

***Transforming Everyday Life
into Extraordinary Ideas***





Canadian Longitudinal Study on Aging: Advancing the Science of Population Health and Aging through Interdisciplinary Research

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April 13th, 2015

CLSA Research Team



**Co-principal Investigator
Christina Wolfson (McGill)**



**Lead Principal Investigator
Parminder Raina (McMaster)**



**Co-principal Investigator
Susan Kirkland (Dalhousie)**

CLSA Core Research Team



Canadian Longitudinal Study on Aging (CLSA)

A research platform – infrastructure to enable state-of-the-art, interdisciplinary population-based *research* and *evidenced-based* decision-making that will lead to better health and quality of life for Canadians.



Study Overview

50,000 women and men aged 45 - 85 at baseline

n=20,000
Randomly selected within
provinces

Questionnaire
• **By telephone (CATI)**

n=30,000
Randomly selected
within 25-50 km of 11 sites

Questionnaire
• **In person, in home (CAPI)**

Clinical/physical tests
Blood, urine (consent)
• **At Data Collection Site**

Interim contact, follow up every 3 years

Data Linkage (consent)

Depth and Breadth of CLSA

PHYSICAL & COGNITIVE MEASUREMENTS

- Height & weight
- Waist and hip measurements
- Blood Pressure
- Grip strength, timed up-and-go, chair raise, 4-m walk
Standing balance
- Vision (retinal imaging, Tonometer & visual acuity)
- Hearing (audiometer)
- Spirometry
- Body composition (DEXA)
- Bone density (DEXA)
- Aortic calcification (DEXA)
- ECG
- Carotid Plaque sweep (ultrasound)
- Carotid intima-media thickness (ultrasound)
- Cognitive assessment (30 min. battery)

HEALTH INFORMATION

- Chronic disease symptoms (**disease algorithm**)
- Medication and supplements intake
- Women's health
- Self-reported health service use
- Oral health
- Preventative health
- **Administrative data linkage health services & drugs & other administrative databases**

PSYCHOSOCIAL

- Social participation
- Social networks and support
- Caregiving and care receiving
- Mood, psychological distress
- PTSD
- Coping, adaptation
- Injuries and consumer products
- Work-to-retirement transitions
- Retirement planning
- Social inequalities
- Mobility-lifespace
- Built environments & Contextual Factors
- Income, Wealth and Assets

LIFESTYLE & SOCIODEMOGRAPHIC

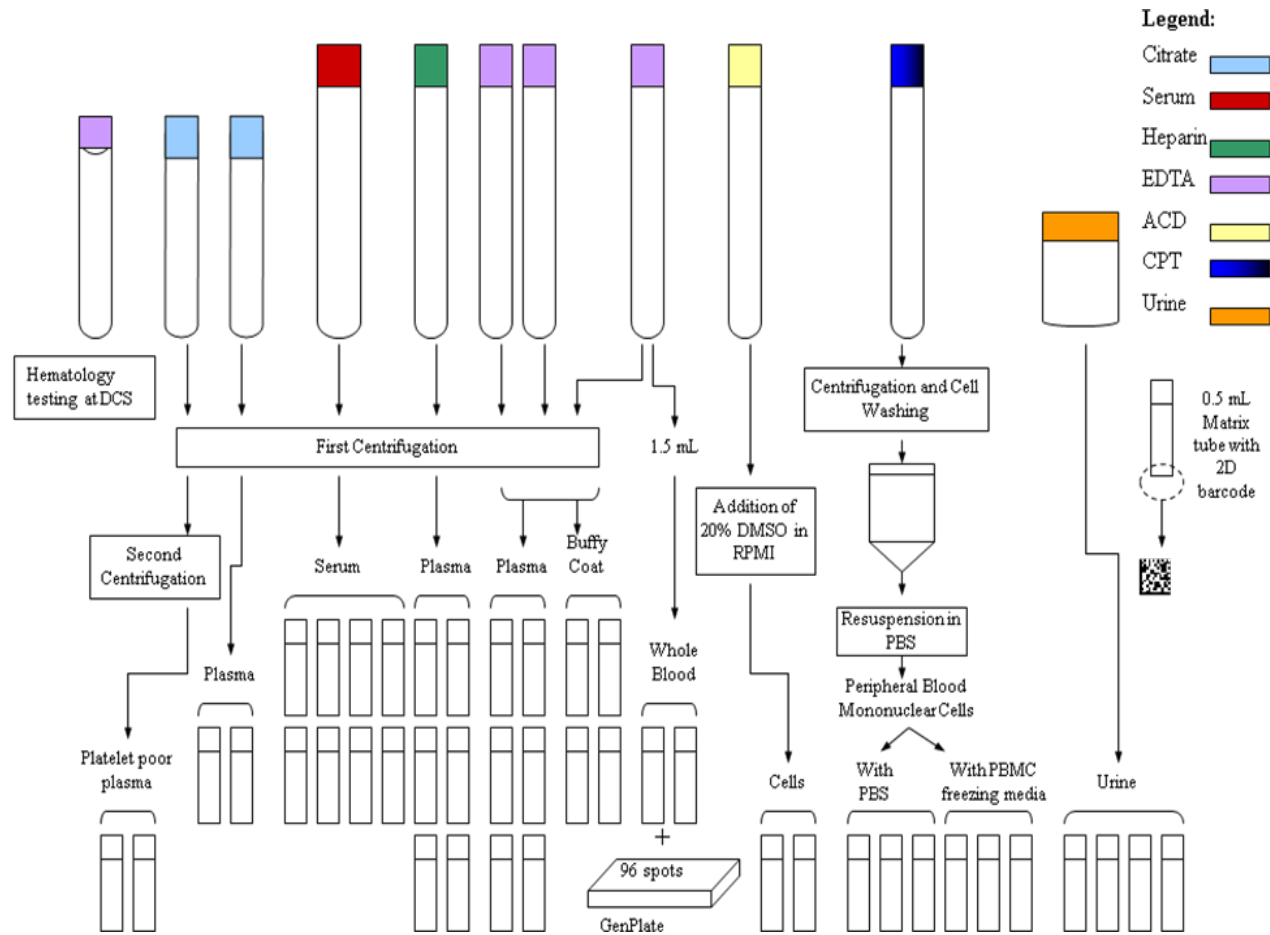
- Smoking
- Alcohol consumption
- Physical activity (PASE)
- Nutrition (nutritional risk and food frequency)
- Birth location
- Ethnicity/race/gender
- Marital status
- Education



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

Biospecimens

42 aliquots per participant



Analysis of Baseline Biomarkers

- We have completed Complete Blood Count on all fresh samples
- albumin, ALT, creatinine, CRP, ferritin, HbA1C, lipids panel, TSH, freeT4, Vitamin D on all 30,000 baseline participants
- Gene Wide Genotyping: Affymetrix UK Biobank Array on 10,000 participants
- Targeted age-associated CpG methylation on 5,000 participants

CLSA as Platform for Interdisciplinary Research: Few Examples

- Biomarkers, mobility and Muscle Health
- Sex Hormones and Aging
- Hearing and Cognition
- Volunteerism, social engagement and baby boomers
- Falls and Consumer Products
- Air pollution and chronic diseases
- Veteran's Health and PTSD
- *CLSA-Brain sub-study*
- MINDMAP-Urbanization and Mental Health (EU-Horizon2020)
- PathAge-Social, Lifestyle and Biological Mechanisms of Multimorbidity in Aging Population (EU-Horizon2020)
- Epigenetic Clock and Healthy Aging
- Genetics, Environment (metals) and Chronic Disease
- Inflammation and Cognitive Aging
- Metabolomics and Pre-diabetes sub-study



Recruitment & Data Collection

Telephone Interviews

- Recruitment of 21,241 participants for telephone interviews:
 - ✓ Statistics Canada CCHS on Healthy Aging
 - ✓ Provincial Health Care Registries
 - ✓ Random Digit Dialing
- **Baseline data collection is completed!**
- **Data is now available to researcher community**
- Maintaining contact interviews initiated in 2013 (**>14,000 completed, current retention rate 98%**)
- First follow-up begins 2015



Recruitment & Data Collection

Home Interviews and Data Collection Site Visits

- Recruitment of 30,000 for Home Interviews and Data Collection Site Visits:
 - ✓ Provincial Health Care Registries
 - ✓ Random Digit Dialing
- Baseline data collection 2012 to 2015: **Data collection completed on almost all 30,000**
- **Initial Data release for 30,000 planned for early 2016**
- Maintaining Contact Interviews initiated in 2014 (**>9200 completed, current retention rate 98%**)
- First follow-up begins 2015



Mining the CLSA data: Data and Biospecimen Access

- Fundamental tenets: rights and privacy of participants, confidentiality and security of data and biospecimens, optimal use to benefit all Canadians
- Application process via CLSA website portal
- Review: Administrative, Data and Sample Access Committee recommendation
- Approval, data/biospecimen sharing agreements
- Raw data and/or biospecimens to investigator
- Return of derived variables to CLSA dataset



Recruitment and Baseline Data Collection Data Release

- DataPreview Portal soft launch June 2014
- Gateway to access for data* and biospecimens
 - Meta data: data dictionaries, data collection tools
 - Documentation and application form
 - Variable search mechanism providing simple descriptive statistics for selected variables

*Currently available for alphanumeric data

DataPreview Portal


CLSA DataPreview Portal | x

← → ↻ 🏠 <https://datapreview.clsa-elcv.ca> ☆ ☰


Apps Free Hotmail Suggested Sites Web Slice Gallery Imported From IE FastMail: Fast, reliab... Multiple Sclerosis Jo... Facebook Inbox Epidemiology, Biost... Google » Other bookmarks

CLSA Overview ▾ Datasets Access ▾ FAQs Contact Us CLSA Main Page Sign in

CLSA DataPreview Portal




Welcome to the DataPreview Portal for the Canadian Longitudinal Study on Aging (CLSA)! The CLSA data and biological samples are available to approved Canadian and international public sector researchers, with no preferential or exclusive access for any individual. As you navigate the site you will find information about the [application process and requirements](#) for data and sample access. If you are new to using the portal we recommend you begin by reading the [Frequently Asked Questions](#).




CLSA Overview

Study design and documents



Datasets

Dataset from the baseline interview of 20,000+ Tracking participants

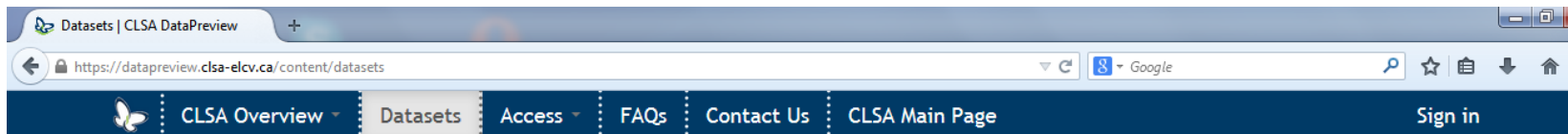


Access

Application procedure, required forms and data access policies

11:59 AM 18/07/2014

DataPreview Portal



Home

Datasets

A Canadian Longitudinal Study on Aging (CLSA) dataset holds and describes variables collected from participants at each wave of data collection. The variable search tool enables researchers to locate items of interest within all available data collected from CLSA participants.

Currently, data emanating from the over 20,000 Tracking participants who completed the baseline 60-minute telephone interviews are available. Cognitive scoring is ongoing and these data will be available as part of the second CLSA data release in December 2014.

Datasets from future data collection events will be added when they are available.



Variables (June 2014)

Variables currently available in the first wave of the data release, with filtering and search options.



Variables (December 2014)

Variables that will be available in the second CLSA data release in December 2014.



Sampling weights

Description of sampling weights used in the CLSA.



Questionnaire

Baseline 60-minute Telephone Interview questionnaire (Tracking).



Study design

Study design of the Canadian Longitudinal Study on Aging (Tracking participants).



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DataPreview Portal

Variables | CLSA DataPreview

https://datapreview.clsa-elcv.ca/variable-search

Google

CLSA Overview

Datasets

Access

FAQs

Contact Us

CLSA Main Page

Sign in

Current search

Search found 1000 variables

DATASET

Tracking - Baseline Interview (1000)

DISEASES HISTORY AND RELATED HEALTH PROBLEMS

Injury, poisoning and certain other consequences of external causes (102)

Neoplasms (42)

Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (14)

Symptoms and signs involving cognition, perception, emotional state and behaviour (14)

Diseases of the circulatory system (10)

Show more

MEDICAL HEALTH INTERVENTIONS/HEALTH SERVICES UTILIZATION

Physical/Physiological therapeutic interventions (3)

MEDICATION

Medication Intake (7)

Genito urinary system and sex hormones (7)

REPRODUCTIVE HEALTH AND HISTORY

Menopause (2)

Number of children (1)

Pregnancy (1)

LIFE HABIT S/BEHAVIOURS

Home / Datasets


Variables

Help: To obtain all the variables contained in a CLSA questionnaire module, type the two- or three- letter module prefix (e.g. SDC for socio-demographic variables) into the full-text search box.

Q

Fulltext search

Name	Label	Dataset
startdate	Date and time at start of interview	Tracking - Baseline Interview
startlanguage	Language at start of interview	Tracking - Baseline Interview
AGE_NMBR_TRM	Age (years)	Tracking - Baseline Interview
SEX_ASK_TRM	Sex	Tracking - Baseline Interview
SDC_COB_TRM	Country of birth	Tracking - Baseline Interview
SDC_COB_OTSP_TRM	Country of birth other, Specify	Tracking - Baseline Interview
SDC_YACA_YR_TRM	Year arrival in Canada	Tracking - Baseline Interview
SDC_ETHN_CA_TRM	Parental ethnic background Canadian	Tracking - Baseline Interview
SDC_ETHN_FR_TRM	Parental ethnic background French	Tracking - Baseline Interview



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Example page of DataPreview

<https://datapreview.clsa-elcv.ca>

GEN_OWNAG_TRM

In terms of your own healthy aging, would you say it is excellent, very good, good, fair, or poor?

Description

Label:

Self-rated healthy aging

Dataset:

Baseline interview (tracking participants)

Value Type:

Text

Repeatable:

No

▼ Categories

Name	Label	Missing
1	Excellent	
2	Very good	
3	Good	
4	Fair	
5	Poor	
8	[DO NOT READ] Don't know/No answer	✓
9	[DO NOT READ] Refused	✓

▼ Domains

Data Source:

Questionnaire

Perception of Health/Quality of life:

Perception of health

Statistics

Value	CLSA
Excellent	3931 (18.8%)
Very good	8513 (40.8%)
Good	6276 (30.1%)
Fair	1731 (8.3%)
Poor	419 (2%)
[DO NOT READ] Don't know/No answer	53
[DO NOT READ] Refused	2
All	20925

Follow-up One of the CLSA (2015-2018)

- Will commence in Summer of 2015
- Focus on retention
- Renewal funding has been approved
- Proxy protocols
- In home assessments (shorter version)

Follow-up One of the CLSA (2015-2018)

Contd...

- Child Maltreatment and adverse events
- Elder Abuse
- Epilepsy, Aortic Stenosis
- Enhanced Hearing, Oral Health, and Transportation modules
- Decedent Information
- Workability
- Subjective Cognitive Decline and Meta Memory
- Preventive Health Behaviours
- Sexual orientation and Gender Identity


Big Data on Aging and Health

- Linking Health care data bases, environmental, CLSA phenotype data with Biomarker, genotyping, epigenetic and metabolomics data
- EU FP7 funded Project: Creating a network of about 30 cohorts across Canada, Europe, Israel, China, and USA
 - CHANCES: Healthy Aging (already funded)
 - 10 Cohorts
 - MINDMAP: Urbanization and Mental Health
 - 30 Cohorts
- Collectively~200,000-300,000 participants
- CONSTANCE (France) and CLSA Collaboration
- JPND~CCNA and CLSA-big data initiative
- Potential to Harmonize with Canadian Partnership for Tomorrow, PURE and CLSA~1,000,000 participants with deeply big data-Will be the largest and most comprehensive



CLSA CORE TEAM

Lead PI	Parminder Raina (McMaster)
Co-PI	Christina Wolfson (McGill) and Susan Kirkland (Dalhousie)
Key Site Co-Investigators	Gerry Mugford and Patrick Parfrey (Memorial), H���������� (Sherbrooke), Ron Postuma, Brent Richards, Mark Lathrope (McGill), Larry Chambers and Vanessa Taler (Ottawa), Lauren Griffith, Harry Shannon, Cynthia Balion, Mike Veall, Christopher Patterson, (McMaster), Andrew Patterson (Toronto), Mary Thompson and Chang Bo (Waterloo), Debra Sheets, Holly Tuokko and Lynne Young (Victoria), Verena Menec (Manitoba), David Hogan, Eric Smith and Marc Poulin (Calgary) , Max Cynader, Teresa-Liu Ambrose and Michael Kobor (UBC) and Andrew Wister and Scott Lear (SFU)
Scientific Working Group	See our website – www.clsa-elcv.ca



CLSA Funders and Partners



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praina@mcmaster.ca

CLSA funded by the Government of Canada through CIHR and CFI, and provincial governments and universities

www.clsa-elcv.ca



Sampling Weights

- Data weighted to represent the Canadian (and provincial) population between 45-85 years old
- A **survey weight** corresponds to the number of persons in the entire population that an individual respondent represents
- Weighting is necessary because the probability of selecting individuals from certain sub-groups of the population varied

CLSA Tracking Telephone Interviews

N=21,208

	Count	Percent	Weighted Percent
Age			
45-54	5826	27.5	38.2
55-64	6554	30.9	31.2
65-74	4525	21.8	18.8
75-85	4203	19.8	11.8
Sex			
Male	10387	49.0	48.3
Female	10821	51.0	51.7
Language			
English	17457	82.3	75.9
French	3751	17.7	24.1
Born in Canada	18486	87.2	84.5



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CLSA Tracking Telephone Interviews

N=21,208

Province	Count	Percent	Weighted Percent
British Columbia	2619	12.4	13.8
Alberta	2110	10.0	9.3
Saskatchewan	1388	6.5	2.9
Manitoba	1472	6.9	3.3
Ontario	4722	22.3	38.3
Quebec	3603	17.0	24.7
New Brunswick	1350	6.4	2.4
Nova Scotia	1564	7.4	3.1
Prince Edward Island	1132	5.3	0.5
Newfoundland, Lab	1248	5.9	1.7

CLSA Tracking Telephone Interviews

N=21,208

Chronic Condition	Count	Percent	Weighted Percent
Arthritis	8194	38.9	35.1
Asthma	2344	11.1	11.7
COPD	1433	6.8	5.8
Hypertension	8090	38.2	33.4
Diabetes	3542	16.7	15.1
Heart disease	2189	10.3	9.0
Angina	1149	5.4	4.3
Heart attack	1299	6.2	4.9
Stroke	388	1.8	1.5
Dementia/AD	43	0.2	0.2
Parkinson's, Parkinsonism	78	0.4	0.3
Cancer	3262	15.4	13.2
Osteoporosis	2008	9.5	8.7



CLSA Tracking Telephone Interviews

N=21,208

	Count	Percent	Weighted Percent	CCHS Weighted Percent
Marital status				
Single/Never married	1694	8.0	8.4	7.0
Married/Common Law	14586	68.8	73.0	73.8
Widowed	2355	11.1	7.3	8.4
Divorced	1988	9.4	8.5	2.7
Separated	579	2.7	2.7	8.2
Education				
Less than Secondary	1978	9.3	7.0	20.4
Secondary School	2875	13.6	12.8	19.1
Some Post-Secondary	1622	7.7	7.6	5.2
Post Secondary Degree/ Dipl	14650	69.1	72.2	55.3
Annual Household Income				
Less than \$20,000	1341	6.8	5.5	9.0
\$20,000 - \$50,000	5841	29.4	23.9	29.1
\$50,000 - \$100,000	7212	36.3	35.9	36.2
\$100,000 - \$150,000	3212	16.2	19.4	16.2
Greater than \$150,000	2237	11.3	15.4	9.4

CLSA Tracking Telephone Interviews

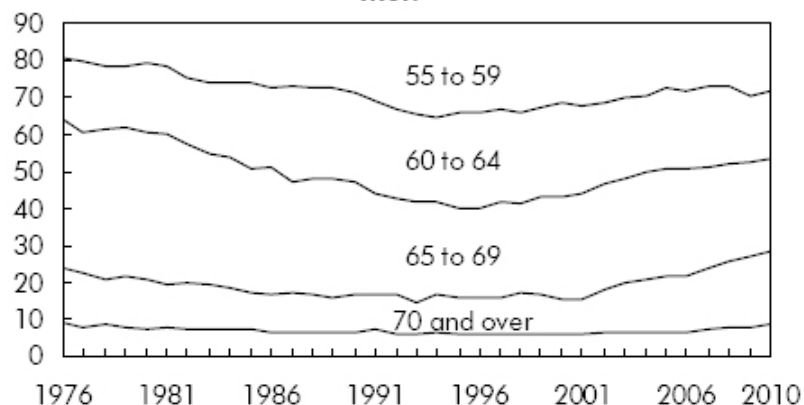
N=21,208

	Count	Percent	Weighted Percent	CCHS Weighted Percent
Self Rated General Health				
Excellent	3972	18.8	20.8	20.5
Very Good	8115	38.3	38.3	33.8
Good	6249	29.5	28.7	30.4
Fair	227	10.5	9.6	11.5
Poor	624	2.9	2.7	3.9
Self reported Weight Status				
Overweight	11188	53.0	52.1	60.5
Underweight	432	2.0	1.9	1.3
Just about right	9492	45.0	46.0	38.2
Satisfaction with Life				
Dissatisfied	2068	9.8	9.8	9.3
Neutral	850	4.0	4.5	2.7
Satisfied	18264	86.2	85.6	88.0

Canadian Workforce

Employment rate (%)

Men



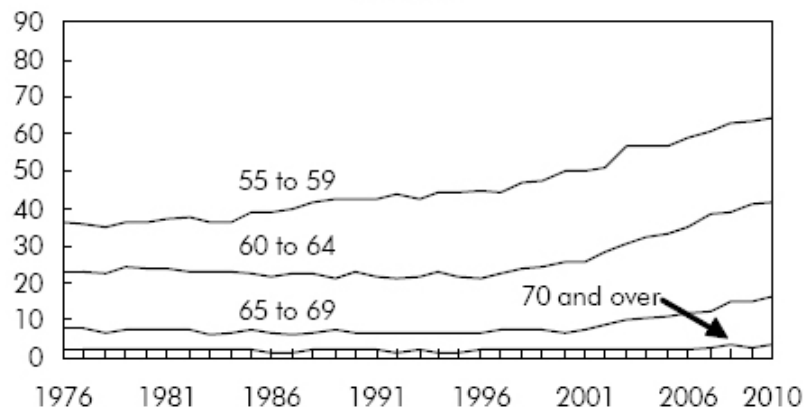
The employment rate of individuals 55 years or older has gone up significantly in the recent years

Statistics Canada comparing 1997 to 2010

- **9% increase for men**
- **13% increase for women**

Employment rate (%)

Women



Source: Statistics Canada, Labour Force Survey, 1976 to 2010.



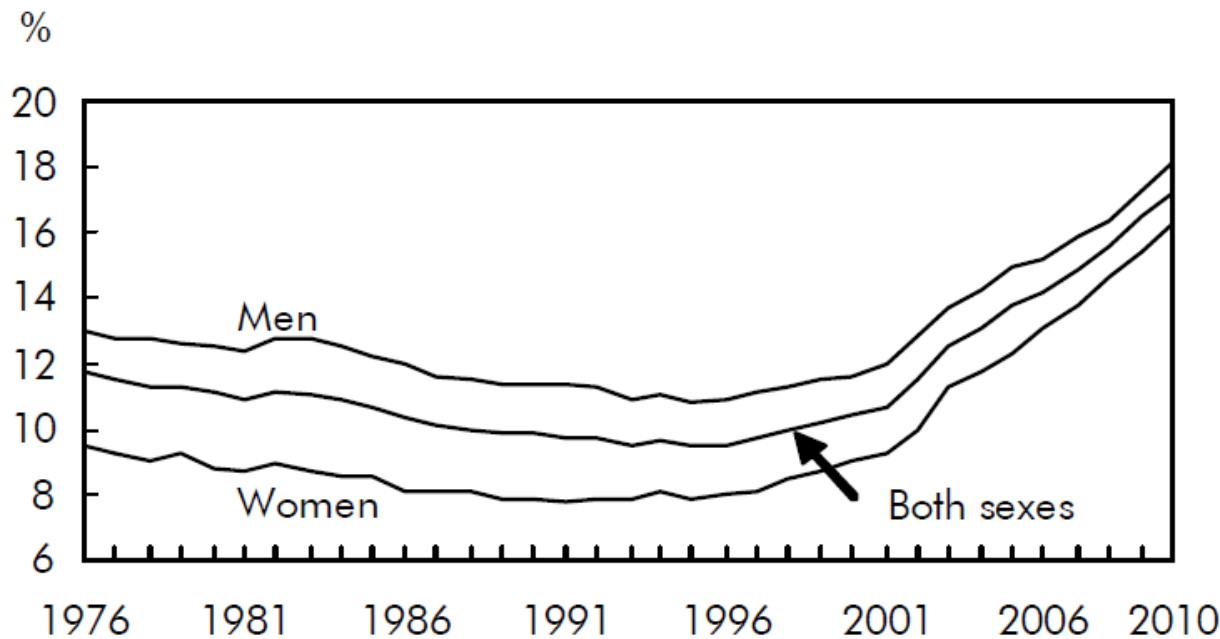
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Canadian Workforce

The expected number of years a 50 year old could expect to work:

1997 → 14

2010 → 16



**Percent of
workers 55
years and
older is on
the rise**

Source: Statistics Canada, Labour Force Survey, 1976 to 2010.

Canadian Workforce

Globe and Mail, Jan 28, 2014

THE GLOBE AND MAIL 

“Canada’s boomers woefully short of hitting retirement goals: report”

“As Canada’s Baby Boomers prepare to head into their retirement years, many are discovering they don’t have the funds they had hoped would be available and now face the reality that they have little time to play catch-up,” said Chris Buttigieg, senior manager of wealth planning strategy at BMO Financial Group.

Strategies to generate more income include delaying retirement; taking on a part-time job to earn extra money after retirement; selling off collectibles, antiques and other possessions; selling the home or renting out part of it.



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Canadian Workforce

Financial Post, Jan 28, 2014



An extensive study by Statistics Canada shows that of those Canadians who exited a long-term job at age 55 to 59, 60% were re-employed within 10 years. Fotolia

“Most older workers who leave career jobs return to work within a decade: Statistics Canada”



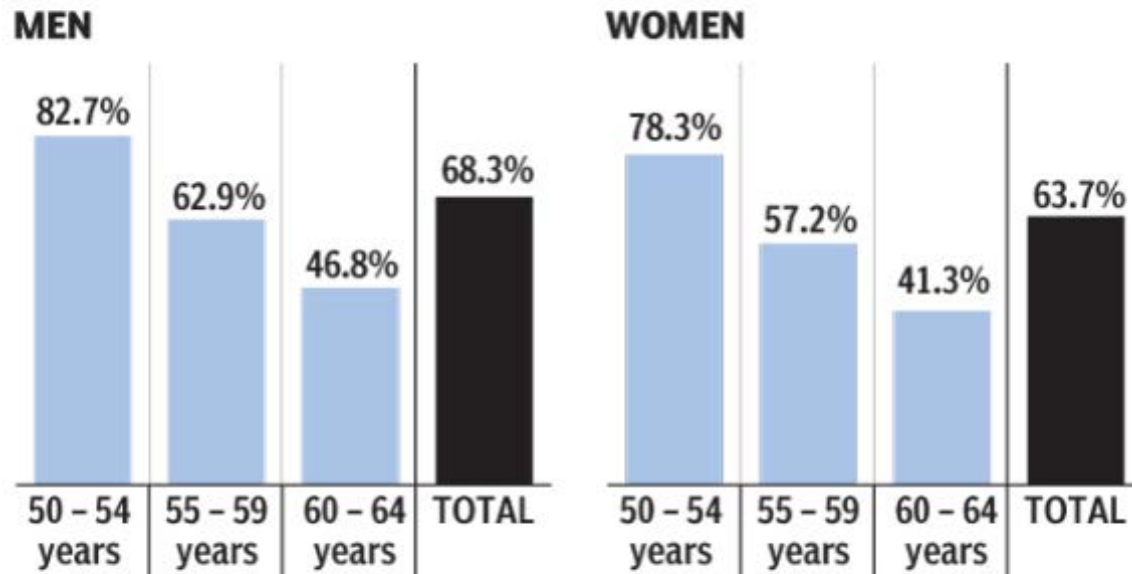
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Canadian Workforce

Financial Post, Jan 28, 2014

PERCENTAGE OF MEN AND WOMEN RE-EMPLOYED

BY SEX AND AGE GROUP AT TIME OF LEAVING LONG-TERM
JOB IN PAID EMPLOYMENT, 1994 TO 2010



SOURCE: STATISTICS CANADA

ANDREW BARR / NATIONAL POST

“Most older workers
who leave career jobs
return to work within
a decade:
Statistics Canada”



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Étude longitudinale canadienne sur le vieillissement

Changing Canadian Workforce

CBC News, Aug 17, 2011

5 ways Canada's workforce will change in 20 years



Canada's statistics agency projected 20 years into the future... "The projections also [are] that ... the labour force will become older and increasingly ethnoculturally diverse," as the agency put it.



Canadian Longitudinal Study on Aging
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Changing Canadian Workforce

CBC News, Aug 17, 2011

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CLSA ÉLCV
Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

CLSA Data Available

Telephone-Administered Questionnaire

Total Sample n = 21,241

Completely Retired n = 9,899

Partly Retired n = 2,254

**Retired and Returned to
Work n = 2,993**



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

CLSA Data Available

Telephone-Administered Questionnaire Weighted Results

Retirement Status	45-64		65-85	
	Male	Female	Male	Female
Completely Retired	17.0%	22.9%	74.6%	84.7%
Partly Retired	8.8%	8.2%	16.0%	8.3%
Not Retired	74.2%	68.8%	9.5%	7.0%

	45-64		65-85	
	Male	Female	Male	Female
Retired and Returned to Work	7.8%	7.2%	26.5%	16.9%



CLSA Data Available

Telephone-Administered Questionnaire

Of those Retired:

- **Retirement voluntary** **n = 9,683 (78%)**
- **Health/Disability/Stress** **n = 2,935 (24%)**
contributed to decision to
retire

CLSA Data Available

Telephone-Administered Questionnaire

Of those not retired and ever worked

Currently working n = 8,085 (91%)

Of those currently working

- Currently >1 job n = 1,351 (15%)**



Canadian Longitudinal Study on Aging
Étude longitudinale canadienne sur le vieillissement

CLSA Data Available

Telephone-Administered Questionnaire Weighted Results

Of Those Not Retired	45-64		65-85	
	Male	Female	Male	Female
Currently Working	92.2%	89.4%	96.7%	72.5%
More than 1 job	15.0%	15.5%	19.5%	11.1%

Richness of CLSA Data

Extensive Work and Retirement Modules

Retirement Module

- Age of retirement
- Spouse's retirement status
- Reasons for retirement
- Preparation for retirement
- Return to work after retirement
- Reasons for return
- Full-time/Part-time, type of work

Richness of CLSA Data

Extensive Work and Retirement Modules

Labour Force Participation Module*

- **Current working status****
- **Characteristics of current/most recent job**
 - Hours worked
 - Work schedule
 - Occupation, Industry
 - Duration of employment
- **Characteristics of longest held job**
- **Reasons for not working (if not currently employed and if never worked)****

* Current or prior to retirement

** Only asked of those currently working



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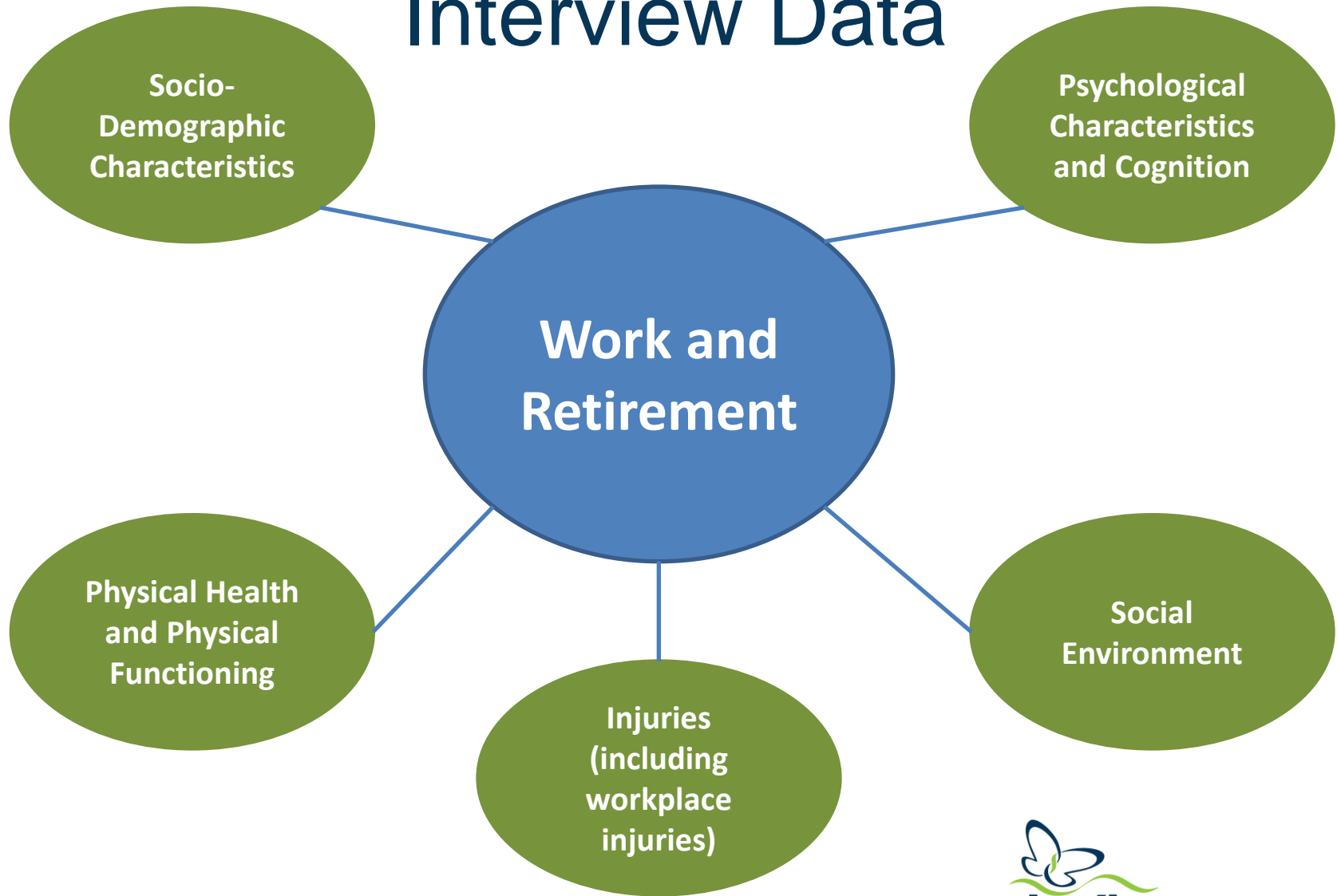
Richness of CLSA Data

Extensive Work and Retirement Modules

Retirement Planning Module

- **Age plan to retire**
- **Preparation for retirement**
- **Contribution to pension**
- **Adequacy of income/investments to maintain standard of living**
- **Reasons for planned retirement**

Richness of CLSA Telephone-Interview Data



Sample Research Topics

- Disability in retirees and occupational history
- Correlates of health-related job loss
- Cognition and function in retirement in relation to occupational history
- Cognition and function related to work injury in younger and older workers
- Health status and return to work after retirement
- Informal caregiving and work