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

Hugo Westerlund, Ph.D., Professor of Epidemiology, Stockholm University

Jenny Head, UCL

Sari Stenholm & Jussi Vahtera, University of Turku

Göran Kecklund, Stockholm University

et al.

Integrated Datasets in Europe for Ageing Research

IDEAR

Partners

Finland

- **Prof. Jussi Vahtera**
- **Prof. Sari Stenholm**
- **Prof. Mika Kivimäki**
- **Prof. Paula Salo**

Sweden

- **Prof. Hugo Westerlund**
- **Prof. Kristina Alexanderson**
- **Assoc.Prof. Göran Kecklund**
- **Dr. Holendro Chungkham Singh**
- **MSc Helena Petersén (doctoral student and study nurse)**

UK

- **Prof. Jenny Head**
- **Dr. Paola Zaninotto**
- **Dr. Martin Hyde**

Denmark (unfunded)

- **Assoc.Prof Naja Hulvej Rod**

France

- **Prof. Marcel Goldberg**
- **Dr. Marie Zins**

Stockholms universitet

Integrated Datasets in Europe for Ageing Research
IDEAR

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)

- **I**ntegrated **D**atasets in **E**urope for **A**geing **R**esearch
- 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

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

Sweden

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

Denmark

- Copenhagen Ageing and Midlife Biobank Study (CAMBS)

France

- GAZEL
- CONSTANCE

Finland

- Finnish Public Sector Study (FPS)

Integrated Datasets in Europe for Ageing Research
IDEAR

Does healthy life expectancy (HLE) at age 50 differ by socioeconomic position and risky health behaviours?

Integrated Datasets in Europe for Ageing Research
IDEAR

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

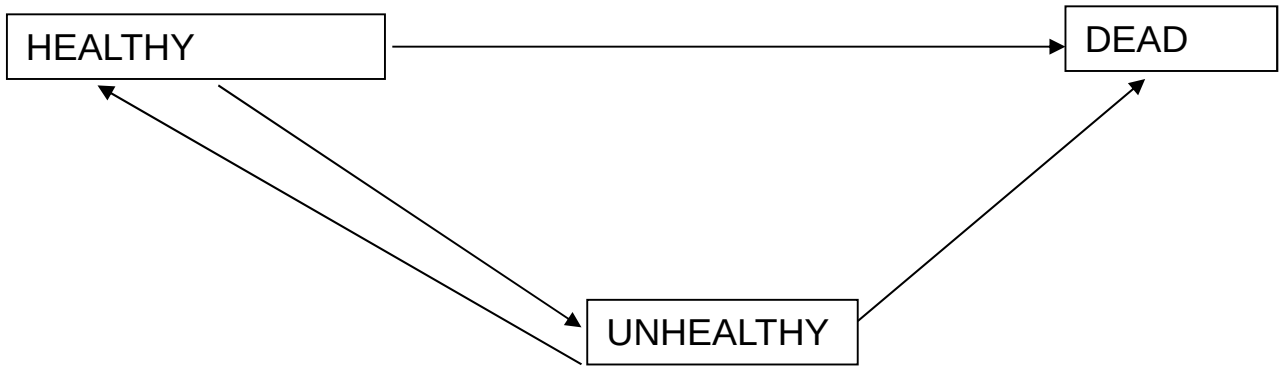
- Use multi-state models to estimate age-specific transition probabilities between three health states in people aged 50 to 75

  - Healthy, unhealthy and dead

- to compute partial healthy life expectancy between ages 50 and 75.

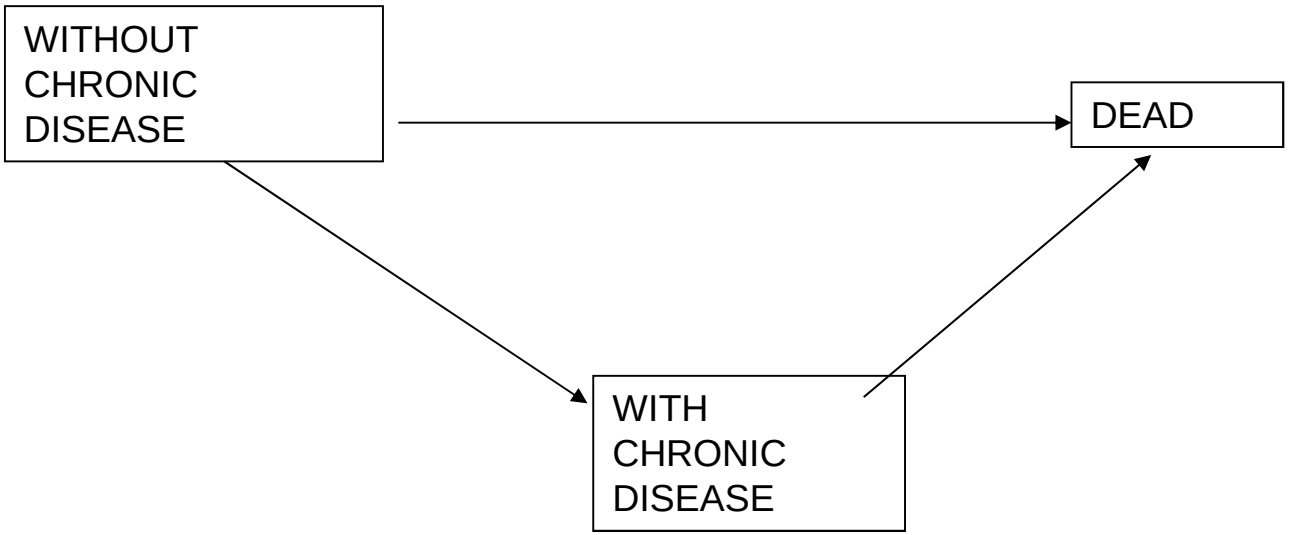
Multi-state model for self-rated health

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



Occupational grade paper: demography

	ELSA	FPS	GAZEL	SLOSH
Sample size at baseline	8 973	35 780	18 263	8 330
Gender (%)				
Male	46.4	19.9	73.8	45.7
Female	53.6	80.1	26.2	54.3
Age-group (%)				
50-54	21.9	70.5	94.5	41.8
55-59	24.2	24.9	3.9	24.2
60-64	18.7	4.5	1.3	23.5
65-69	18.9	0.1	0.3	10.2
70-74	16.3	-	0.1	0.3
Socioeconomic position (%)				
High grade	30.0	29.9	14.1	19.3
Middle grade	23.5	49.0	57.8	44.7
Low grade	46.5	21.2	28.2	36.0
Self rated health (%)				
Good	75.0	63.4	79.9	77.9
Poor	25.0	36.0	20.1	22.1
Chronic health conditions*	(n=9 032)	(n=35 535)	(n=18 288)	(n=8 245)
No	49.5	57.7	50.7	57.4
Yes	50.5	42.3	49.3	42.6

Head et al., submitted

Transition probabilities by age from good self-rated health to poor self-rated health

ELSA **FPS** **GAZEL** **SLOSH**

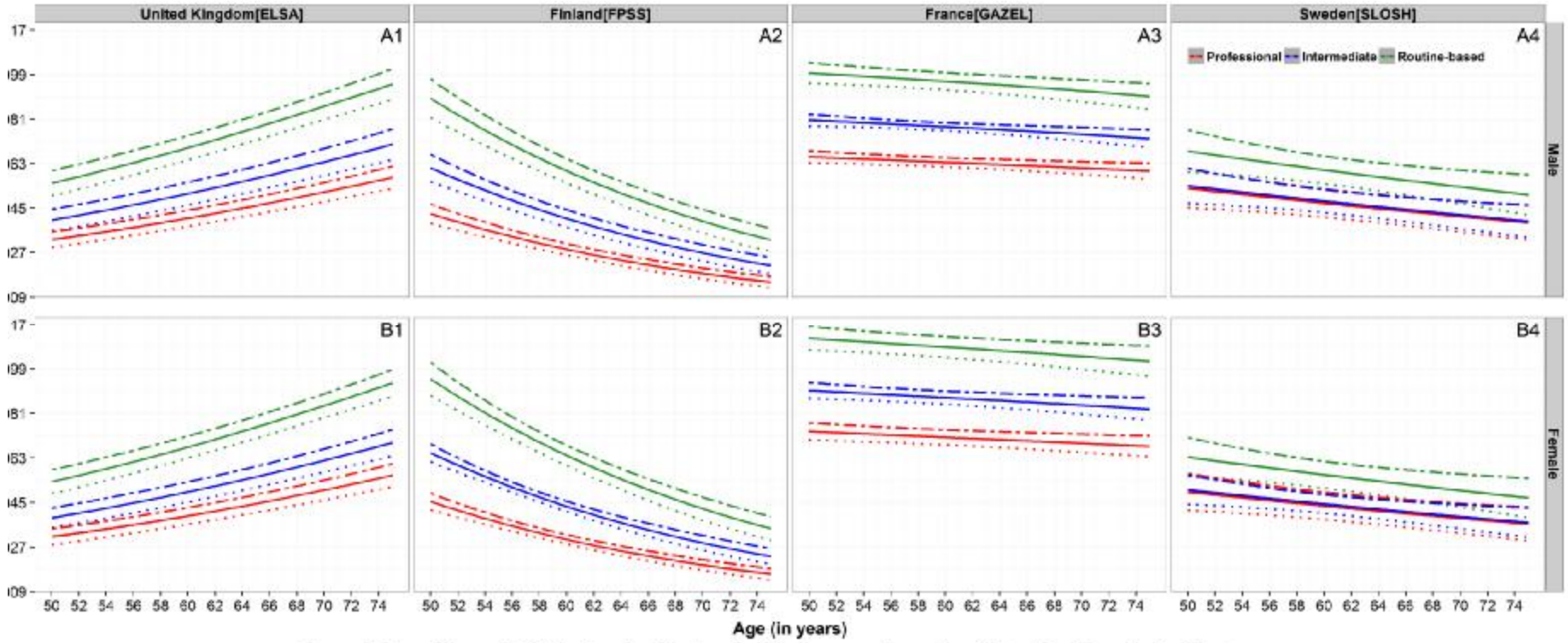


Figure-1a: Transition probabilities from healthy to unhealthy by occupation with self-rated health as the health outcome

High grade -- **Middle grade --** **Low grade --**

Percentage spent in good self-rated health

Men

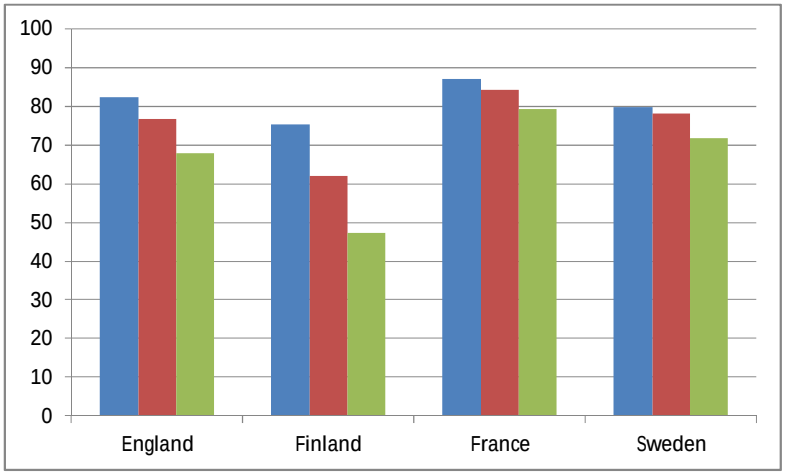
Women

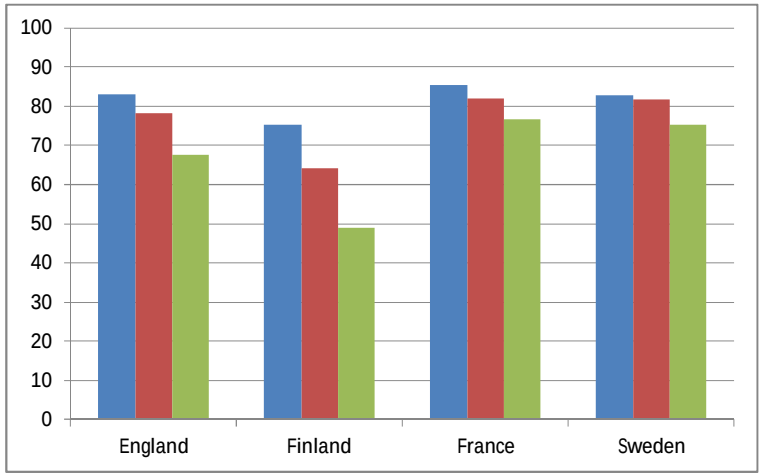
Social class

High

Middle

Low



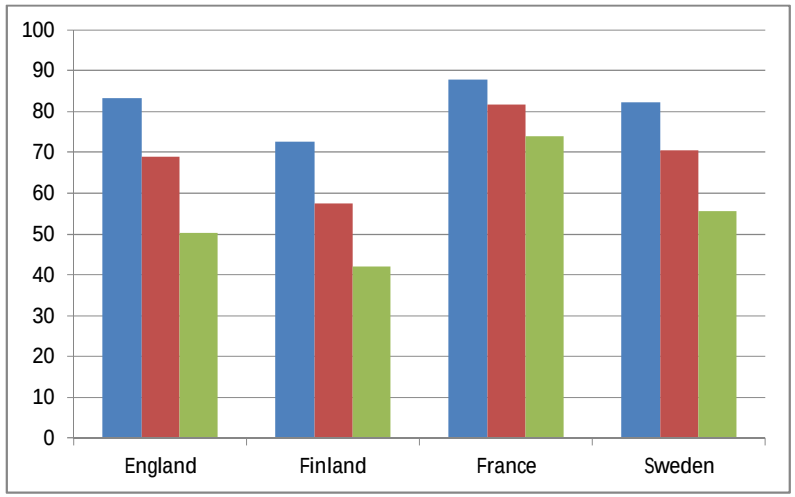


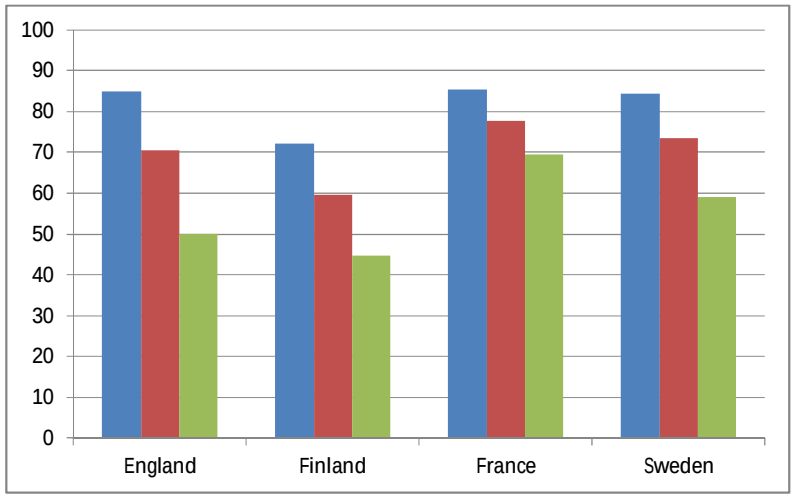
Health behav

0

1

≥2





Social class: Head et al., submitted

Health behaviours: Stenholm et al., submitted

Percentage spent without chronic conditions

Men

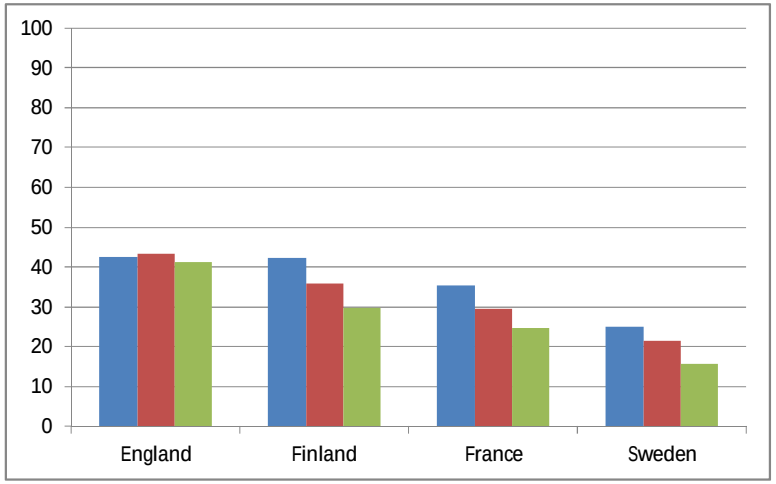
Women

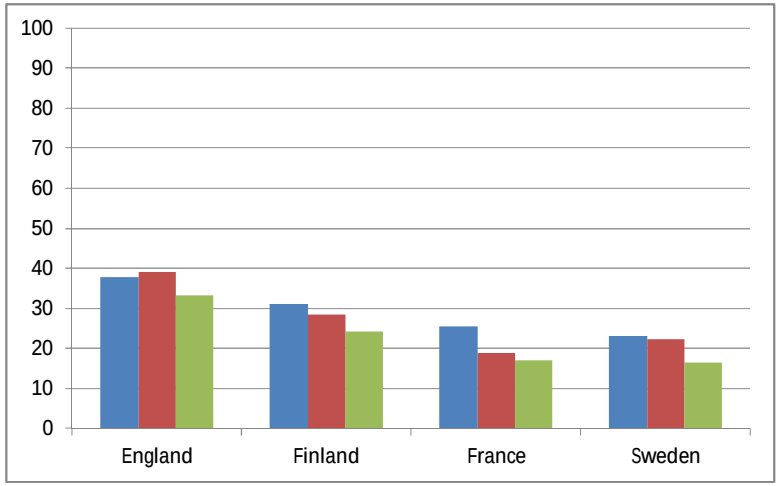
Social class

High

Middle

Low



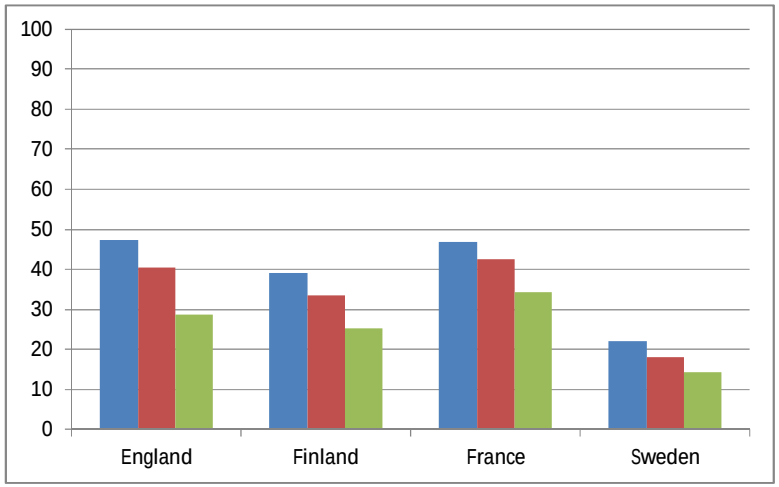


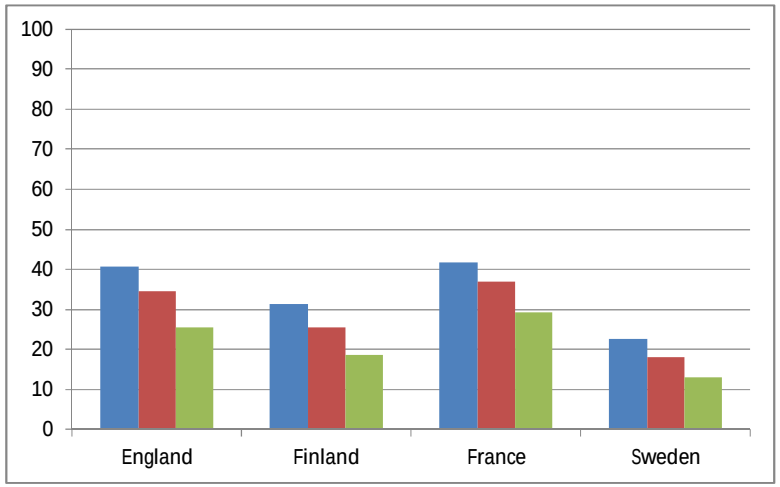
Health behav

0

1

≥2





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

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 activites
  - exercise
  - time spent outdoors
  - rest
  - sleepiness and emotional state (happy, worried, sad angry etc)

Actigraphy

- **Wrist actigraphy for 6 days (Actisleep)**
  - measures primarily sleep lenght 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)

1997 2000 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21

- 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

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

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 measurments

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

Turun yliopisto
University of Turku

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)

The **IDEAR** network is supported by the Swedish Council for Working Life and Social Research [FAS #2012-1661]; the Academy of Finland; and the Economic and Social Research Council [ES/K01336X/1]

Swedish Council for Working Life and Social Research

ACADEMY OF FINLAND

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

www.idear-net.net