

European Health Expectancy Monitoring Unit (EHEMU)

an update



REVES 2006

Amsterdam, May 2006

The EHEMU team

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EHEMU

To assist the European Commission with analysis of the new EU structural indicator Healthy Life Years :

- to monitor inequalities in health and longevity among the EU countries
- to explore compression or expansion of healthy life through cross-national comparisons of healthy life expectancy at birth and age 65
- to explore gender differences in health, longevity and healthy life expectancy

More on EHEMU

- EHEMU reports
 - General reports on life and healthy life expectancies in the European Union
 - Country reports
- EHEMU collaborator networks
 - The Public Health network
 - The Expert network
- EHEMU database on LE and HE
- EHEMU website

(<http://www.hs.le.ac.uk/reves.ehemutest/index.html>)

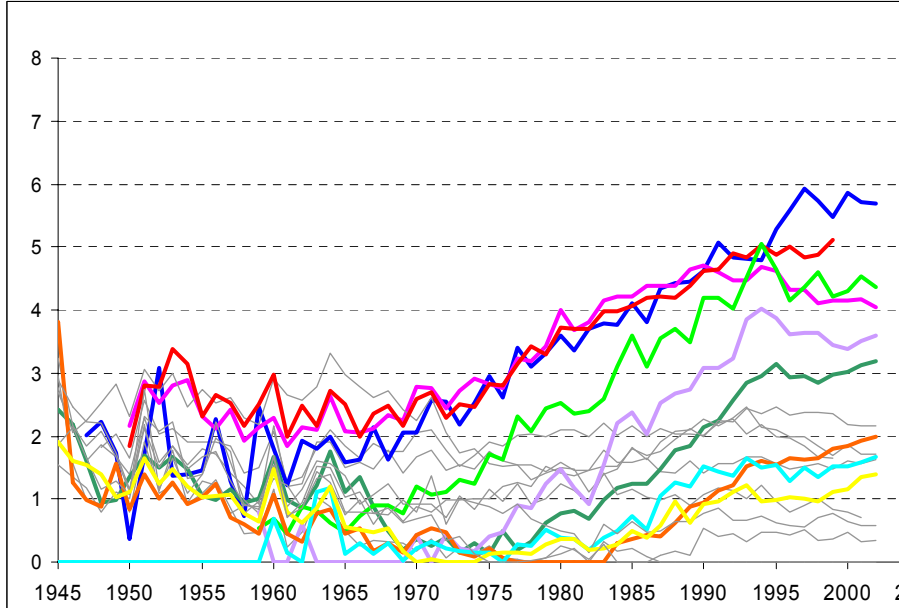
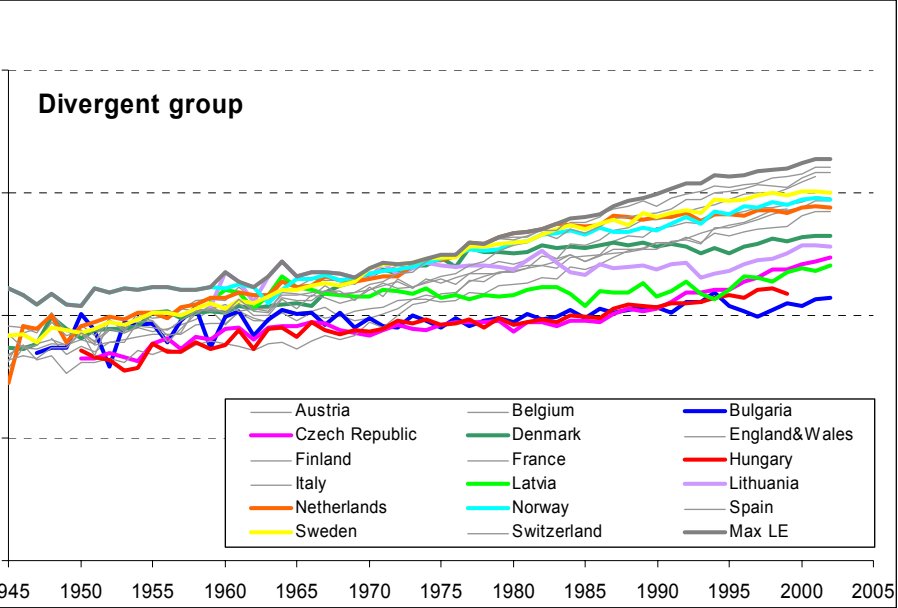
Life expectancy in the EU 25

Europe Blanche XXVI

Budapest November 2005



LE at age 65 in European countries since 1945 and deviations from the maximum values, females: divergent group

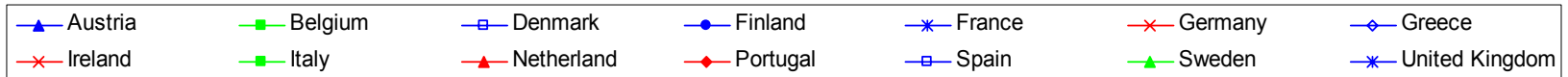
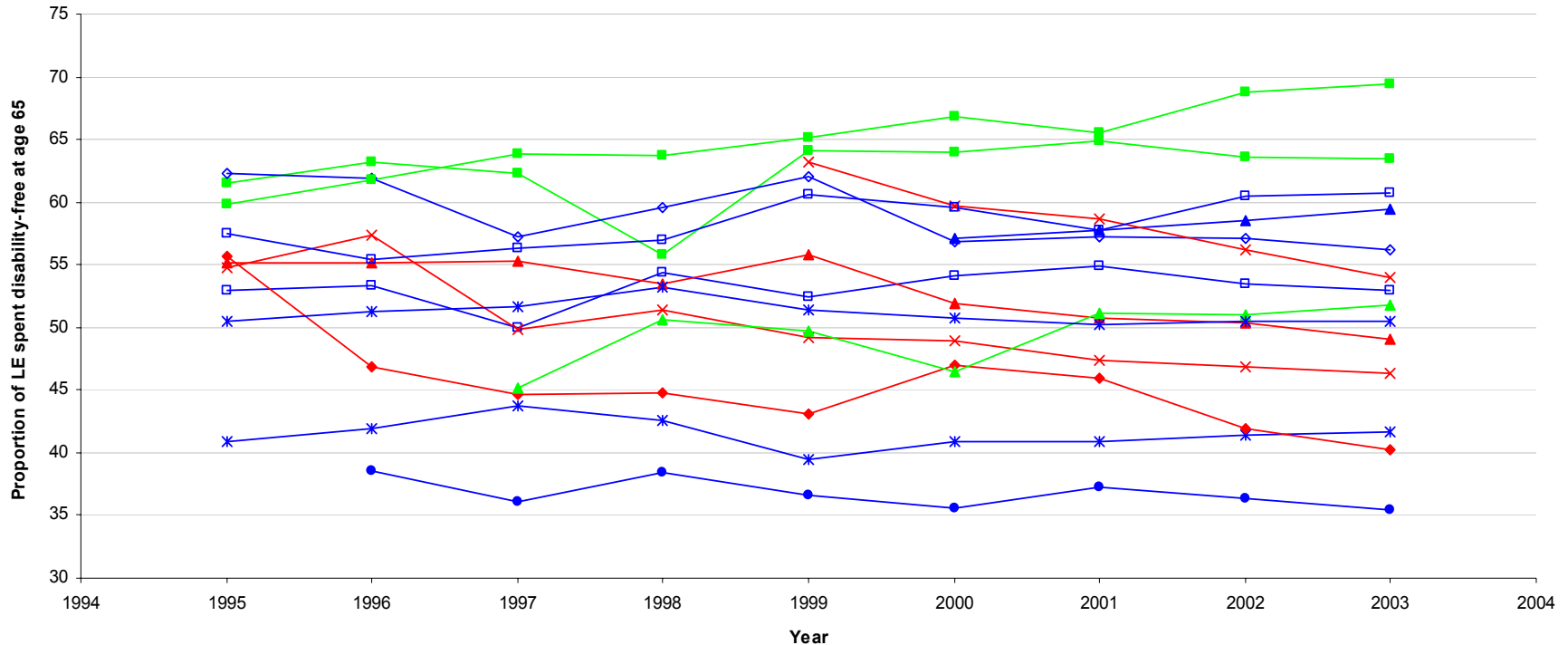


Healthy life expectancy in the EU 15



Trends in proportion of life spent disability-free at age 65

Women



■ = gain of 5% + between 1995 and 2001

■ = gain or loss of less than 5% between 1995 and 2001

■ = loss of 5% + between 1995 and 2001

Real or artefact?

May be an artefact due to

- Data problems
- Sampling
- Omission of institutionalised population
- Not harmonised disability question
- Cultural differences in reporting of disability
- Confounding factors – socio-economic

But trends less sensitive to these

If real what is 'cause'

Conclusions

- ✓ **Population aging has a different impact in the 14 Member States in Europe:**
 - different levels of reported disability (larger dispersion than LE)
 - variation in the magnitude of the gender difference
 - different trends over time

- ✓ **Need to improve cross-national comparisons in self-reported disability to ensure differences are not an artefact:**
 - improved harmonisation of the instruments
 - using different levels of severity
 - documenting differences in reporting
 - documenting differences in selection in the panel

EHEMU country reports



HEALTH EXPECTANCY IN BELGIUM

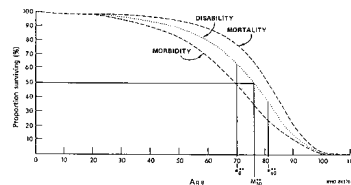
What is health expectancy?

Health expectancies were first developed to address whether or not longer life is being accompanied by an increase in the time lived in good health (the **compression of morbidity** scenario) or in bad health (**expansion of morbidity**). So health expectancies divide life expectancy into life spent in different states of health, from say good to bad health. In this way they add a dimension of quality to the quantity of life lived.

How is the effect of longer life measured?

The general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without disabling chronic disease. This leads naturally to life expectancy (the area under the 'mortality' curve), disability-free life expectancy (the area under the 'disability' curve) and life expectancy without chronic disease (the area under the 'morbidity' curve).

The general model of health transition (WHO, 1984): observed mortality and hypothetical morbidity and disability survival curves for females, USA, 1980.



e_0^{**} and e_{60}^{**} are the number of years of autonomous life expected at birth and at age 60, respectively. M_{60}^{**} is the age on which 50% of females could expect to survive without loss of autonomy.

There are in fact as many health expectancies as concepts of health. The commonest health expectancies are those based on

- self-perceived health
- activities of daily living
- chronic morbidity.

How do we compare health expectancies?

Health expectancies are independent of the size of populations and of their age structure and so they allow direct comparison of different population sub-groups: e.g. sexes, socio-professional categories, as well as countries within Europe.

Health expectancies are most often calculated by the Sullivan method (Sullivan, 1971). However to make valid comparisons, the underlying health measure should be truly comparable. This is not yet the case for European countries because of the varying definitions of health used.

To address this, the European Union has decided to include a small set of health expectancies among its European Community Health Indicators (ECHI), covering the dimensions of chronic morbidity, functional limitations, activity restrictions and perceived health. Specific questions have now been included in the various European surveys: the European Community Household Panel (ECHP), Eurobarometer, and Statistics on Income and Living Conditions (SILC), to improve comparability between countries. In addition, a new EU structural indicator based on a health expectancy has been proposed, to be known as Healthy Life Years.

Further details on the calculation and interpretation of health expectancies can be found on www.REVES.net and in Robine JM, Jagger C, Mathers CD, Crimmins EM, Suzman RM, Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.

What is in this report?

This report is produced by the European Health Expectancy Monitoring Unit (EHEMU) as part of a country series. In each report we present:

- a description of the main purpose of health expectancies
- the trend in health expectancies for all EU MS showing the country of interest, based on data from the ECHP between 1995 and 2001
- health expectancies based on different dimensions of health for the country of interest, based on data from the Eurobarometer (Issue 0) and SILC (Issue 1 onwards)
- trends in health expectancies over time for the EU, based on the ECHP

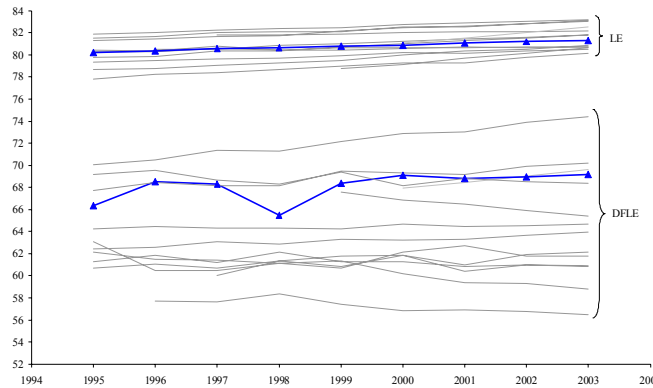
References

World Health Organization. *The uses of epidemiology in the study of the elderly: Report of a WHO Scientific Group on the Epidemiology of Aging*. Geneva: WHO, 1984 (Technical Report Series 706).

Sullivan DF (1971) A single index of mortality and morbidity. *HSMHA Health Reports* 86:347-354.

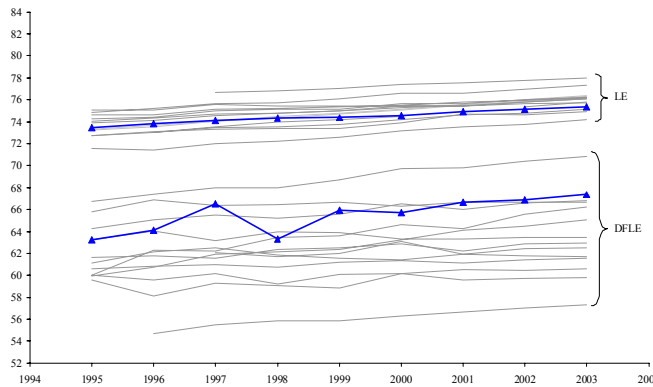
Life expectancy (LE) and Disability-Free Life Expectancy (DFLE) at birth by gender, Belgium compared to other EU countries (Source: European Community Household Panel, 1995-2003)

Women



Women	1995	1996	1997	1998	1999	2000	2001	2002	2003
LE	80.2	80.4	80.6	80.6	80.8	80.8	81.1	81.2	81.3
DFLE	66.4	68.5	68.3	65.4	68.4	69.1	68.8	69.0	69.2
%DFLE/LE	82.7	85.2	84.8	81.2	84.6	85.5	84.9	85.0	85.1

Men

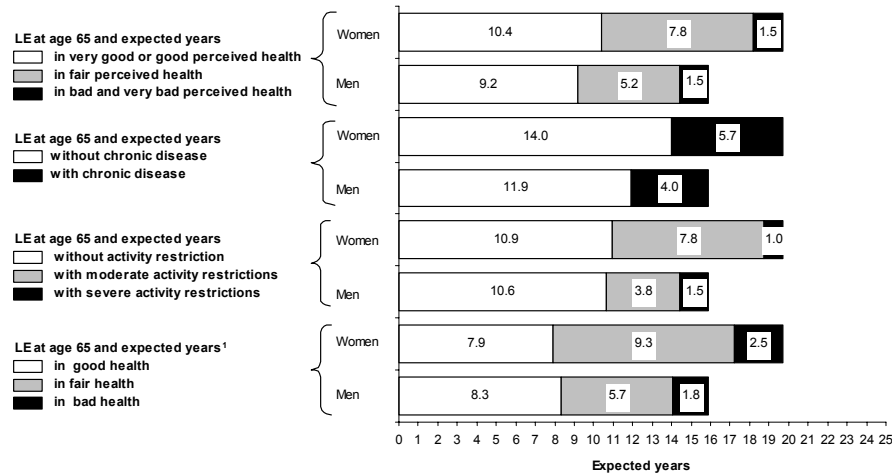


Men	1995	1996	1997	1998	1999	2000	2001	2002	2003
LE	73.4	73.8	74.1	74.3	74.4	74.6	74.9	75.1	75.4
DFLE	63.3	64.1	66.5	63.3	66.0	65.7	66.6	66.9	67.4
%DFLE/LE	86.2	86.8	89.7	85.1	88.7	88.1	89.0	89.1	89.4

Key points:

- Among women LE at birth increases by 1.1 years between 1995 and 2003, with a higher increase in DFLE by 2.8 years and a decrease in years with disability by 1.7 years (from 13.8 years to 12.1 years), suggesting a compression of morbidity.
- Among men LE at birth increases by 2 years between 1995 and 2003 and DFLE increases by 4.1 years, suggesting a compression of morbidity as the number of years with disability decreases by 2.1 years (from 10.1 years to 8 years), suggesting a compression of morbidity like among women.
- For both women and men, LE and DFLE increase. LE is in the middle of the European trends while DFLE are quite in the highest level of European trends.

Life expectancy at age 65 and expected years in several health statuses according to perceived health, chronic diseases and disability: Belgium (Source: Eurobarometer, 2002)



¹ The generic health indicator calculated from the previous three health dimensions. Good health is defined as either very good perceived health, no activity restriction and no chronic disease, or good perceived health, no activity restriction and no chronic disease; bad health is defined as very bad perceived health and severe activity restriction or bad perceived health and severe activity restriction; fair health is the remainder.

Key points:

- In 2002, LE at age 65 in Belgium was 19.7 years for women and 15.9 years for men.
- Based on the Eurobarometer 58, at age 65, women spent 7.9 years in good health, 9.3 years in fair health and 2.5 years in bad health (see above for definition of good health).
- Men of the same age spent 8.3 years in good health compared to 5.7 and 1.8 years in fair or bad health respectively.
- Although total years lived by men are less than those for women, the years spent in good health according to the generic indicator were greater for men than women.

These results should be interpreted cautiously given the small sample size (in Belgium 127 women and 88 men aged 65+ years) and the lack of the institutional population. However they serve as an example of future yearly calculations of the “Years of Healthy Life” and other health expectancy indicators which will be possible once the SILC-survey data become routinely available.

Published results and other reports of health expectancies for Belgium

Bossuyt N, Gadeyne S, Deboosere P, Van Oyen H. Socio-economic inequalities in health expectancy in Belgium. *Public Health* 2004; 118(1):3-10.

Van Oyen H, Bossuyt N, Deboosere P, Gadeyne S, Tafforeau J. Differences in health expectancy indicators in Belgium by region. *APH* 2002; 60:341-362.

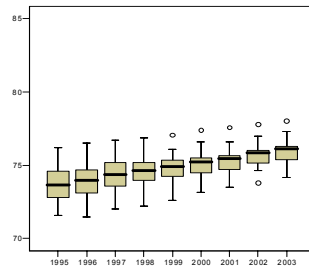
Miermans P-J, Van Oyen H. Rapport de Santé: Etude de la situation de la santé en Belgique sur la base des chiffres de la mortalité et de l'espérance de vie. Bruxelles: Institut Scientifique de la Santé Publique, Service d'épidémiologie; 2002. Report No.: IHE/EPI reports n° 2002-031.

EU profile (Source: European Community Household Panel, 1995-2003)

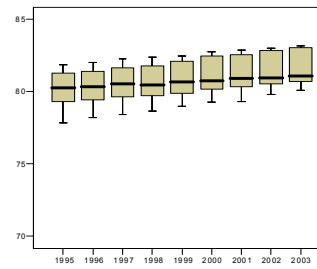
The boxplot¹ below shows the distribution of life expectancies (LE) and disability-free life expectancies (DFLE) at birth for the 12 EU Member States over the period 1995-2003 and separately for males and females. The key points are:

- There is more variability in DFLE among the EU Member States than in life expectancies
- Over the period 1995-2003 for men the gain in total years was greater than the gain in years free of disability
- In women there was only a slight improvement, on average, in life expectancy with a similar gain in disability-free life years.

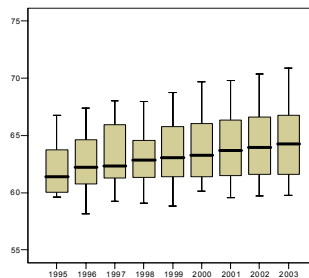
Life Expectancy at birth: Men



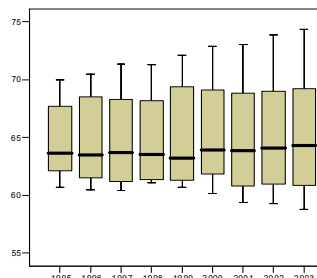
Life Expectancy at birth: Women



Disability-Free Life Expectancy at birth: Men



Disability-Free Life Expectancy at birth: Women



¹ Boxplots (often called "box and whisker" plots) are a way of summarizing a distribution of scores. The "box" shows the median score as a line and the first (25th percentile) and third quartile (75th percentile) as the lower and upper parts of the box. The "whiskers" above and below the boxes represent the largest and smallest observations less than 1.5 box lengths from the end of the box. Occasionally scores are shown as open circles "o" and these represent outliers.

About EHEMU

The European Health Expectancy Monitoring Unit (EHEMU) is funded by the European Public Health Programme (2004-2007) and is a collaboration between: CRLC and University of Montpellier (France), University of Leicester (UK), the Scientific Institute of Public Health (ISP Belgium) and the French National Institute of Demography (INED). EHEMU aims to provide a central facility for the co-ordinated analysis, interpretation and dissemination of life and health expectancies to add the quality dimension to the quantity of life lived by the European populations. Further details about EHEMU can be found on the website: www.hs.le.ac.uk/revs/ehemutest/index.html.

- With regard to the **Public Health network**, we have built a draft list of collaborators on the basis of the DG Sanco and Eurostat member states collaborators involved in public health and indicators at the national level.
- For the **Expert network**, we have contacted collaborators from the International Network on Health Expectancies and the Disability Process (REVES) network and colleagues recommended by the representatives of the countries.

The EHEMU Database and Information System

EHEMU - Microsoft Internet Explorer

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[Access to the database and information system](#)

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2. Choose raw data, or life table series, or health expectancy calculation

a- Raw data

- Population estimates
- Death counts
- Birth counts

Select

b- Life table series

- Life expectancy
- Conditional probability of death : q_x
- Probability of survival to age x : l_x
- Number of deaths : d_x
- All life table series

Select

c- Health expectancies

- Health expectancy
- Life expectancy and Health expectancy

Select


[Previous page](#)

Selection of countries, years and ages


EMU - Microsoft Internet Explorer

er Edition Affichage Favoris Outils ?

se http://localhost/selectRawData.php3



Population estimates



3. Select data to consult

<i>Countries :</i>	<i>Years :</i>	<i>Ages :</i>
<ul style="list-style-type: none">AustriaBelgiumCyprusCzech RepublicDenmarkEstoniaFinlandFranceGermanyGreeceHungary	<ul style="list-style-type: none">19951996199719981999200020012002200320042005	<ul style="list-style-type: none">012345678910

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Results of the selection

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Edition Affichage Favoris Outils ?

http://localhost/result.php3



Austria Population estimates



[Select another country](#)

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Austria

Year	Age	Number of men	Number of women
1995	0	46943	44704
1995	1	48436	46320
1995	2	49236	46418
1995	3	49593	47067
1995	4	48481	45971
1995	5	47896	45789
1996	0	45302	43210
1996	1	47255	45079
1996	2	48599	46539
1996	3	49423	46661
1996	4	49851	47413
1996	5	48571	46182
1997	0	45508	43246



2. Choose raw data, or life table series, or health expectancy calculation

a- Raw data

- Population estimates
- Death counts
- Birth counts

Select

b- Life table series

- Life expectancy
- Conditional probability of death : q_x
- Probability of survival to age x : l_x
- Number of deaths : d_x
- All life table series

Select

c- Health expectancies

- Health expectancy
- Life expectancy and Health expectancy

Select


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Selection of countries, years, ages and genders


EMU - Microsoft Internet Explorer

Edition Affichage Favoris Outils ?

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Life Expectancy



3. Select data

<i>Countries :</i>	<i>Years :</i>	<i>Ages :</i>	<i>Sexes :</i>
<ul style="list-style-type: none">AustriaBelgiumCyprusCzech RepublicDenmarkEstoniaFinlandFranceGermanyGreeceHungary	<ul style="list-style-type: none">19951996199719981999	<ul style="list-style-type: none">All ages0156585	<ul style="list-style-type: none">WomenMenBoth

Results of the selection

EMU - Microsoft Internet Explorer

Edition Affichage Favoris Outils ?

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Austria
Life expectancy
1995



[Select another country](#)

[Previous page](#)



Life expectancy/ Austria/ 1995/ all ages/ both sexes

Austria	1995	Austria	1995
Age	LE Men	Age	LE Women
0	73.31	0	79.98
1	72.74	1	79.37
2	71.78	2	78.4
3	70.81	3	77.43
4	69.82	4	76.44
5	68.84	5	75.45
6	67.86	6	74.46
7	66.87	7	73.47
8	65.88	8	72.48
9	64.89	9	71.48



2. Choose raw data, or life table series, or health expectancy calculation

a- Raw data

- Population estimates
- Death counts
- Birth counts

Select

b- Life table series

- Life expectancy
- Conditional probability of death : q_x
- Probability of survival to age x : l_x
- Number of deaths : dx
- All life table series

Select

c- Health expectancies

- Health expectancy
- Life expectancy and Health expectancy

Select


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Selection of the survey


EMU - Microsoft Internet Explorer

er Edition Affichage Favoris Outils ?

se http://localhost/selectSurvey.php3



Health expectancy



3. Select a country survey

[Select another country](#)
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ECHP (1995-2001)
(For the 15 following countries : Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom)

Eurobarometer (2002)
(For the 14 following countries : Austria, Belgium, Denmark, Finland, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom)

SHARE (2004)
(For the 9 following countries : Austria, Denmark, France, Germany, Greece, Italy, Netherlands, Spain, Sweden)

SILC (2004)
(For the 13 following countries : Austria, Belgium, Denmark, Estonia, Finland, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, Sweden)

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Selection of the health variable

EMU - Microsoft Internet Explorer

Edition Affichage Favoris Outils ?

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Health expectancy




4. Select a variable

- Self-perceived health (European version) [Def](#)
- Symptoms [Def](#)
- Morbidity [Def](#)
- Physical fonctional limitation [Def](#)
- Activity limitation [Def](#)
- Instrumental activity restrictions (IADL) [Def](#)
- Self-care activity restrictions (ADL) [Def](#)


Select

[Previous page](#)

Selection of countries, years, ages and genders



SHARE



European health expectancy monitoring unit
Ehemu
Observatoire européen de l'espérance de vie

5. Select data to consult

Countries :	Years :	Ages :	Sexes :
<ul style="list-style-type: none">AustriaDenmarkFranceGermanyGreeceItalyNetherlandsSpainSweden	<input type="text" value="2004"/>	<ul style="list-style-type: none">All ages6585	<ul style="list-style-type: none">WomenMenBoth

Results of the selection

HEMU - Microsoft Internet Explorer

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Austria
2004



[Select another country](#)

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Confidence intervals

Health expectancy/ Austria/ 2004/ all ages/ both sexes

Austria	2004	2004	2004	Austria	2004	2004	2004
Age	Without morbidity Men	1 or 2 conditions Men	3 or more conditions Men	Age	Without morbidity Women	1 or 2 conditions Women	3 or more conditions Women
50	10.15	14.63	4.17	50	9.09	18.89	5.62
51	9.73	14.29	4.06	51	8.4	18.72	5.54
52	9.09	14.04	4.08	52	7.84	18.4	5.52
53	8.49	13.79	4.07	53	7.42	17.94	5.47
54	7.97	13.54	4	54	6.94	17.57	5.41
55	7.48	13.34	3.88	55	6.46	17.18	5.37
56	7.03	12.94	3.9	56	6.09	16.7	5.32
57	6.83	12.38	3.87	57	5.78	16.15	5.29

Results of the selection with the confidence intervals



Austria
2004



Health expectancy/ Austria/ 2004/ all ages/ both sexes

Austria	2004	2004	2004	2004	2004	2004	2004	2004	2004	Austria	2004
-	-	Without morbidity Men	-	-	1 or 2 conditions Men	-	-	3 or more conditions Men	-	-	-
Age	x-1,96.se	x	x+1,96.se	x-1,96.se	x	x+1,96.se	x-1,96.se	x	x+1,96.se	Age	x-1,96.se
50	9.22	10.15	11.08	13.65	14.63	15.61	3.48	4.17	4.87	50	8.24
51	8.83	9.73	10.62	13.34	14.29	15.24	3.38	4.06	4.73	51	7.56
52	8.21	9.09	9.97	13.11	14.04	14.98	3.4	4.08	4.76	52	7.02
53	7.62	8.49	9.36	12.87	13.79	14.72	3.39	4.07	4.75	53	6.62
54	7.12	7.97	8.81	12.63	13.54	14.45	3.33	4	4.67	54	6.16
55	6.64	7.48	8.32	12.43	13.34	14.24	3.21	3.88	4.54	55	5.71
56	6.21	7.03	7.86	12.04	12.94	13.83	3.23	3.9	4.58	56	5.36
57	6.01	6.83	7.65	11.5	12.38	13.27	3.2	3.87	4.54	57	5.06

Estimations of health expectancy at age 65 in European Union countries in 2002

Calculations based on data from SHARE 2004

By the EHEMU team



Total numbers of participants and response rates for the SHARE survey, per country, sex and age group, 2004

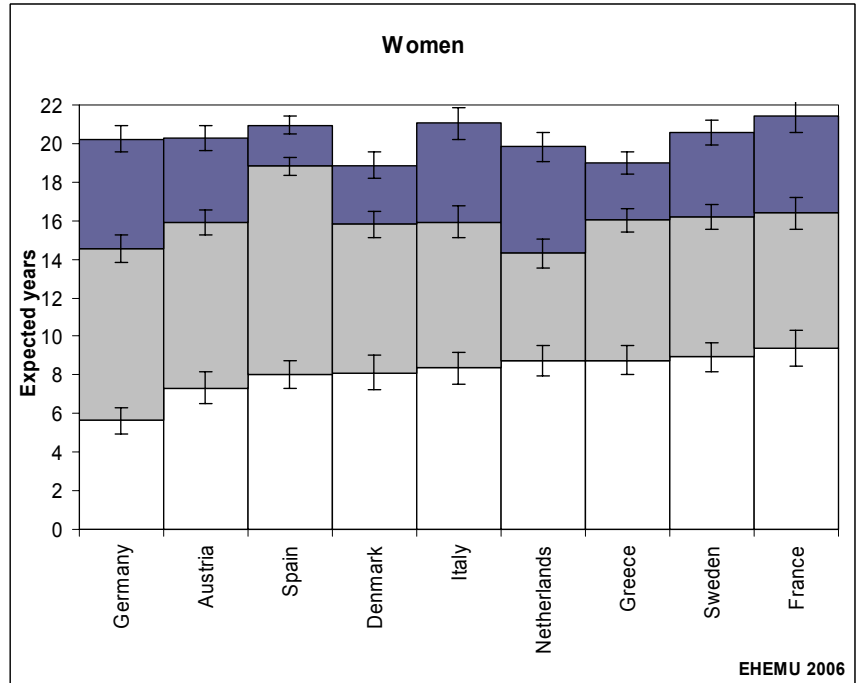
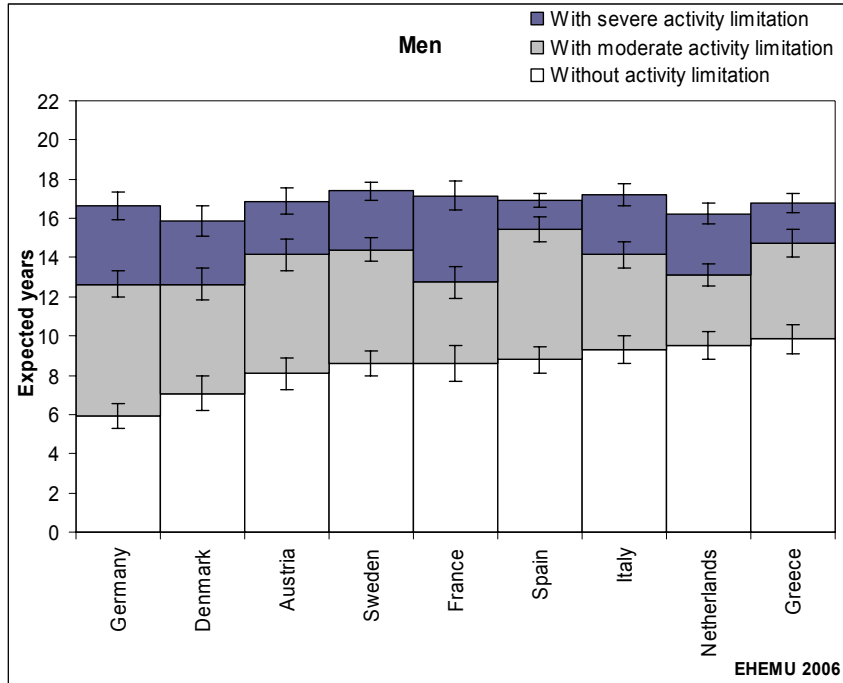
<i>Country</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>	<i>Under 50</i>	<i>50 to 64</i>	<i>65 to 74</i>	<i>75+</i>	<i>Household response rate *</i>	<i>Individual response rate</i>
Austria	1,986	820	1,166	48	1,004	571	363	58.1	87.4 %
Denmark	1,732	785	947	95	929	374	334	63.2	93.0 %
France	1,842	794	1,048	93	928	454	366	73.6	91.7 %
Germany	3,020	1,385	1,635	67	1,573	888	485	63.4	86.5 %
Greece	2,142	901	1,241	159	1,035	554	391	61.4	91.8 %
Netherlands	3,000	1,337	1,623	102	1,705	713	460	55.1	87.9 %
Italy	2,559	1,132	1,427	53	1,339	785	382	61.3	79.7 %
Spain	2,419	1,004	1,415	44	1,092	702	579	53.3	73.8 %
Sweden	3,067	1,424	1,643	57	1,595	821	594	50.2	83.8 %
Switzerland	1,010	468	542	41	508	245	203	37.6	86.9 %
All countries	<i>22,777</i>	<i>10,088</i>	<i>12,685</i>	<i>759</i>	<i>11,708</i>	<i>6,107</i>	<i>4,157</i>	61.8	86.0 %

* Weighted average (see Börsch-Supan & Jürges, 2005, for details).

health expectancies at age 65 according to various health concepts

- 1 Life expectancy and subjective self-rated health
 - 1.1 Life expectancy in perceived health (European version)
- 2 Life expectancy and morbidity
 - 2.1 Life expectancy without symptoms
 - 2.2 Life expectancy without morbidity
- 3 Life expectancy and functional health
 - 3.1 Life expectancy without physical functional limitation
 - 3.2 Life expectancy without activity limitation (HLY)
 - 3.3 Life Expectancy without instrumental activity restrictions (IADL)
 - 3.4 Life Expectancy without self care activity restrictions (ADL)

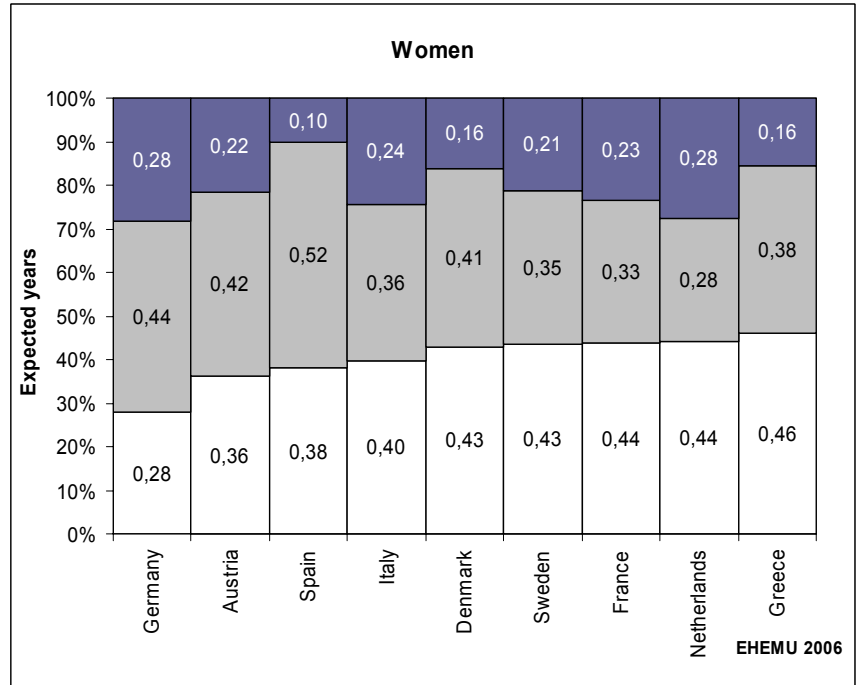
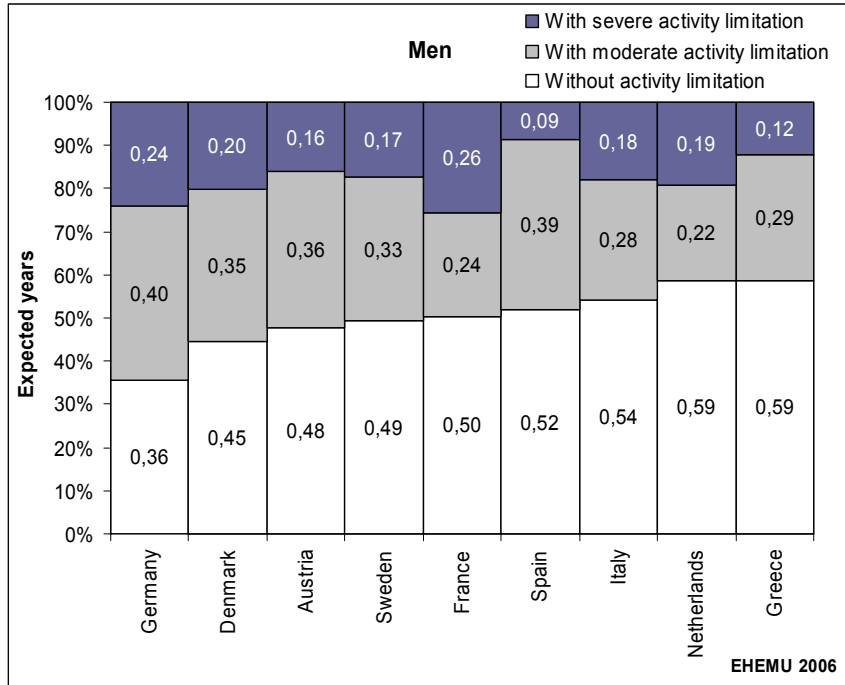
Life expectancy and expected years with and without activity limitation (moderate and severe) at age 65 by country, men and women, 2004



For the past six months at least, to what extent have you been limited because of a health problem in activities people usually do?

1. Severely limited
2. Limited, but not severely
3. Not limited

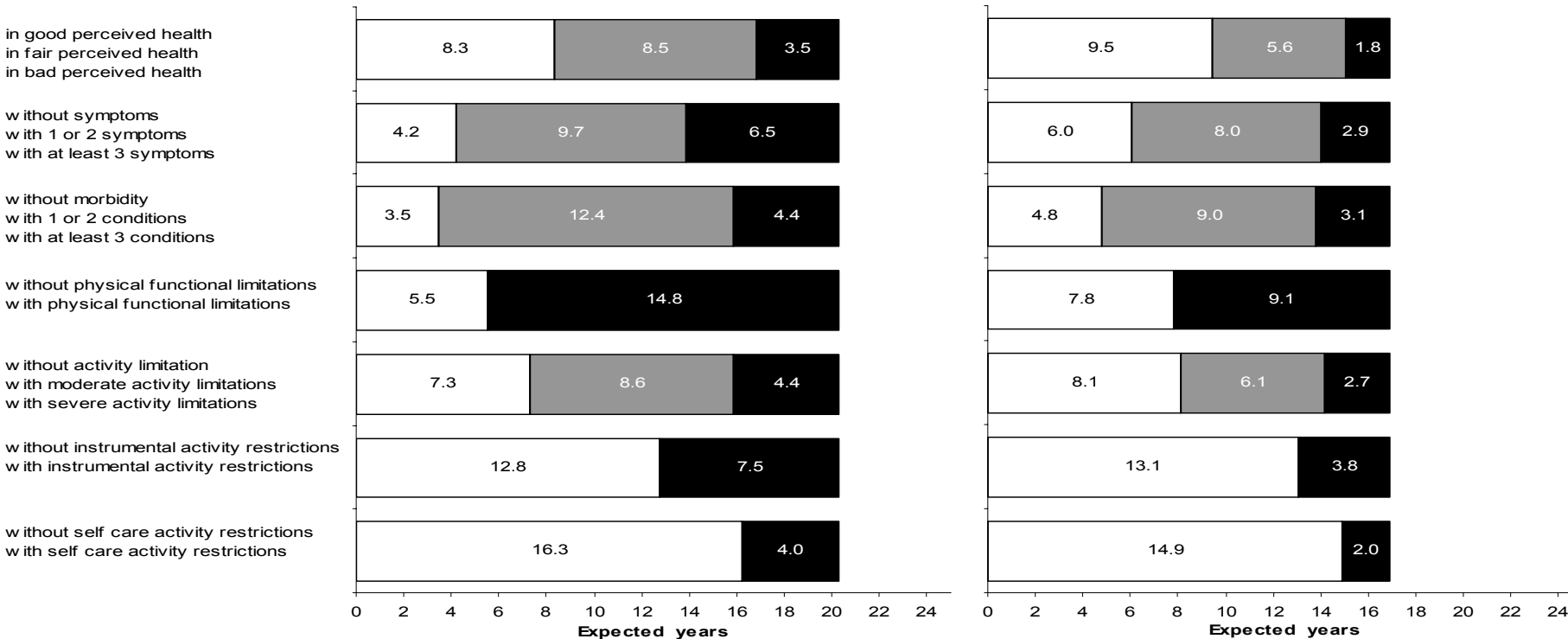
Proportion of expected years with and without activity limitation (moderate and severe), at age 65 by country, men and women, 2004



For the past six months at least, to what extent have you been limited because of a health problem in activities people usually do?

1. Severely limited
2. Limited, but not severely
3. Not limited

Life expectancy and expected years in different health states at age 65, Austria, men and women, 2004 (EHEMU 2006)



Thank you!