Sensory Loss and Healthy Aging: The Association between CLSA Sensory and Social Measures

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Health is... “...the capacity of people to adapt to, respond to, or control life’s challenges and changes.” (Frankish et al., 1997)

“Man is by nature a social animal.” (Aristotle, 384-382 BCE)
“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.”
Words of an older woman who is hard of hearing...

“When you are hard of hearing you struggle to hear; When you struggle to hear you get tired; When you get tired you get frustrated; When you get frustrated you get bored; When you get bored you quit.  -- I didn’t quit today.”

Avoid by withdrawal from social interaction!
Hearing loss increases many health risks

• Health states associated with hearing loss in cross sectional or longitudinal observational studies:
  • Mortality
  • Dementia
  • Cognitive decline
  • Depression
  • Falls
  • Injuries
  • Frailty
  • Social isolation

Dementia prevention, intervention, and care


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

Mid-life risk factors
- Hearing loss: 9%
- Hypertension: 2%
- Obesity: 5%

Late-life risk factors
- Smoking: 5%
- Depression: 4%
- Social isolation: 2%
- Physical inactivity: 7%
- Diabetes: 1%

Potentially modifiable: 35%
Potentially non-modifiable: 65%
A CLSA Tracking Cohort Study

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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
• Does age (45-64 years vs. 65-85 years) or sex modify the associations?
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)
### Summary of significant results

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<thead>
<tr>
<th></th>
<th>Hearing loss</th>
<th>Vision loss</th>
<th>Dual loss</th>
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<tbody>
<tr>
<td>Low social network diversity</td>
<td></td>
<td>X (men)</td>
<td>X (age 65-85)</td>
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<tr>
<td>Low social participation</td>
<td></td>
<td>X</td>
<td>X (age 65-85)</td>
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<tr>
<td>Low availability of social support</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Loneliness</td>
<td>X</td>
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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.
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?

- Sensory loss
  - Social deprivation leading to lower cognitive reserve
    - Increased cognitive effort with brain changes
  - Common cause
- Cognitive decline
Thank you!