What Can the Canadian Longitudinal Study on Aging (CLSA) Do for You?

What Data is Being Collected & How to Access It

D.B. Hogan

Ann M. Toohey

Raynell McDonough

Conflicts of Interest

- I'm the Calgary site PI for the CLSA and Chair of the CWG and member of the Operations Committee of the study
- No other ones to declare for all of today's panelists

Objectives

- Raise awareness of the CLSA as a resource available to researchers on brain aging (as an example)

- Provide an overview of what data are being collected on the CLSA participants

- Review process for requesting access to CLSA alphanumeric data and biological samples

- Give some local examples of work being done

- Announcement at the end

Studies of Aging

- We are an aging society
  - In the 2016 census for the first time ever older Canadians (65+) made up a bigger share of the population than children (14 and under) – 16.9% versus 16.6%
- Many potential goals but arguably the most important are to –
  - Develop strategies to promote healthy aging;
  - Develop strategies to prevent or minimize the handicaps that might arise as we age; and,
  - Find better therapeutic approaches to the conditions that disproportionally affect older individuals
- To achieve these goals, we require a better understanding of aging

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Longitudinal Studies

- Repeated observations are made on the same individuals over time (serial measurements are obtained on one group of subjects)
  - Because of repeated observations at the individual level, they have more power than cross-sectional observational studies to observe the temporal order of events (what leads to what)
  - Major concerns are the cost, length of time it takes to complete the study, and loss of participants
  - Need to remember that each generation is exposed to a unique environment that coincides with its life span

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1946 National Birth Cohort (UK)

- MRC National Survey of Health and Development
- Developed to address 2 questions of importance at the time in the UK –
  - Why the birth rate was dropping + distribution, use & effectiveness of obstetrical and midwifery services
  - March 3-9, 1946
- Objectives changed over time with the age of participants (e.g., social class, education) - since 1977 have focused on aging, self-care, and receptivity to health promotion

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CLSA

- https://www.clsa-elcv.ca
- Strategic Initiative of the CIHR
- National long-term study that will follow approximately 50,000 men and women 45 to 85 years of age at enrollment for 20+ years
  - Information will be collected on the evolution over time of biological, physical, psychological, social, & lifestyle characteristics in order to better understand how, individually and in combination, these factors impact both the maintenance of health and the development of diseases and disability as people age

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CLSA

- Two components (*tracking* and *comprehensive*)
    - Tracking (approximately 20,000): data collected through computer assisted telephone interviews
    - **Comprehensive (approximately 30,000): undergo an in-home interview + visit to CLSA Data Collection Site (DCS) where additional data (including physical assessments) & samples are collected**
    - Participants in the tracking component can be from anywhere within the 10 Canadian provinces while those recruited into the comprehensive one must live within a 25-50 km radius of their local DCS

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Cognitive Status

- Baseline mean age 63.1
- At entry provided informed consent
  - The interviewer having first contact with them cannot feel they have severe cognitive impairment
  - Based on the opinion of the interviewer after talking to the potential participant and not the result of a cognitive test
  - No other cognitive restriction to enrollment in the study

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Measures of Cognitive Functioning (Tracking Underlined)

- ## Memory
    - Rey Auditory Verbal Learning Test (trial 1 recall and 5 minutes delayed recall)

- ## Executive Functions
    - Mental Alteration Test (MAT) – Subgroup with Trial
    - Prospective Memory Test (PMT)
    - Stroop Neuropsychological Screening Test
    - Controlled Oral Word Association Test (FAS)
    - Verbal fluency (category – Animal Naming)

- ## Psychomotor Speed
    - Choice Reaction Times (RTs)

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Other Data Being Collected

- All 50,000
  - Sociodemographic, lifestyle & behaviour (e.g., ETOH & tobacco use, diet, physical activity), health status (e.g., function, symptoms, oral health, sleep, injuries including traumatic brain injuries, select chronic conditions) & utilization (e.g., medication use & adherence, self-reported provider visits, data linkage with provincial health databases if consent obtained), psychological measures in addition to cognitive ones (e.g., mood, psychological distress, coping & adaptation), & social (e.g., social participation, social networks, work-to-retirement transitions) variables
- Comprehensive cohort
  - Physical measures (e.g., height, weight, waist & hip measurements, bioimpedence, functional performance measures [grip strength, timed up-and-go, chair raise, 4-m walk, standing balance], blood pressure, heart rate, vision & hearing, bone density and aortic calcification, spirometry, ECG, carotid intima-media thickness) + blood & urine specimens (42 aliquots per participant) if the participant consents

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CLSA Infrastructure

- Three Principal Investigators (Parminder Raina - lead, Christina Wolfson/ Susan Kirkland – co-PIs)

  - 11 Local Site Principal Investigators
  - 8 working groups
  - 160+ researchers in 26 post-secondary institutions
  - 120+ operational staff
  - 51,352 participants enrolled with baseline assessments performed

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CLSA Infrastructure

- **Eleven Data Collection Sites**
  - Victoria, 2 in Vancouver, Calgary, Winnipeg, Hamilton, Ottawa, Montreal, Sherbrooke, Halifax, St. John's

- **National Coordinating Centre (McMaster)**

- **Biorepository and Bioanalysis Centre (McMaster)**

- **Statistical Analysis Centre (McGill)**

- **Genetics and Epigenetics Centre (UBC)**

- **Four Computer-Assisted Telephone Interview Centres**

CLSA DataPreview Portal

- https://datapreview.clsa-elcv.ca/
- CLSA data & biological samples are/ will be available to approved Canadian & international public sector researchers, with no preferential or exclusive access for any individual
  - Navigate around the site to find information about the application process and requirements for data and sample access
  - Begin by reading *Frequently Asked Questions*

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CLSA

- Data now available
  - Questionnaire data from more than 51,000 participants + comprehensive physical assessment data and hematological biomarkers from more than 30,000 participants who visited a DCS
    - Complete list of available data - https://www.clsa-elcv.ca/doc/1424
  - Data will be released to researchers following submission and review of applications by the CLSA Data and Sample Access Committee
  - $3,000 fee to cover costs of preparing data (free access for graduate student projects)
  - Biospecimen access TBD

Studies Being Done

- Visit website
  - https://www.clsa-elcv.ca/researchers/approved-project-summaries

- Over 100 approved projects
  - 2013 – 1
  - 2014 – 3
  - 2015 – 17
  - 2016 – 40
  - 2017 – 44

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Catalyst Grant: Analysis of CLSA Data

- In 2016 CIHR sponsored a competition to support analysis of baseline data
  - Anticipated that approximately 15 grants of up to one year would be supported (up to $70,000 each)
  - A total of 25 grants/ $1.7 million
    - http://webapps.cihr-irsc.gc.ca/cfdd/db_search?p_language=E&p_competition=201608ACD

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Local Studies

- Examining Frailty from a Population Health Perspective (Catalyst Grant)
    - Kanters DM, Griffith LE, Hogan DB, et al: Assessing the measurement properties of a Frailty Index across the age spectrum in the Canadian Longitudinal Study on Aging. J Epidemiol Community Health 2017;71:794-799

- Relationship between mobility & cognition in older adults (N. Demnitz)

- Validation of CLSA dementia & cognitive decline algorithm (BRAIN Project)

- Gender difference in vascular risk factors, early cognitive impairment & progression to dementia (Catalyst Grant/ Dr. G. Chen)

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Examples of CLSA Projects

Projects

1. **Graduate student applicant:** "Is pet ownership relevant to social participation and life satisfaction for older adults who are aging-in-place? Findings from the Canadian Longitudinal Study on Aging (CLSA)"

2. **Centre on Aging/Co-applicants** on CIHR-funded catalyst project "A tale of eight cities and the CLSA. Progress towards Age-Friendliness across Canada."

3. **Centre on Aging Partnership** between the Brenda Strafford Centre on Aging and Age-Friendly Calgary: Evaluating municipal policy implementation
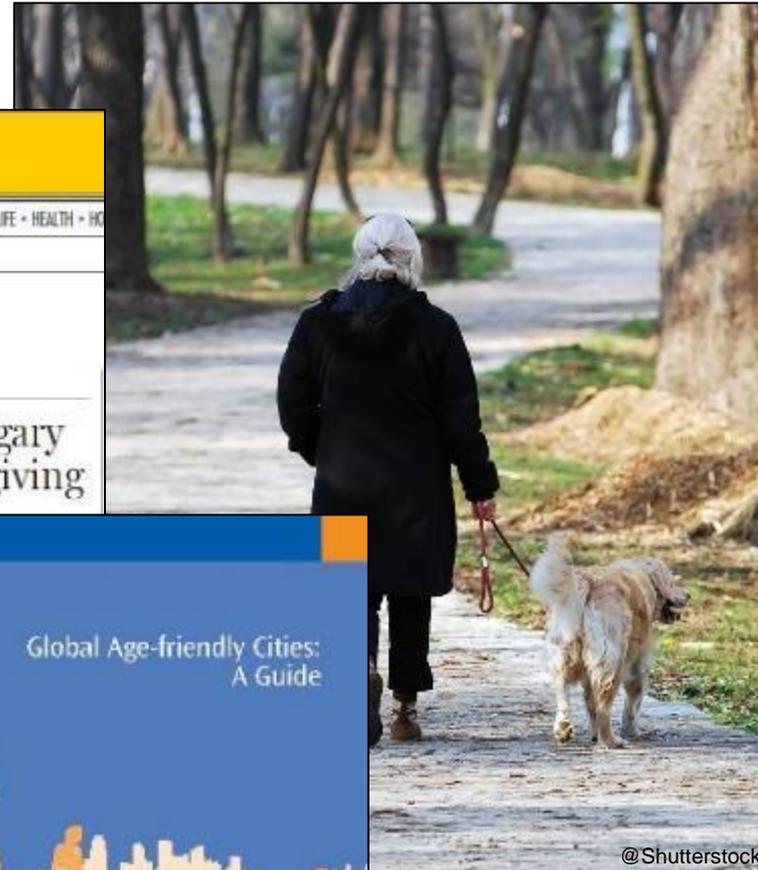
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"Carving out a place for 'pets' within the age-friendly agenda"
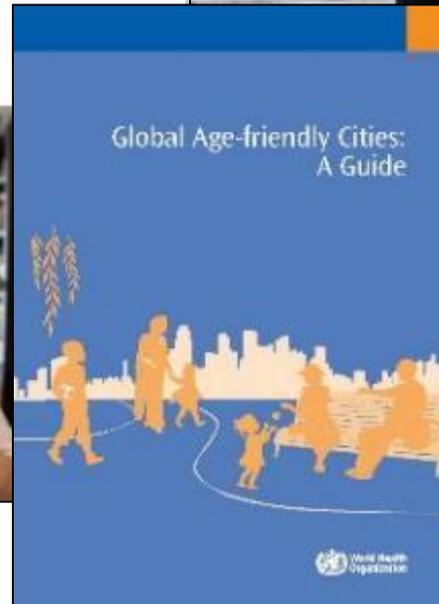
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My approach

1. Explore the data portal
   (https://datapreview.clsa-elcv.ca/)

2. Submit an application (3 calls per year)
   (https://www.clsa-elcv.ca/data-access/data-access-application-process)

3. Navigate the data transfer agreement process (MedLegal)

4. Import and optimize data for analysis (recoding, deriving variables, etc.)

5. Analyze data and prepare article
   (**n.b.** – a draft must be shared with CLSA prior to peer-review submission)
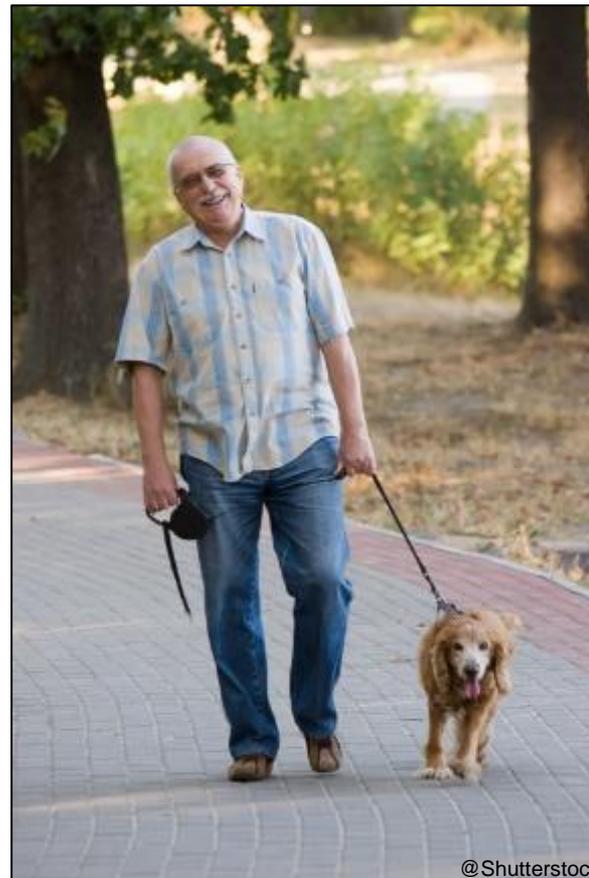
Key variables

Pet ownership: Do you have a household pet that provides you with companionship? (Yes/No)

Social Participation (SPA)

(i) Frequent participation in various types of "organized" activities

(ii) Wanted to participate in more social activities

(iii) Barriers to social participation

Satisfaction with Life Scale (SLS)

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CLSA Data and/or Biospecimen Request Form
Initial Application

Section A: General Information

AI. Primary Applicant Information

Name: ___Ann M. Toohey_____

Affiliation: ___**PhD Candidate**, University of Calgary, Dept of Community Health Sciences_____

Mailing Address:____3rd Floor, TRW Building, 3280 Hospital Drive NW (c/o Dr Melanie Rock)

____Calgary, AB T2N 4Z6 _____

Phone: ____403-993-5791_____

Fax: ____(403) 210-3818 _____

E-mail: ____amtoohey@ucalgary.ca_____

AII. Project Title and Lay Summary

Project Title: Promoting health for an aging population: The role of community services in enhancing benefits and addressing challenges of pet ownership for seniors

(https://www.clsa-elcv.ca/data-access/data-access-application-process)

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Toohey, A. M., Hewson, J. A., Adams, C. L., & Rock, M. J. (2018). **Is pet ownership relevant to social participation and life satisfaction for older adults who are aging-in-place in Canada? Findings from the Canadian Longitudinal Study on Aging.** *Canadian Journal on Aging*, *37*(2).

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Some Limitations

- Theoretically relevant variables were missing (e.g., species of pet; primary caregiving duties; attachment)

- Definitions of "social participation" may miss informal activities taking place in public places, e.g., dog-walking (cat-walking?)

- Low representation of sub-populations of interest (e.g., LGTBQ; lower-income AND socially-isolated)

- Baseline data limited my study to cross-sectional design (2nd wave will be released in 2018)

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A New CIHR Funding Opportunity:
Making Use of the Data from the
Canadian Longitudinal Study on Aging

Yves Joanette, PhD, FCAHS
Scientific Director

VIVRE PLUS VIVRE MIEUX
Institut du vieillissement
Institute of Aging
LIVING LONGER LIVING BETTER

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Proposed project and collaborators

- A tale of eight cities and the CLSA: Progress towards Age-Friendliness across Canada

- University of Ottawa (Primary applicant, Dr Elizabeth Kristjansson)
  McMaster University
  Mount Saint Vincent University (Halifax)
  University of Calgary
  Universite de Montreal
  Universite de Sherbrooke
  University of Manitoba
  University of Victoria (B.C.)

- Knowledge users include PHAC, City of Ottawa, City of Calgary, and others

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Canadian Institutes of Health Research   Instituts de recherche en santé du Canada

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Research objectives

1. To compare key aspects of age-friendliness across eight Canadian cities and to national averages;

2. To compare indicators of the physical, mental and social health of aging people across eight cities and to national averages, and to explore reasons for similarities and differences; and

3. To identify potential income, sex, rural/urban, and linguistic inequalities in age-friendly determinants of health/health outcomes within and across our cities.

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Some limitations

- CLSA designed to be nationally representative; yet-to-be determined the extent to which it can be deemed representative of municipalities

- Possibility of identifying CLSA participants prohibits neighbourhood-level analyses

- How to create proxies for indicators of interest within age-friendly frameworks, but that are not directly measured (e.g., availability of community services to those who need them)

Seniors Age-Friendly Strategy

- Responding to changing demographics

- Global Age-Friendly Cities (WHO)

- City as backbone, community-wide governance

- 6 local priority areas and results/outcomes

- Council approval June 2015

- First phase of implementation: 2015-2018

- Evaluation includes tracking population-level indicators

Seniors Age-Friendly Strategy Evaluation and the CLSA

- Evaluation framework and Collective Impact model

  - CLSA identified as a source for long-term tracking of population-level indicators

- Partnership with Brenda Strafford Centre on Aging

  - Assess representativeness of CLSA sample to Calgary population

  - Baseline and tracking of "age-friendly" indicators for local decision-making

What data is most useful for Age-Friendly Communities?

➢ Access to information and services

➢ Need for and provision of personal care and assistance in the home

➢ Sense of belonging in the community

➢ Rate of loneliness

➢ Availability and participation in leisure (physical, social, educational, volunteer) activities

➢ Access to employment

New for 2018-2019

ANNOUNCING CLSA Data Access Support Grants

- One per CLSA data release cycle (up to 3/yr, funds permitting)
- First come first served
- $3,000 to cover data access fee for researchers
- Projects must be approved by CLSA and local ethics board
- Contact bscoa@ucalgary.ca to apply

Additional University of Calgary funding competitions are also being explored.

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