Regional Variation in U.S. Dementia Trends and Race/Ethnic Disparities in Cognitive Impairment and Dementia

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Alzheimer’s Disease & Related Dementias (ADRD)  
Looming Public Health Crisis

- Alzheimer’s disease (AD) only leading cause of death that cannot be prevented, substantially slowed, or cured.

66% increase in mortality from AD

Created from data from the National Center for Health Statistics.208
Dementia Trends

• U.S. dementia prevalence among adults 65+ has decreased, from 11.6% in 2000 to 8.8% in 2012 (Langa et al. 2017)

• Evidence of decline in dementia among 65+ population:
  – **UK** (Matthews et al. 2013 – CFAS)
  – **Spain** (Lobo et al. 2007 – ZARADEMP)
  – **Germany** (Doblhammer, Fink, Fritz 2015 – Ins Claims)

• Evidence of increasing dementia:
  – **Japan** (Dodge et al. 2012; Ohara et al. 2017)
U.S. Regional Variation in Dementia Prevalence

Prevalence of Dementia
Based on 20% of the Medicare Population, 2008
age-sex standardized to the U.S. Population (Census 2010)

ADRD Mortality is Geographically Patterned

Mortality increase clustered in southern states

Neurological disorders include:
Alzheimer disease and related dementias; Parkinson disease; epilepsy; multiple sclerosis; motor neuron disease.

Data & Methods

- U.S. Health and Retirement Study; Ages 65+
- Dementia classification from cognitive assessment OR proxy/interviewer assessment of cognitive and physical function
- Census region (division) at time of interview
- Pooled logistic regression (cluster adj. std. error)
  - N = 21,054 person-wave observations
  - About 1/3 65+ in 2000 are 77+ in 2012
  - Numbers weighted for complex survey design
  - 2012 numbers age and sex standardized to 2000
U.S. Regions and Sub-Divisions
Decline in Dementia from 2000-2012: U.S. Regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Absolute Change 2000-2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>-1.20%</td>
</tr>
<tr>
<td>Northeast</td>
<td>-2.86%</td>
</tr>
<tr>
<td>Midwest</td>
<td>-3.32%</td>
</tr>
<tr>
<td>South</td>
<td>-1.46%</td>
</tr>
<tr>
<td>West</td>
<td>-0.82%</td>
</tr>
</tbody>
</table>

Model 1: age, sex

Model 2: age, sex, race, education, wealth, high bp, heart disease, diabetes, stroke, bmi, smoking status
Changing Prevalence of Low Education (<HS)

- South
- Midwest
- Northeast
- West

2000 2012
Changing Prevalence of Dementia by Education

Primary (<HS) 22.6% to 18.2%
Secondary (HS) 7.2% to 7.4%
Tertiary (College) 5.6% to 4.7%
R/E Differences in Dementia (2000-2004) by Region

Model 1: age, sex   Model 2: age, sex, foreign born status, education
R/E Differences in CIND (2000-2004) by Region

Model 1: age, sex   Model 2: age, sex, foreign born status, education
Conclusions

• Decline in dementia prevalence was variable across (and within) region
• Possible Explanations:
  1) Increasing educational attainment
  2) Improved lives of those with lowest attainment
• Geographic variation in racial and ethnic differences in prevalence of cognitive impairment and dementia
  - Hispanics have highest prevalence in New England and Mountain states (dementia) and Midwest (CIND)
  - Blacks have highest prevalence in the South