Inequalities in rates of amenable mortality by individual socioeconomic position

Megan Yates

Ruth Dundas, Jill P. Pell and Alastair H. Leyland
MRC/CSO Social and Public Health Sciences Unit, University of Glasgow
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Background: amenable mortality

Premature deaths which should not occur in the presence of timely and effective health care

- 51 causes: e.g. measles, TB, breast cancers, hypertension, maternal deaths and surgical misadventures
- Age limit < 75 years
Inequalities – Europe

- Majority of overall amenable mortality studies
- First studies of inequalities in rates of amenable mortality

- Socioeconomic Position (SEP)/demographic measures:
  - Income
  - Educational attainment
  - Occupational social class
  - Household composition
  - Ethnicity and race
Inequalities – Europe
Inequalities – Europe

RII = 1.7

RII = 5.4
Inequalities – Scotland

- No accurate population wide individual measure of socioeconomic position

- Area level deprivation:
  - Carstairs index
  - SIMD
Inequalities – Scotland
Methods: Data

- Scottish Longitudinal Study
  - 5.3% sample of Scottish residents collected from the Census
  - Linked to Death Records

- Individual SEP:
  - Educational attainment
  - Occupational social class – RGSC and NS-SEC
  - Household relationships

- Age limits adjusted: 35 to 74 years
  - Stabilise SEP measures
Methods

• Two overall study periods → 1991 – 2000 and 2001 – 2010
  • 1991: ‘91-’94, ‘95-’97, ‘98-’00
  • 2001: ‘01-’04, ‘05-’07, ‘08-’10
• Person years at risk: Census day until 31 December 2000/2010

• Outcomes: rates of amenable, non-amenable and all cause mortality, and inequalities within

• Inequality indices – absolute (SII) and relative (RII)
  • Poisson regression, sex & SEP specific models adjusting for age group
  • Assumes gradients within mortality rates
Results

- 306,771 SLS members enumerated at 1991 and 2001 Censuses and through NHS Central Register
- 85 persons removed due to inconsistent/missing sex, dates of birth and/or ages.
- 40,307 all cause deaths – all ages
- 6,462 amenable deaths – under 75 years (16% of all deaths)
  - Number of deaths/PYAR analysed differs by SEP
Educational Attainment

• 3 Categories:
  » First degree and higher
  » Other higher qualification (HND, HNC etc)
  » No over 18 yr qualification (Highers, etc)
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Source: SLS
Educational Attainment

- **3 Categories:**
  - First degree and higher
  - Other higher qualification (HND, HNC, etc.)
  - No qualification (Highers, etc.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Men RII</th>
<th>Men SII</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991-94</td>
<td>3.43</td>
<td>348.5</td>
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<td>2001-04</td>
<td>3.80</td>
<td>270.1</td>
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Source: SLS
Educational Attainment

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<th>Women</th>
<th>RII</th>
<th>SII</th>
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<tr>
<td>1991-94</td>
<td>1.69</td>
<td>152.4</td>
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<td>2001-04</td>
<td>2.58</td>
<td>195.8</td>
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</table>

Source: SLS
Occupational Social Class

- 2 UK based measures: (RG)SC and NS-SEC
- Back & forward coded
- SC – 6 categories – skilled manual and non-manual split
- NS-SEC – 17 levels collapsed into 5 for analysis
Occupational Social Class

- **SC**
  - 6 categories
  - Skilled manual and non-manual split

- **NS-SEC**
  - 17 levels collapsed into 5 for analysis

Source: SLS
Occupational Social Class

<table>
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<tr>
<th>Men</th>
<th>SC</th>
<th>NS-SEC</th>
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<td>RII</td>
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<td>1991-94</td>
<td>1.20</td>
<td>31.1</td>
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<td>2001-04</td>
<td>2.12</td>
<td>142.8</td>
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Source: SLS
Household Relationships

- Extension to the marital status categories
- Self-defined relationship
- Consensual relationship vs other
- Includes 83.5% of all male and 87.5% of all female deaths under 75 years
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<th>Year</th>
<th>RII</th>
<th>SII</th>
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<tbody>
<tr>
<td>1991-94</td>
<td>2.75</td>
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<td>2001-04</td>
<td>4.84</td>
<td>314.7</td>
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</table>

Source: SLS
Household Relationships

- Extension to the marital status categories
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<th>SII</th>
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<tr>
<td>1991-94</td>
<td>1.31</td>
<td>79.1</td>
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<td>2001-04</td>
<td>2.07</td>
<td>153.8</td>
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</table>

Source: SLS
Comparing Sample to Population

- Area level deprivation – Carstairs score
Comparing Sample to Population

Source: SLS
### Comparing Sample to Population

<table>
<thead>
<tr>
<th></th>
<th>RII</th>
<th>SII</th>
<th>SLS</th>
<th>Total Popn</th>
<th>SLS</th>
<th>Total Popn</th>
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<td>1.69</td>
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<td>109.1</td>
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Source: SLS
Conclusions

• 1991 – 2000:
  • Absolute and relative inequalities were largest for educational attainment and household relationships, and smallest for occupational social class measures

• 2001 – 2010:
  • Relative inequalities were generally larger than previous census period, but less difference between the 4 measures
  • Absolute inequalities greatest in household relationships (men), fairly similar (women)
Thank you

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Megan Yates
megan.yates@glasgow.ac.uk