Testing concurrent validity in retrospective life history data using a prospective cohort study

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University College London

CPC Seminar Series
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Do prospective and retrospective reports of early-life circumstances predict later life wellbeing consistently?

<table>
<thead>
<tr>
<th>Health outcomes</th>
<th>Economic outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Self-rated health</td>
<td>– Home ownership</td>
</tr>
<tr>
<td>– Quality of life</td>
<td>– Income</td>
</tr>
<tr>
<td>– Smoking</td>
<td>– Savings</td>
</tr>
<tr>
<td>– Cognition</td>
<td>– Pension membership</td>
</tr>
</tbody>
</table>
How accurate are retrospective reports when compared with prospective data?

Source: Brown (2014) Longitudinal and Life Course Studies
What are the differences between prospective and retrospective data collected in NCDS and ELSA?

- **The National Child Development Study** is representative of a single birth cohort, whereas **English Longitudinal Study of Ageing** covers multiple cohorts aged 50+
- Prospective data collection in NCDS began at birth in 1958, but from 2002 in ELSA.
- Data collection has occurred every two years in ELSA and at age 7, 11, 16, 23, 33, 46, 50, 55 and plans for every five years going forward in NCDS.
- In 2007, ELSA asked respondents to complete a *retrospective life history interview*, including living situation when 10 years old.
- We harmonise later life measures at **age 50 in NCDS in 2008** with measures for those **aged 50-55 in ELSA in 2007**.
Estimates of later life wellbeing outcomes in NCDS and ELSA samples

<table>
<thead>
<tr>
<th>Outcome variables at age 50 (NCDS) or 50-55 (ELSA)</th>
<th>NCDS</th>
<th>ELSA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fair or poor general health (%)</td>
<td>18.3</td>
<td>18.8</td>
</tr>
<tr>
<td>CASP-12 - Mean (SD)</td>
<td>26.1 (5.8)</td>
<td>25.7 (6.2)</td>
</tr>
<tr>
<td>Smokes (%)</td>
<td>21.8</td>
<td>35</td>
</tr>
<tr>
<td>Cognition – Mean (SD)</td>
<td>27.1 (4.8)</td>
<td>26.6 (5.2)</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owner occupier</td>
<td>83.9</td>
<td>82.8</td>
</tr>
<tr>
<td>Log gross weekly pay - Mean (SD)*</td>
<td>6.1 (0.8)</td>
<td>5.9 (0.9)</td>
</tr>
<tr>
<td>Log family savings – Mean (SD)</td>
<td>8.3 (3.3)</td>
<td>8.4 (3.5)</td>
</tr>
<tr>
<td>Member of pension scheme (%)</td>
<td>78.9</td>
<td>77.3</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>8033*</td>
<td>921</td>
</tr>
</tbody>
</table>

Notes: unweighted, imputed estimates
# Estimates of later life control variables in NCDS and ELSA samples

<table>
<thead>
<tr>
<th>Adult characteristics at age 50 (NCDS) or 50-55 (ELSA)</th>
<th>NCDS</th>
<th>ELSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (%)</td>
<td>49.2</td>
<td>44.4</td>
</tr>
<tr>
<td>NS-SEC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine or not working (%)</td>
<td>39.8</td>
<td>36.7</td>
</tr>
<tr>
<td>Intermediate (%)</td>
<td>20.1</td>
<td>23.9</td>
</tr>
<tr>
<td>Managerial occupation (%)</td>
<td>40.1</td>
<td>39.5</td>
</tr>
<tr>
<td>Not living in a couple (%)</td>
<td>20.5</td>
<td>23.2</td>
</tr>
<tr>
<td>Highest qualification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No qualifications (%)</td>
<td>10.1</td>
<td>15.1</td>
</tr>
<tr>
<td>Some qualifications (%)</td>
<td>54.6</td>
<td>59.5</td>
</tr>
<tr>
<td>Degree qualification (%)</td>
<td>35.2</td>
<td>25.4</td>
</tr>
<tr>
<td>N</td>
<td>8033*</td>
<td>921</td>
</tr>
</tbody>
</table>

Notes: unweighted, imputed estimates
Estimates of childhood exposures in NCDS and ELSA samples

<table>
<thead>
<tr>
<th>Childhood characteristics in NCDS and ELSA</th>
<th>NCDS</th>
<th>ELSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socioeconomic group of father at age 16 (NCDS) or 14 (ELSA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-manual childhood class (%)</td>
<td>40</td>
<td>39</td>
</tr>
<tr>
<td>Manual or unclassified job (%)</td>
<td>56.1</td>
<td>57.4</td>
</tr>
<tr>
<td>Retired, unemployed or sick (%)</td>
<td>4</td>
<td>3.6</td>
</tr>
<tr>
<td>No hot water in house at age 10 (ELSA) 11 (NCDS) (%)</td>
<td>3.2</td>
<td>16</td>
</tr>
<tr>
<td>Parents separated between birth and 16 (%)</td>
<td>7.9</td>
<td>8.1</td>
</tr>
<tr>
<td>Financial hardship at or before age 16 (%)</td>
<td>16</td>
<td>5.2</td>
</tr>
<tr>
<td>Whether in institutional care at or before age 16 (%)</td>
<td>2.2</td>
<td>2.9</td>
</tr>
<tr>
<td>N</td>
<td>8033*</td>
<td>921</td>
</tr>
</tbody>
</table>

Notes: unweighted, imputed estimates
# Estimates of life course exposures in NCDS and ELSA samples

<table>
<thead>
<tr>
<th>Life course characteristics in NCDS and ELSA</th>
<th>NCDS</th>
<th>ELSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of lifetime partners</td>
<td>1.5 (0.9)</td>
<td>1.4 (0.8)</td>
</tr>
<tr>
<td>0 (%)</td>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>1 (%)</td>
<td>59.7</td>
<td>62.2</td>
</tr>
<tr>
<td>2 (%)</td>
<td>23.7</td>
<td>24</td>
</tr>
<tr>
<td>3+ (%)</td>
<td>11.6</td>
<td>8.6</td>
</tr>
<tr>
<td>% working life employed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 – 50 %</td>
<td>13.8</td>
<td>11.5</td>
</tr>
<tr>
<td>50 – 85 %</td>
<td>29.7</td>
<td>28.9</td>
</tr>
<tr>
<td>85 – 99 %</td>
<td>27.6</td>
<td>23.8</td>
</tr>
<tr>
<td>100 %</td>
<td>28.9</td>
<td>35.8</td>
</tr>
<tr>
<td>Number of natural children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 (%)</td>
<td>15.8</td>
<td>16.1</td>
</tr>
<tr>
<td>1 (%)</td>
<td>13.2</td>
<td>12.4</td>
</tr>
<tr>
<td>2 (%)</td>
<td>41.4</td>
<td>37.6</td>
</tr>
<tr>
<td>3 (%)</td>
<td>19.3</td>
<td>20.1</td>
</tr>
<tr>
<td>4 (%)</td>
<td>10.3</td>
<td>13.9</td>
</tr>
<tr>
<td>N</td>
<td>8033*</td>
<td>921</td>
</tr>
</tbody>
</table>

Notes: unweighted, imputed estimates
Childhood exposures regressed on later life health outcomes

NCDS  NCDS inc. childhood FSM status, ability and behaviour
ELSA
Childhood exposures regressed on later life economic outcomes

- Childhood social class (ref: Non-manual):
  - Manual or unclassified job
  - Retired, unemployed or sick

- Parents (ref: Did not separate in childhood):
  - Separated between birth and 16

- Institutional care (ref: Not in care during childhood):
  - In care during childhood

- Childhood social class (ref: Non-manual):
  - Manual or unclassified job
  - Retired, unemployed or sick

- Parents (ref: Did not separate in childhood):
  - Separated between birth and 16

- Institutional care (ref: Not in care during childhood):
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  - In care during childhood

- Childhood social class (ref: Non-manual):
  - Manual or unclassified job
  - Retired, unemployed or sick

- Parents (ref: Did not separate in childhood):
  - Separated between birth and 16

- Institutional care (ref: Not in care during childhood):
  - In care during childhood

NCDS and NCDS inc. childhood FSM status, ability and behaviour
ELSA
Life course exposures regressed on later life health outcomes

**genhlth**

- **Partnership history (ref: One partner):**
  - No partners
  - Two partners
  - Three or more partners
- **Employment history (ref: 100% employed):**
  - 0-50%
  - 50-85%
  - 85-99%
- **Fertility history (ref: Two children):**
  - No children
  - One child
  - Three children
  - Four or more children

**casp12**

- **Partnership history (ref: One partner):**
  - No partners
  - Two partners
  - Three or more partners
- **Employment history (ref: 100% employed):**
  - 0-50%
  - 50-85%
  - 85-99%
- **Fertility history (ref: Two children):**
  - No children
  - One child
  - Three children
  - Four or more children

**smoke**

- **Partnership history (ref: One partner):**
  - No partners
  - Two partners
  - Three or more partners
- **Employment history (ref: 100% employed):**
  - 0-50%
  - 50-85%
  - 85-99%
- **Fertility history (ref: Two children):**
  - No children
  - One child
  - Three children
  - Four or more children

**cognition**

- **Partnership history (ref: One partner):**
  - No partners
  - Two partners
  - Three or more partners
- **Employment history (ref: 100% employed):**
  - 0-50%
  - 50-85%
  - 85-99%
- **Fertility history (ref: Two children):**
  - No children
  - One child
  - Three children
  - Four or more children

---

**NCDS**  **ELSA**
Life course exposures regressed on later life economic outcomes

**Owner**

- Partnership history (ref: One partner):
  - No partners
  - Two partners
  - Three or more partners
- Employment history (ref: 100% employed):
  - 0-50%
  - 50-85%
  - 85-99%
- Fertility history (ref: Two children):
  - No children
  - One child
  - Three children
  - Four or more children

**Pension**

- Partnership history (ref: One partner):
  - No partners
  - Two partners
  - Three or more partners
- Employment history (ref: 100% employed):
  - 0-50%
  - 50-85%
  - 85-99%
- Fertility history (ref: Two children):
  - No children
  - One child
  - Three children
  - Four or more children

**Loggrswk**

- Partnership history (ref: One partner):
  - No partners
  - Two partners
  - Three or more partners
- Employment history (ref: 100% employed):
  - 0-50%
  - 50-85%
  - 85-99%
- Fertility history (ref: Two children):
  - No children
  - One child
  - Three children
  - Four or more children

**Logsav**

- Partnership history (ref: One partner):
  - No partners
  - Two partners
  - Three or more partners
- Employment history (ref: 100% employed):
  - 0-50%
  - 50-85%
  - 85-99%
- Fertility history (ref: Two children):
  - No children
  - One child
  - Three children
  - Four or more children
Childhood and life course exposures regressed on health outcomes

- Childhood social class (ref: Non-manual): Manual or unclassified job
  Retired, unemployed or sick
  Parents (ref: Did not separate in childhood):
  Separated between birth and 16
  Institutional care (ref: Not in care during childhood):
  In care during childhood
  Partnership history (ref: One partner):
  No partners
  Two partners
  Three or more partners
  Employment history (ref: 100% employed):
  0-50%
  50-85%
  85-99%
  Fertility history (ref: Two children):
  No children
  One child
  Three children
  Four or more children
Childhood and life course exposures regressed on economic outcomes

- Childhood social class (ref: Non-manual):
  - Manual or unclassified job
  - Retired, unemployed or sick
- Parents (ref: Did not separate in childhood):
  - Separated between birth and 16
- Institutional care (ref: Not in care during childhood):
  - In care during childhood
- Partnership history (ref: One partner):
  - No partners
  - Two partners
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- Manual or unclassified job
- Retired, unemployed or sick
- Parents (ref: Did not separate in childhood):
- Separated between birth and 16
- Institutional care (ref: Not in care during childhood):
- In care during childhood
- Partnership history (ref: One partner):
- Employment history (ref: 100% employed):
- Fertility history (ref: Two children):
- No children
- One child
- Three children
- Four or more children

NCDS • ELSA
Conclusions

• There are a number of childhood and life course exposure we are able to concurrently validate in the retrospective data using comparable prospective data

• Suggests retrospective life course data are not biased and do consistently predict later life wellbeing

• Childhood exposures that respondents are required to subjectively recall or compare against historical norms are not validated

• Prospective measurements of childhood poverty, behaviour and ability mediate associations between the validated retrospective childhood exposures and later life wellbeing
Limitations and further analysis

- Age 50-55 is not representative of ageing studies
- Not comparing the same samples
  - Unbalanced
  - Slightly different ages at different times
- Prospective data is sometimes retrospective
Model coefficients for childhood ability, behaviour and poverty status on later life wellbeing

<table>
<thead>
<tr>
<th></th>
<th>SRH</th>
<th>QoL</th>
<th>Smoke</th>
<th>Cog.</th>
<th>Owner</th>
<th>Pens</th>
<th>Pay</th>
<th>Sav</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maths score</strong></td>
<td>-0.021***</td>
<td>0.018</td>
<td>-0.015**</td>
<td>0.137***</td>
<td>0.019***</td>
<td>0.026***</td>
<td>0.009***</td>
<td>0.044***</td>
</tr>
<tr>
<td><strong>Reading score</strong></td>
<td>-0.014</td>
<td>-0.009</td>
<td>-0.016*</td>
<td>0.131***</td>
<td>0.024**</td>
<td>0.039***</td>
<td>0.019***</td>
<td>0.038***</td>
</tr>
<tr>
<td><strong>Design score</strong></td>
<td>-0.061**</td>
<td>0.079</td>
<td>-0.042</td>
<td>0.034</td>
<td>0.038</td>
<td>0.029</td>
<td>0.001</td>
<td>0.002</td>
</tr>
<tr>
<td><strong>BSAG score</strong></td>
<td>0.019***</td>
<td>-0.054***</td>
<td>0.025***</td>
<td>-0.018*</td>
<td>-0.029***</td>
<td>-0.032***</td>
<td>-0.003**</td>
<td>-0.038***</td>
</tr>
<tr>
<td><strong>Rutter score</strong></td>
<td>0.042***</td>
<td>-0.086***</td>
<td>0.004</td>
<td>-0.008</td>
<td>-0.034***</td>
<td>0.0136</td>
<td>-0.004</td>
<td>-0.033</td>
</tr>
<tr>
<td><strong>Free school meals</strong></td>
<td>0.387***</td>
<td>-0.867**</td>
<td>0.428***</td>
<td>-0.482*</td>
<td>-0.629***</td>
<td>-0.433***</td>
<td>-0.079</td>
<td>-0.912***</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01, *** p<0.001