Educational inequalities in Healthy Life Years in Belgium: Are there regional variations?

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24TH REVES MEETING, TAICHUNG, 25 MAY 2012

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Outline

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2. Methods

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1. Background

Definition

- Health Expectancies are an extension of Life Expectancy

- Health Expectancies (HE) express the number of remaining years that a person can expect to spend in a health state at a particular age, assuming current rates of mortality and morbidity.

- Generic term referring to an entire class of indicators:
  - **Healthy Life Years (HLY)**: Disability in daily activities
  - Healthy Life Expectancy: Self rated health
  - Dementia-free Life Expectancy: Dementia

Belgium

Belgium : « The divided country »

-**Languages:** Flemish vs. French

-**Political orientations:** liberalism + strong Flemish nationalism vs. socialism

-**Institutional Profile:**
    Federal State: social security, tax, health system (curative health services)
    Communities/regions: education, health prevention and promotion
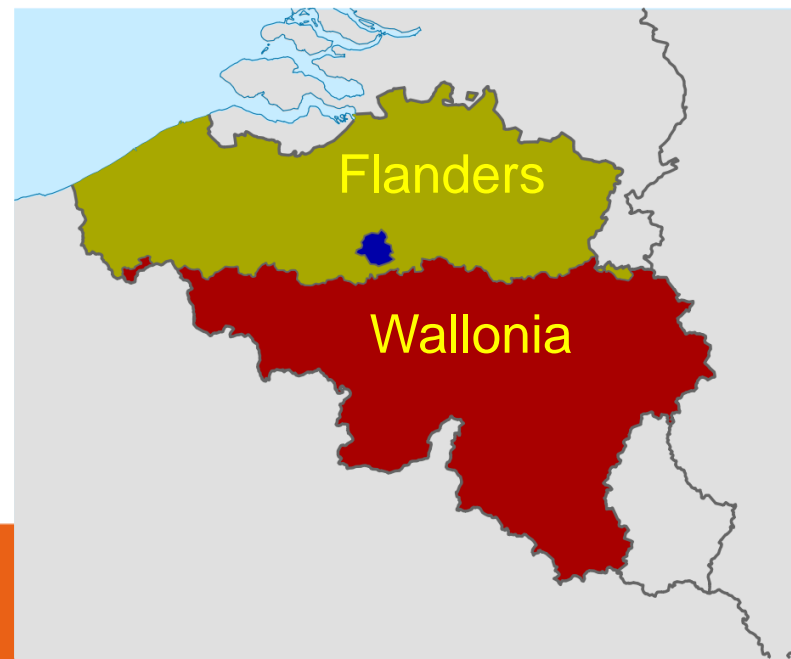
-**Socio-economic:**

At-risk-of-poverty rate (Statistics Belgium, 2010)
- 10.4% Flanders
- 17.8% Wallonia
Unemployement rate (Statistics Belgium, 2010)
- 5.2% Flanders
- 11.5% Wallonia

=>**Regional health statistics do matter in Belgium**

Past research on HLY in Belgium

- Educational inequalities in HLY are not static over time at national level
  - The difference in HLY at 25 years among the highest and lowest educated women (men) was 11.4 (17.0) years in 1997 and became 18.2 (18.6) in 2004 (Van Oyen et al., 2011)

- Regional differences in HLY are significant
  - In 2008, women (men) at 25 years could expect to live 3.2 (6.3) more HLY in Flanders than in Wallonia (source: WIV-ISP)

- Difference in educational inequalities in HLY between the regions were estimated to be small in the 1990s
  - The regional difference in the inequality between the highest and lowest educated was estimated to 0.91 year in women and 0.88 year in men (Van Oyen et al., 2005)

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Research Questions

1) How big are educational inequalities in Healthy Life Years in the regions of Belgium in the 2000s?

2) Does the size of educational inequalities in HLY vary by region?

3) What are educational differences in HLY due to? Are they more related to mortality or morbidity differences between educational groups?

2. Methods

Data: Mortality by Socio-economic Status (SES)

- Gold standard: Mortality follow-up of census using a unique identifier
  - Absence of census in the future

- Alternative: mortality follow-up of national surveys (Charafeddine et al. 2011)

- Health Interview Survey (HIS)
  - Unique identifier
  - Periodicity: every 4-5 years
  - 12 000 participants (NB: total population is 11 million)
  - Representative at regional level

- Mortality follow-up of HIS 2001 participants until 31 DEC 2010 (approx. 9 years)
  - 12 770 individuals initially,12 436 matched (97.4%)
  - N Final=10 758

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Data

- **SES variable**
  - Highest educational level in the household
  - Due to the number of strata used (gender, SES, region, age), the education variable was dichotomized:
    - *Low education*: no diploma, primary education, lower secondary education
    - *High education*: higher secondary education, tertiary education

- **Health outcome** (HIS 2001):
  - Global Activity Limitation Indicator (GALI)
  - "For at least the last 6 months, have you been limited because of a health problem in activities people usually do?"
    - N Final=8920

Methods: Estimation of HLY

- Sullivan method: based on cross sectional data

- Method of choice for estimating HLY due to its simplicity, relative accuracy and ease of interpretation

- HLY are estimated with their standard errors

- SES Inequalities are studied by comparing the two educational categories using z-statistics

Decomposition of differences in HLY (1)

- Decomposition provides more insight into the origin of HE gaps or trends

- Decomposition (or partitioning) is widely used in mortality research to decompose differences in life expectancy

  - **by age:** additive contribution of age groups
  - **by cause:** additive contribution of causes of death

- Decomposition tools have recently been developed (Nusselder & Looman, 2004; Andreev et al, 2003) to decompose differences in HE

  - **by type:** additive contribution of mortality and disability
  - **by age:** additive contribution of age groups
  - **by cause:** additive contribution of causes of death and causes of disability

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Decomposition of differences in HLY (2)

- Technique used to explain whether differences in HLY between educational groups are due to differences in mortality or morbidity:
    - The differences in HLY between the educational groups are decomposed into a "disability effect" and a "mortality effect"

- Use of the Decomposition tool developed in R by Nusselder and Looman

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3. Results

HLY and years of disability among women aged 25 years, HIS 2001, Belgium
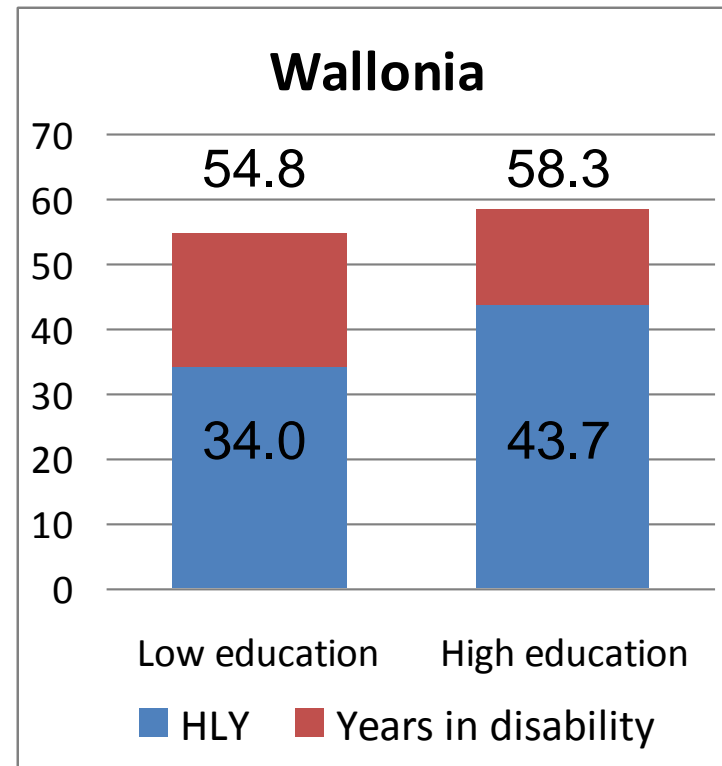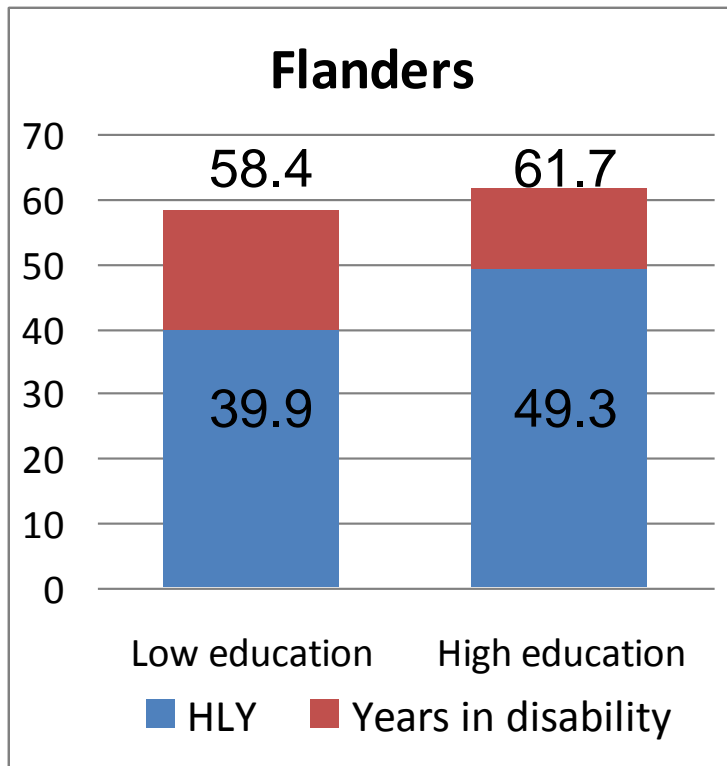
HLY and years of disability among men aged 25 years, HIS 2001, Belgium
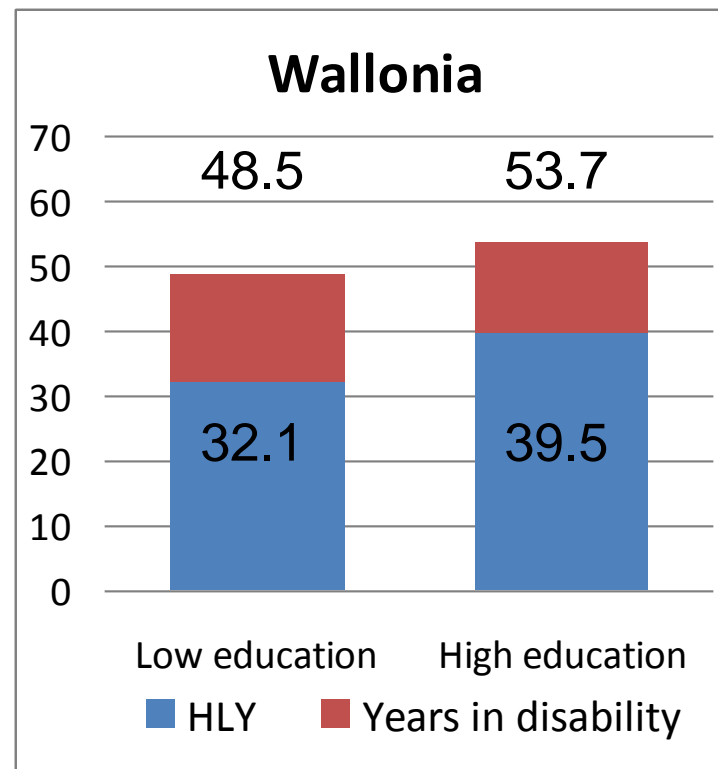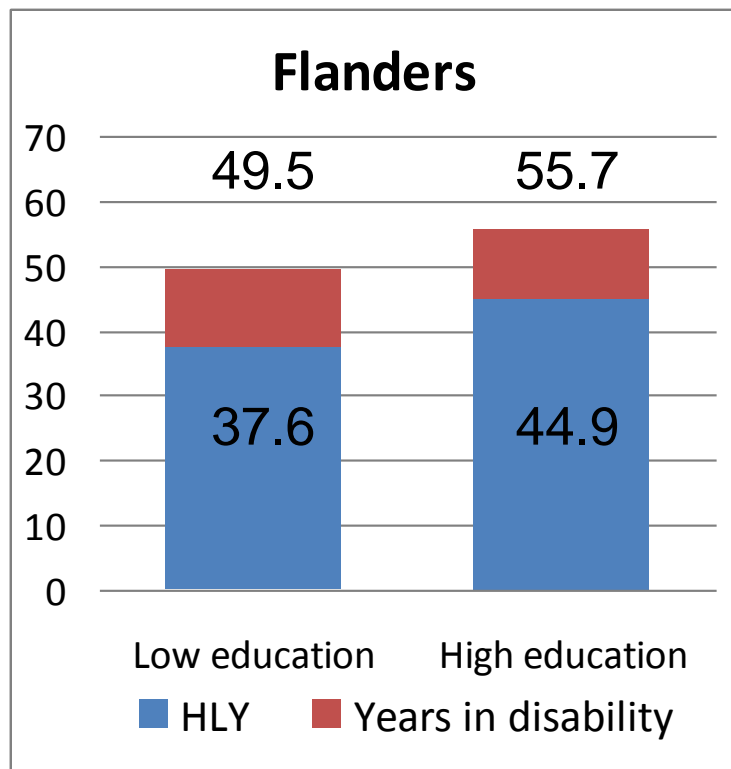
Inequalities in HLY at age 25 years, HIS 2001, Belgium

	Low education	High education	Difference in HLY	p
Women Flanders	39.88	49.32	9.44	<0.01
Women Wallonia	34.05	43.72	9.67	<0.01
Men Flanders	37.60	44.88	7.29	<0.01
Men Wallonia	32.09	39.54	7.45	<0.01

Differences in HLY inequalities between the regions: 0.23 years in women and 0.16 years in men

Decomposition of the Inequalities in HLY, HIS 2001, Belgium

Women	Flanders	Wallonia
Difference	**9.44**	**9.67**
Difference due to Mortality Effect	1.85 (19.6%)	1.88 (19.4%)
Difference due to Morbidity Effect	7.59 (80.4%)	7.79 (80.6%)

N.S. diff.

Men	Flanders	Wallonia
Difference	**7.29**	**7.45**
Difference due to Mortality Effect	3.63 (49.8%)	2.97 (39.8%)
Difference due to Morbidity Effect	3.65 (50.2%)	4.48 (60.2%)

Conclusions (1)

- SES inequalities in HLY are substantial in the regions of Belgium.
  - Inequalities are estimated to be lower in men than in women

- Regional differences in HE are substantial in both SES groups (for men and women) but…

- No regional variations are observed regarding the size of the SES inequalities in HLY, which corroborates previous studies

Conclusions (2)

- SES Inequalities in HLY are mainly due to SES inequalities in disability prevalence
    - especially in women
    - except for men in Flanders where SES inequalities in HLY are due both to SES inequalities in mortality and disability prevalence

- Efficient diminution of inequalities in HLY should concentrate efforts on the reduction of disability in low educated men and women.

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Thank you for your attention

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Inequalities in LE at age 25 years, HIS 2001, Belgium

	Low education	High education	Difference in HLY	p
Women Flanders	58.39	61.71	3.32	<0.01
Women Wallonia	54.80	58.27	3.47	<0.01
Men Flanders	49.53	55.68	6.16	<0.01
Men Wallonia	48.52	53.66	5.14	<0.01

HIS 2001 follow-up: mortality by region, sex and education level in Belgium

Women	Low education		High education		Total	
	N	%	N	%	N	%
Flanders	100	15.0	42	3.0	142	6.9
Wallonia	164	16.9	71	4.5	235	9.3
Belgium	339	15.9	167	4.2	506	8.3

Men	Low education		High education		Total	
	N	%	N	%	N	%
Flanders	153	22.8	75	5.3	228	10.9
Wallonia	163	19.0	100	6.3	263	10.7
Belgium	378	18.9	238	6.0	616	10.3

Prevalence of disability by region, sex and education level, HIS 2001, Belgium

Women	Low education		High education		Total	
	N	%	N	%	N	%
Flanders	160	29.6	133	12.6	293	18.4
Wallonia	279	37.5	214	19.1	493	26.4
Belgium	570	34.8	500	17.0	1070	23.3

Men	Low education		High education		Total	
	N	%		%	N	%
Flanders	152	27.3	137	13.1	289	18.0
Wallonia	223	35.6	221	19.0	434	25.0
Belgium	464	31.4	460	16.1	924	21.3