

Population Attributable Risk for Functional Disability Associated with Multiple Chronic Conditions in Canadian Adults

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Étude longitudinale canadienne sur le vieillissement

Functional Disability

Public Health Implications

- Increase demand for health care
- Reduced quality of life
- Increase cost of health care
- Higher mortality

In older populations, chronic conditions are prevalent and the most important determinant of functional disability

But which chronic conditions? Are there many that are modifiable?



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Multimorbidity

Coexistence of 2 or more chronic conditions where one is not necessarily more central than the others

Canadian Data¹:

- **31% 45-54 years old**
- **55% 65-79 years old**
- **78% 80+ years old**

Currently no clear consensus on how to operationalize Multimorbidity

- **Simple disease counts (# and type of CCs vary across studies)**
- **Depending on definition prevalence of multimorbidity ranges from 13.1% to 71.8% in population-based studies²**

¹Public Health Agency of Canada. 2010

²Fortin M, et al. *Annals of Family Medicine* 2012 Mar;10(2):142-51

Previous Work

Using CSHA data we found that the combinations of chronic conditions that drive functional disability differed by sex and 5-year age groups

Biggest drivers:

- **Foot problems, arthritis and heart disease – 65-74 year olds**
 - **Cognition and foot problems – 85 year and older**
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- **Did not look at mental health conditions**
 - **Did not consider other modifiable risk factors: e.g., physical activity, nutrition**

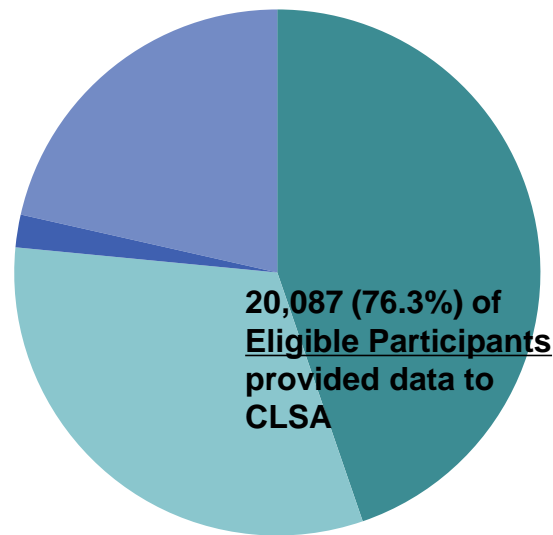
Objectives

The purpose of this study was:

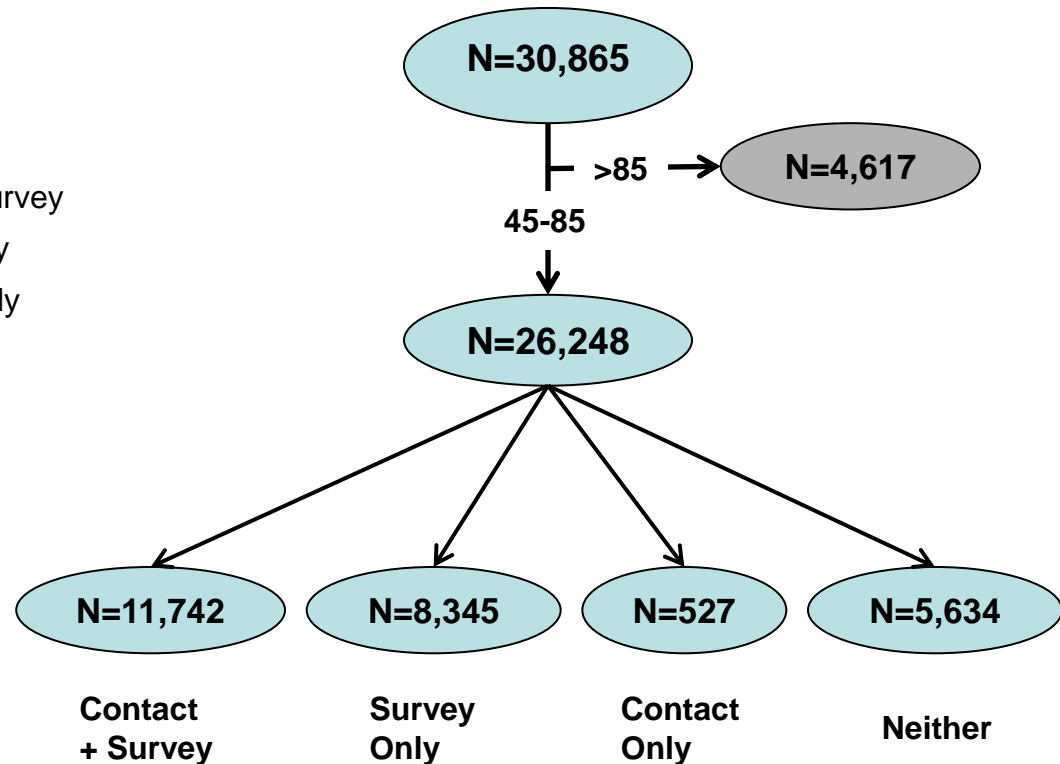
- i) To identify a set of physical and mental chronic conditions that are independently associated with overall functional disability in (I)ADLs in community-dwelling older adults (PAR) and**
- ii) Compare the PAR for these chronic conditions with those associated other common risk factors: physical activity, nutritional risk and a psychological factor: satisfaction with life**

CCHS-CLSA Healthy Aging

Participants were asked to share their population information with the CLSA (recruitment)
The adults 45 and older with the CLSA (for analysis)



- Contact+Survey
- Survey Only
- Contact Only
- Neither



Functional Disability

Older Americans Resources and Services (OARS) Multidimensional Functional Assessment Questionnaire

- 14 items measuring both activities of daily living (ADL) and instrumental activities of daily living (IADL)
- Functional disability was defined as needing help with or inability to perform any of the ADL/IADL activities

Chronic Conditions

Identified a priori as putative risk factors for functional decline:

- cognitive impairment, AD, Parkinson's disease
- hypertension, heart problems, stroke, diabetes
- respiratory disease
- hearing problems, vision problems
- arthritis
- depression

Conditions were self reported by participant



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Other Risk Factors

Nutrition: SCREEN II (total score <38 → high nutritional risk)

Physical Activity: Walking item of the Physical Activity Scale for the Elderly (PASE) (Never, seldom or some times take a walk outside of the home/yard → low physical activity)

Satisfaction with Life: Satisfaction with Life Scale (SWLS) (neutral to extremely dissatisfied → low satisfaction with life)

Statistical Analysis

Preliminary analyses for chronic conditions:

- 1) Prevalence – had to be present in at least 10% of the population**
- 2) Strength of association – Had to have a statistically significant relationship with functional disability using multivariable logistic regression for further PAR analysis.**

These included:

cognitive impairment

diabetes

hearing problems

hypertension

arthritis

vision problems

heart disease

respiratory problems

depression



Statistical Analysis, ctd

Model-based, adjusted estimations of PAR were computed to explore the population impact of selected chronic conditions on functional disability while adjusting for relevant covariates

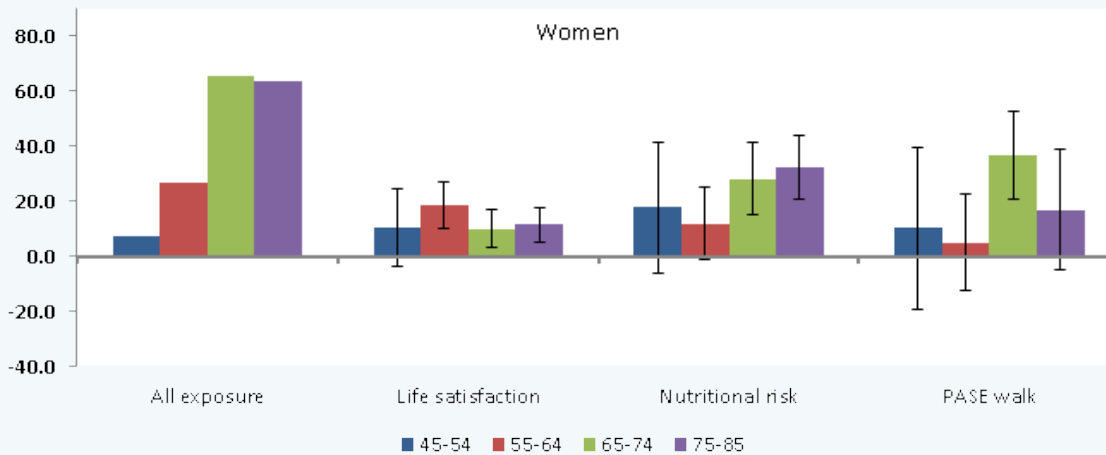
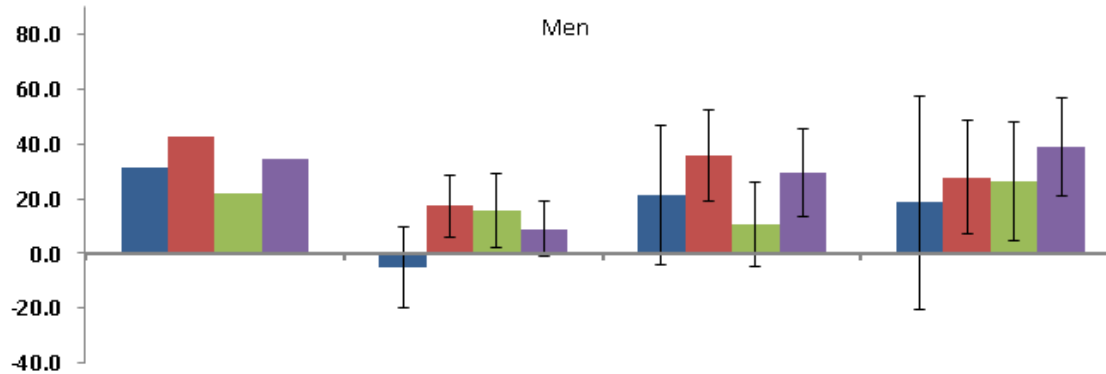
PARs were calculated for:

- **individual chronic conditions**
- **all chronic conditions**
- **life satisfaction**
- **nutritional risk**
- **physical activity (walking)**

PARs were compared qualitatively

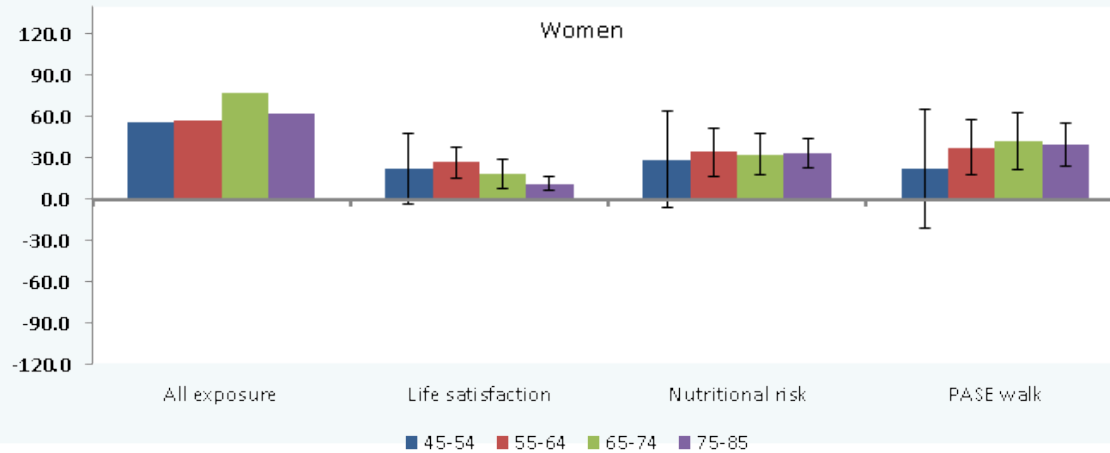
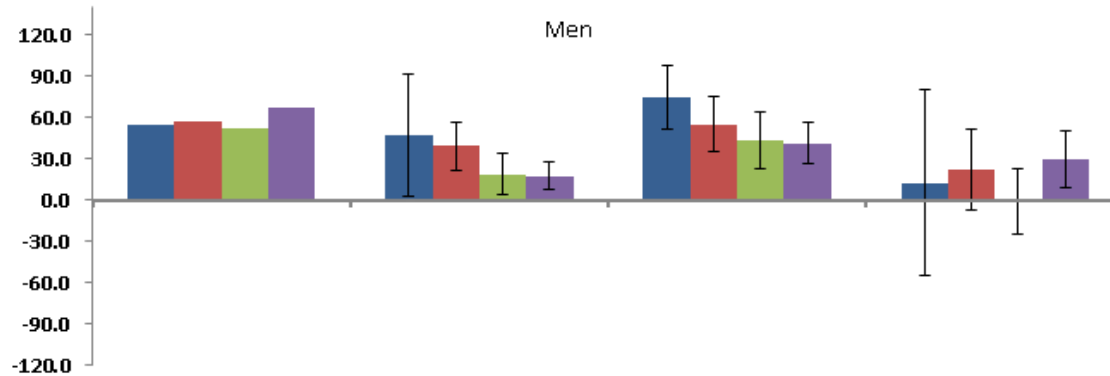
Preliminary Results

ADL



Preliminary Results, *ctd*

IADL



Conclusions

Our findings suggest that in community-dwelling older adults, some other important risk factors had PARs in the same range as all important chronic conditions, but relationships differ by age, sex, and definition of functional disability

Next Steps...

- **ElSA will provide longitudinal data in time to assess these relationships**
- **Examine reversibility of the factors in older longitudinal data sets (e.g., Canadian Study of Health and Aging)**

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