Low health literacy predicts decline in physical function among older adults: Findings from the LitCog cohort

Rachel O’Conor, MPH
November 3, 2014
Acknowledgements

- Queen Mary University of London
  - Samuel Smith, PhD
- Northwestern University
  - Michael Wolf, PhD MPH
  - Laura Curtis, MS
  - Julia Yoshino Benavente, MPH
  - Eleanor Small
  - Claudia Feldhaus
- Boston Medical Center
  - Michael Paasche-Orlow, MD
  - Katherine Waite
Aging and physical function

- Proportion of adults 60+ increasing
- Physical function important outcome to monitor as population ages
  - Associated with risk of falling, cognition, & mortality
- Physical function increased in recent years\(^1\)
- Disparities exist among population sub-groups\(^2\)

\(^1\) Feedman et al, 2002, *JAMA*
Health literacy, age and physical function

- Limited health literacy is more prevalent among older adults\(^1\)

- Cross sectional associations with physical function\(^2\)

- Longitudinal analyses needed to establish if decline is faster among people with low health literacy

\(^1\)Gazmararian et al., 1999, JAMA; Paasche-Orlow et al., 2005 JGIM

\(^2\)Wolf et al. 2005, Arch Intern Med; Serper et al., 2014, Health Serv Res
Objective

- To determine if health literacy is associated with decline in physical function among an established cohort of older adults.
Cohort of community-dwelling older American adults

Recruited from GIM clinic and five FQHCs in Chicago, IL

828 patients aged 55-74 at baseline (2008-2011)

529 (63.9%) retained after 3.2 years (SD=0.4)

Key reference: Wolf et al., 2010 JGIM
Measures

- **Baseline:**
  - Newest Vital Sign (NVS)
  - Single-items: smoking, physical activity, BMI, alcohol
  - Age, gender, race, education, chronic conditions

- **Outcome measure:**
  - 10-item PROMIS physical function
  - Meaningful decline (>0.5 SD of baseline score)
Baseline characteristics

- Mean Age – 63 years
- 31% male
- 44% Non-white
- 11% current smoker
- 41% ≥ 1 drink per week
- 60% < active 4 times per week
- 67% Overweight or Obese
- 23% marginal health literacy
- 26% limited health literacy
Baseline results

- Baseline physical function: $M=83.2$ (SD=17) out of 100

Adjusted analyses control for age, gender, race, education, smoking status, physical activity, alcohol intake, BMI, number of chronic conditions.
Follow-up results

- $T_2$ physical function: 81.9 (SD=17; $p=0.006$)
- 20.5% experienced a meaningful decline
# Follow-up results

<table>
<thead>
<tr>
<th></th>
<th>Decline in Physical Function</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>P value</td>
<td></td>
</tr>
<tr>
<td>Health Literacy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marginal</td>
<td>2.67 (1.41 - 5.04)</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td>Limited</td>
<td>2.63 (1.25 - 5.56)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>2.30 (1.21 - 4.37)</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Obese</td>
<td>2.11 (1.11 - 4.04)</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Chronic Conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1.46 (0.62 - 3.46)</td>
<td>0.39</td>
<td></td>
</tr>
<tr>
<td>2+</td>
<td>2.77 (1.21 - 6.31)</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

Adjusted analyses control for age, gender, race, education, smoking status, physical activity, alcohol intake, baseline physical function.
Conclusions

- First study to prospectively examine health literacy and 3 year decline in health status

- Magnitude of associations comparable to 2 or more chronic conditions, or being overweight/obese

- Poor health self-management skills likely the cause?  
  - e.g. medication use, preventive health service use
Limitations

☐ Single urban city

☐ Self-reported outcomes

☐ Participants who completed $T_2$ interview
  ▪ Adequate health literacy skills
  ▪ Fewer chronic conditions
  ▪ Higher baseline physical function score
Clinical implications

- Limited health literacy is prevalent among older adults – promoting clinician awareness important

- Prevention and self-management strategies should include health literacy in design

- Future studies should further investigate causal mechanisms linking health literacy to physical decline
Thank You!

- Sponsored by National Institute on Aging (R01AG030611) and National Heart, Lung and Blood Institute (R01HL1166320)

Contact Information
Rachel O’Conor, MPH
Research Project Manager
Division of General Internal Medicine
Northwestern University
750 N. Lakeshore Drive, 10th Floor
Chicago, IL 60611
312.503.3240
r-oconor@northwestern.edu