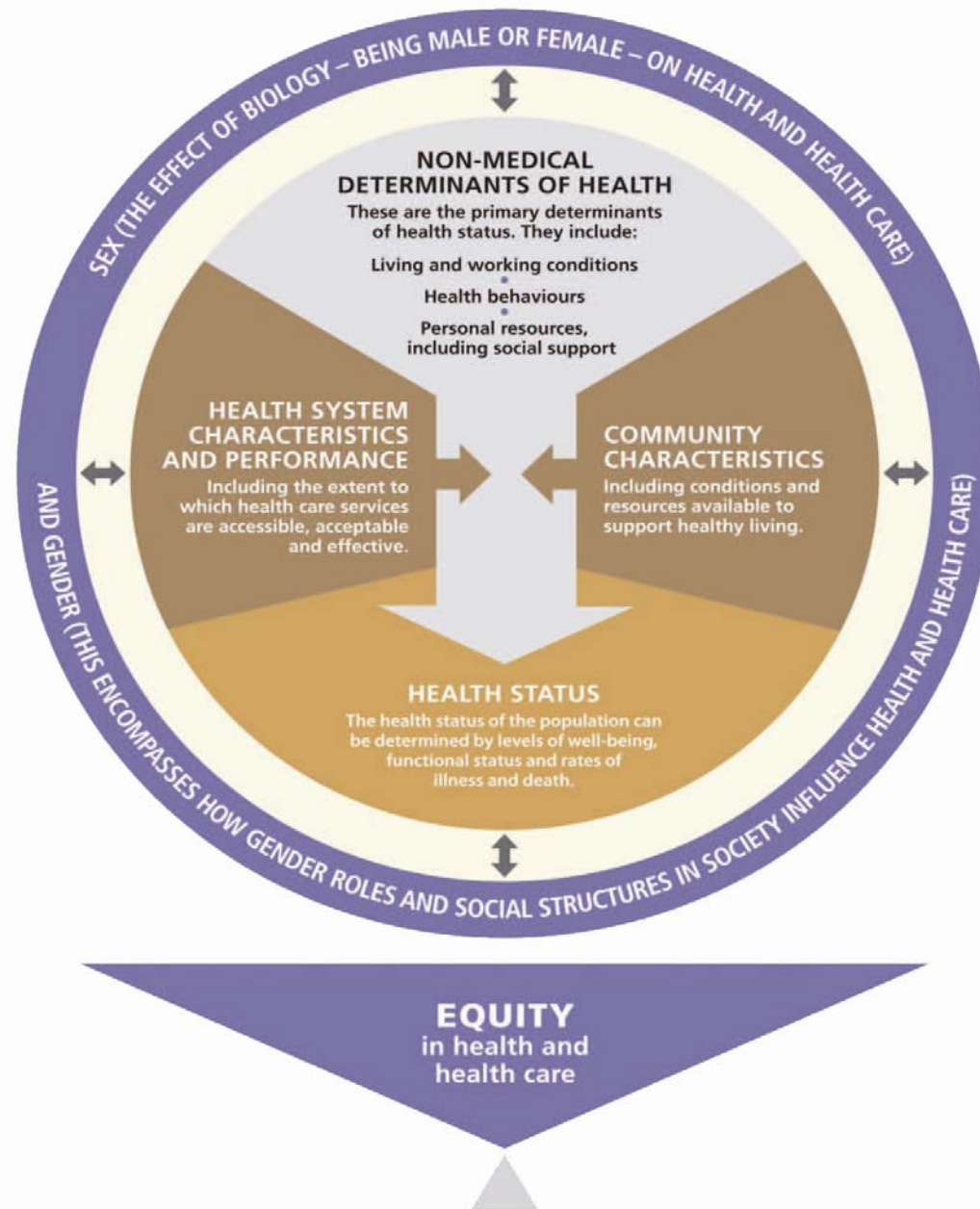
Community-Engaged Research

- POWER Study Roundtables
 - Inform indicator selection and Interpretation
 - Increase uptake of findings
- Consumers: representatives of community based organizations and associations
- Providers: clinicians, hospitals, community health centres (CHCs)
- Policymakers: government, regional health authorities, public health, health data agencies

Assessing Equity



POWER Study Gender and Equity Health Indicator Framework



Musculoskeletal Conditions

Musculoskeletal Conditions

LHIN-level data shared

Section A: General MSK (percentage)	LHIN	By Sex	By income
Percentage with at least one other chronic condition among those with a musculoskeletal (MSK) condition	√	√	
Percentage with activity limitations	√	√	
Percentage with limitations in instrumental activities of daily living (IADL) and/or activities of daily living (ADL)	√	√	
Percentage who reported that their activities were prevented due to pain or discomfort	√	√	
Percentage who were overweight or obese	√	√	
Percentage who reported that there was a time during the past 12 months when they needed health care but did not receive it (unmet health care needs)	√	X	
Percentage who had at least four visits to a general practitioner/family physician (GP/FP) within one year	√	√	

Musculoskeletal Conditions

LHIN-level data shared

Section A: General MSK Continued	LHIN	By Sex	By income
Percentage who had one visit to a specialist within one year	√	√	
Percentage who reported receiving any home care services	√	√*	
Percentage who reported seeing an allied health professional at least once in the previous 12 months (physiotherapist)	√	√	
Percentage who reported seeing an allied health professional at least once in the previous 12 months (chiropractor)	√	√	
Percentage of adults aged 25-64 who reported having any health insurance for prescription medications	√	√	

* Data for women only

Musculoskeletal Conditions

LHIN-level data shared

Section B: Osteoarthritis	LHIN	By Sex	By income
Prevalence of arthritis and rheumatism	√	√	
Percentage who underwent total joint replacement within the recommended wait time of 26 weeks (knee)	√	√	
Percentage who underwent total joint replacement within the recommended wait time of 26 weeks (hip)	√	√	
Percentage who were admitted to inpatient rehabilitation after a total joint replacement (knee)	√	√	
Percentage who were admitted to inpatient rehabilitation after a total joint replacement (hip)	√	√	
Prevalence of back problems	√	√	
Mean length of stay (LOS) in inpatient rehabilitation after total joint replacement	√	√	

Musculoskeletal Conditions

LHIN-level data shared

Section C: Rheumatoid Arthritis	LHIN	By Sex	By income
Prevalence of rheumatoid arthritis	√	√	
Percentage of adults with rheumatoid arthritis who were seen by a specialist (rheumatologist, orthopaedic surgeon, general internist or physical medicine specialist) during a 12 month period	√	√	
Percentage of adults aged 65 and older who filled a prescription for a disease modifying anti-rheumatic drug (DMARD) or biologic during a 12 month period	√	√	

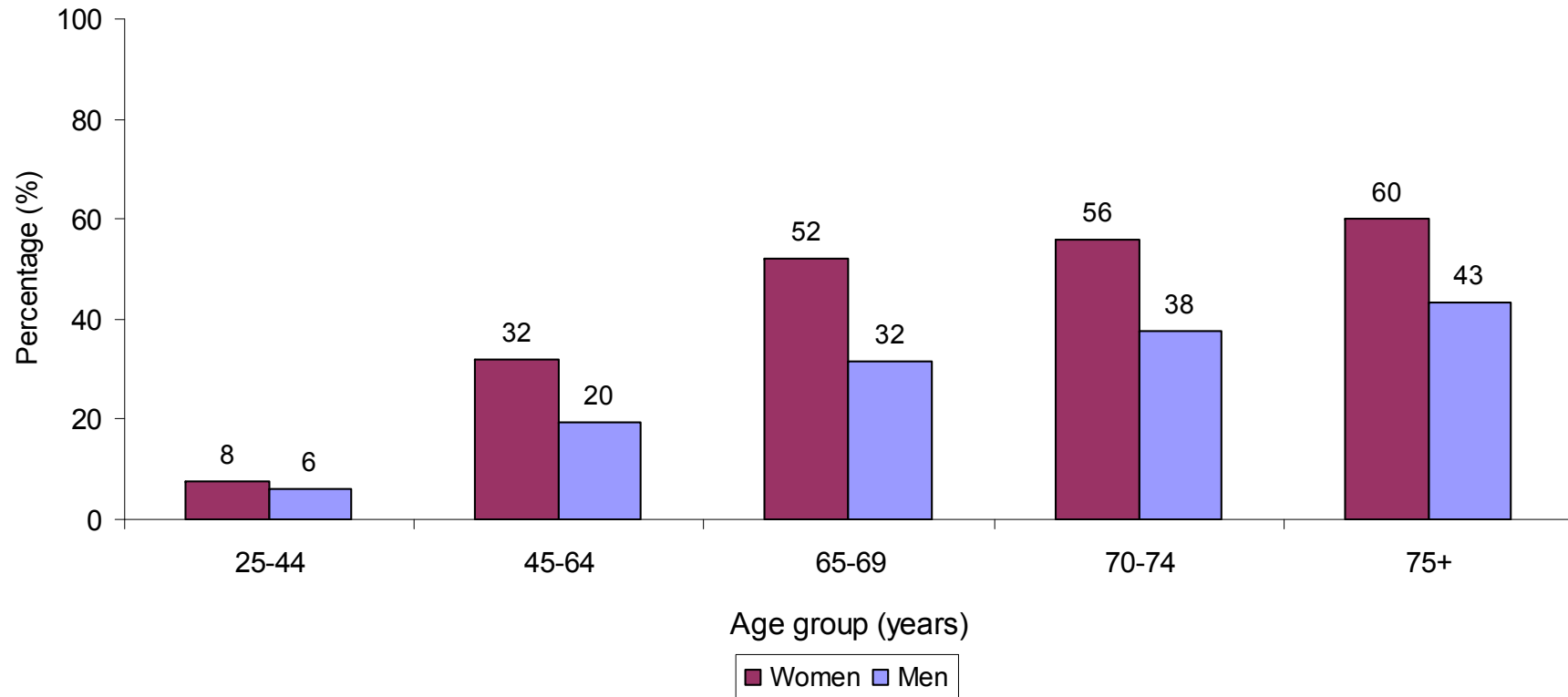
Musculoskeletal Conditions

LHIN-level data shared

Section D: Osteoporosis	LHIN	By Sex	By income
Low-trauma fracture rate (per 10,000)	√	√	
Percentage of adults who suffered a low-trauma fracture who underwent bone mineral density (BMD) testing within one year of discharge	√	√	√
Percentage of adults aged 66 and older who suffered a low-trauma fracture who received neither BMD testing nor prescription drug treatment within one year of discharge	√	√	√
Percentage aged 68-70 who had not had a BMD testing between the ages of 56-65 who received a BMD test after the age of 65	√	√	
Percentage of adults aged 66 and older who were on osteoporosis medication who had continually used their medication up to one year after initiation	√	√	
Percentage of adults aged 65 and older who were admitted to long-term care within one year of discharge after a hip fracture	√	√	
One-year mortality rate (per 10,000) among hip fracture patients	√	√	

General Musculoskeletal (MSK) Indicators

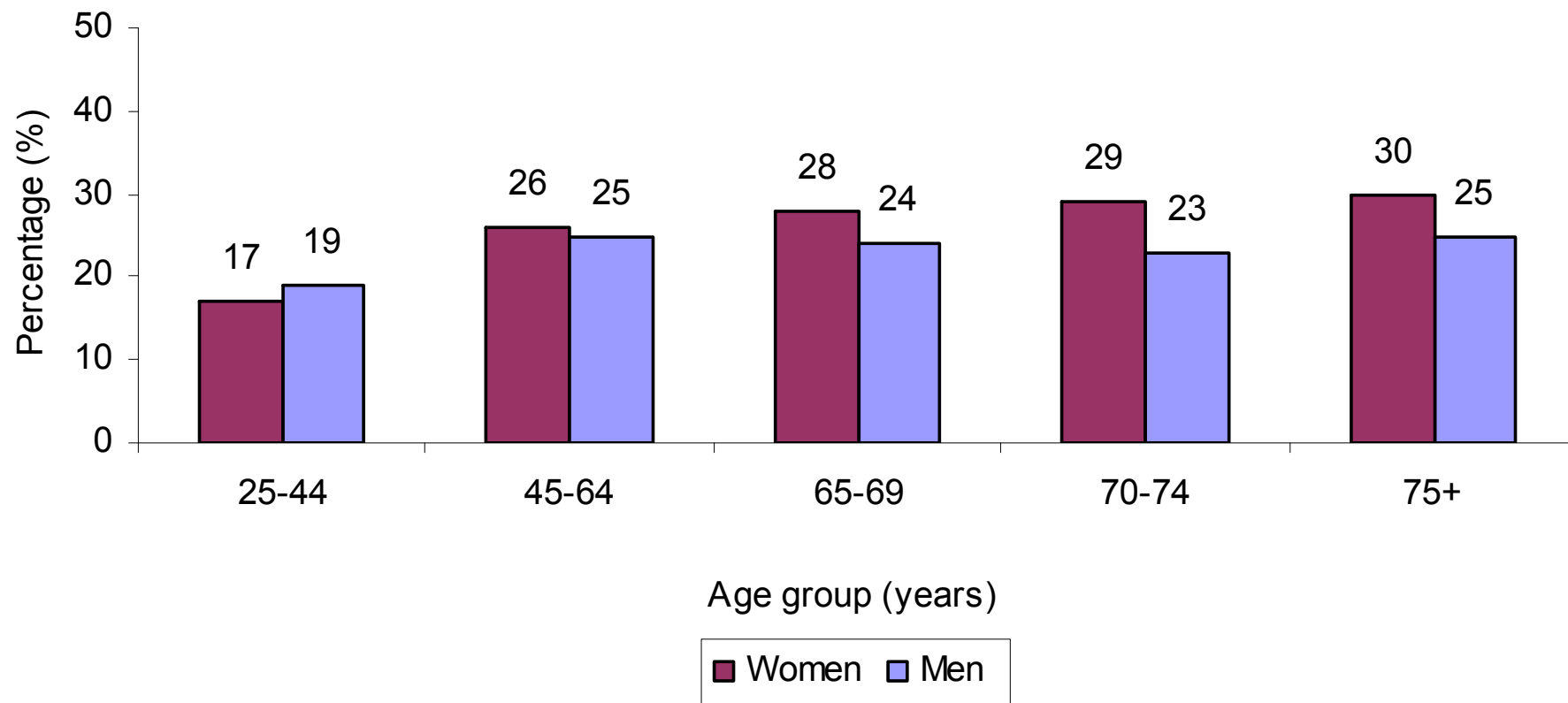
Percentage of adults aged 25 and older who have arthritis or rheumatism[^], by sex and age group, in Ontario, 2005



Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1)

[^]physician-diagnosed arthritis or rheumatism, excluding fibromyalgia

Percentage of adults aged 25 and older who reported having back problems diagnosed by a health professional, by sex and age group, in Ontario, 2005 and 2007



Distribution of MSK conditions and other chronic conditions in Ontario, 2005, 2007

CCHS 2005, 2007
Unweighted N=49, 745
Weighted N = 8,438,806

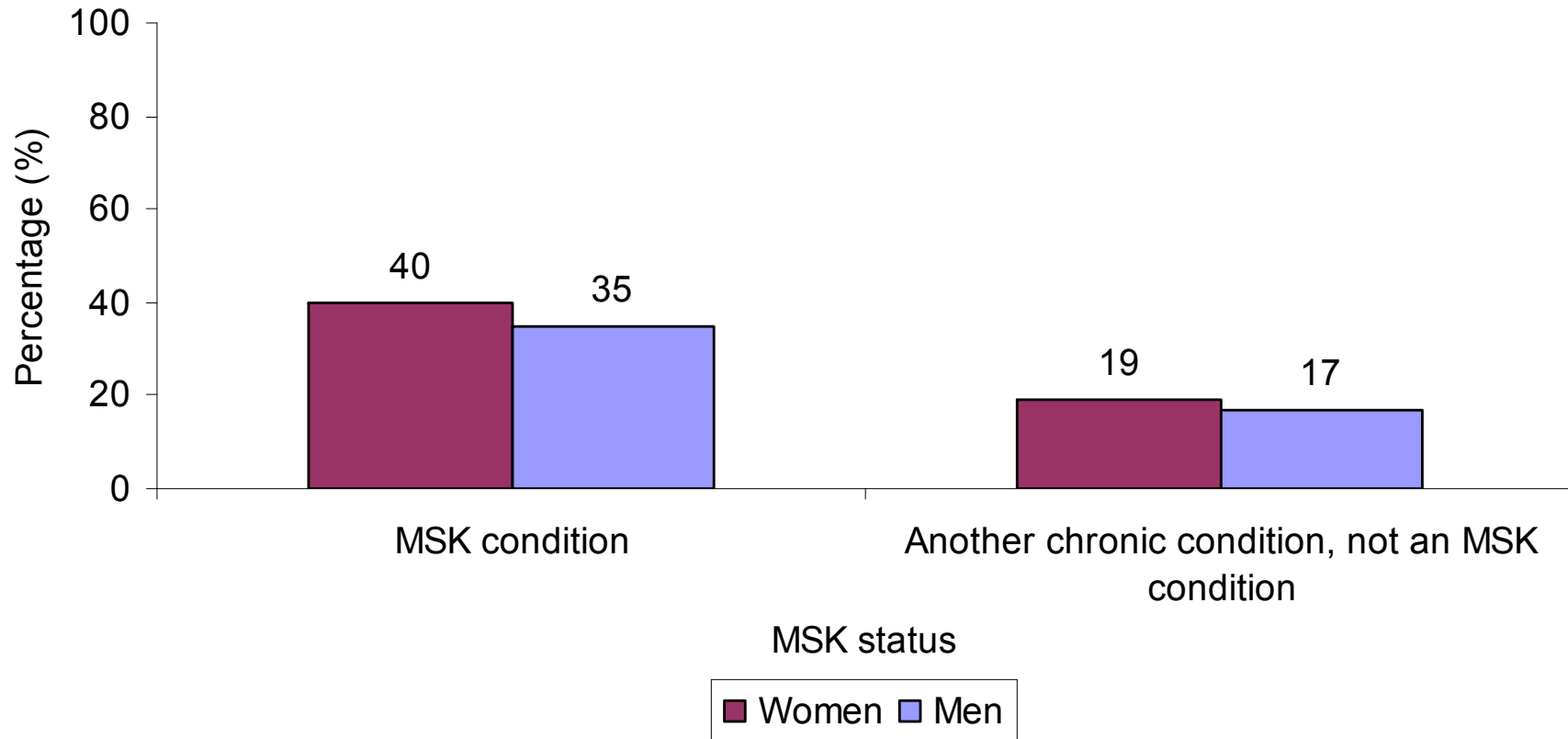
MSK condition
34.9 percent

No MSK condition
65.1 percent

No MSK condition,
at least one other selected
chronic condition
12.1 percent

No chronic conditions
52.9 percent

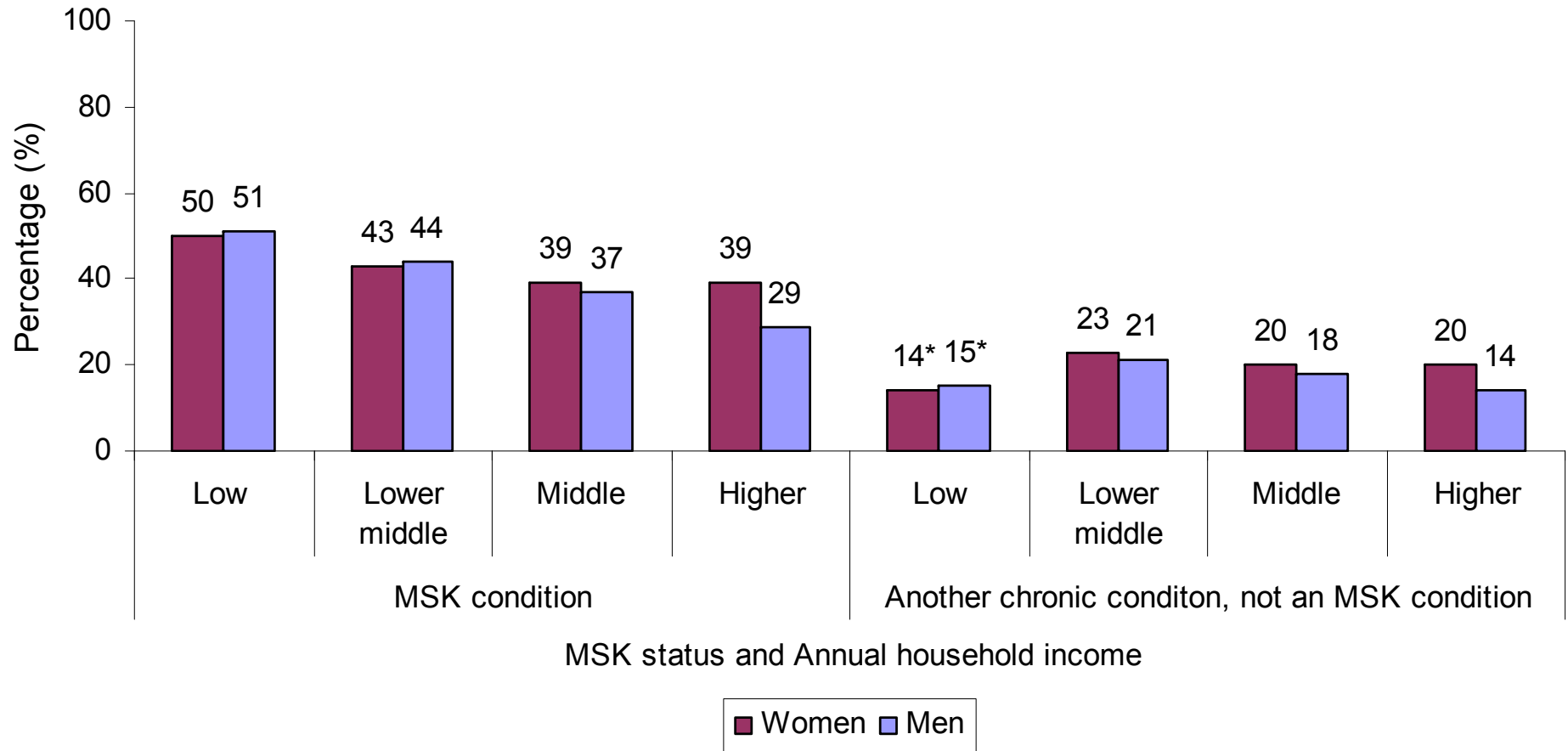
Age-standardized percentage of adults aged 25 and older with a chronic condition who reported having at least one other chronic condition diagnosed by a health professional among those with and without an MSK condition[^], by sex, in Ontario, 2005 and 2007



Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1) and 2007

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

Age-standardized percentage of adults aged 25 and older with a chronic condition who reported having at least one other chronic condition diagnosed by a health professional among those with and without an MSK condition[^], by sex and annual household income, in Ontario, 2005 and 2007

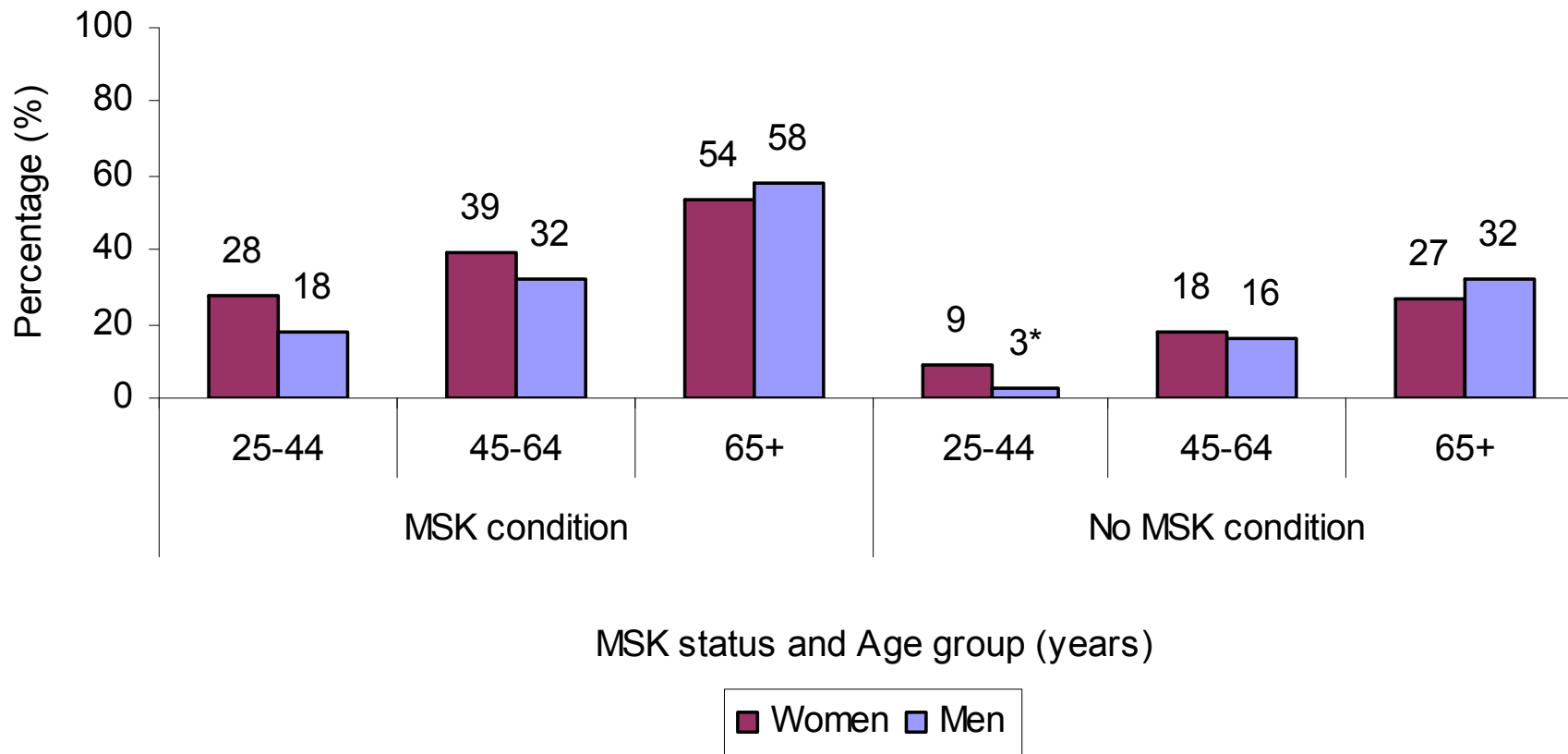


Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1) and 2007

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

*Interpret with caution due to high sampling variability

Percentage of adults aged 25 and older with a chronic condition who reported having at least one other chronic condition diagnosed by a health professional among those with and without an MSK condition[^], by sex and age group, in Ontario, 2005 and 2007

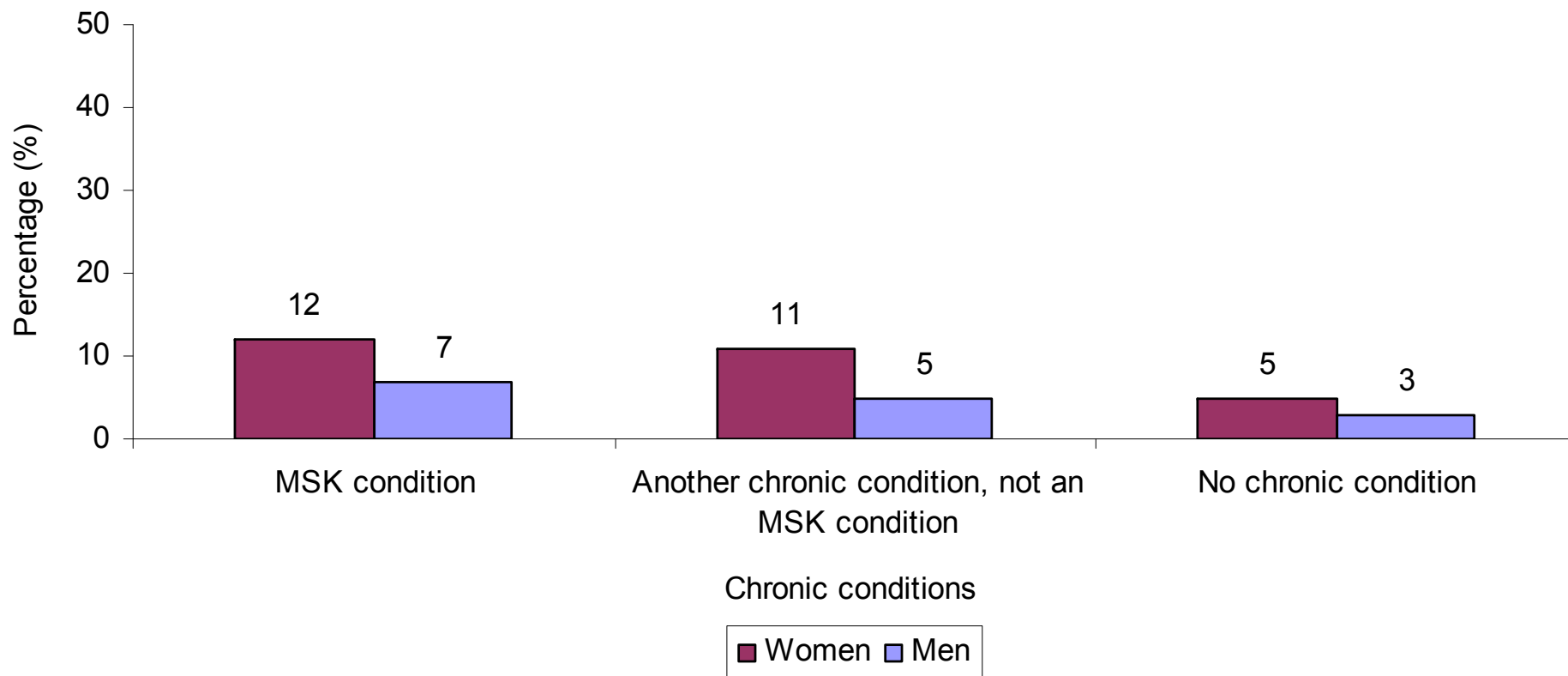


Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1) and 2007

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

*Interpret with caution due to high sampling variability

Age-standardized percentage of adults aged 25 and older who had probable depression[‡] among those with and without an MSK condition[^], by sex, in Ontario, 2000/01

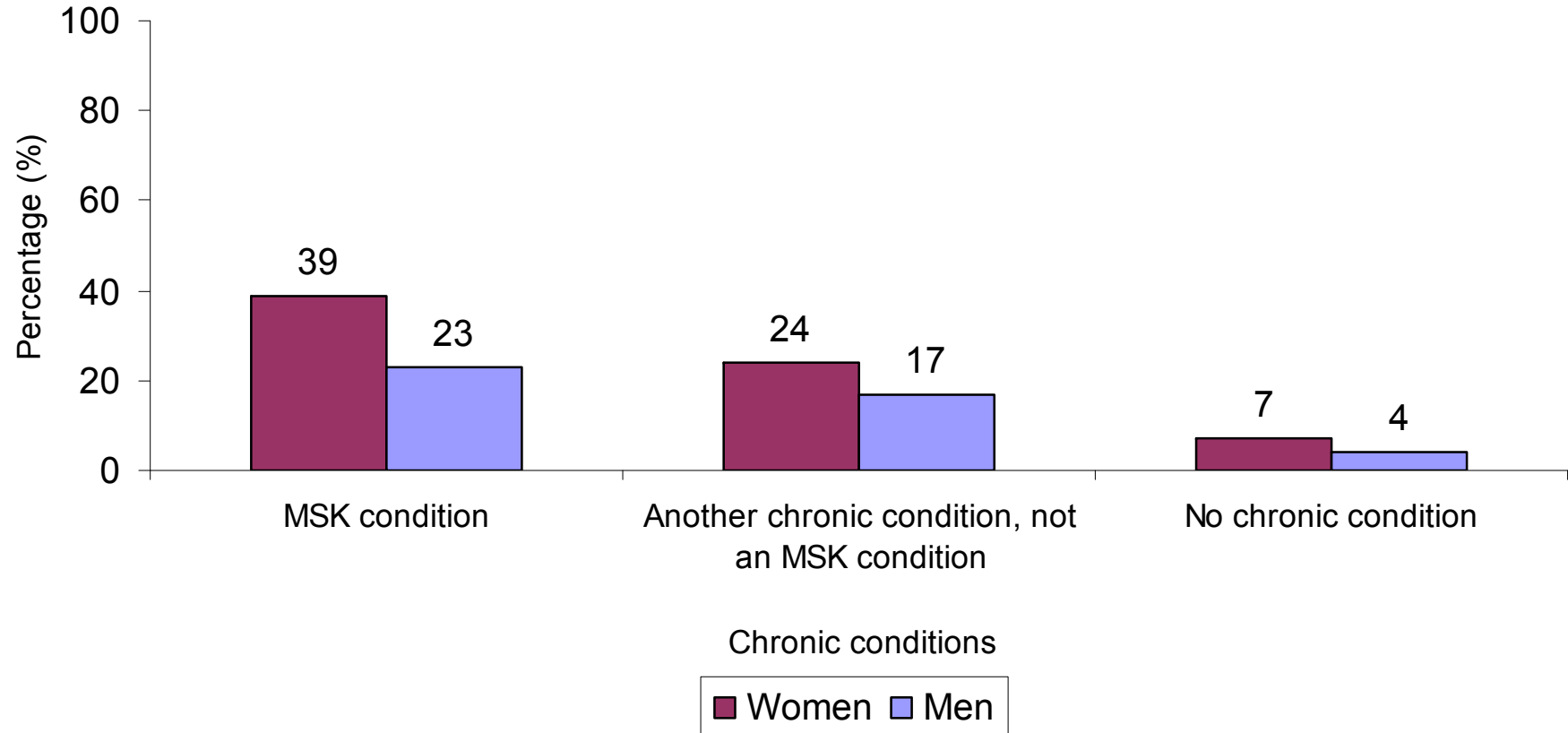


Data source: Canadian Community Health Survey (CCHS), 2000/01 (Cycle 1.1)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

[‡] Composite International Diagnostic Interview-Short Form for Major Depression score of ≥ 0.9

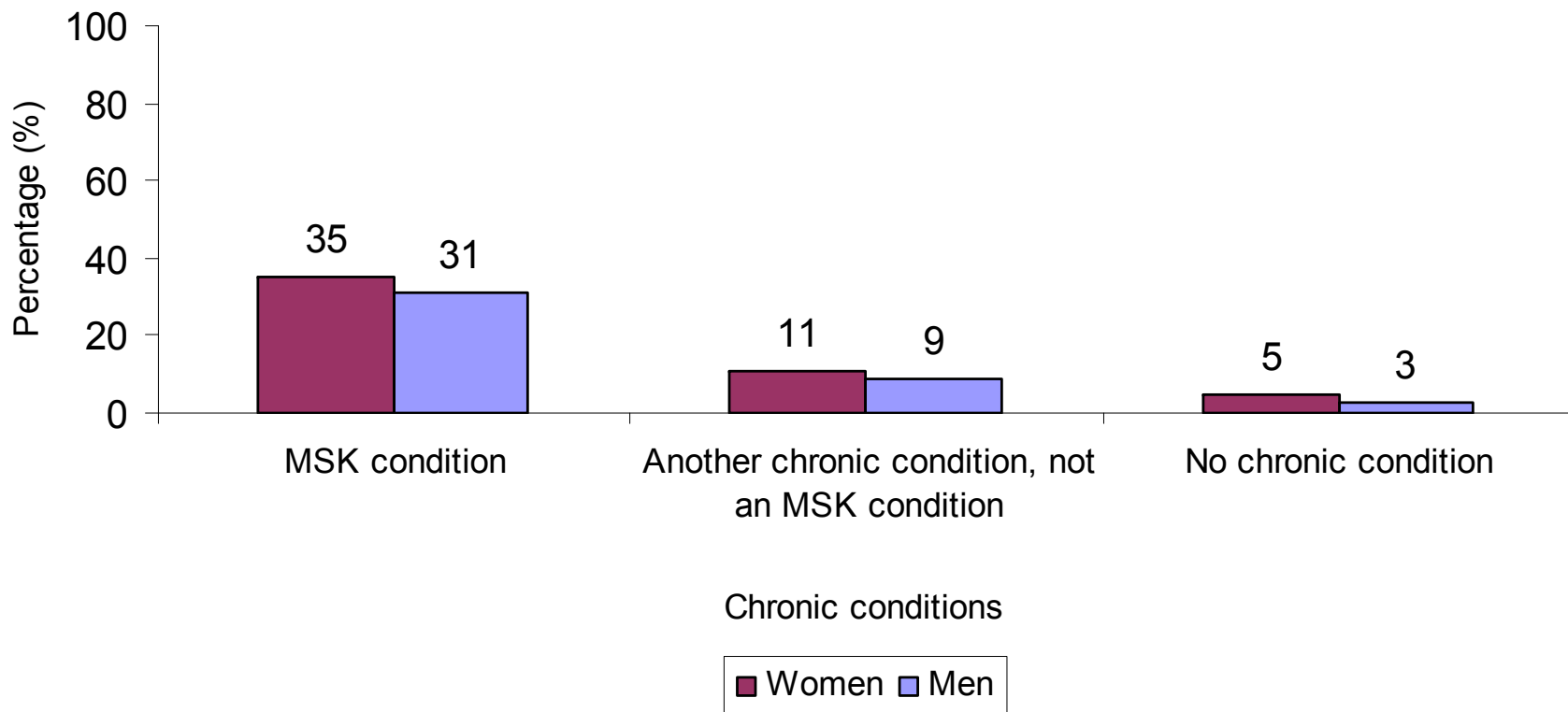
Age-standardized percentage of adults aged 25 and older who reported having limitations in IADLs (instrumental activities of daily living) and/or ADLs (activities of daily living) among those with and without an MSK condition[^], by sex, in Ontario, 2005



Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

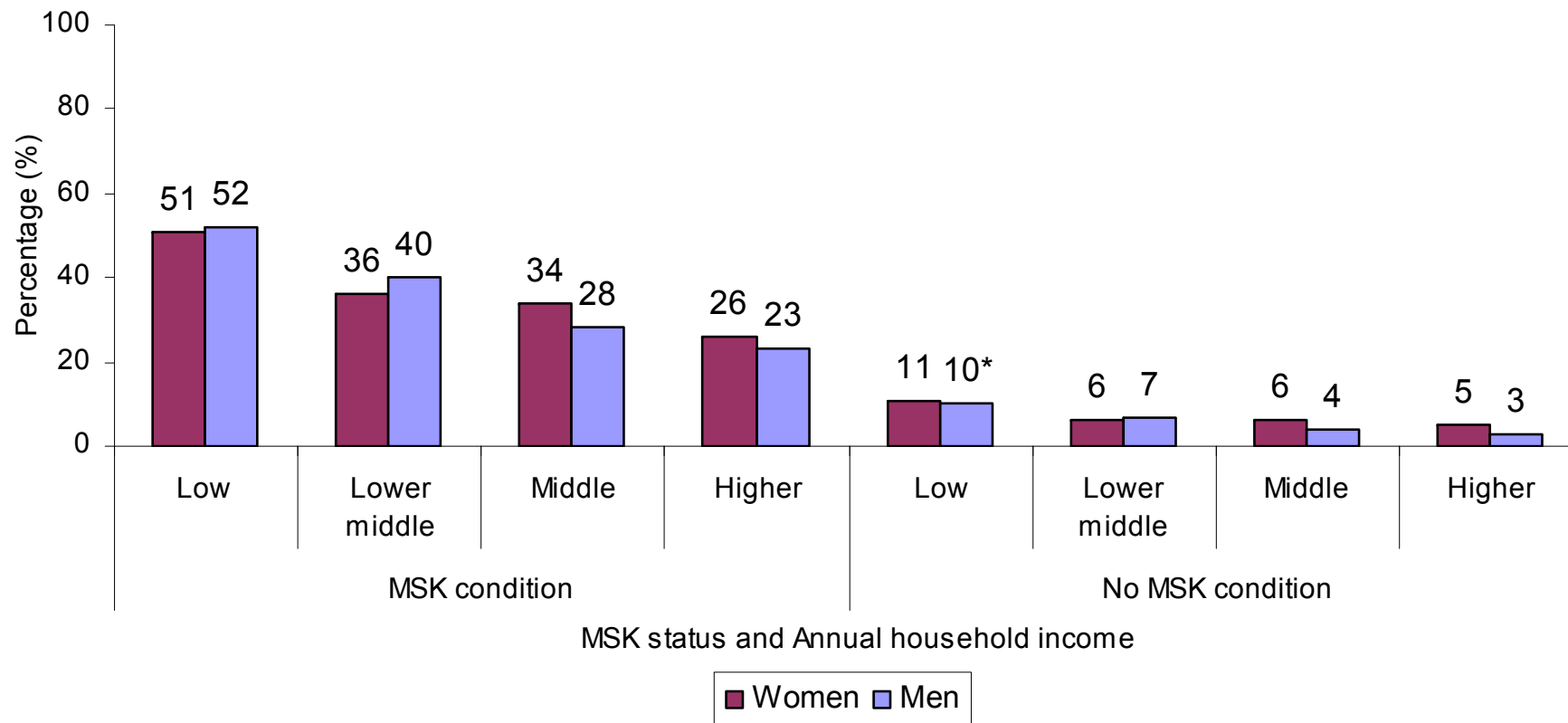
Age-standardized percentage of adults aged 25 and older who reported that their activities were prevented due to pain or discomfort among those with and without an MSK condition[^], by sex, in Ontario, 2000/01



Data source: Canadian Community Health Survey (CCHS), 2000/01 (Cycle 1.1)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

Age-standardized percentage of adults aged 25 and older who reported that their activities were prevented due to pain or discomfort among those with and without an MSK condition[^], by sex and annual household income, in Ontario, 2000/01

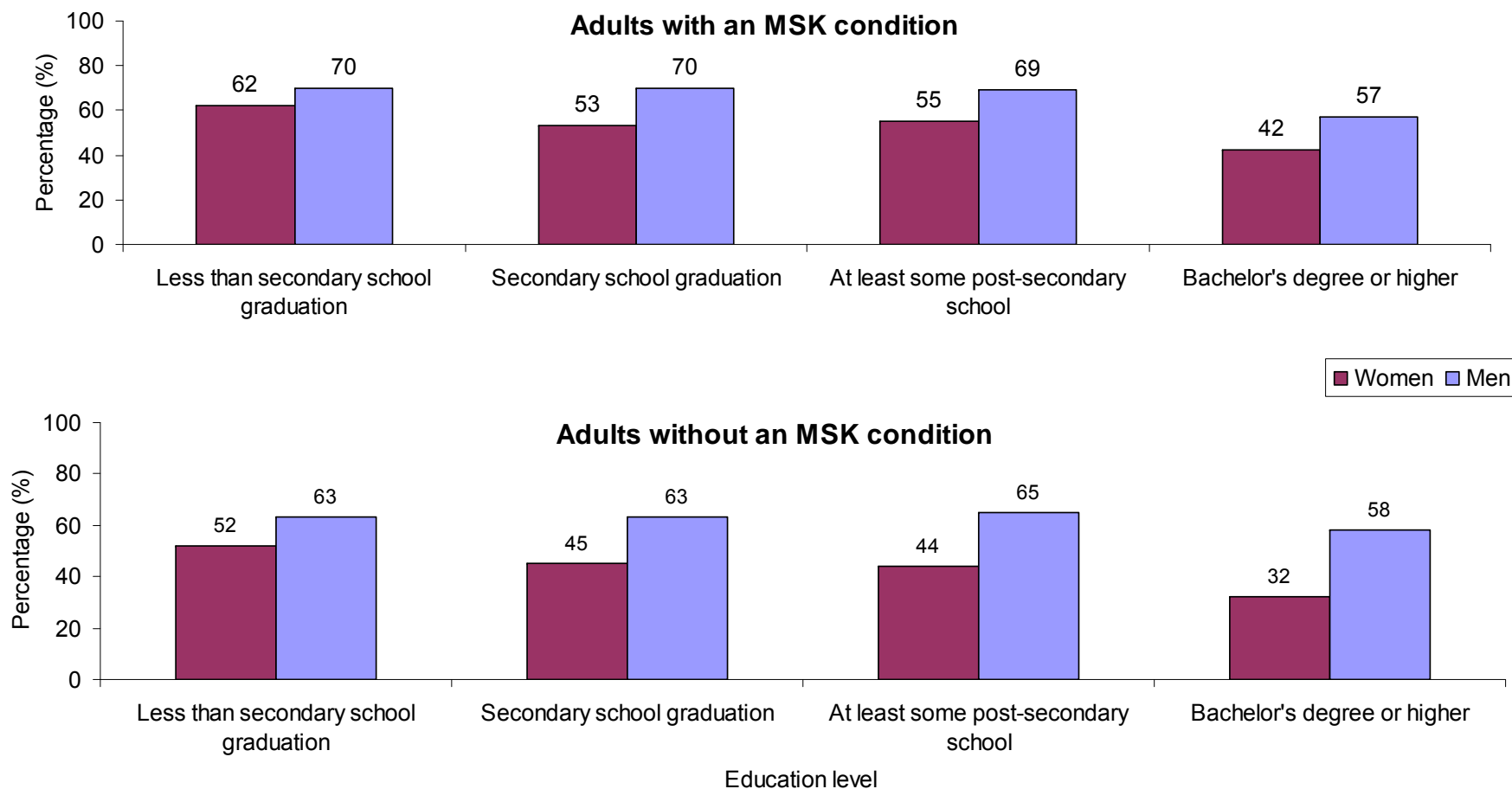


Data source: Canadian Community Health Survey (CCHS), 2000/01 (Cycle 1.1)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

* Interpret with caution due to high sampling variability

Age-standardized percentage of adults aged 25 and older who reported being overweight or obese[‡], among those with and without an MSK condition[^], by sex and education level, in Ontario, 2005 and 2007

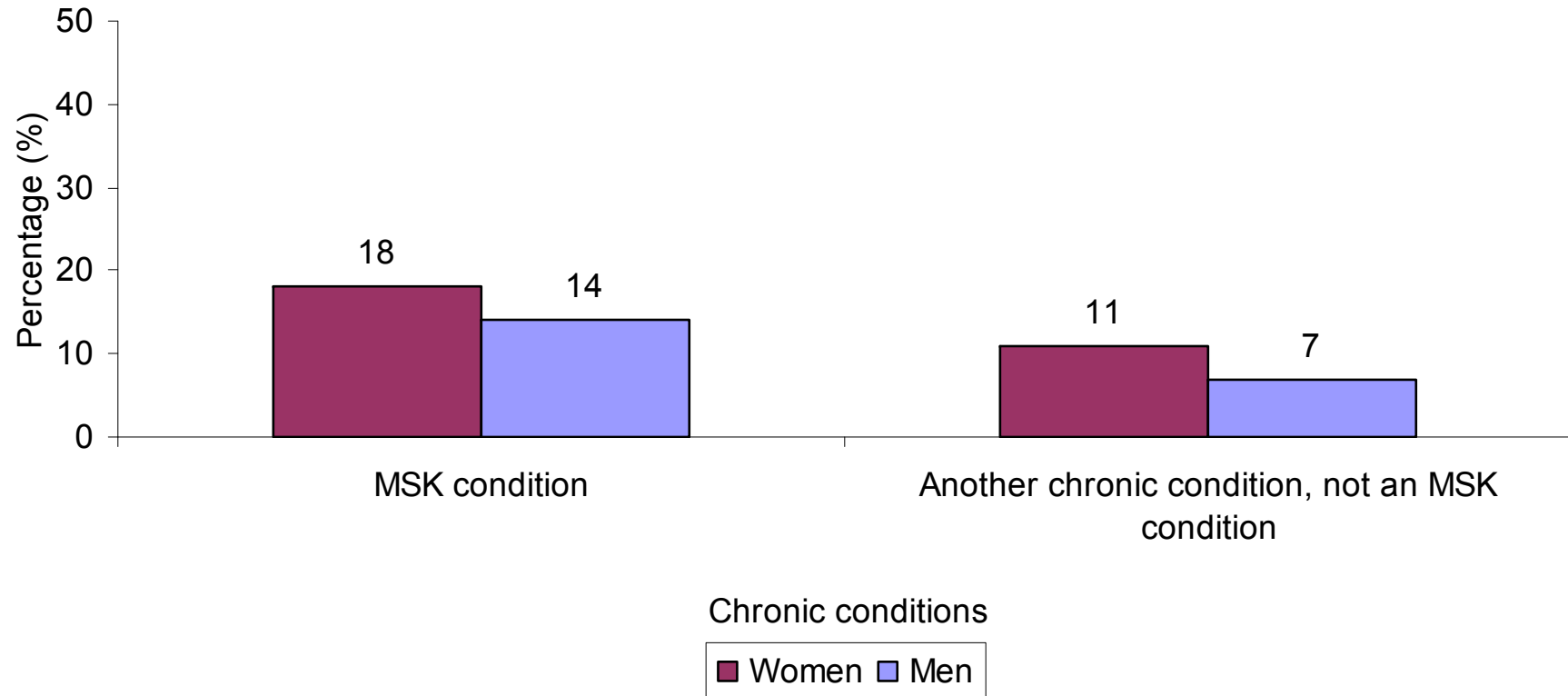


Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1) and 2007

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

[‡]Body Mass Index (BMI) ≥ 25 calculated from self-reported height and weight

Age-standardized percentage of adults aged 25 and older with a chronic condition who reported taking two or more types of medication[‡] among those with and without an MSK condition[^], by sex, in Ontario, 2000/01

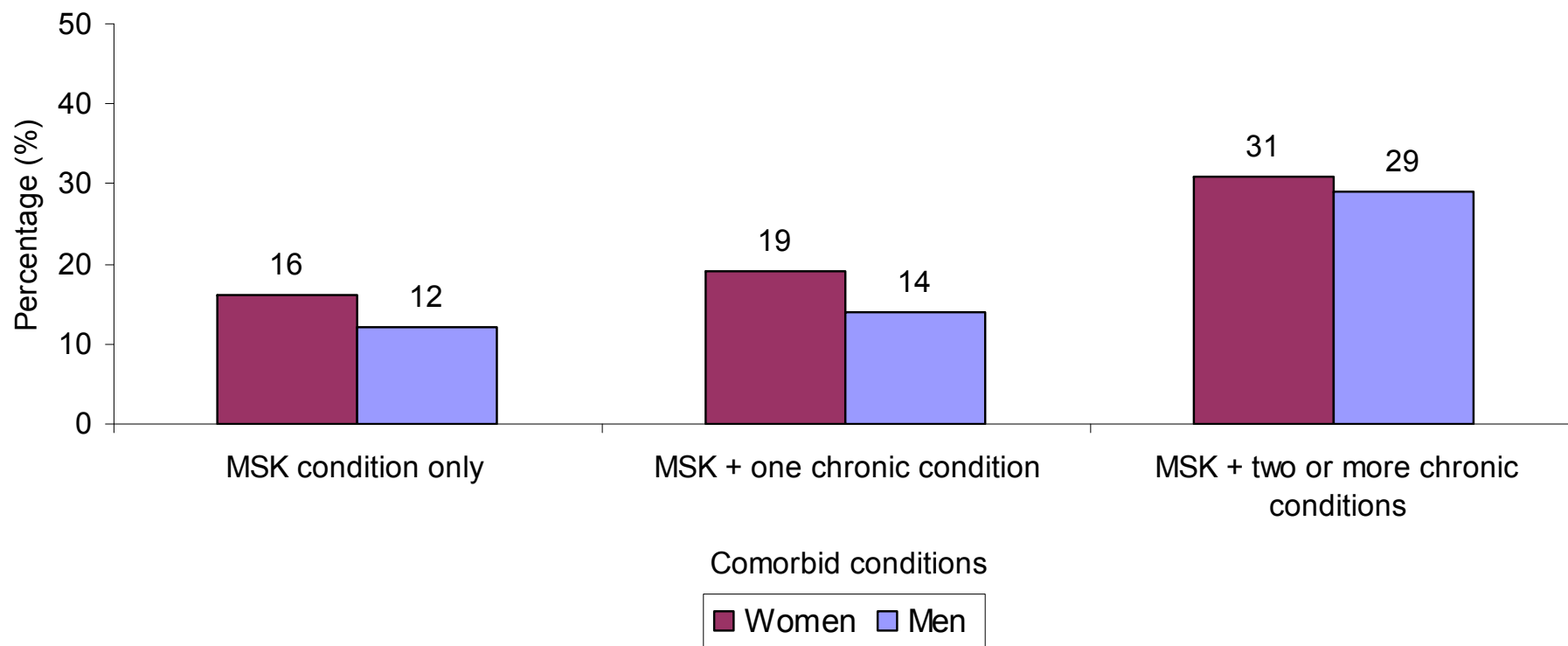


Data source: Canadian Community Health Survey (CCHS), 2000/01 (Cycle 1.1)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

[‡] Medications included pain relievers (narcotic and/or non-narcotic) and/or anti-depressants

Age-standardized percentage of adults aged 25 and older with an MSK condition[^] who reported taking two or more types of medication[¥], by sex and number of chronic conditions, in Ontario, 2000/01

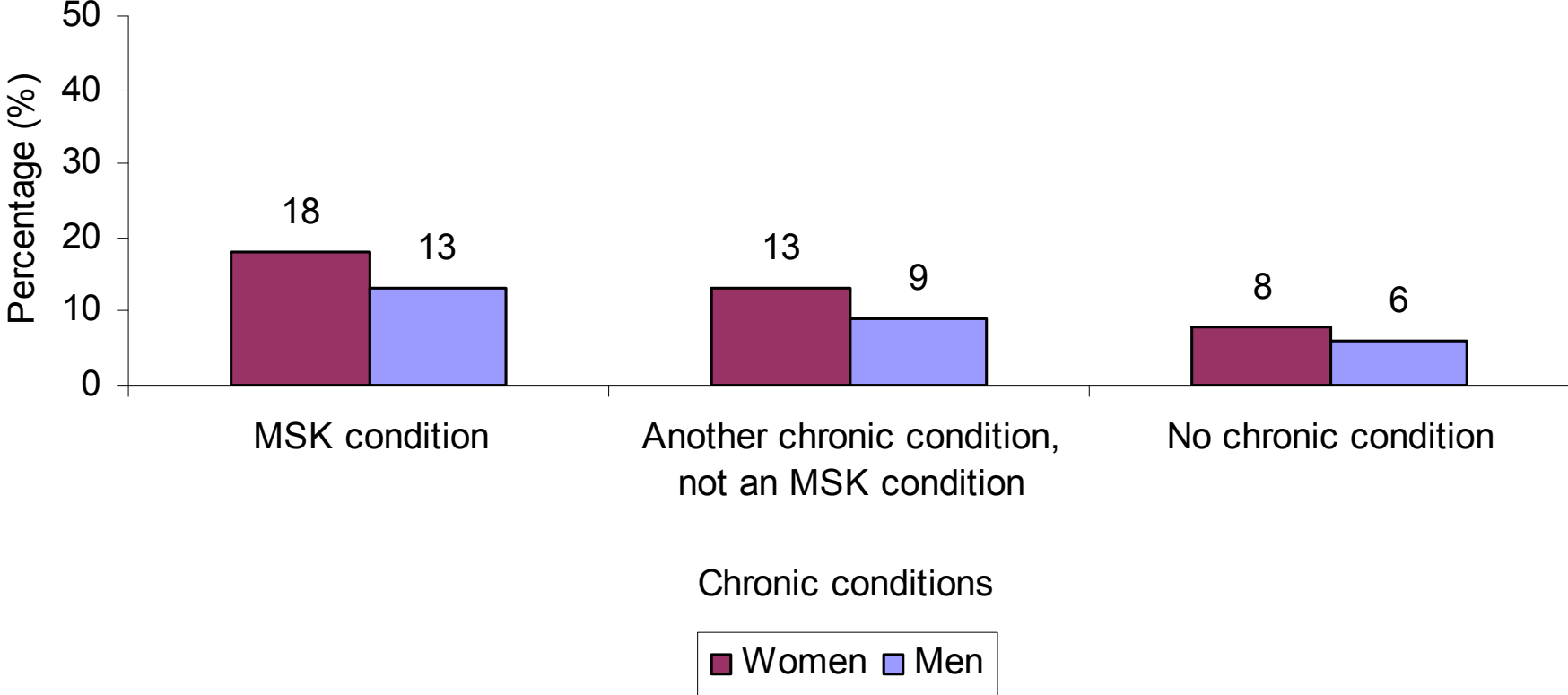


Data source: Canadian Community Health Survey (CCHS), 2000/01 (Cycle 1.1)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

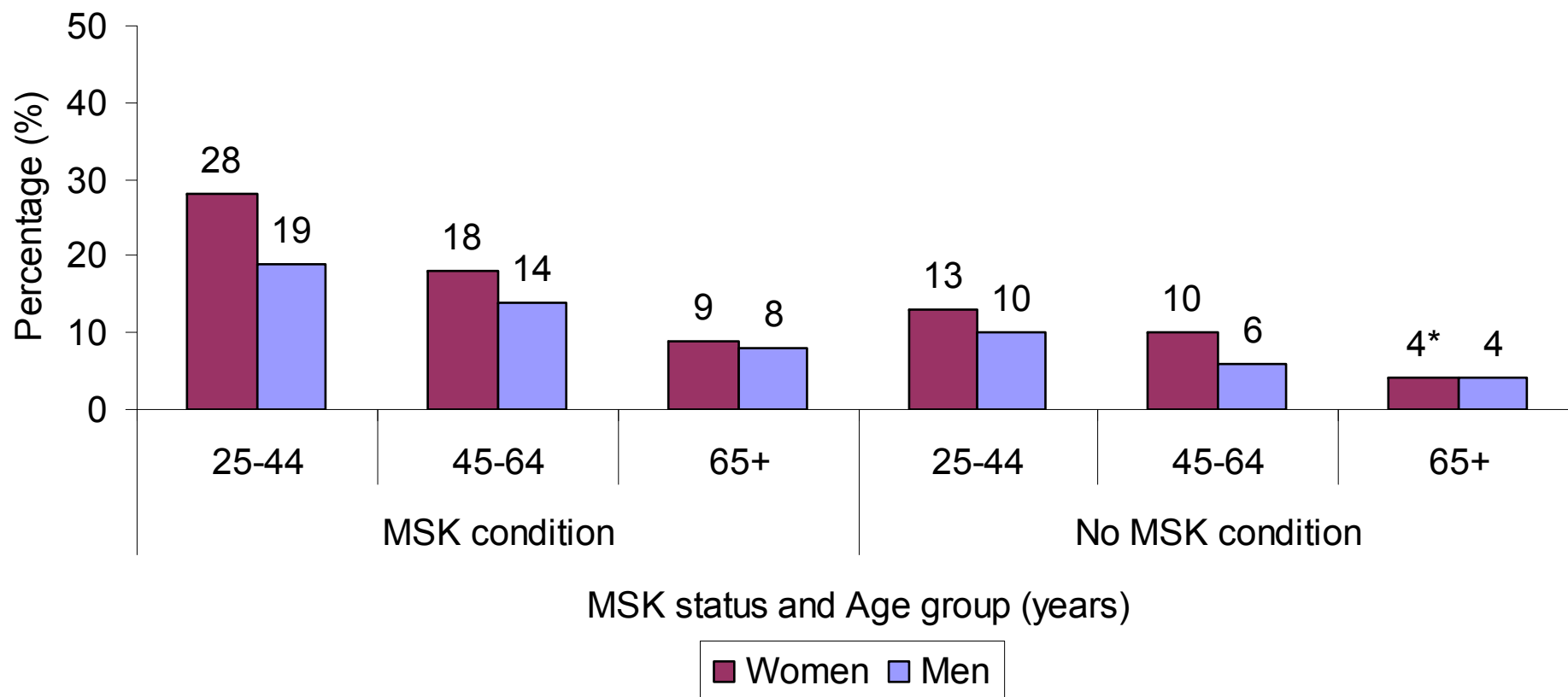
[¥] Medications included pain relievers (narcotic and/or non-narcotic) and/or anti-depressants

Age-standardized percentage of adults aged 25 and older who reported having unmet health care needs among those with and without an MSK condition[^], by sex, in Ontario, 2005



Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1)
[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

Percentage of adults aged 25 and older who reported having unmet health care needs among those with and without an MSK condition[^], by sex and age group, in Ontario, 2005

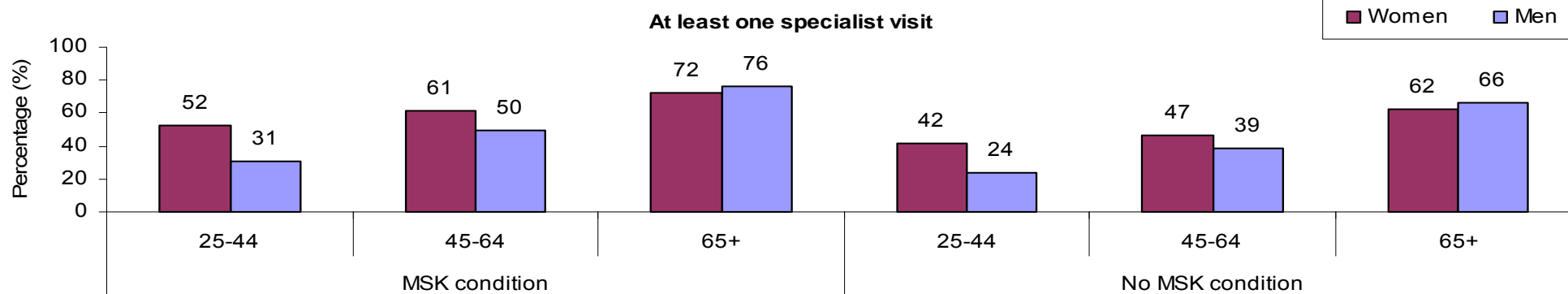
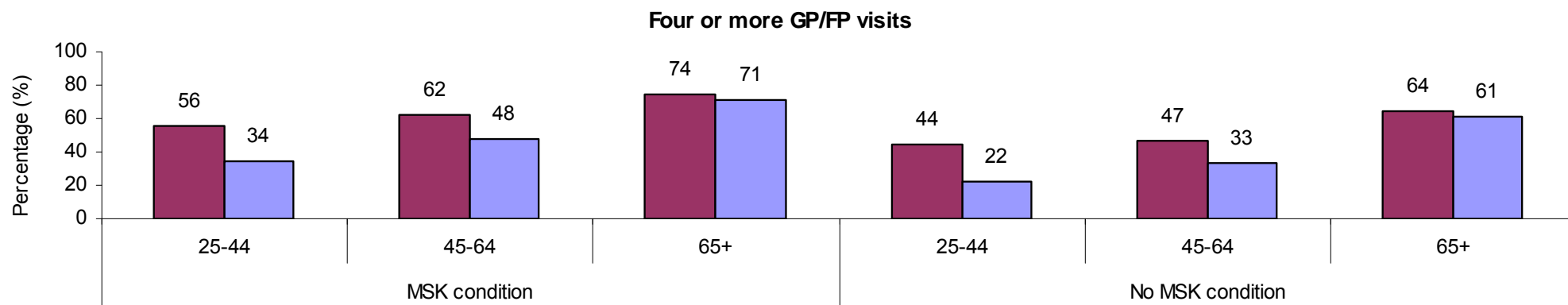


Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

* Interpret with caution due to high sampling variability

Percentage of adults aged 25 and older who had at least four visits to a GP/FP or at least one visit to a specialist within one year, among those with and without an MSK condition[^], by sex and age group, in Ontario, 2000/01

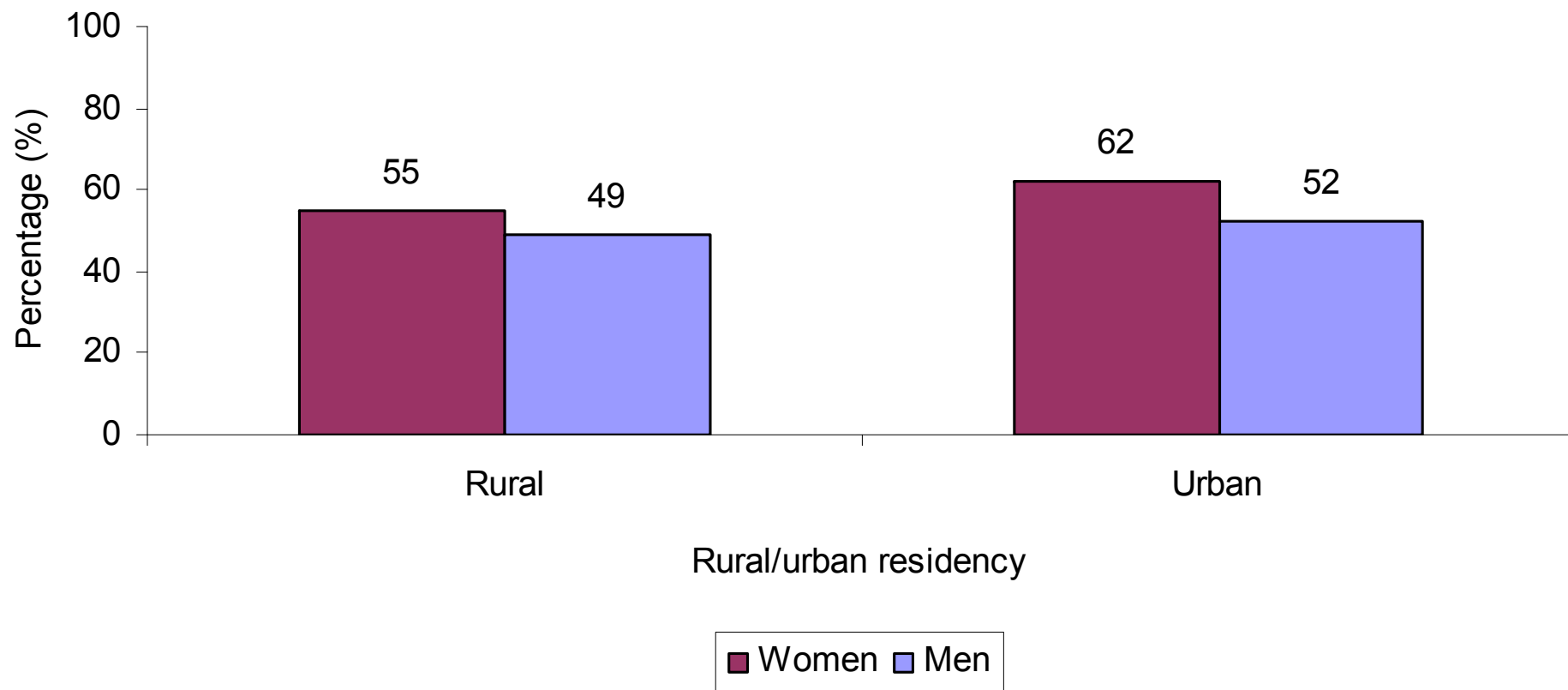


MSK status and Age group (years)

Data sources: Canadian Community Health Survey (CCHS), 2000/01 (Cycle 1.1); Ontario Health Insurance Plan (OHIP)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

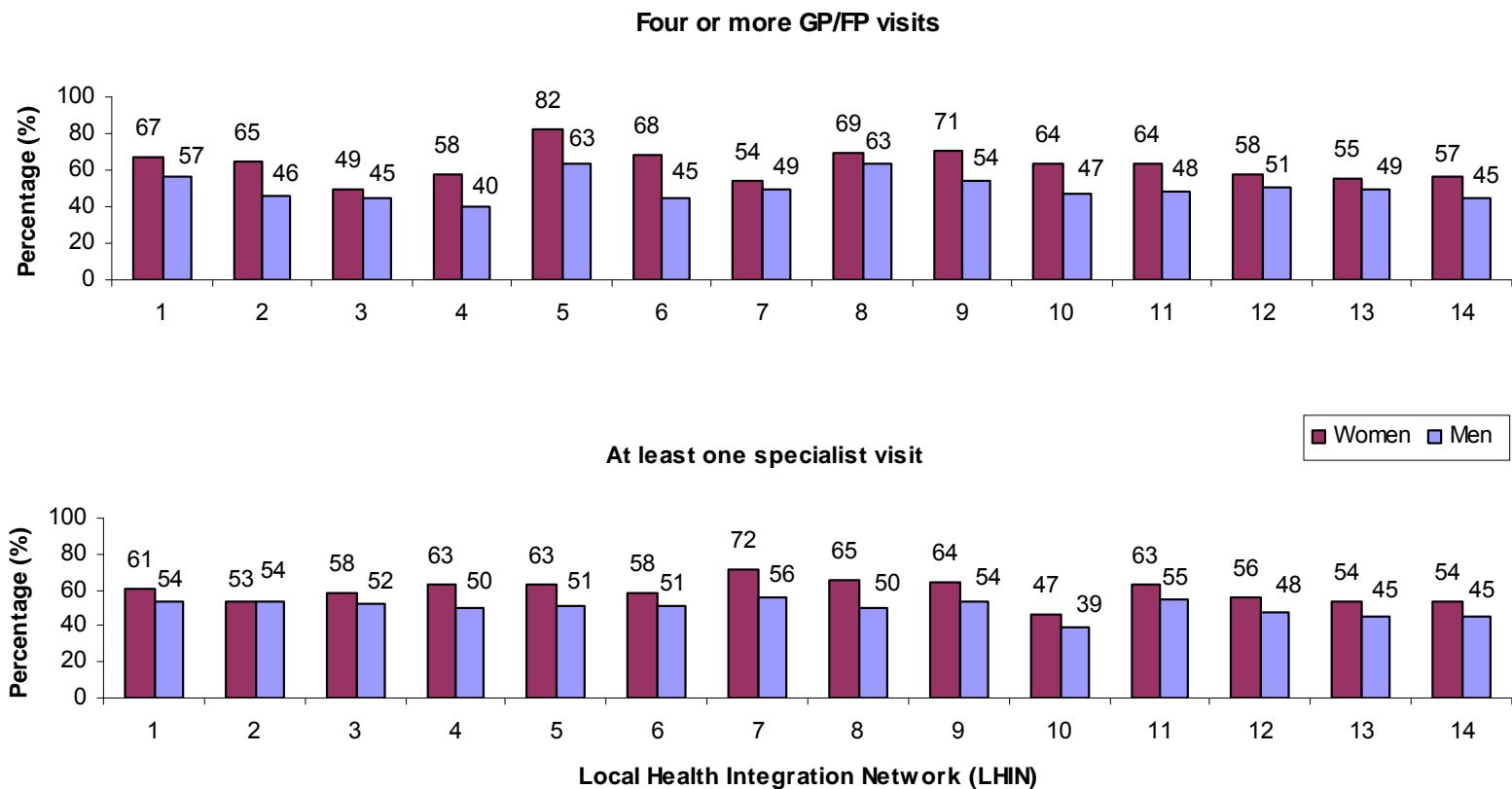
Age-standardized percentage of adults aged 25 and older with an MSK condition[^] who had at least one visit to a specialist within one year, by sex and rural/urban residency, in Ontario, 2000/01



Data sources: Canadian Community Health Survey (CCHS), 2000/01 (Cycle 1.1); Ontario Health Insurance Plan (OHIP)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

Age-standardized percentage of adults aged 25 and older with an MSK condition[^] who had at least four visits to a GP/FP or at least one visit to a specialist within one year, by sex and LHIN, in Ontario, 2000/01

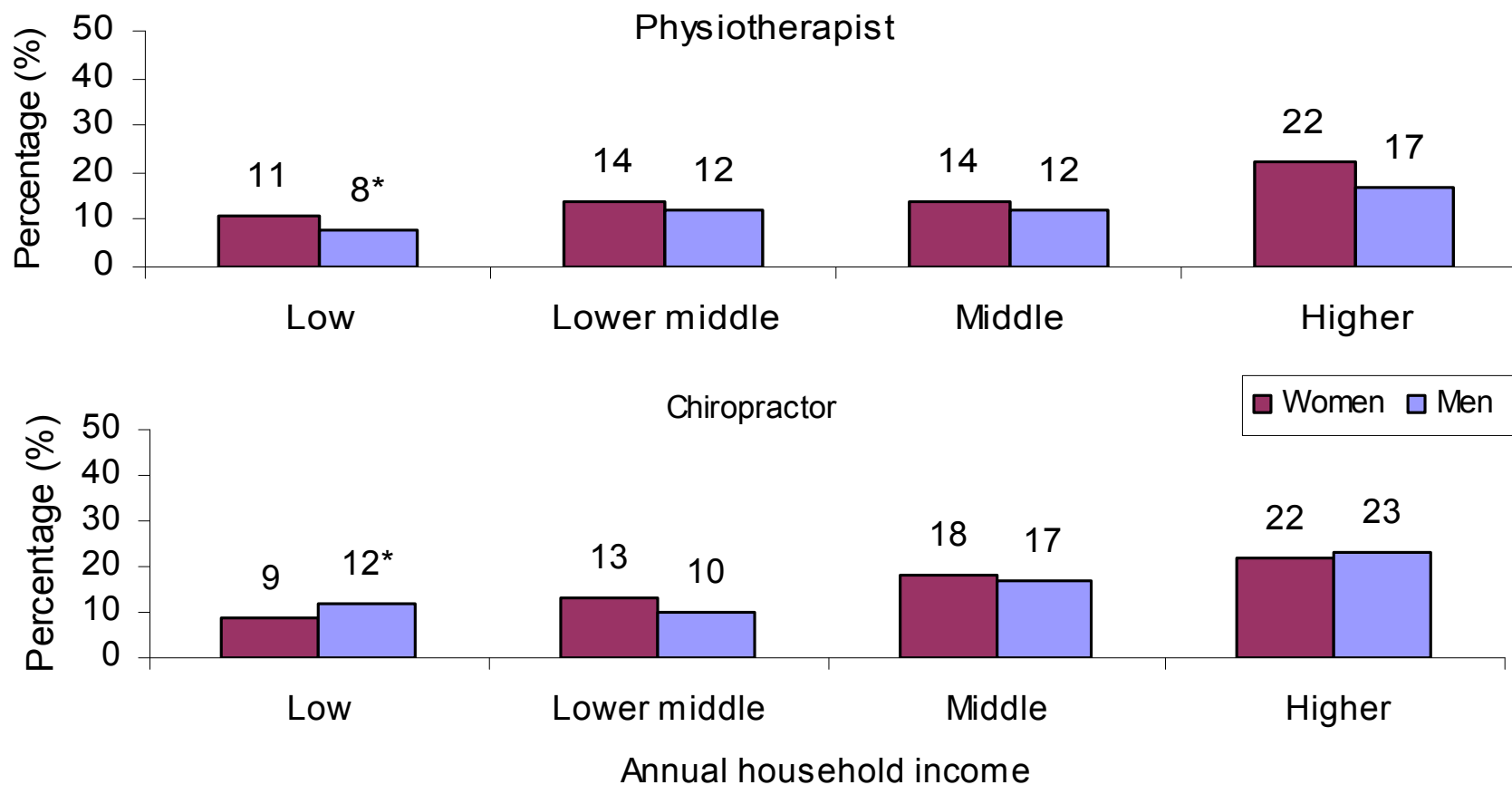


- LHIN**
1. Erie St. Clair
 2. South West
 3. Waterloo Wellington
 4. Hamilton Niagara Haldimand Brant
 5. Central West
 6. Mississauga Halton
 7. Toronto Central
 8. Central East
 10. South East
 11. Champlain
 12. North Simcoe Muskoka
 13. North East
 14. North West

Data source: Canadian Community Health Survey (CCHS), 2000/01 (Cycle 1.1); Ontario Health Insurance Plan (OHIP)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

Age-standardized percentage of adults aged 25 and older with an MSK condition[^] who saw a physiotherapist or chiropractor at least once in the past year, by sex and annual household income, in Ontario, 2005 and 2007

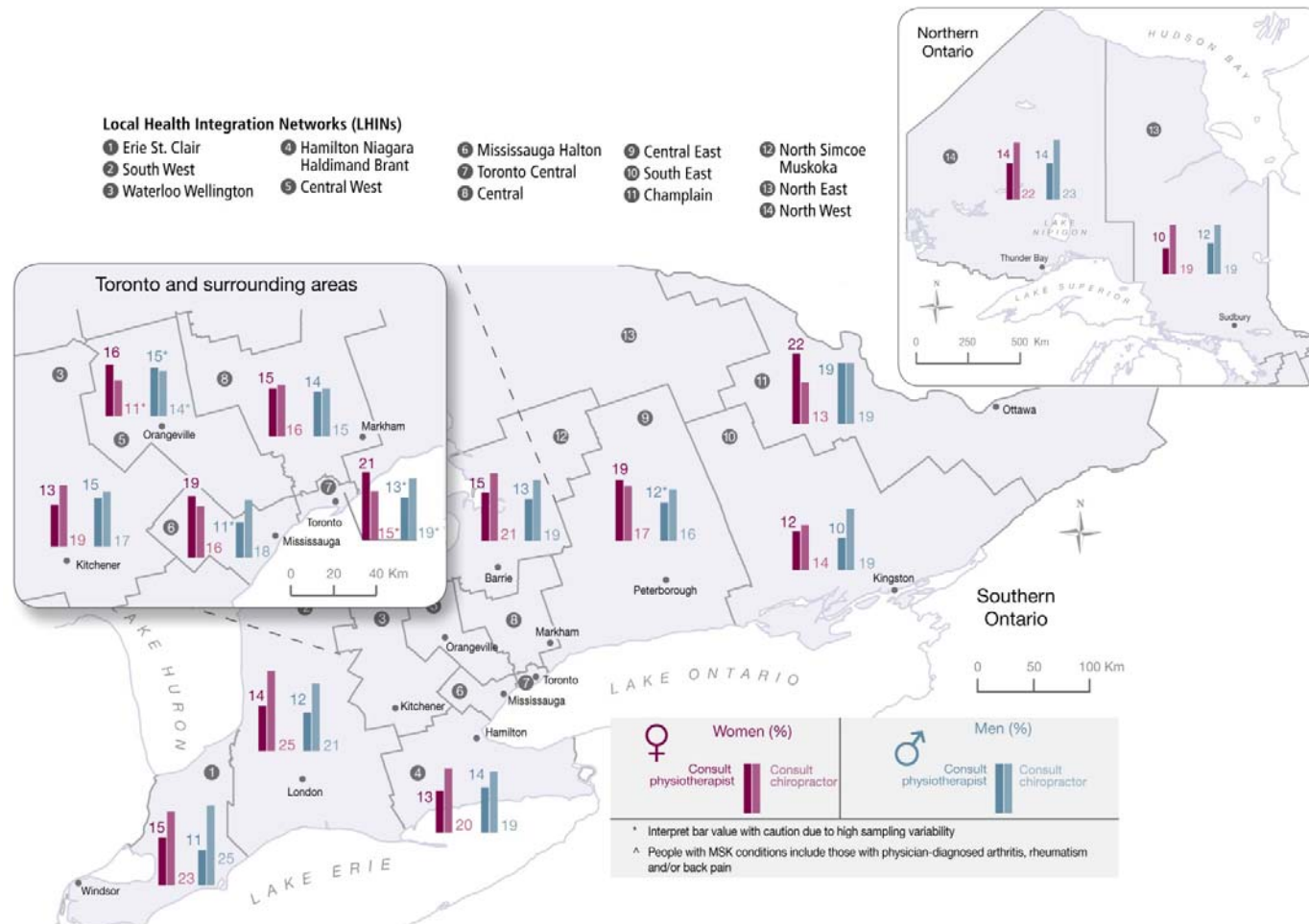


Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1) and 2007

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

* Interpret with caution due to high sampling variability

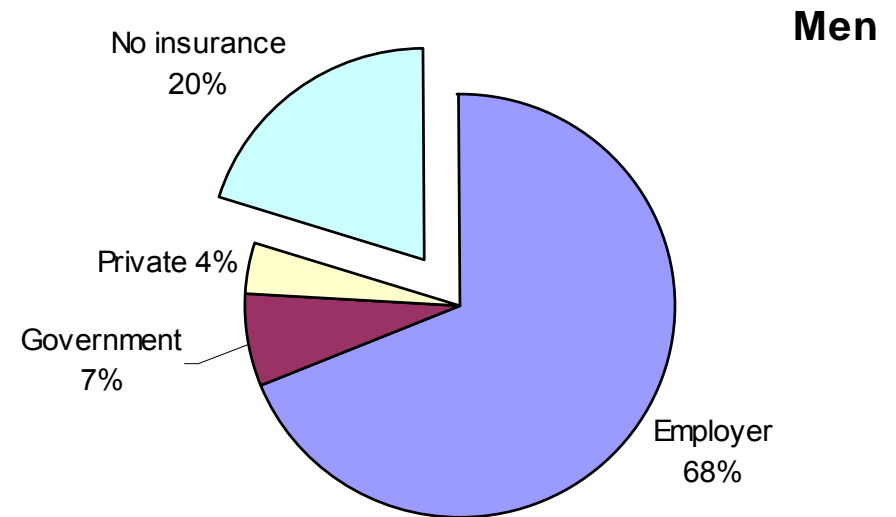
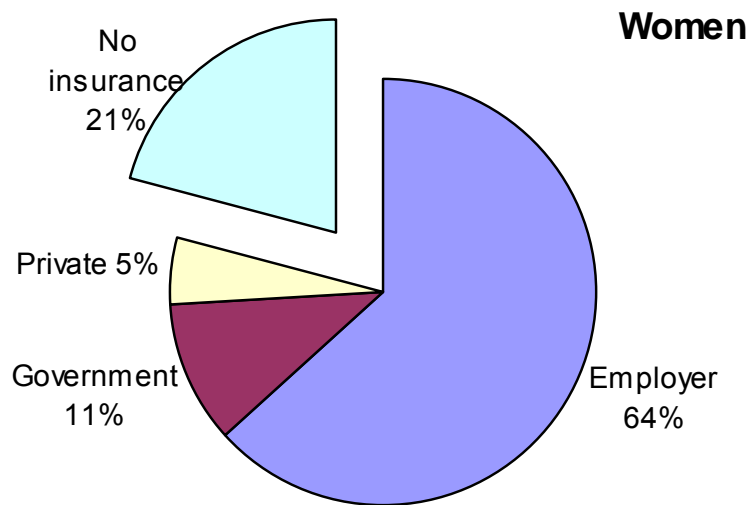
Age-standardized percentage of adults aged 25 and older with an MSK condition[^] who saw a physiotherapist or chiropractor at least once in the past year, by sex and LHIN, in Ontario, 2005 and 2007



Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1) and 2007

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

Type of prescription drug coverage held by adults aged 25-64 with an MSK condition[^], by sex, in Ontario, 2005

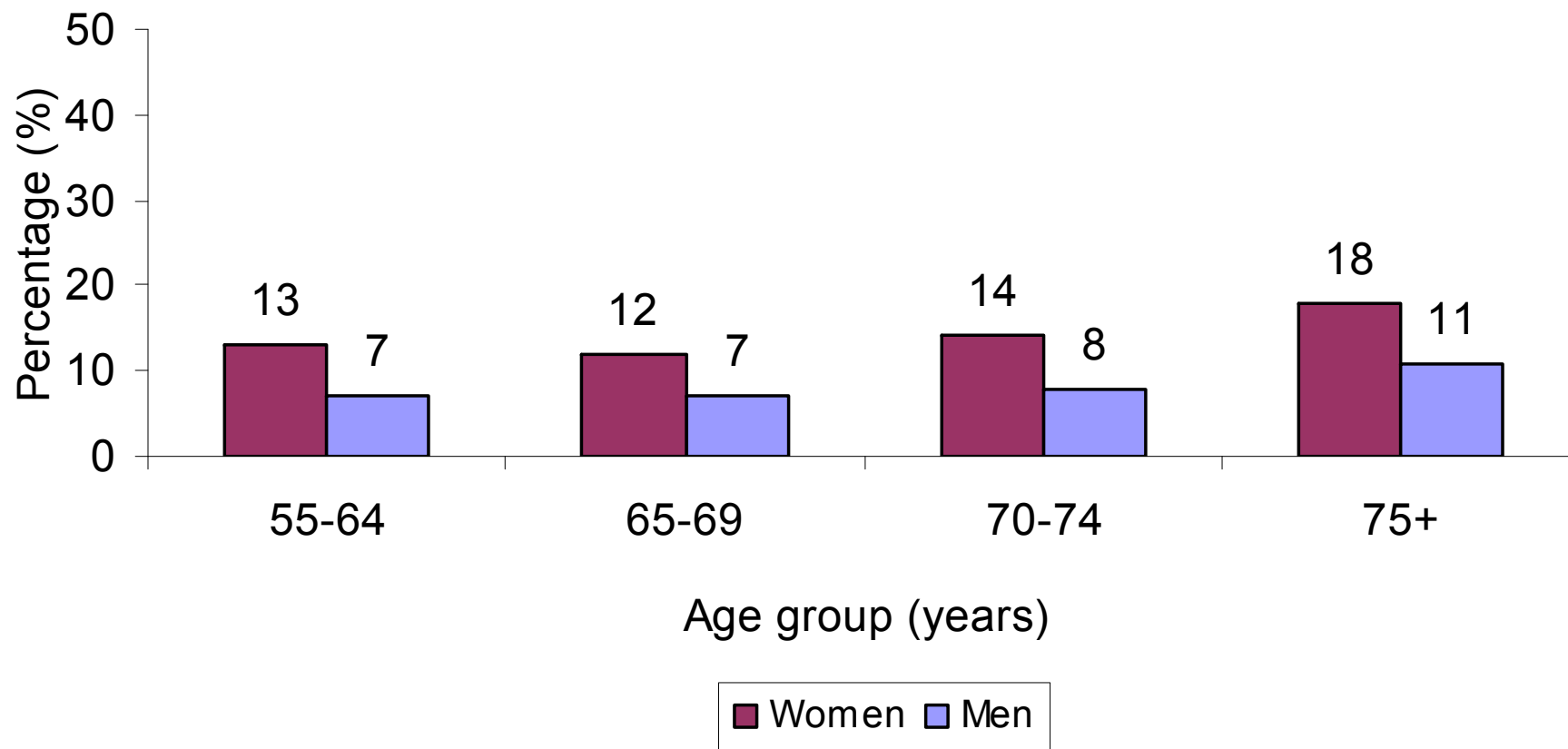


Data source: Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1)

[^]People with MSK conditions include those with physician-diagnosed arthritis, rheumatism and/or back pain

Osteoarthritis

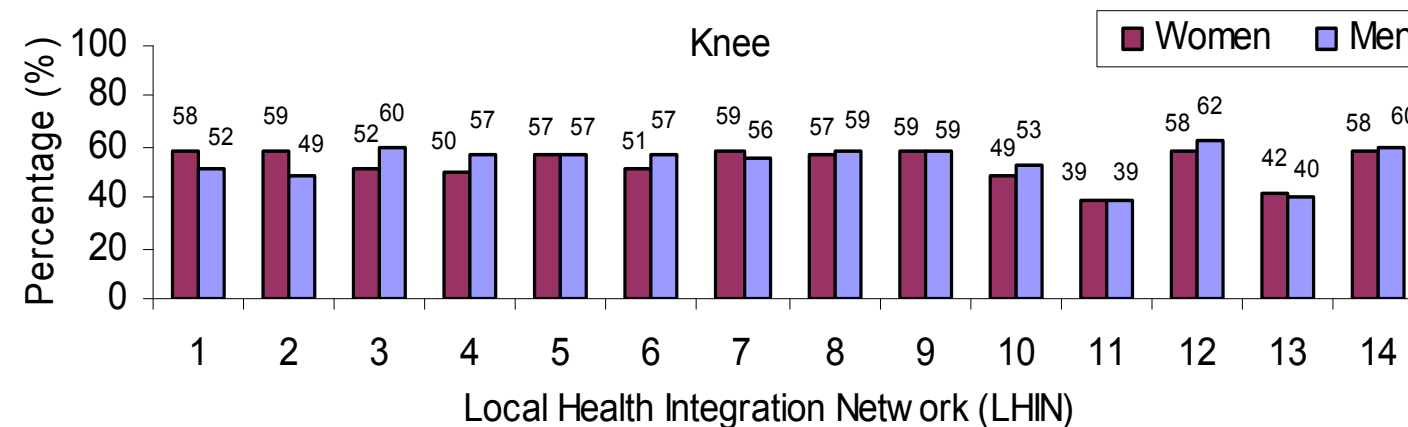
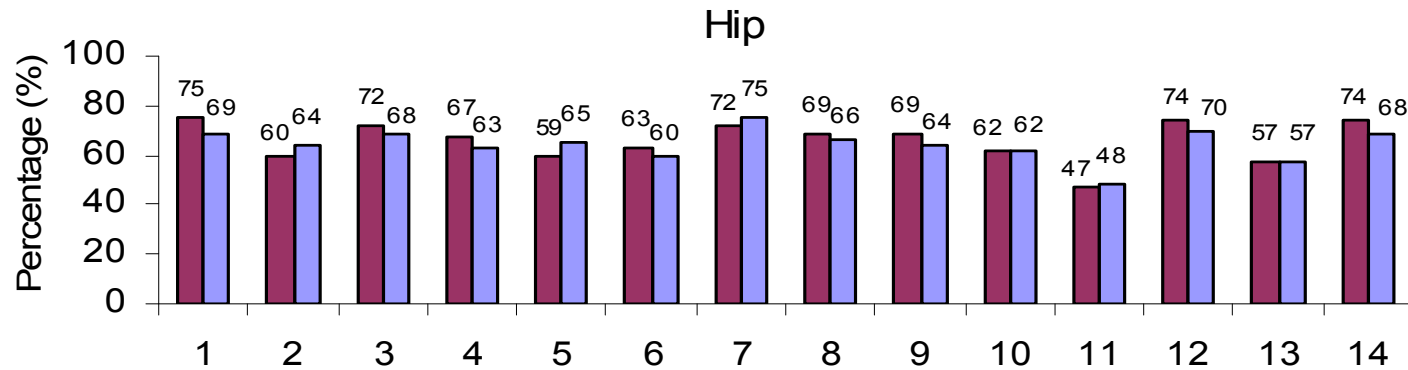
Percentage of adults aged 55 and older who had moderate to severe hip or knee osteoarthritis[^], by sex and age group, in two Ontario communities, 1995-1997



Data source: Ontario Hip/Knee Osteoarthritis Cohort

[^] Respondents were included if they reported difficulty in the previous three months with *each* of stair climbing, rising from a chair, standing and walking; *and* they reported swelling, pain or stiffness in any joint lasting at least six weeks; *and* they indicated on a diagram that a hip or knee had been 'troublesome'.

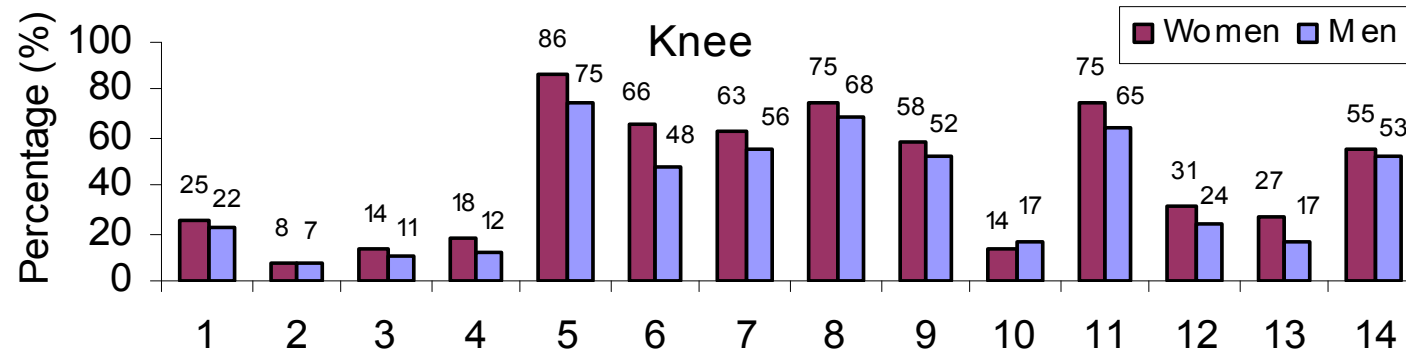
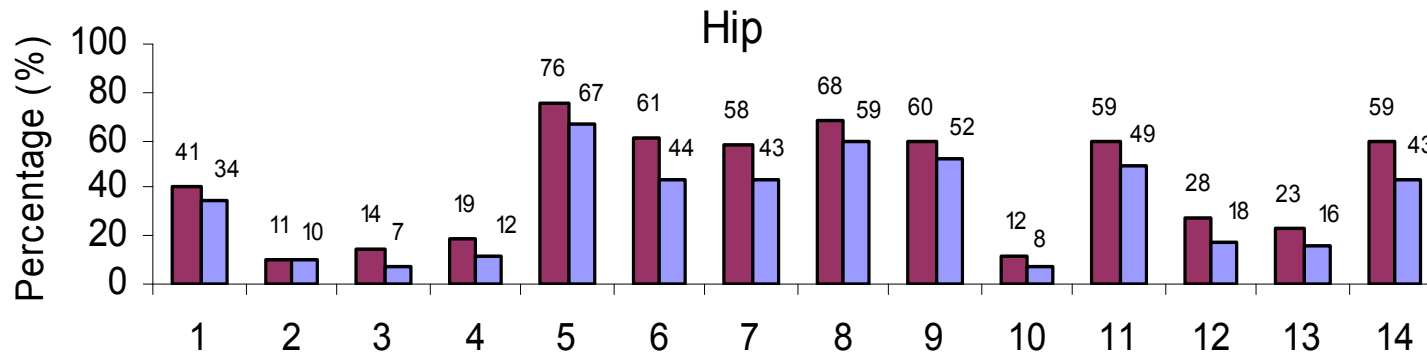
Percentage of adults aged 20 and older who received an elective primary total joint replacement within the recommended wait time of 26 weeks, by sex, procedure type and LHIN, in Ontario, 2007/08



LHIN

1. Erie St. Clair
2. South West
3. Waterloo Wellington
4. Hamilton Niagara Haldimand Brant
5. Central West
6. Mississauga Halton
7. Toronto Central
8. Central East
10. South East
11. Champlain
12. North Simcoe Muskoka
13. North East
14. North West

Age-standardized percentage of adults aged 20 and older who were admitted to inpatient rehabilitation[^] following a primary total joint replacement, by sex, procedure type and LHIN, in Ontario, 2006/07



LHIN

1. Erie St. Clair
2. South West
3. Waterloo Wellington
4. Hamilton Niagara Haldimand Brant
5. Central West
6. Mississauga Halton
7. Toronto Central
8. Central East
10. South East
11. Champlain
12. North Simcoe Muskoka
13. North East
14. North West

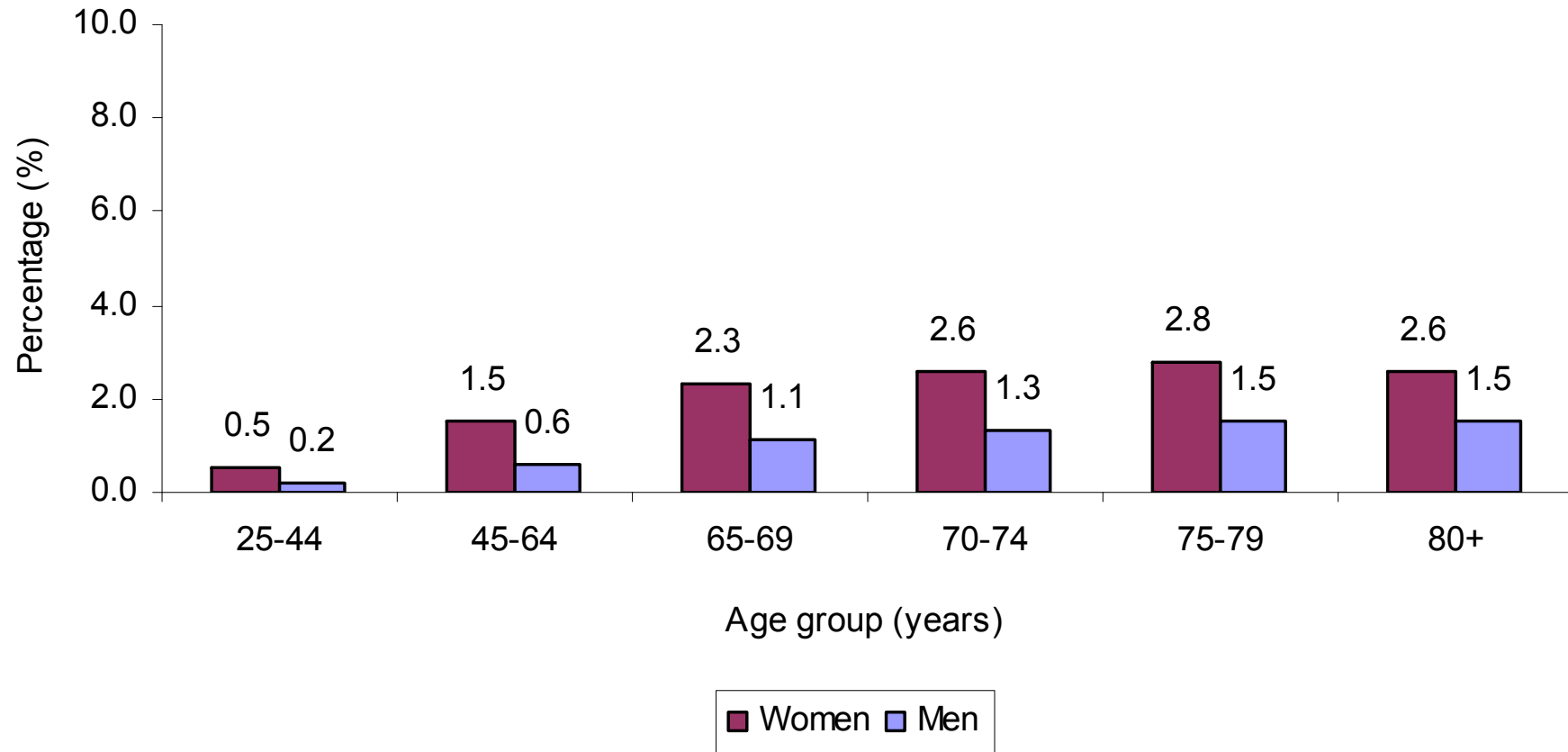
Local Health Integration Network (LHIN)

Data Sources: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); CIHI National Rehabilitation Reporting System

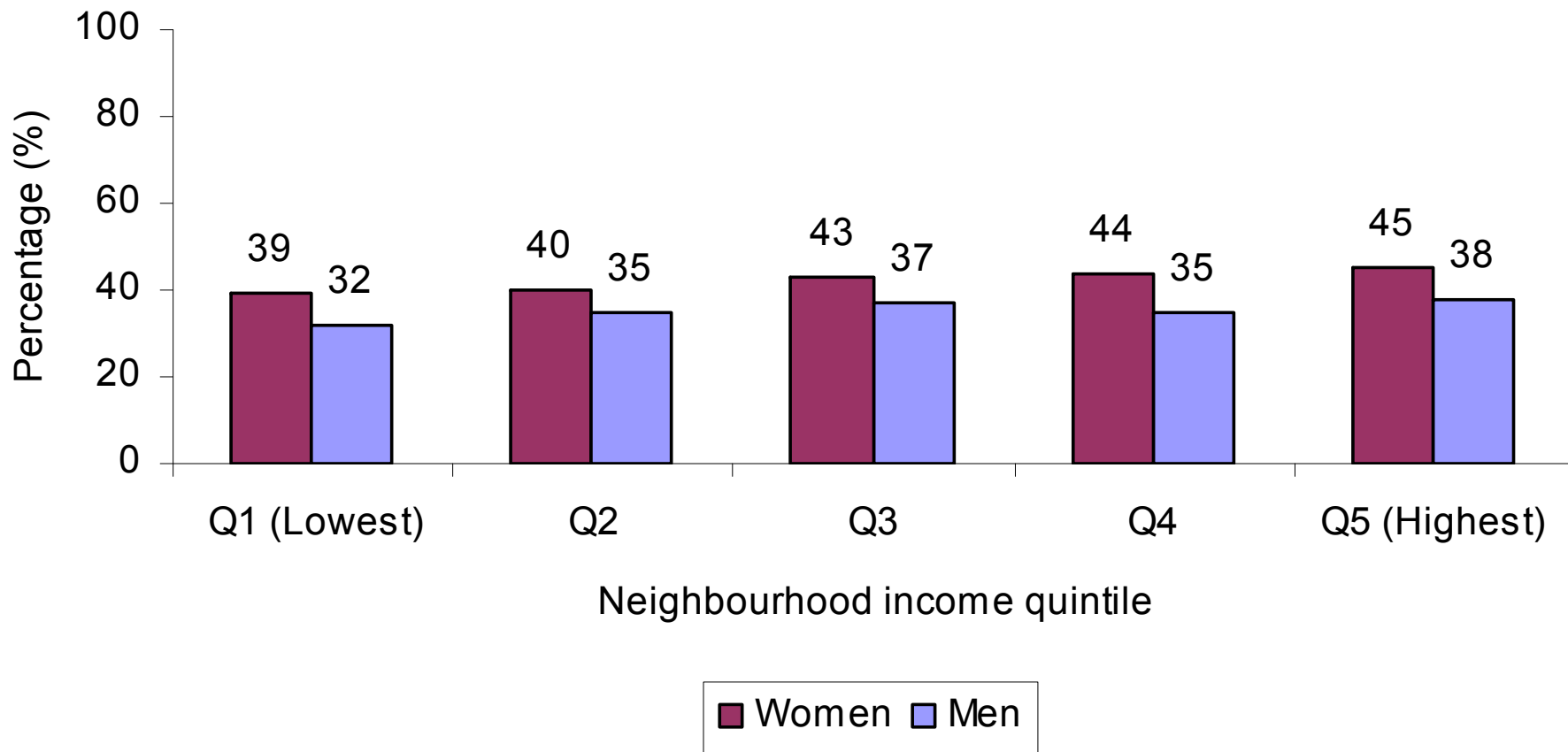
[^]Inpatient rehabilitation included admission to a rehabilitation hospital or to another acute care hospital within 14 days of discharge from hospital after a joint replacement.

Rheumatoid Arthritis

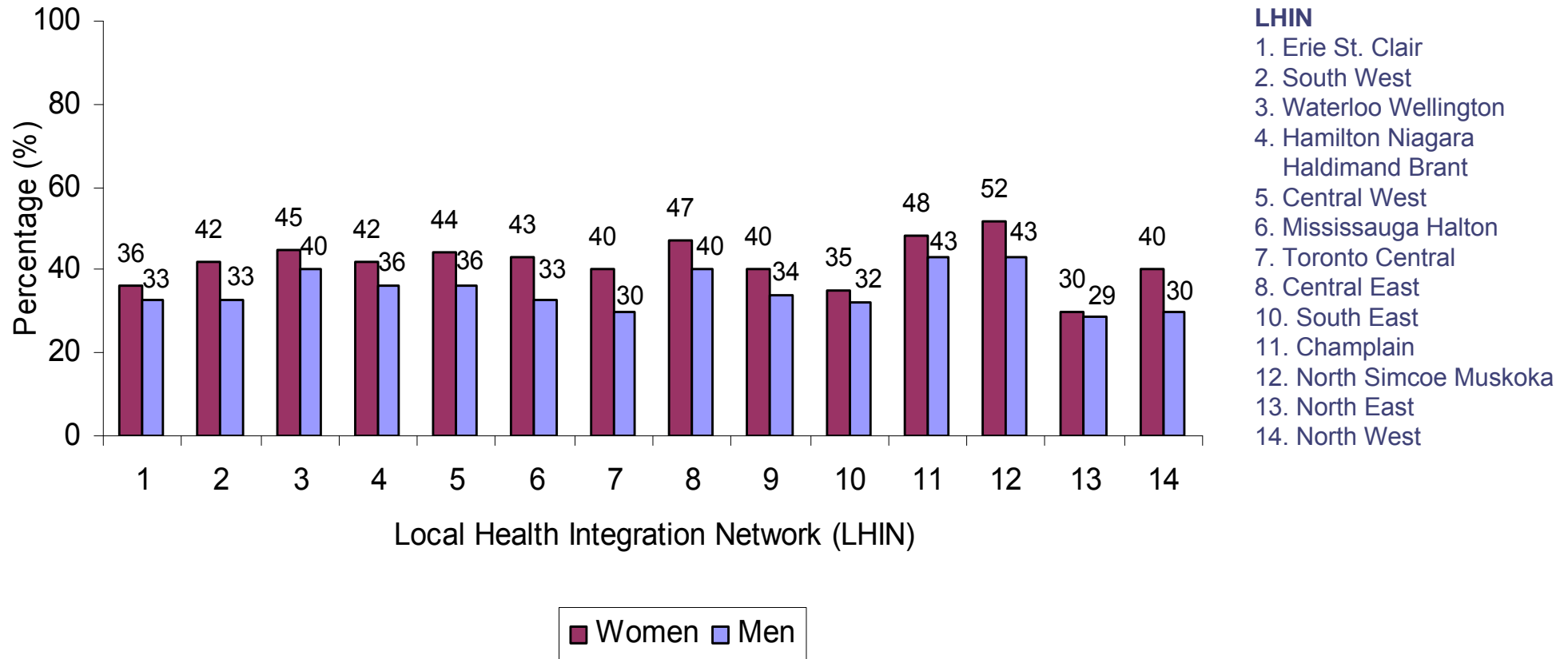
Percentage of adults aged 25 and older with rheumatoid arthritis, by sex and age group, in Ontario, April 1, 2005



Age-adjusted percentage of adults aged 25 and older with rheumatoid arthritis who were seen by a specialist[^] during a one year period, by sex and neighbourhood income quintile, 2005/06



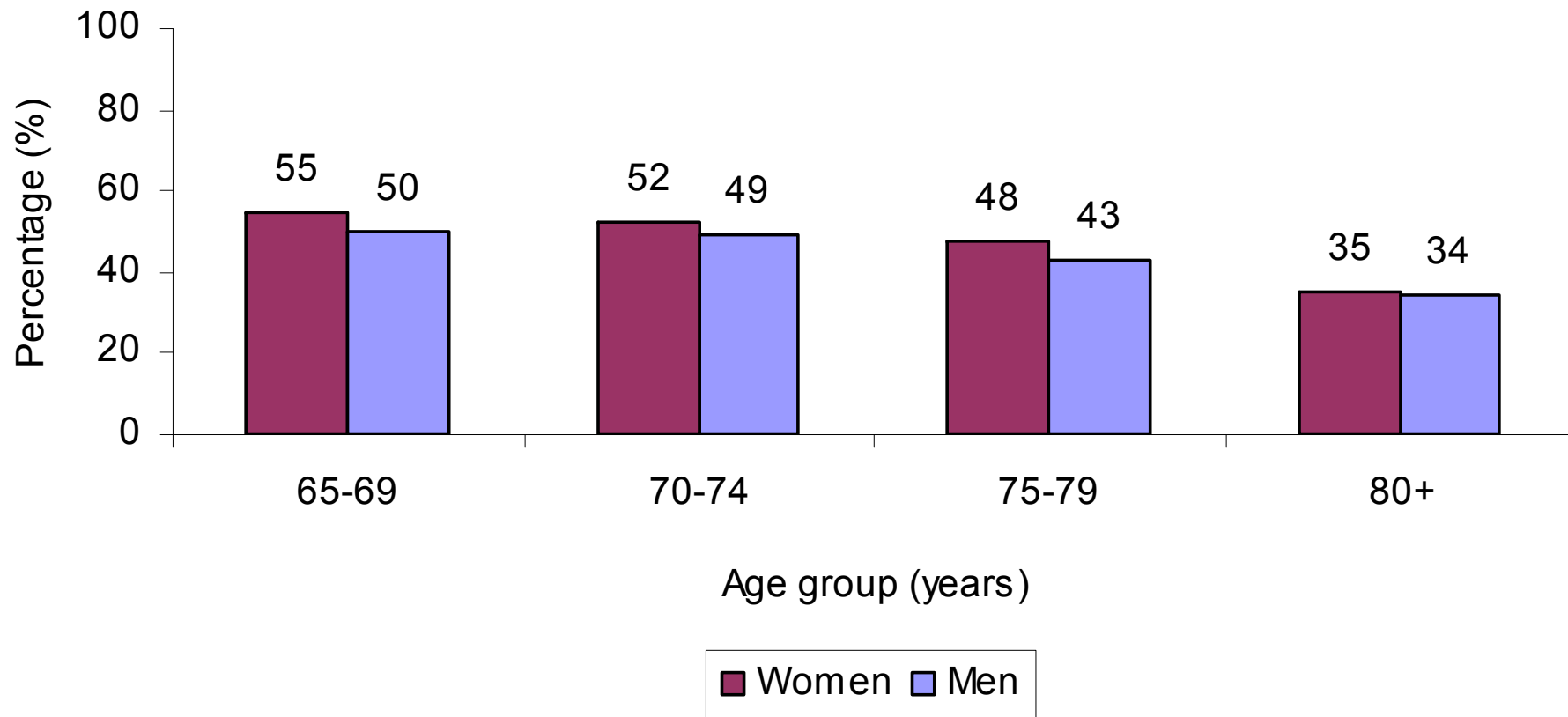
Age-adjusted percentage of adults aged 25 and older with rheumatoid arthritis who were seen by a specialist[^] during a one year period, by sex and Local Health Integration Network (LHIN), 2005/06



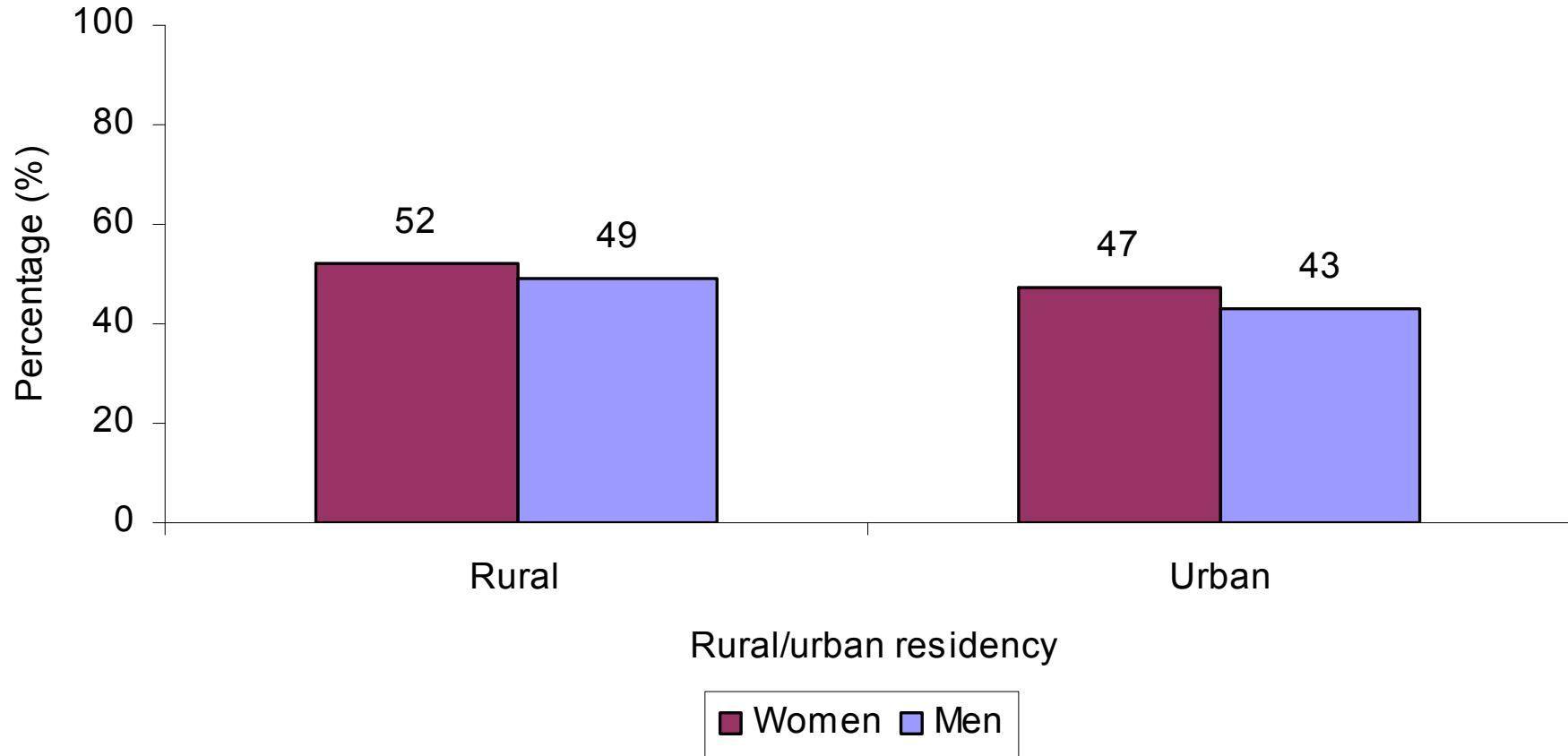
Data Sources: Ontario Health Insurance Plan (OHIP); ICES Physician Database (IPDB)

[^]Specialists include rheumatologists, orthopaedic surgeons, general internists and physical medicine specialists

Percentage of adults aged 65 and older with rheumatoid arthritis who filled a prescription for a disease modifying anti-rheumatic drug (DMARD) or biologic agent, by sex and age group, in Ontario, 2005/06

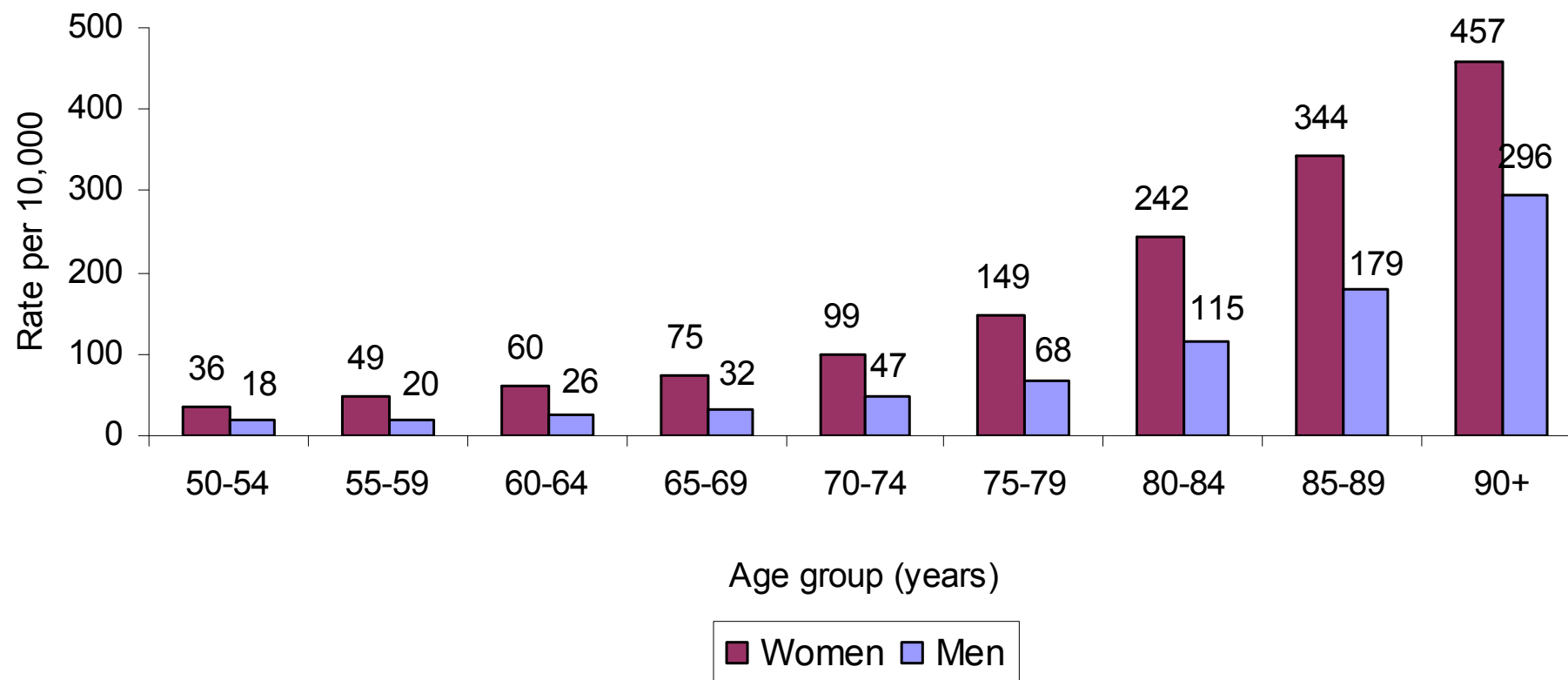


Age-standardized percentage of adults aged 65 and older with rheumatoid arthritis who filled a prescription for a DMARD or biologic agent, by sex and rural/urban residency, in Ontario, 2005/06



Osteoporosis

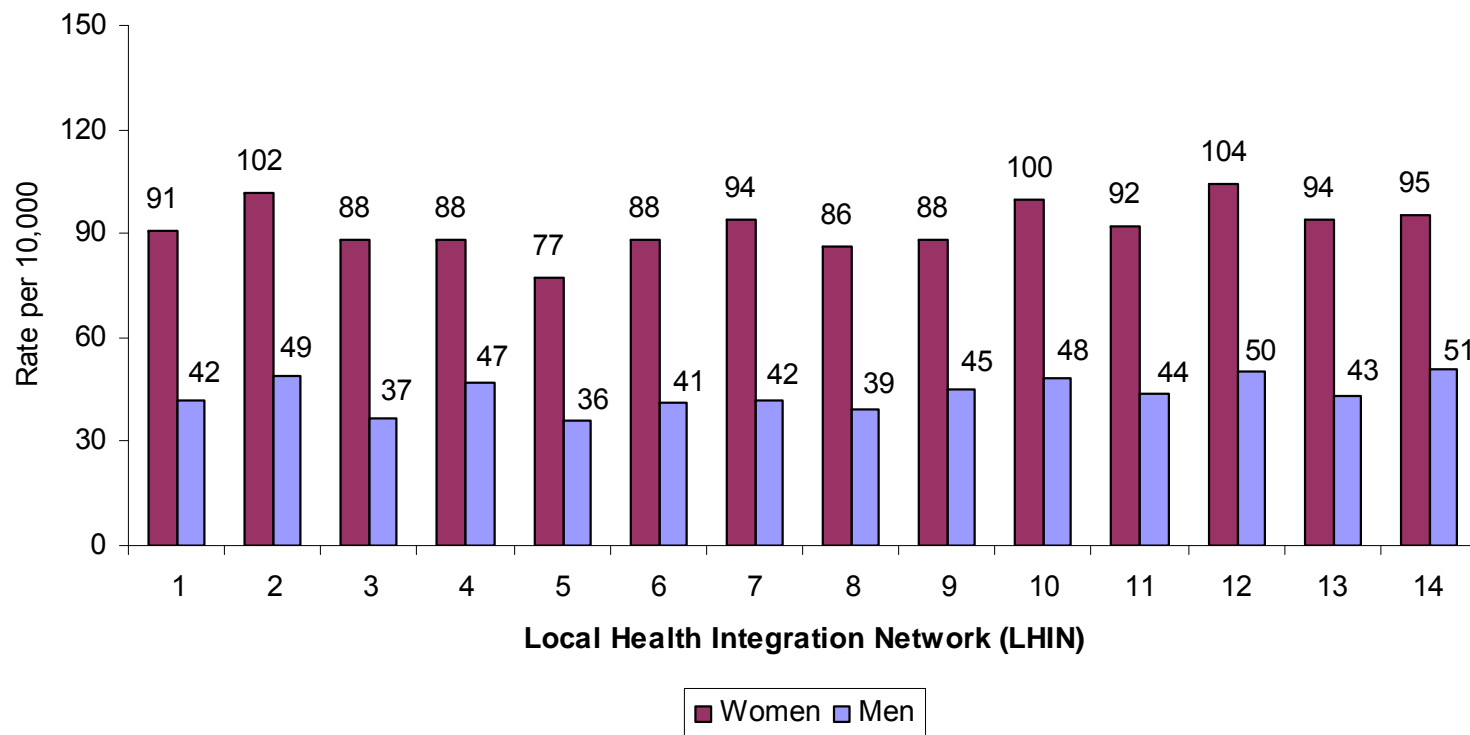
Low-trauma fracture[^] rate (per 10,000) among adults aged 50 and older, by sex and age group, in Ontario, 2007/08



Data Sources: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); National Ambulatory Care Reporting System (NACRS); Statistics Canada 2006 Census

[^] Low-trauma fractures likely due to osteoporosis include fractures of the hip, spine (rib, sternum, thoracic, and lumbar spine), wrist and forearm, shoulder and upper arm

Age-standardized low-trauma fracture[^] rate (per 10,000) among adults aged 50 and older, by sex and LHIN, in Ontario, 2007/08



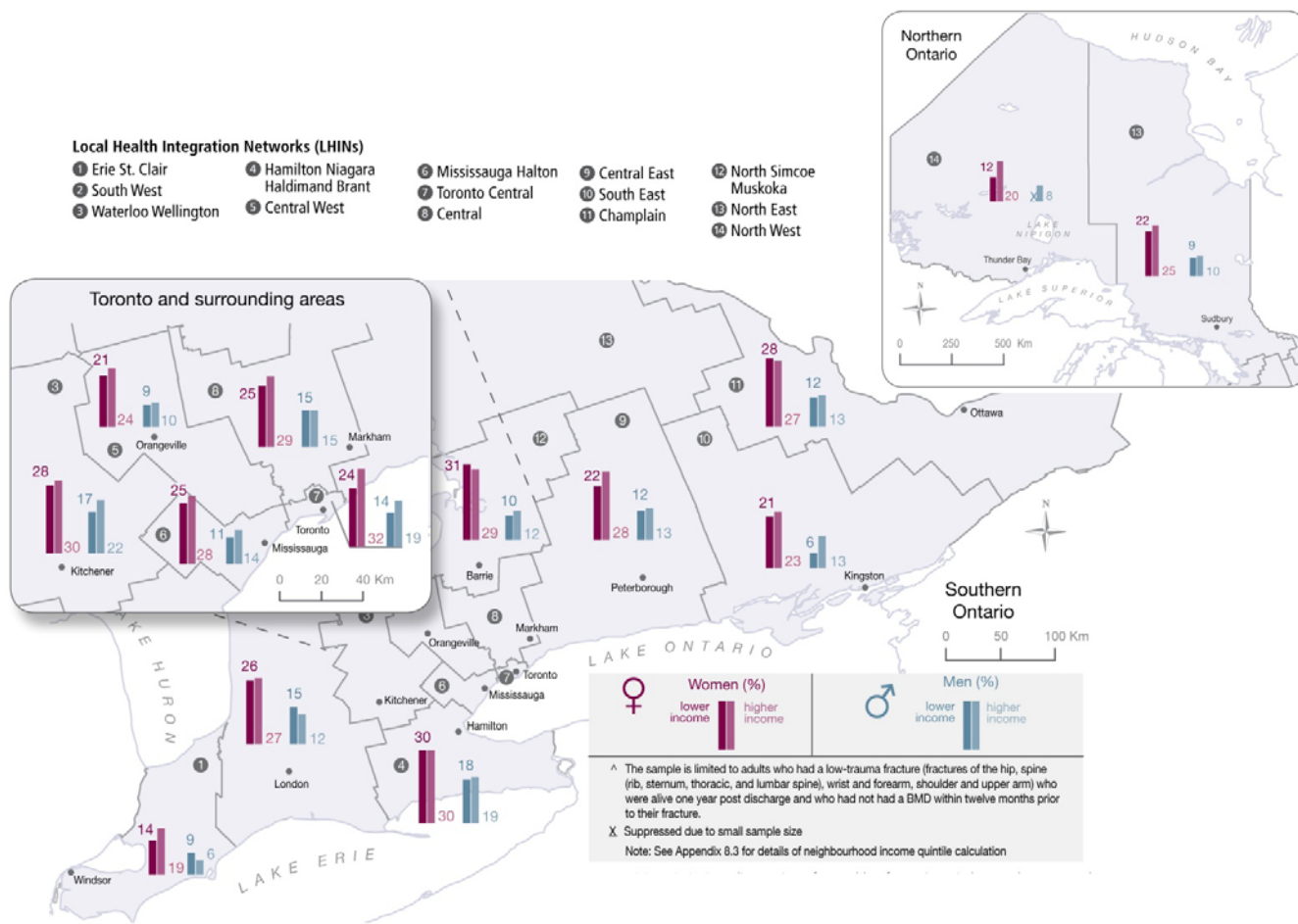
LHIN

1. Erie St. Clair
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12. North Simcoe Muskoka
13. North East
14. North West

Data Sources: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); National Ambulatory Care Reporting System (NACRS)

[^] Low-trauma fractures likely due to osteoporosis include fractures of the hip, spine (rib, sternum, thoracic, and lumbar spine), wrist and forearm, shoulder and upper arm

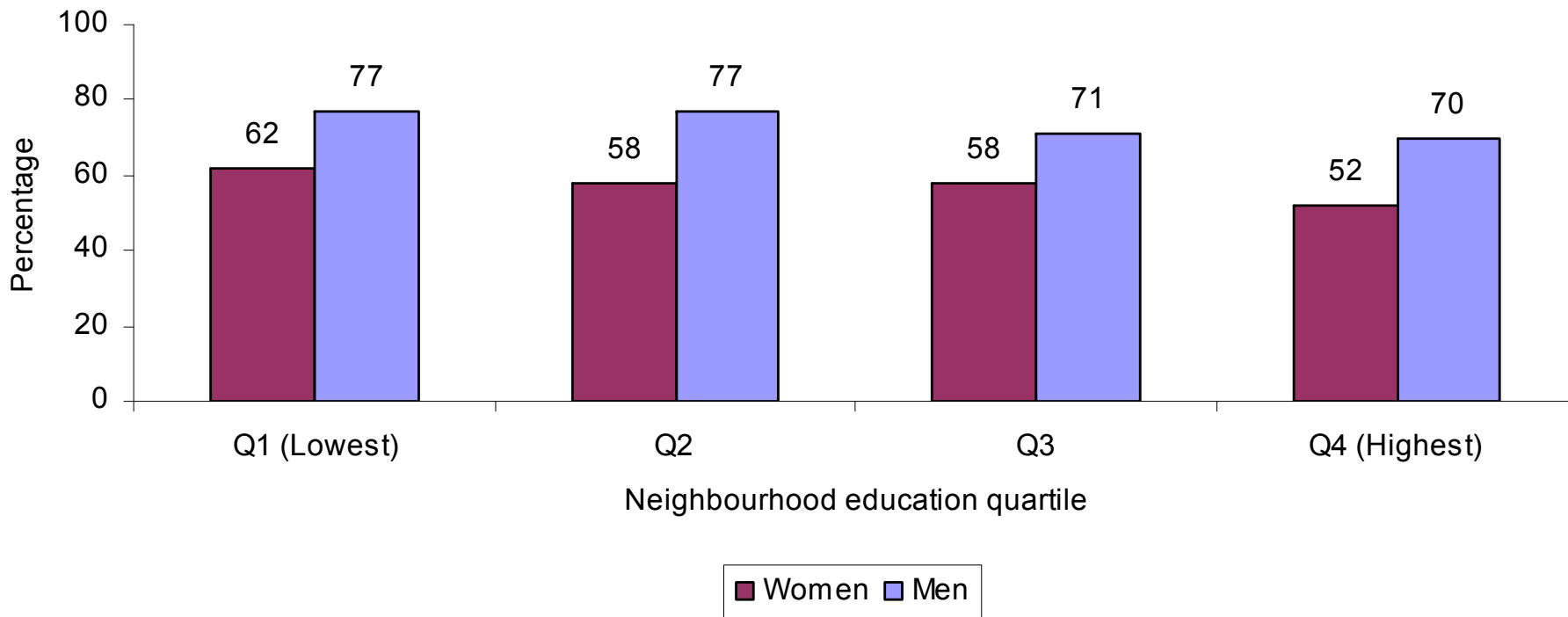
Age-standardized percentage of adults aged 50 and older who received a BMD test within one year post-discharge after a low-trauma fracture[^], by sex, neighbourhood income and LHIN, in Ontario, 2007/08



Data Sources: Registered Persons Database (RPDB); Statistics Canada 2006 Census

[^] The sample is limited to adults who had a low-trauma fracture (fractures of the hip, spine (rib, sternum, thoracic, and lumbar spine), wrist and forearm, shoulder and upper arm) who were alive one year post discharge and who had not had a BMD within twelve months prior to their fracture.

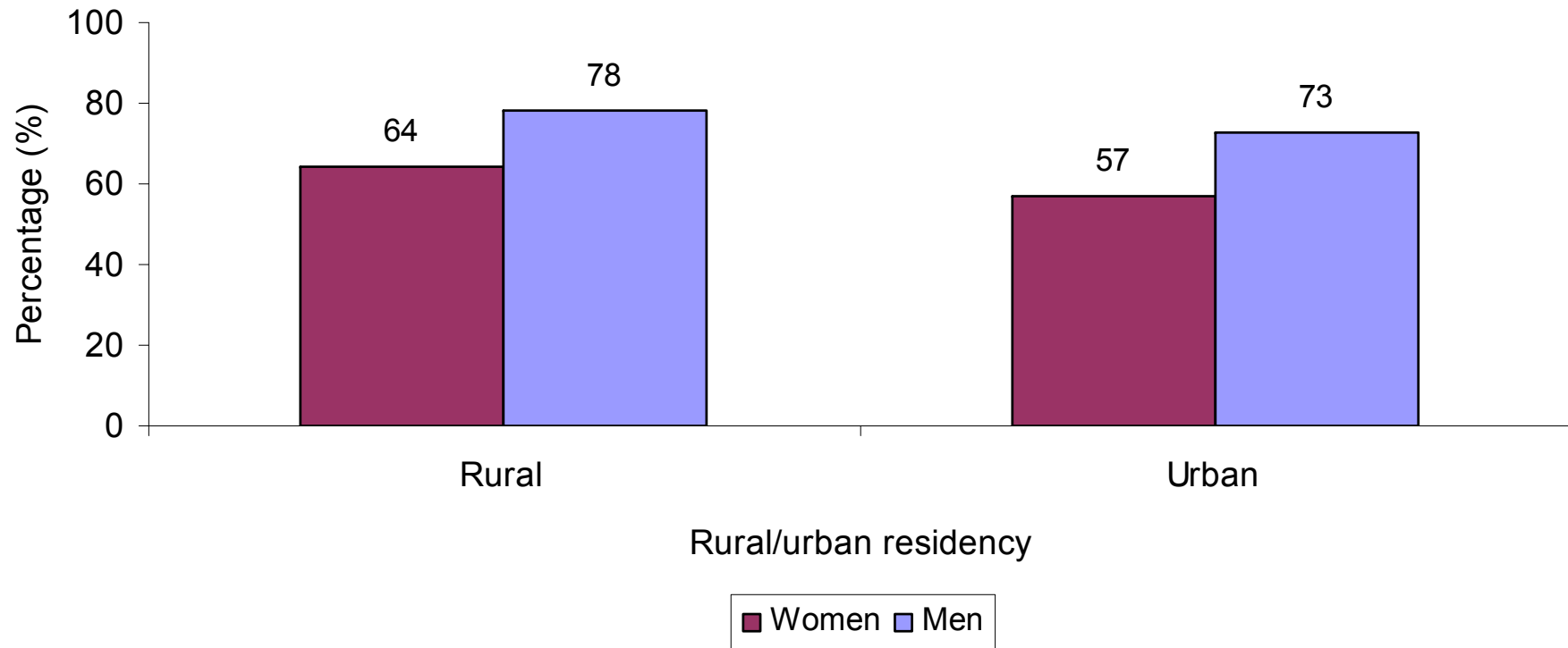
Age-standardized percentage of adults aged 66 and older who received neither a BMD test nor prescription drug treatment within one year post-discharge after a low-trauma fracture[^], by sex and neighbourhood education quartile, in Ontario, 2007/08



Data Sources: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); National Ambulatory Care Reporting System (NACRS); Registered Persons Database (RPDB); Ontario Health Insurance Plan (OHIP); Ontario Drug Benefits (ODB) database; Statistics Canada 2006 Census

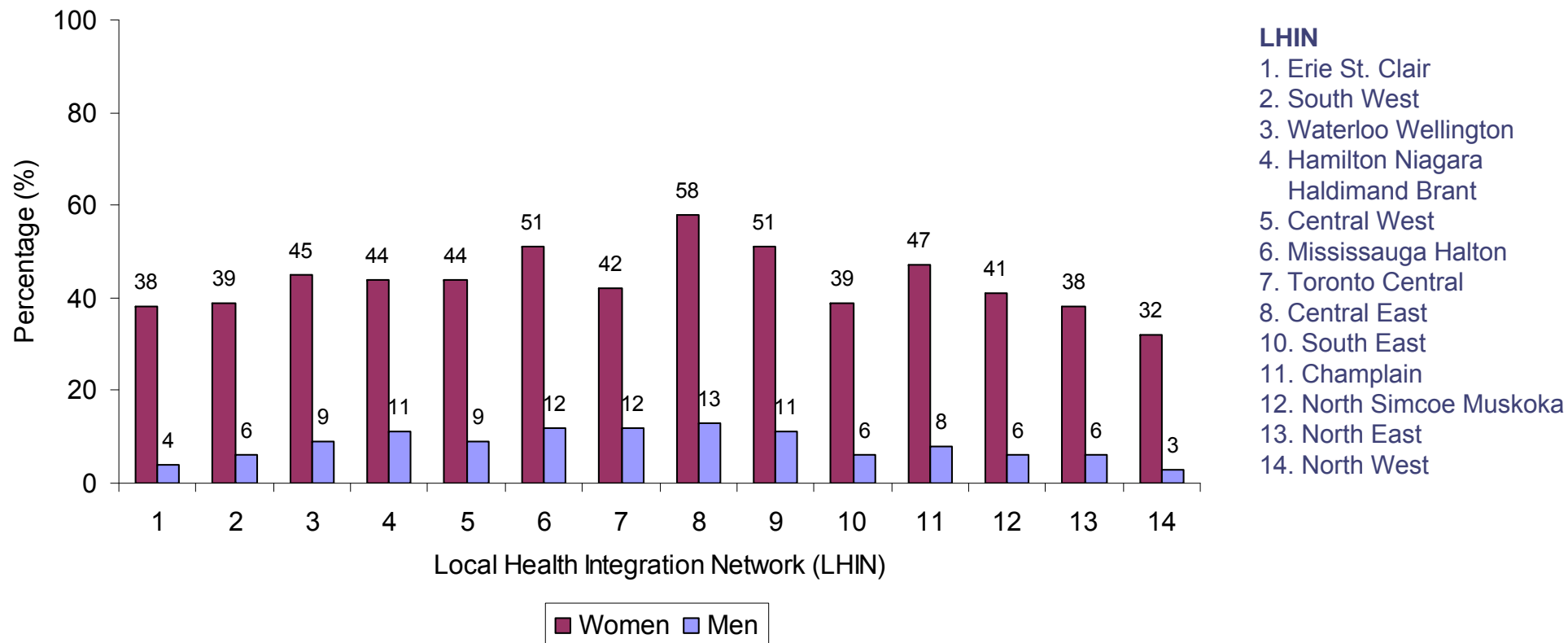
[^] The sample is limited to adults who had a low-trauma fracture (fractures of the hip, spine (rib, sternum, thoracic, and lumbar spine), wrist and forearm, shoulder and upper arm) who were alive one year post discharge and who had not filled a prescription for an osteoporosis medication or had a BMD within twelve months prior to their fracture.

Age-standardized percentage of adults aged 66 and older who received neither a BMD test nor prescription drug treatment within one year post-discharge after a low-trauma fracture[^], by sex and rural/urban residency, in Ontario, 2007/08



Data Sources: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); National Ambulatory Care Reporting System (NACRS); Registered Persons Database (RPDB); Ontario Health Insurance Plan (OHIP); Ontario Drug Benefits (ODB) database
[^] Low-trauma fractures likely due to osteoporosis include fractures of the hip, spine (rib, sternum, thoracic, and lumbar spine),

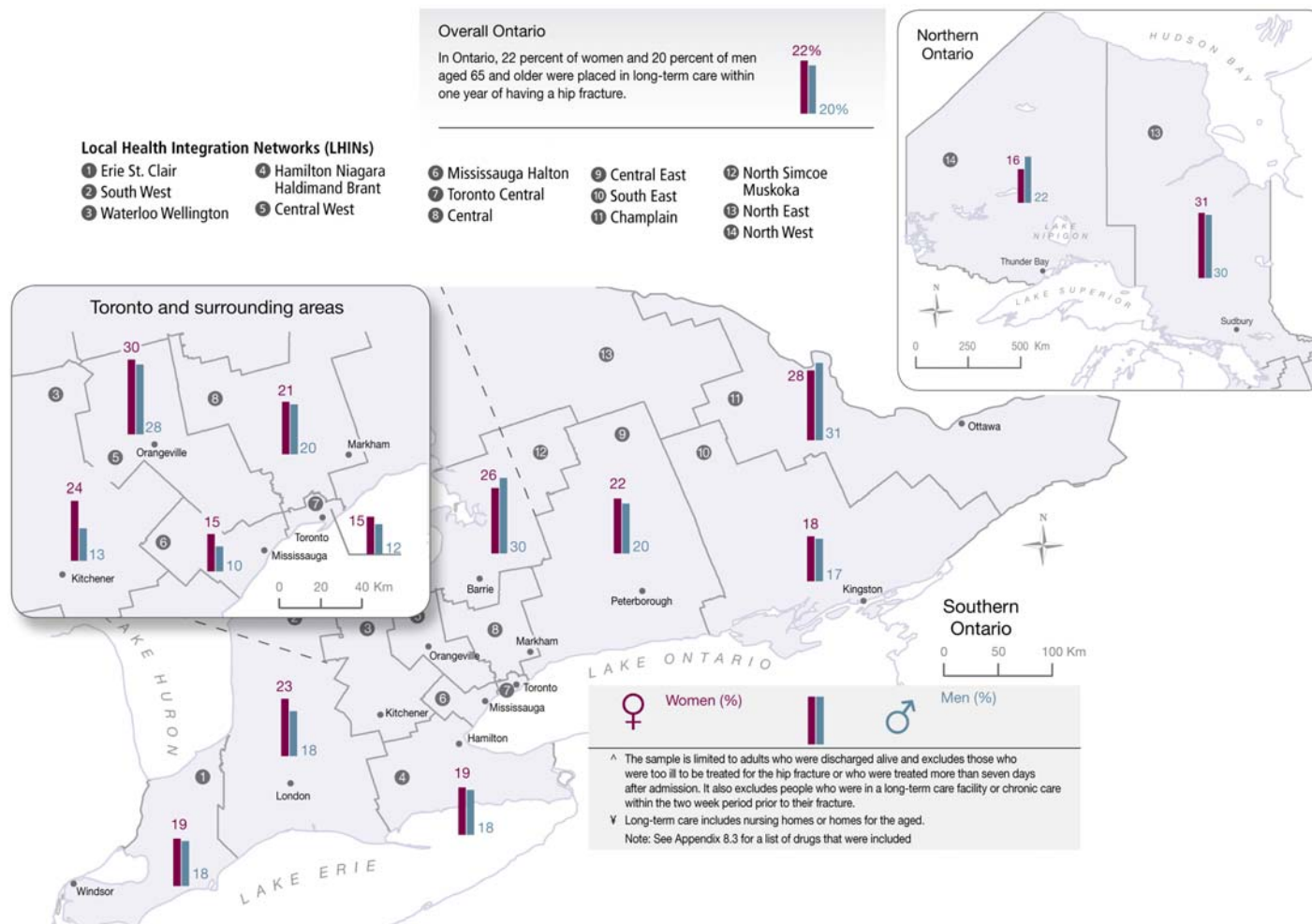
Age-standardized percentage of eligible adults^ aged 68-70 as of April 1, 2007 who underwent BMD testing after age 65, by sex and LHIN, in Ontario



Data Sources: Ontario Health Insurance Plan (OHIP); Registered Persons Database (RPDB)

^ Adults who had a bone mineral density test between the ages of 56-65 were excluded

Age-standardized percentage of adults aged 65 and older who were placed in long-term care[^] within one year of a hip fracture, by sex and LHIN, in Ontario, 2007/08



Data Sources: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); Ontario Health Insurance Plan (OHIP); Ontario Drugs Benefits Plan (ODB)

[^] Long-term care includes nursing homes and homes for the aged

Summary of Findings

- MSK conditions are a significant cause of pain and disability in Ontario and the burden of illness is greater among women and those with less education or low income
- MSK conditions commonly occur in the setting of other common chronic conditions and depression
- MSK conditions have a greater impact on disability than other chronic conditions
- There was substantial variability in rates of discharge to inpatient rehabilitation post total joint replacement surgery
- Rheumatoid arthritis is a serious MSK condition that is under treated (access and use of specialist care and use of appropriate medications) in Ontario
- Substantial gaps in care for osteoporosis persist

Study Limitations

- Self-reported MSK status for a number of indicators and use of proxy measures and an administrative data algorithm to identify burden of illness in Ontario
- Administrative data do not include details on disease severity and unmet need for care
- Data are not available on BMD test results
- Lack of data on medications in adults under age 65
- Administrative data cannot be used to assess the effect of ethnicity

Key messages

- Increase focus on prevention and health promotion to reduce the burden of MSK conditions
- Wide implementation of a patient-centred approach to chronic disease management can help improve the quality of life and health outcomes of women and men with MSK conditions
- Increase the focus on an early diagnosis and treatment of people with inflammatory arthritis, in particular rheumatoid arthritis, to reduce associated disability
- Continued support for the Ontario Osteoporosis Strategy is needed to reduce persistent gaps in care
- Improve the quality, availability and timeliness of data to assess MSK conditions and their care in the province

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The POWER Study is funded by Echo: Improving Women's Health in Ontario, an agency of the Ministry of Health and Long-Term Care. This presentation does not necessarily reflect the views of Echo or the Ministry.



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