

# The Association between Sensory Loss and Social Networks, Social Participation, Social Support and Loneliness:

## A CLSA Tracking Cohort Study

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# Disclosures

- None

# Acknowledgements



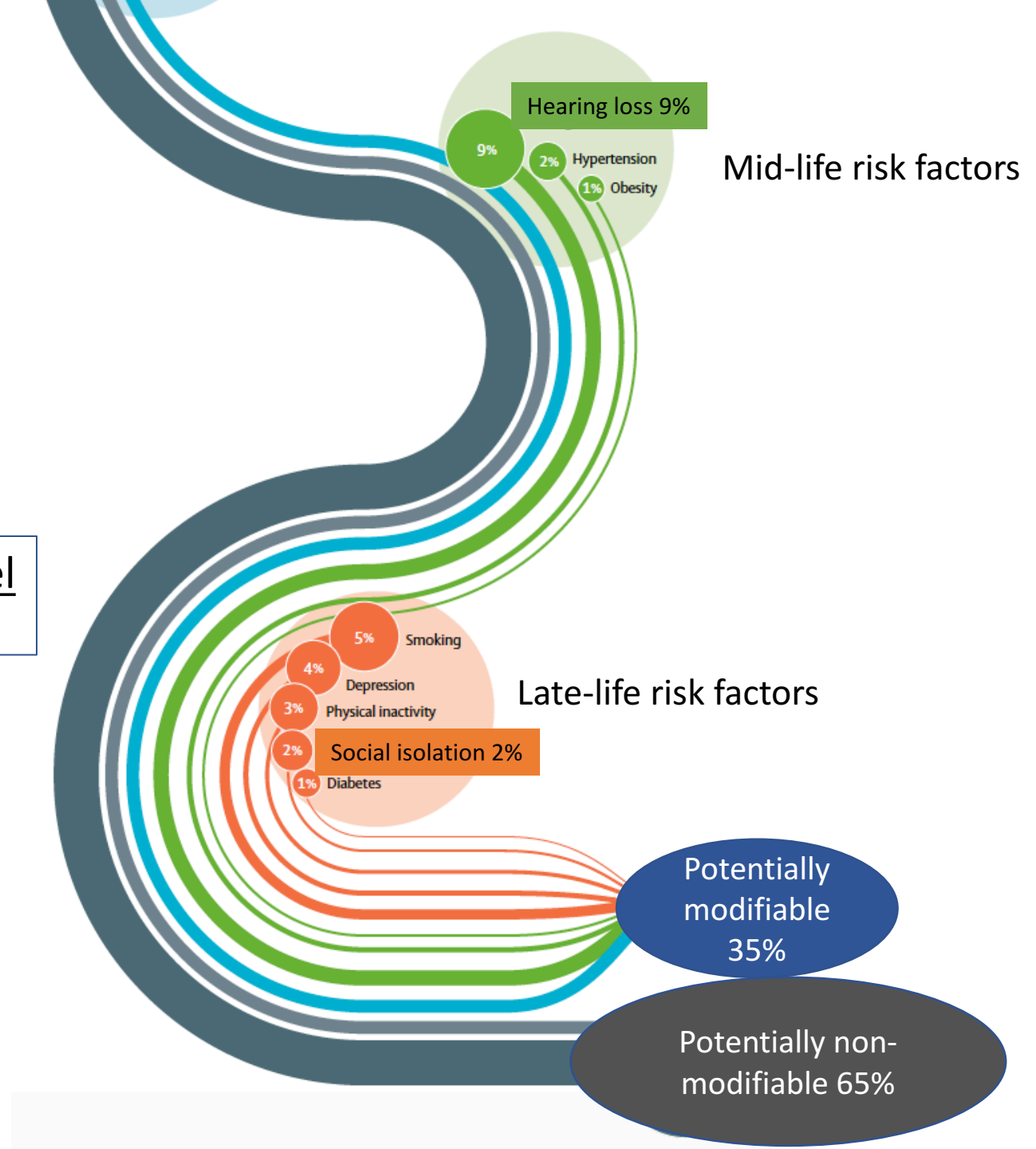
# The Lancet Commissions

## Dementia prevention, intervention, and care

Gill Livingston, Andrew Sommerlad, Vasiliki Orgeta, Sergi G Costafreda, Jonathan Huntley, David Ames, Clive Ballard, Sube Banerjee, Alistair Burns, Jiska Cohen-Mansfield, Claudia Cooper, Nick Fox, Laura N Gitlin, Robert Howard, Helen C Kales, Eric B Larson, Karen Ritchie, Kenneth Rockwood, Elizabeth L Sampson, Quincy Samus, Lon S Schneider, Geir Selbæk, Linda Teri, Naaheed Mukadam

July 20, 2017

Risk factors for dementia: A life course model  
Numbers indicate population attributable fractions



# Social Relationships and Mortality Risk: A Meta-analytic Review

Julianne Holt-Lunstad<sup>1,2\*</sup>, Timothy B. Smith<sup>2,3</sup>, J. Bradley Layton<sup>3</sup>

“Across 148 studies (308,849 participants), the random effects weighted average effect size was  $OR = 1.50$  (95% CI 1.42 to 1.59), indicating a 50% increased likelihood of survival for participants with stronger social relationships.”

- Research questions: Are hearing loss, vision loss or dual sensory loss associated with smaller social networks, lower social participation, reduced availability of social support, and loneliness, respectively? Does age (45-64 years vs. 65-85 years) or sex modify the associations?
- Participants: CLSA Tracking cohort, 1<sup>st</sup> wave of data
- Exclusion criteria: Participants with any missing data
- Design: Cross-sectional telephone survey
- Methods:

# Exposure variables: Dichotomous subjective sensory loss

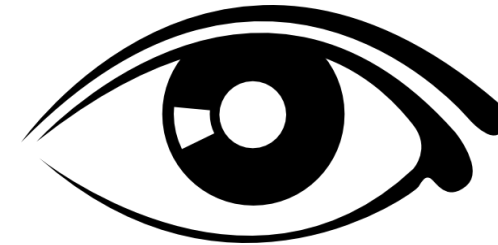
- Hearing

- “Is your hearing, using a hearing aid if you have one...”
  - Excellent, very good, good; VERSUS
  - Fair, poor/non-existent or deaf



- Vision

- “Is your eyesight, using corrective lenses if you have them...”
  - Excellent, very good, good; VERSUS
  - Fair, poor/non-existent or blind



**NOTE: OBJECTIVE MEASURES (e.g., AUDIOMETRY AND VISUAL ACUITY) ARE NOW AVAILABLE FOR ANALYSIS FOR THE COMPREHENSIVE COHORT**

# Outcomes

- Social network diversity
- Social participation
- Availability of social support
- Loneliness



# Outcomes

- Social Network Diversity was measured using a slightly modified version of the Social Network Index (/10)
  - 1 point for being married or in a domestic partnership
  - 1 point (each) for interaction at least every 1-2 weeks (over the past year) with:
    1. Children
    2. Other close family members
    3. Friends
    4. Neighbours
    5. Work colleagues
    6. School mates
    7. Fellow volunteers
    8. Members of non-religious community groups
    9. Members of religious groups





# Outcomes

- Social Participation was measured using items developed for the Canadian Community Health Survey 4.2
  - Participants were classified as having low social participation if they did not participate in any of the following social activities at least once per week:
    1. Family/friendship activities outside the house
    2. Church or religious activities
    3. Sports/physical activities with others
    4. Education/cultural activities with others
    5. Service club activities
    6. Community/professional association activities
    7. Volunteer work
    8. Any other recreational activity with others



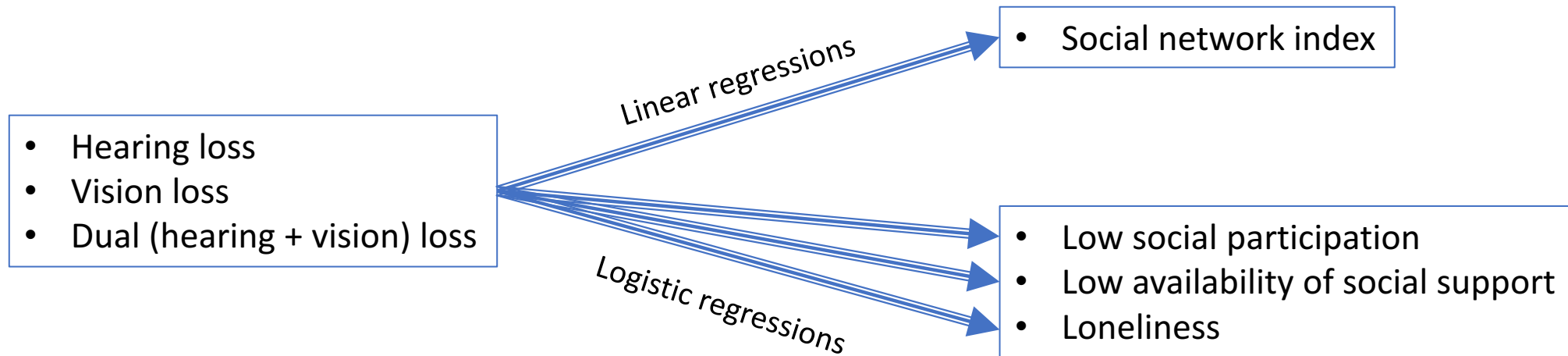
# Outcomes

- Social support: “Verbal and nonverbal communication between recipients and providers that helps manage uncertainty about the situation, the self, the other or the relationship and functions to enhance a perception of personal control.”
- Availability of Social Support was measured using the MOS Social Support Survey
  - Participants were classified as having low social support if their scores were less than the median
  - Scores for overall social support and 4 domains of social support were used
    - Tangible, emotional/informational, affectionate, positive social interactions

# Outcomes

- Loneliness: The subjective sense of being alone, regardless of objective network size
- Measured using a single survey item:
  - “In the past week, how often did you feel lonely?”
  - Participants were classified as lonely if they responded:
    - “Some of the time (1-2 days)”
    - “Occasionally (3-4 days)”
    - “All of the time (5-7 days)”
  - They were considered not lonely if they responded:
    - “Rarely or never” (< 1 day)

# Statistical methods – cross-sectional analysis



- Confounders in multivariate models included age, sex, income, education level, smoking status, self-reported histories of diabetes, myocardial infarction, angina, peripheral vascular disease, stroke, and TIA.

## Summary of significant results ( $p < 0.05$ )

	Hearing loss	Vision loss	Dual loss
Low social network diversity		X (men)	X (age 65-85)
Low social participation		X	X (age 65-85)
Low availability of social support	X	X	X
Loneliness	X	X	X

# Interpretation

Mobility + communication challenges

	Hearing loss	Vision loss	Dual loss
Low social network diversity		X (men)	X (age 65-85)
Low social participation		X	X (age 65-85)
Low availability of social support	X	X	X
Loneliness	X	X	X

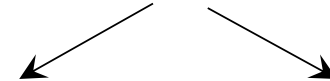
Communication challenges

# Interpretation

Went to the party but sits alone in the corner



Didn't bother even going



	Hearing loss	Vision loss	Dual loss
Low social network diversity		X (men)	X (age 65-85)
Low social participation		X	X (age 65-85)
Low availability of social support	X	X	X
Loneliness	X	X	X

Compared to people with vision and dual sensory losses, people with hearing loss may be better able to adjust their social patterns to accommodate their impairment rather than abandoning activities altogether

# Interpretation

	Hearing loss	Vision loss	Dual loss
Low social network diversity		X (men)	X (age 65-85)
Low social participation		X	X (age 65-85)
Low availability of social support	X	X	X
Loneliness	X	X	X

Women may adopt more positive coping strategies when managing their vision loss, while men may be more prone to abandoning relationships



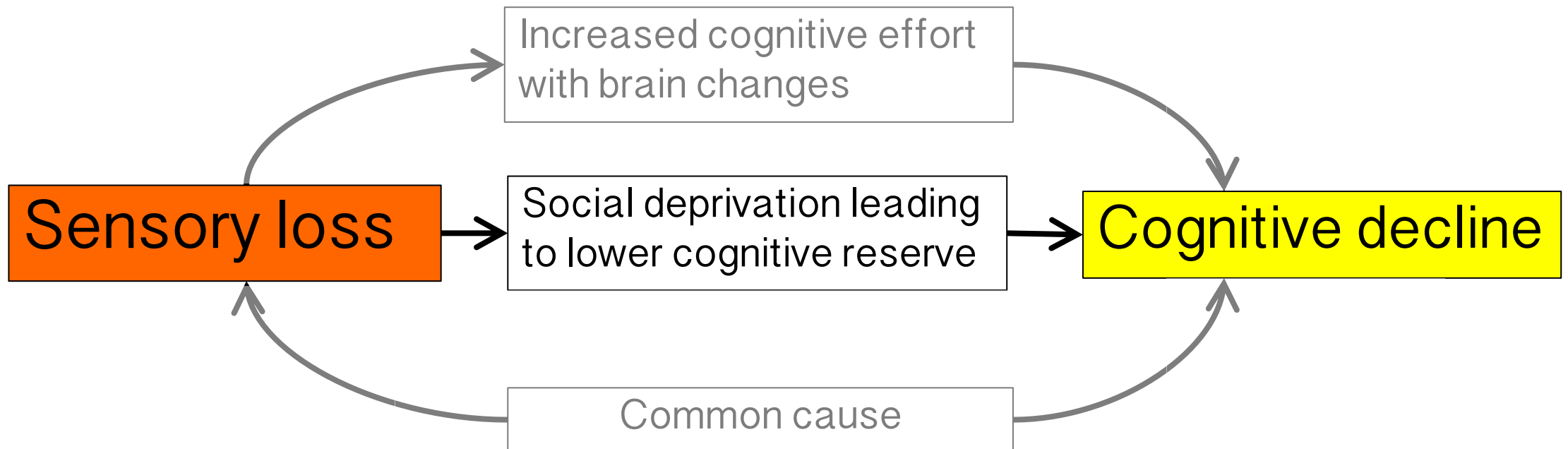
# Implications

- Sensory loss is common and may be an important risk factor for diminished social lives in older adults.
- Social support helps people cope with sensory loss and chronic disease; a lack may magnify the negative effects of those conditions
- *A more comprehensive approach to health care for sensory loss that includes communication counselling or interventions that increase social engagement may be helpful*
- Limitations: cross-sectional, possible unmeasured confounders, subjective exposure measures (possible misclassification bias)

# What can be changed? E.g.: hearing loss

- **Common sentiment:** "A hearing aid is all that is needed to treat hearing loss"
- **A more comprehensive public health approach includes:**
  - **Primary prevention**
    - Reduce dangerous noise exposure and cardiovascular risk factors
    - Low income countries: maternal/neonatal care, vaccinations, treatments for ear infections, ototoxic drugs
  - **Secondary prevention:** adult hearing screening
  - **Tertiary prevention**
    - *Individuals:* Encourage hearing aids and auditory rehab/counselling
    - *Industry, government, communities, health care:*
      - Environmental accommodations, patience and supportive social policy (e.g., in workplaces)
      - Initiatives (e.g., regulatory changes) to increase access to better and more affordable assistive technology
      - Changes in building codes to lower ambient noise and improve acoustics
      - Incorporation of hearing health care into comprehensive geriatric health promotion

Future CLSA Studies – Add cognition to the model in longitudinal studies. Does social deprivation mediate associations between hearing loss (or vision loss??) and cognitive decline?



# CLSA cognition measures

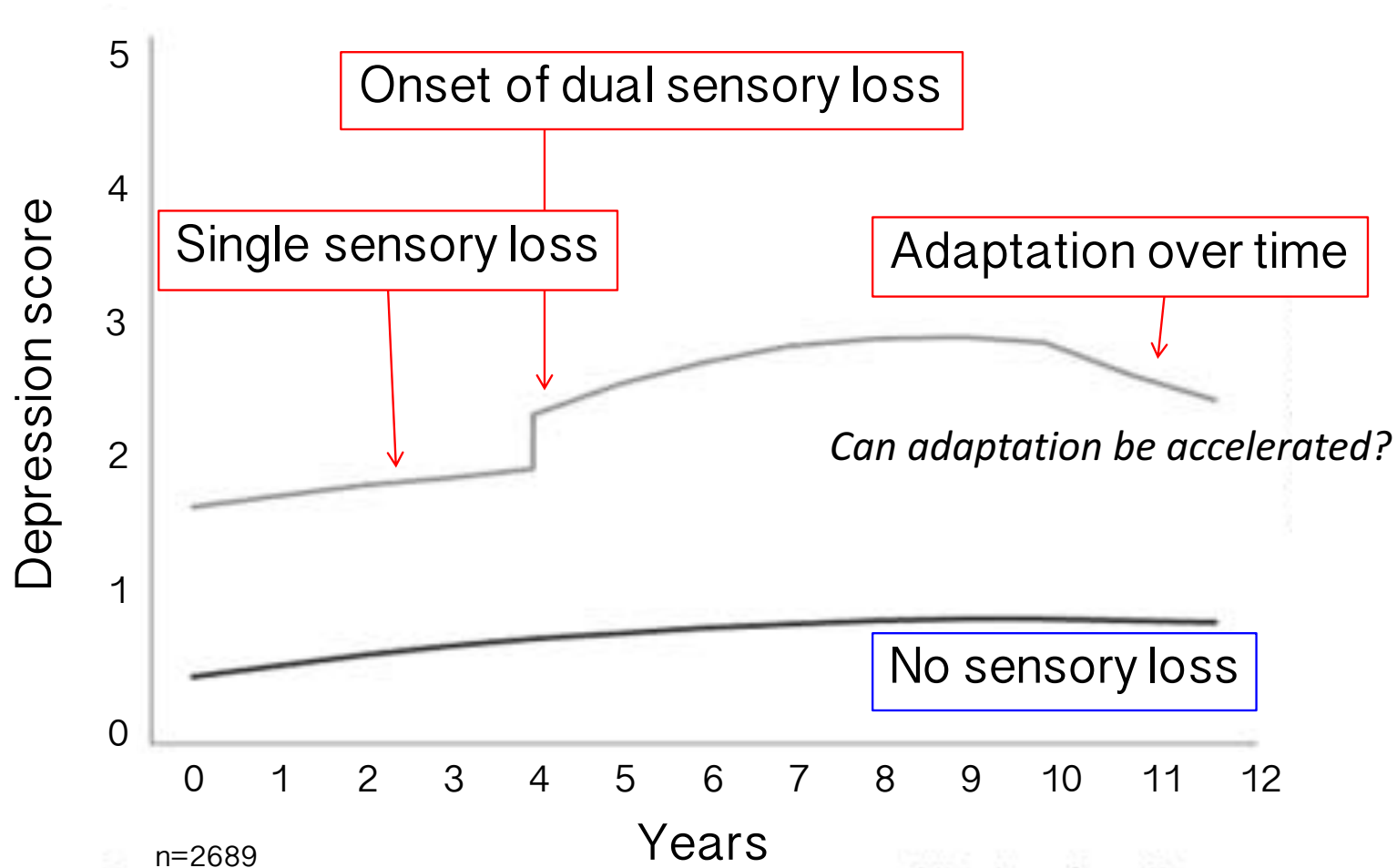
Cognitive domain	Test	Variable type
Memory	Rey Auditory Verbal Learning Test	Continuous
Executive Function	Mental Alternation Test	Continuous
	Prospective Memory Test	Continuous
	Stroop neuropsychological screening test (time to complete tasks)	Continuous
	Controlled oral word association test (correct responses)	Continuous
	Animal Naming	Continuous
Psychomotor speed	Simple and Choice reaction time test (% correct and mean reaction time)	Continuous

Future CLSA Studies – Determine modifying factors.  
Why does sensory loss affect people differently?

Which biological or environmental factors result in being susceptible or resilient to developing sensory loss or its consequences?

Do certain life events or transitions (onset of single or dual sensory loss, worsening of sensory loss, retirement, death of a partner, major health crises) affect how sensory loss affects an individual?

# Dual sensory loss and depression trajectories: The Health and Retirement Study, 2009





Thank you!

