JCRA project
Retirement and Healthy Ageing
Determinants of healthy ageing in work and retirement

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- Dr. Martin Hyde

Denmark (unfunded)
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France
- Prof. Marcel Goldberg
- Dr. Marie Zins
Aim and Substudies

• investigate how determinants in later working life, during the retirement transition, and in early retirement influence for how long older individuals are able to live actively and healthily
• Epidemiological analyses of multiple prospective cohorts
• Detailed study of the retirement transition in Sweden
• Larger retirement study in Finland
Rationale

- Working life important to future health
  - working conditions -> possibilities to work longer
  - working longer major determinant of exposures
  - social class, work & work environment, health behaviours

- Retirement
  - major turning point
    - risks (e.g. inactivity & social isolation
    - opportunities (e.g. recuperation, flexibility, healthy activities, removal of noxious exposures)
  - possible mediator between work and healthy ageing
  - what do people do with 50+ hours a week??
  - special focus on
    - physical activity
    - sleep, circadian rhythm (and light)
Integrated Datasets in Europe for Ageing Research

Jointly funded by the ESRC, Swedish Council for Working Life and Social Research and the Academy of Finland under European Research Area on Ageing (ERA-AGE) joint research programme

A network of research centres in Sweden, Finland, UK, France and Denmark

www.idear-net.net
Occupational cohort and ageing studies in IDEAR

UK
β Whitehall II
β British Household Panel Survey (BHPS)
β English Longitudinal Study of Ageing (ELSA)

Sweden
β Swedish Longitudinal Occupational Survey of Health (SLOSH)
β Swedish Work Environment Survey (SWES)
β Insurance Medicine All Sweden (IMAS) register linked study

Denmark
β Copenhagen Ageing and Midlife Biobank Study (CAMBS)

France
β GAZEL
β CONSTANCE

Finland
β Finnish Public Sector Study (FPS)
Does healthy life expectancy (HLE) at age 50 differ by socioeconomic position and risky health behaviours?
Background

• The EU has committed to extending HLE by 2 years on average by 2020.
• Previous studies found that people with low levels of education are doubly disadvantaged by shorter life expectancy and more years spent in ill-health.
• Occupational position may be a more relevant socioeconomic measure.
Definition of healthy life

Three dimensions:

- With good self-rated health
- Without activity limitations (activities of daily living)
- Without chronic health conditions

Composite defined as good health on all three dimensions
Methods

• Use multi-state models to estimate age-specific transition probabilities between three health states in people aged 50 to 75

  - Healthy, unhealthy and dead

  - to compute partial healthy life expectancy between ages 50 and 75.
Multi-state model for self-rated health

For self-rated health, allow people to recover from poor health so there are 4 possible transitions.
Multi-state model for chronic conditions

For chronic conditions, recovery is not allowed

WITHOUT CHRONIC DISEASE → DEAD

WITH CHRONIC DISEASE
<table>
<thead>
<tr>
<th></th>
<th>ELSA</th>
<th>FPS</th>
<th>GAZEL</th>
<th>SLOSH</th>
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<tbody>
<tr>
<td>Sample size at baseline</td>
<td>8,973</td>
<td>35,780</td>
<td>18,263</td>
<td>8,330</td>
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<tr>
<td>Gender (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>46.4</td>
<td>19.9</td>
<td>73.8</td>
<td>45.7</td>
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<tr>
<td>Female</td>
<td>53.6</td>
<td>80.1</td>
<td>26.2</td>
<td>54.3</td>
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<td>Age-group (%)</td>
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<td></td>
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<tr>
<td>50-54</td>
<td>21.9</td>
<td>70.5</td>
<td>94.5</td>
<td>41.8</td>
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<tr>
<td>55-59</td>
<td>24.2</td>
<td>24.9</td>
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<td>60-64</td>
<td>18.7</td>
<td>4.5</td>
<td>1.3</td>
<td>23.5</td>
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<td>65-69</td>
<td>18.9</td>
<td>0.1</td>
<td>0.3</td>
<td>10.2</td>
</tr>
<tr>
<td>70-74</td>
<td>16.3</td>
<td>-</td>
<td>0.1</td>
<td>0.3</td>
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<tr>
<td>Socioeconomic position (%)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>High grade</td>
<td>30.0</td>
<td>29.9</td>
<td>14.1</td>
<td>19.3</td>
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<tr>
<td>Middle grade</td>
<td>23.5</td>
<td>49.0</td>
<td>57.8</td>
<td>44.7</td>
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<td>Low grade</td>
<td>46.5</td>
<td>21.2</td>
<td>28.2</td>
<td>36.0</td>
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<tr>
<td>Self rated health (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Good</td>
<td>75.0</td>
<td>63.4</td>
<td>79.9</td>
<td>77.9</td>
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<tr>
<td>Poor</td>
<td>25.0</td>
<td>36.0</td>
<td>20.1</td>
<td>22.1</td>
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<tr>
<td>Chronic health conditions *</td>
<td>(n=9,032)</td>
<td>(n=35,535)</td>
<td>(n=18,288)</td>
<td>(n=8,245)</td>
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<tr>
<td>No</td>
<td>49.5</td>
<td>57.7</td>
<td>50.7</td>
<td>57.4</td>
</tr>
<tr>
<td>Yes</td>
<td>50.5</td>
<td>42.3</td>
<td>49.3</td>
<td>42.6</td>
</tr>
</tbody>
</table>

Head et al., submitted
Transition probabilities by age from good self-rated health to poor self-rated health

High grade --  Middle grade --  Low grade --
**Percentage spent in good self-rated health**

**Social class**
- **High**
- **Middle**
- **Low**

**Health behav**
- **0**
- **1**
- **≥2**

Social class: Head et al., submitted
Health behaviours: Stenholm et al., submitted
Percentage spent without chronic conditions

Social class: Head et al., submitted
Health behaviours: Stenholm et al., submitted
Swedish Retirement Substudy
Aim

- Investigate changes across the retirement transition
  - general time use
  - physical activity
  - social activities
  - stress
  - wellbeing
  - sleep
  - diet
  - light exposure

- Linked with biennial questionnaire data from SLOSH
  (Swedish Longitudinal Occupational Survey of Health)
  - work
  - health
  - social circumstances and health behaviours

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Design

- One-week intense measurements
  - 6 months before retirement
  - 6 months after
  - 18 months after

- Questionnaire with background information
  - work,
  - family, social network and leisure time activities
  - health, medical history,
  - sleep habits
  - etc.

- Telephone interview: food intake during the previous day
Diary for 6 days

- Filled out every morning (sleep diary) and every evening
- Sleep diary
  - subjective sleep quality
  - disturbed sleep and awakenings
  - ease of awakening
  - alcohol intake
- Wake diary
  - workload and stress
  - social activities
  - exercise
  - time spent outdoors
  - rest
  - sleepiness and emotional state (happy, worried, sad angry etc)
Actigraphy

• Wrist actigraphy for 6 days (Actisleep)
  – measures primarily sleep length and sleep quality
• Motion sensors worn on chest and thigh (Axivity AX3)
  – 2 workdays and 2 weekend days
  – measures different kinds of physical activity
  – including body position
  – and sedentary behaviour
Participants

- **Aim 100 persons**
- **Contacted 985**
  - 52 included, 36 finished wave 1, 4 ongoing
  - already retired: 225
  - retirement > 4 years away: 430
  - changed retirement plans: 12
  - excluded due to medical conditions: 4
  - long-term sick leave: 20
  - shift work/part time work: 28
  - declined participation 36
  - No answer/wrong contact information: 178
- **New wave of recruitment**
  - through Statistics Sweden
FINNISH PUBLIC SECTOR STUDY (FPS)

• Postal survey every two years (participation rate 72%)
• Generalisable (>1000 occupations)
• Linkage to national health and pension registers
• Survey cohort (N=92,727)
  Register cohort (N=151,618)

All FPS participants retiring in 2014-2017 (N = 6,171)
Annual measurements throughout the retirement transition

- 18 mo   - 6 mo   Estimated retirement date   + 6 mo   + 18 mo

HEALTHY RETIREMENT
Aims of the FIREA-FPS study

• To determine how health behavioral factors change during retirement transition and how pre-retirement health status, social and work-related factors impact different health trajectories.

• To determine how objectively measured physical activity, sedentariness and duration and quality of sleep change during retirement transition.

• To examine how objectively measured clinical risk markers change during retirement transition
Annual data collection until 2020

**Questionnaire**
- Sept 2013 →
  - Sample n=6,171
  - Once n=3,362
  - Twice n=2,138
  - Three times n=252
  - Response rate 71%

**Objective activity measurements**
- Sept 2014 →
  - Sample n=700
  - Once n=329
  - Twice n=53
  - Wrist-worn accelerometer
  - Physical activity, sleep

**Clinical measurements**
- Oct 2015 →
  - Sample n=500
  - Stress: hair cortisol, 24h blood pressure monitoring
  - Cardiovascular risk markers
  - Nutrition
  - Physical fitness
  - Cognitive functioning
Continuation

- renEWL in the UK (Head)
- Forte programme grant in Sweden (Westerlund)
- Ministry of Education and Culture in Finland (Stenholm)
- Academy of Finland (Stenholm)
- FPS organisations in Finland (Vahtera)
- Nordforsk in Finland, Sweden and Denmark (PI Kivimäki; WP2: Westerlund, Vahtera, Hulvej Rod)
- Swedish Research Council (Magnusson Hanson)
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