

# EHLEIS Country Reports

Issue 11

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# Health Expectancy in Austria

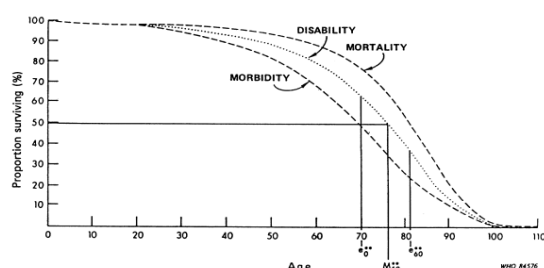
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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



$e_{60}^{**}$  and  $e_{65}^{**}$  are the number of years of autonomous life expected at birth and at age 60, respectively.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2004 to 2015. The wording of the question has been revised in 2008.
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

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Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
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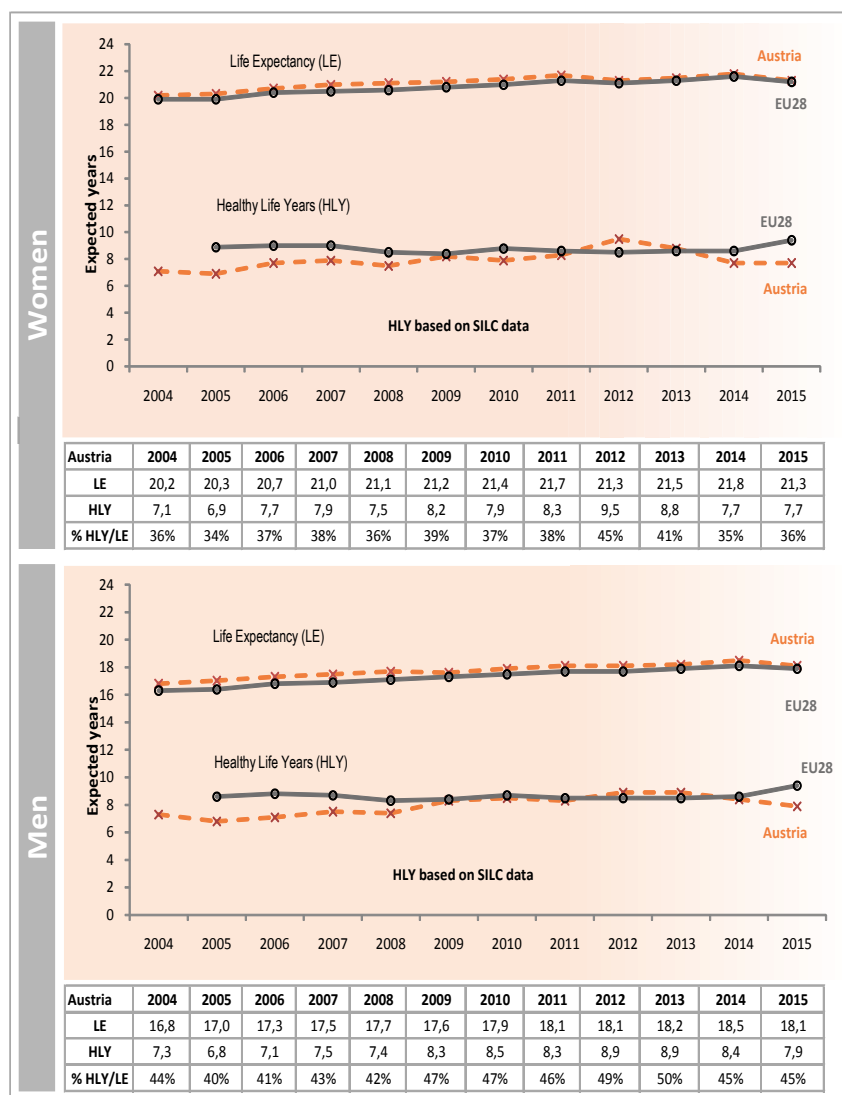
\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). The revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Austria and the European Union (EU28) based on SILC data (2004-2015)

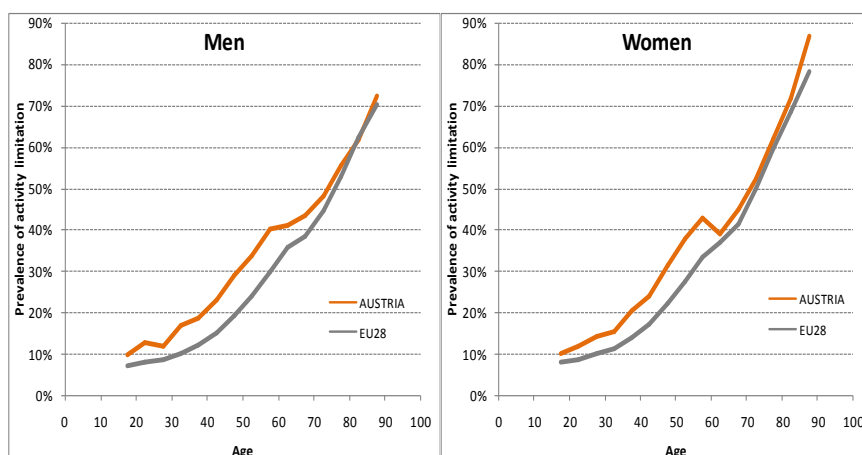
### Key points:

Between 2004-2015 Austrian life expectancy (LE) at age 65 increased by 1.1 years for women and 1.3 years for men. By 2015 LE decreased for women and men but this indicator value remained above the EU28 average in 2015 for women and men (21.2 years for women and 17.9 for men).

The HLY series on the basis of SILC data shows this indicator value for Austrian women being 1.7 years below the EU28 average of 9.4 in 2015. Austrian men can expect 7.9 years HLYs which is also below the EU28 average of 9.4. Thus in 2015 women and men at age 65 can expect to spend 36% and 45% respectively of their remaining life without *self-reported long-term activity limitations*. Compared to earlier trends, the phrasing of the SILC question may explain the lower level of reported activity limitations as people report limitations of different severity. The wording of the GALI question was changed in Austria in 2008 to better reflect the EU standard, and another revision was implemented in 2014 to match the wording with the ATHIS (EHIS) survey.



## Prevalence of activity limitation in Austria and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)

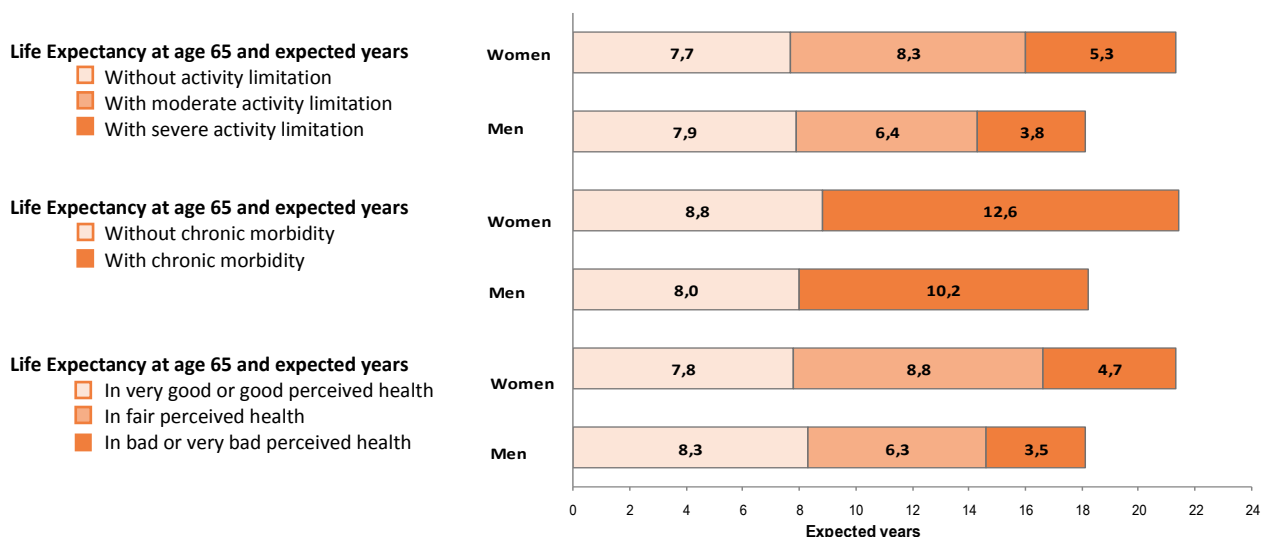


Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Austria tends to display higher prevalence rates with the largest differences before age 65. In higher ages, there seem to be only minor or no differences compared to the European average.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015 the sample size for Austria comprised 5734 women and 5201 men aged 16 years and over.



## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Austria (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Austria was 21.3 years for women and 18.1 years for men.

Based on SILC 2015 data, women at age 65 spent 7.7 years (35% of their remaining life) without activity limitation (corresponding to Healthy Life Years [HLY]), 8.3 years (39%) with moderate activity limitation and 5.3 years (25%) with severe activity limitation.\*

Men of the same age spent 7.9 years (45% of their remaining life) without activity limitation compared to 6.4 years (35%) with moderate activity limitation and 3.8 years (21%) with severe activity limitation.\*

Although the total number of years lived by men were less than those for women, the relative number of HLY (with regard to all health measures, activity limitation, chronic morbidity and perceived health) were greater for men than women on all severity levels. Therefore compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted with caution as health states of people living in institutions or nursing home are not surveyed.

\* These may not sum to Life Expectancy respective 100 % due to rounding

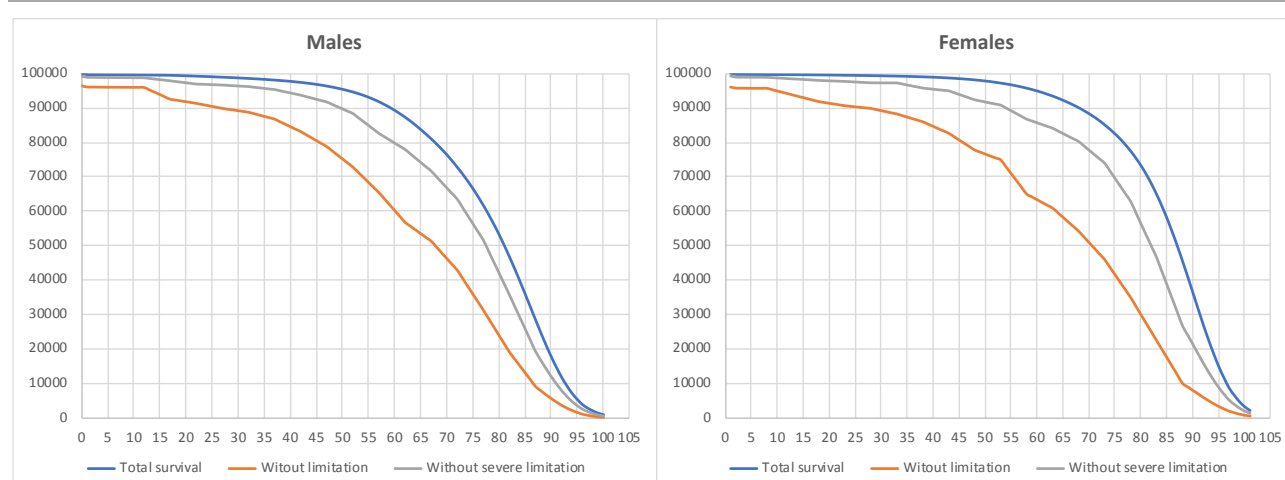
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- Klotz, J., Klimont J. (2016): Lebenserwartung in Gesundheit; zeitliche Entwicklung 1978 bis 2014. Statistische Nachrichten 71(4), 256-263.
- Klimont, J., Klotz, J. (2016): Lebenserwartung in Gesundheit nach Bundesland, Geburtsland und Schulbildung. Auswertungen aus der Österreichischen Gesundheitsbefragung 2014. Statistische Nachrichten 71(9), 664-669.
- Klotz J. Convergence or divergence of educational disparities in mortality and morbidity? The evolution of life expectancy and health expectancy by educational attainment in Austria in 1981-2006. *Vienna Yearbook of Population Research*. 2010; 8:139-174.
- Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p. 291-304.
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- Jagger C., EHEMU team. *Healthy life expectancy in the EU 15*. In: Institut des Sciences de la Santé, editor. *Living longer but healthier lives: how to achieve health gains in the elderly in the European Union Europe Blanche XXVI, Budapest, 25-26 November 2005*. Paris: ISS; 2006. p. 49-62.
- Doblhammer G., Kytir J. Compression or expansion of morbidity? Trends in healthy-life expectancy in the elderly Austrian population between 1978 and 1998. *Soc Sci Med*. 2001; 52(3):385-391.
- Doblhammer G., Kytir J. Social Inequalities in Disability-free and healthy life expectancy in Austria. *Wien Klin Wochenschr*. 1998;110(11):393-396

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in Belgium

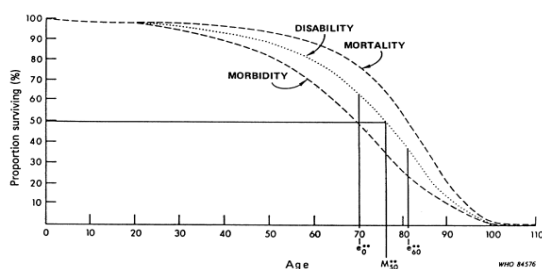
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.



$e_{80}^{**}$  and  $e_{80}^{***}$  are the number of years of autonomous life expected at birth and at age 60, respectively.  $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

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- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131

Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.

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\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Belgium and the European Union (EU28) based on SILC (2004-2015)

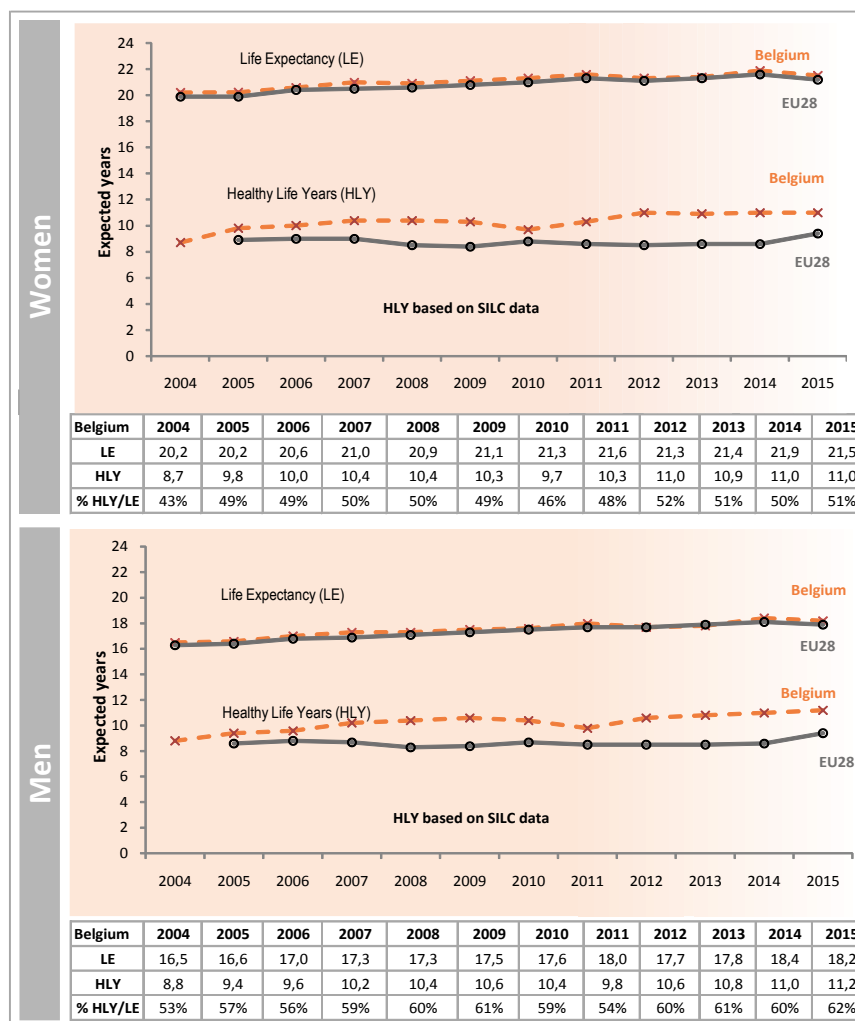
### Key points:

Belgian life expectancy (LE) at age 65 has increased by 1.3 years for women and 1.7 years for men over the period 2004-2015. By 2015 LE was above the EU28 average for women (21.2) and above for men (17.9).

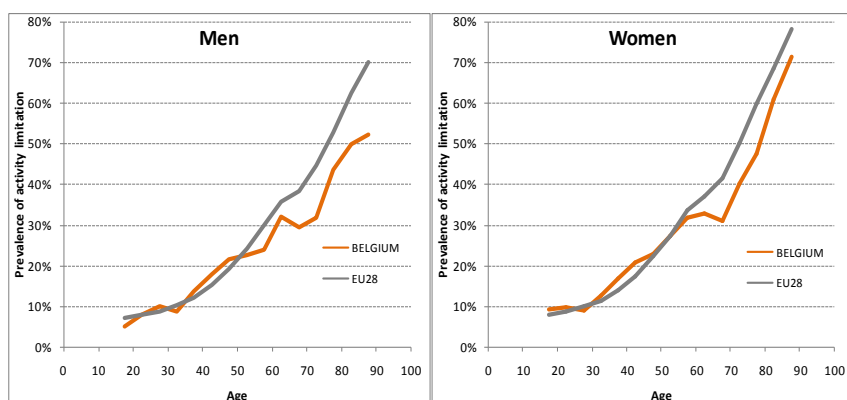
The new HLY series, initiated in 2004 with the SILC data, shows values for Belgium being in 2015 above the EU28 average (9.4 for women and men) by 1.6 years for women and by 1.8 for men.

In 2015 women and men at age 65 can expect to spend 51% and 62% of their life without *self-reported long-term activity limitations* respectively. HLY increased slightly for men between 2014 and 2015 but remained stable for women.

Note that the wording of the GALI question was slightly changed in Belgium in 2005 to better reflect the EU standard.



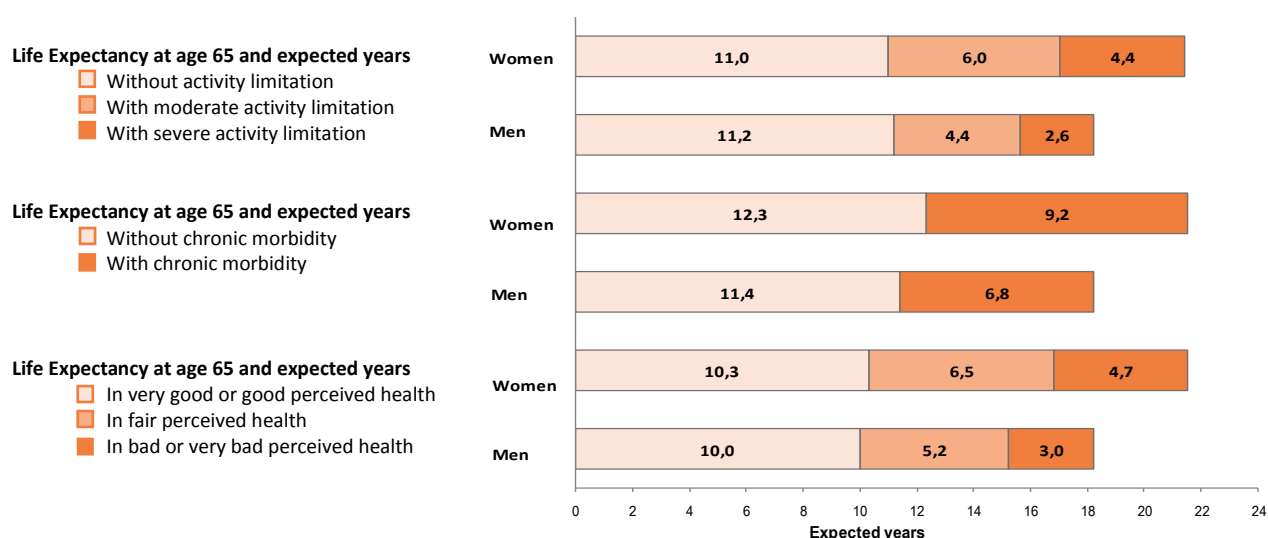
## Prevalence of activity limitation in Belgium and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age, observed in the European Union in the 3 years (2013-2015), Belgium tends to display same prevalence rates of activity limitation before the age of 50 years for men and 45 years for women and lower prevalence rates after this age for both sexes.

These results should be interpreted with caution as sample sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Belgium comprised 5896 women and 5648 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Belgium (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Belgium was 21.2 years for women and 17.9 years for men.

Based on the SILC 2015, at age 65, women spent 11.0 years (51% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 6.0 years (28%) with moderate activity limitation and 4.4 years (21%) with severe activity limitation.\*

Men of the same age spent 11.2 years (62% of their remaining life) without activity limitation compared to 4.4 years (24%) with moderate activity limitation and 2.6 years (14%) with severe activity limitation.\*

The number of years lived without activity limitation is nearly identical for both sexes, the years lived without chronic morbidity, and the number of years in (very) good perceived health is higher for women than for men. Compared to men, women spent a larger proportion of their life in ill health, and spent more years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

## Publications and reports on health expectancies for Belgium

● Berger N., Van der Heyden J., Van Oyen H. The global activity limitation indicator and self-rated health: two complementary predictors of mortality. *Arch Public Health*. 2015 (73, 1): 25.

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● Berger N., Charafeddine R., Tafforeau J., Van Oyen H. Espérances de vie en bonne santé par région et par niveau socio-économique en Belgique. WIV-ISP, Direction Opérationnelle Santé Publique et Surveillance, 2012: Bruxelles, N° de dépôt légal/2012/2505/44.

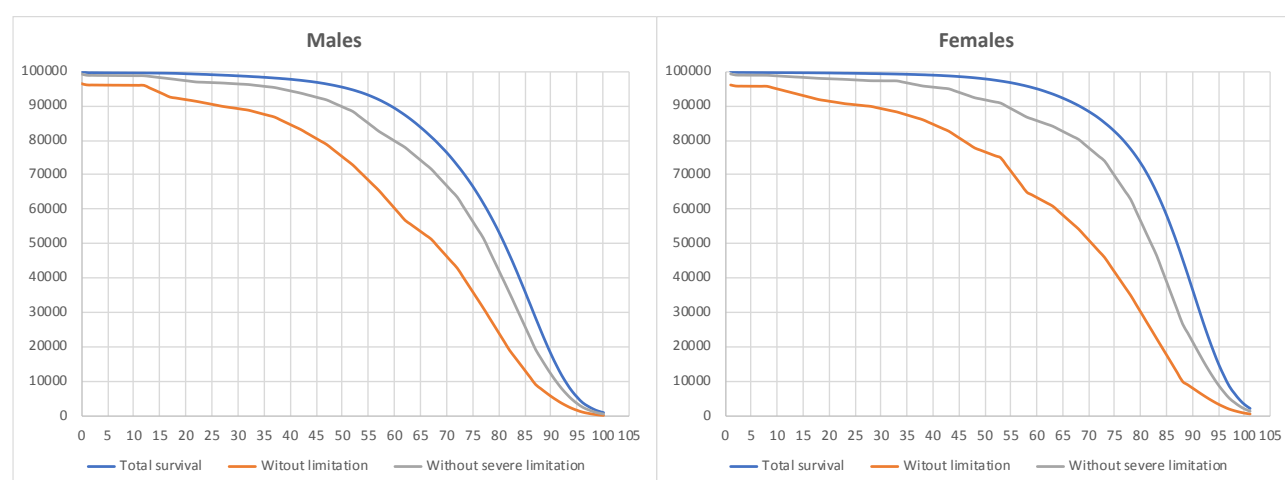
● Van Oyen H., Charafeddine R., Deboosere P., Cox B., Lorant V., Nusselder W., & Demarest S. Contribution of mortality and disability to the secular trend in health inequality at the turn of century in Belgium. *Eur J of Public Health*. 2011, 21(6):781-787.

● Charafeddine R., Berger N., Demarest S., Van Oyen H. Using mortality follow-up of surveys to estimate social inequalities in healthy life years. *Popul Health Metr*. 2014 (12): 13.

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

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# Health Expectancy in Bulgaria

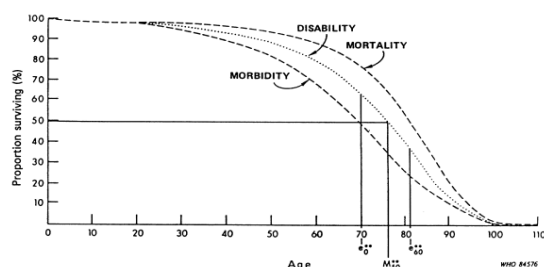
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

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## What is in this report?

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- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2008 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
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- Estimation of the general model of health transition for the European Union in 2015

## References

- Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131
- Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.
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- 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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Bulgaria and the European Union (EU28) based on SILC (2005-2015)

### Key points:

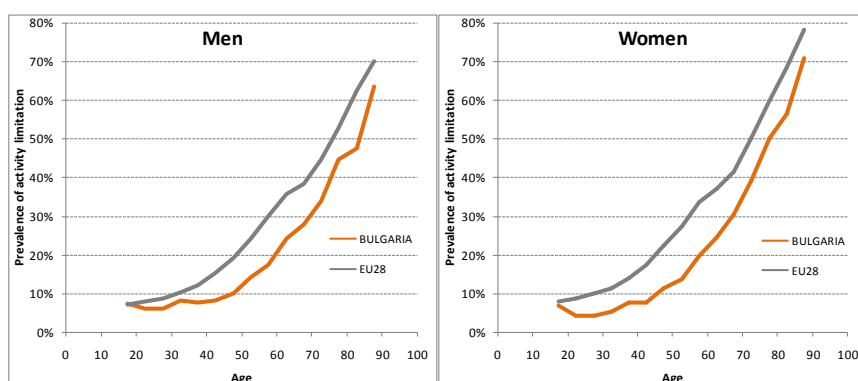
Bulgarian life expectancy (LE) at age 65 has increased by 1.4 years for women and 0.7 year for men over the period 2004-2015. By 2015 LE for men and women was below the EU28 average (21.2 for women and 17.9 for men).

Because Bulgaria joined the European Union in 2007, health expectancy based on activity limitation (HLY) is not available before 2007.

The HLY series, initiated in 2008 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 54% and 62% of their life without *self-reported long-term activity limitations* respectively. The HLY value for Bulgaria is above the EU28 average (9.4 for women and men) by 0.1 years for women and below by 0.7 year for men in 2015. These results should be interpreted with great caution as the wording of the SILC questions was clearly different in Bulgaria compared to other EU countries. Between 2008 and 2015 HLY remained almost stable for men and women.



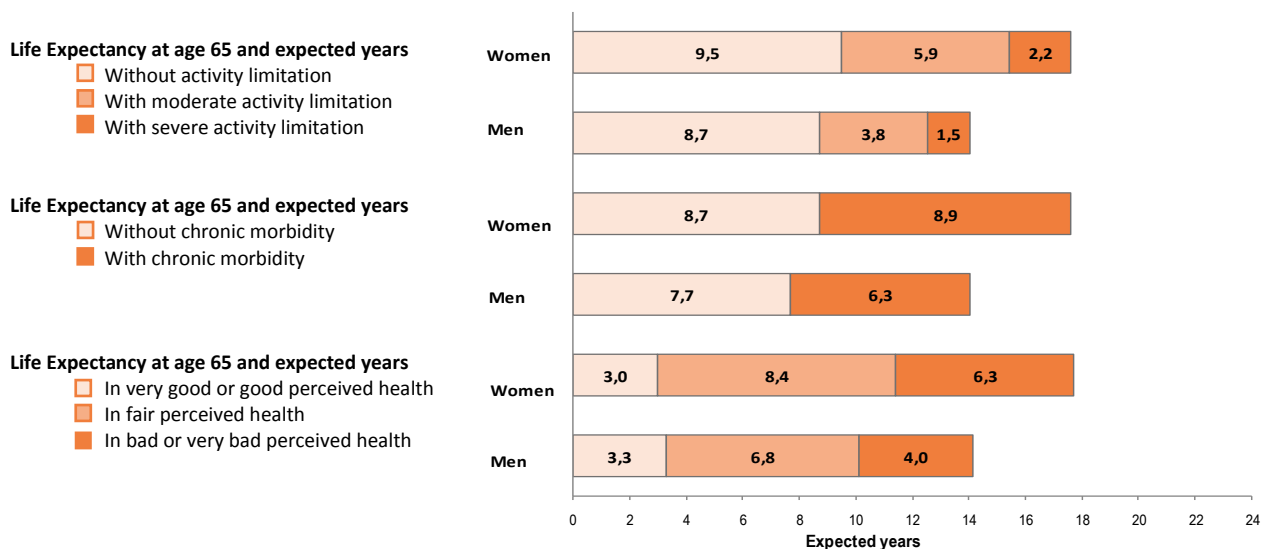
## Prevalence of activity limitation in Bulgaria and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Bulgaria tends to display lower prevalence rates of activity limitation at all ages for both sexes.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Bulgaria comprised 5552 women and 4850 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Bulgaria (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Bulgaria was 17.6 years for women and 14.0 years for men.

Based on the SILC 2014 at age 65, women spent 9.5 years (54% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 5.9 years (34%) with moderate activity limitation and 2.2 years (12%) with severe activity limitation.\*

Men of the same age spent 8.7 years (62% of their remaining life) without activity limitation compared to 3.8 years (27%) with moderate activity limitation and 1.5 years (11%) with severe activity limitation.\*

Although the total years lived by men, the years lived without activity limitation and the years lived without chronic morbidity were less than those for women, the number of years lived in very good or good perceived health was greater for men than women.

Compared to men, women spent a much larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

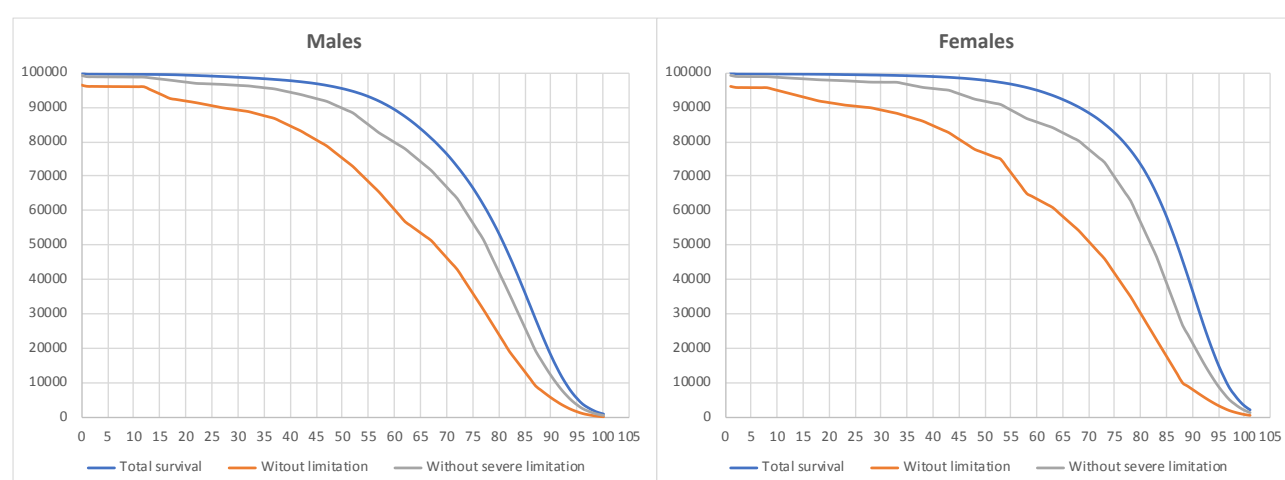
## Publications and reports on health expectancies for Bulgaria

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- Mutafova MN. Integral indicators for assessing health of the population. In: *Praemedicus since 1925*. 2006, 27 (1): 81-88
- Perenboom P, van Oyen H, Mutafova MN. *Health expectancies in European countries*. In: Robine J-M, Jager C, Mathers CD, Crimmins EM, Suzman RM, editors. *Determining Health Expectancies*. John Wiley & Sons, Ltd, Chichester, UK, 2003, chp 18, 428p
- Mutafova MN., Maleshkov C. *Healthy life expectancy* "Herron press", S., 2001, 130p
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- Mutafova MN., Van de Water HPA, Perenboom RJM., Boshuizen HC. Health expectancy calculations as a new approach to studying population health in Bulgaria. *Bull Who*. 1997; 75(2):147-153.
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- Mutafova MN., Maleshkov C., Tonkova S. *Disability-free life expectancy in Bulgaria-a pilot investigation*. In: Mathers CD, McCallum J, Robine J-M, editors. *Advances in Health Expectancies*. Canberra: Australian Institute of Health and Welfare; 1994. p. 252-260.
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## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

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# Health Expectancy in Croatia

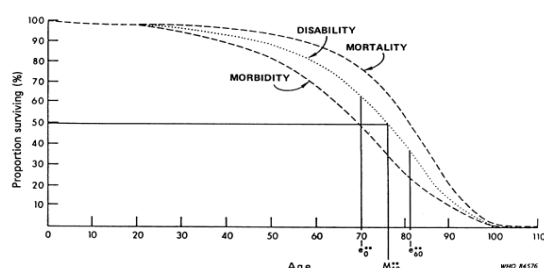
## What is health expectancy?

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## How is the effect of longer life measured?

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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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

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Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
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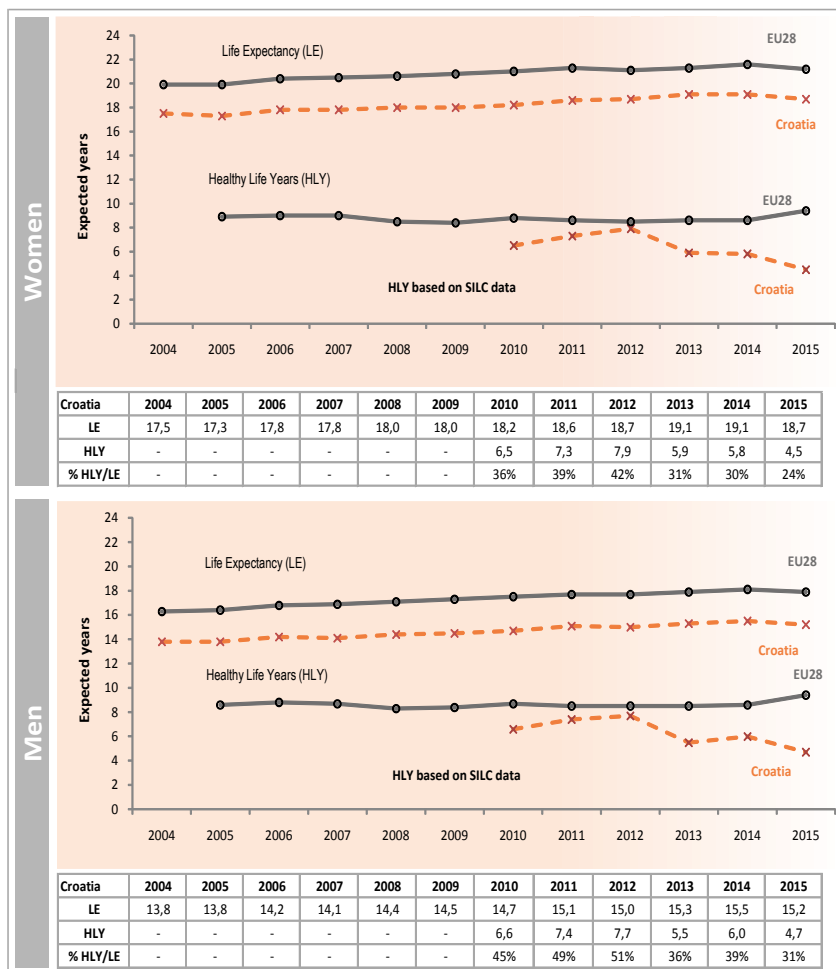
## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Croatia and the European Union (EU28) based on SILC (2004-2015)

### Key points:

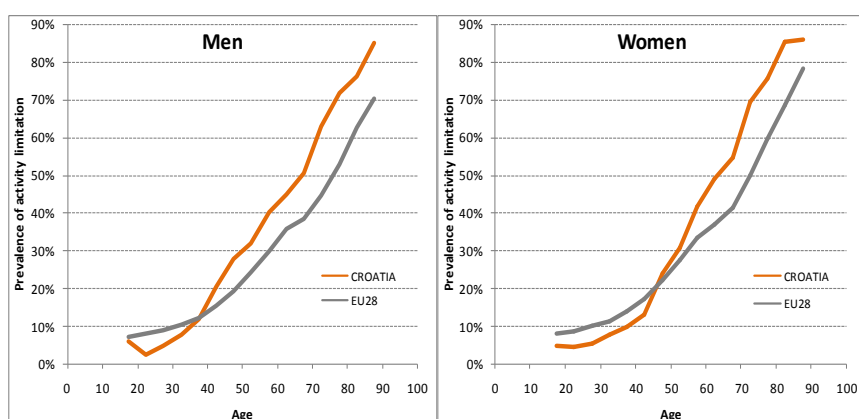
Between 2004-2015 Croatian life expectancy (LE) at age 65 increased by 1.2 years for women and 1.4 years for men. This indicator value was below the EU28 average in 2015 (21.2 years for women and 17.9 for men).

The new HLY series on the basis of SILC data shows this indicator value for Croatian women being 4.9 year below the EU28 average of 9.4 in 2015, and Croatian men can expect 4.7 years HLYs which is also below the EU28 average of 9.4.

Thus in 2015 women and men at age 65 can expect to spend 24% and 31% respectively of their remaining life without *self-reported long-term activity limitations*. Between 2014 and 2015 HLY decreased for men and women by 1.3 year.



## Prevalence of activity limitation in Croatia and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)

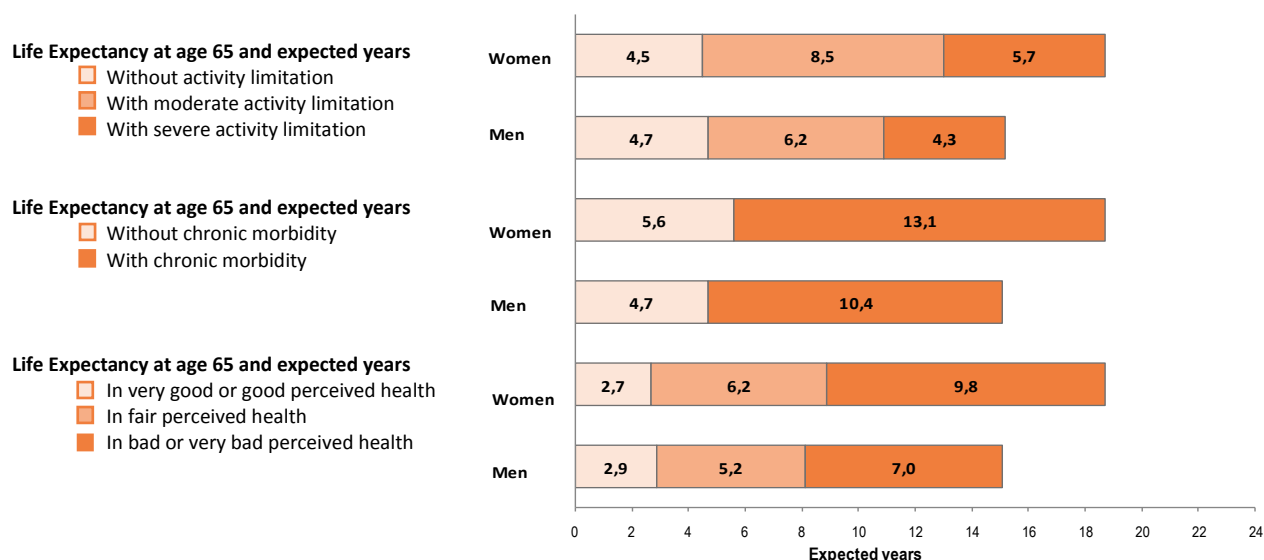


Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Croatia tends to display slightly lower prevalence rates of activity limitation before the age of 40 years for men and 50 years for women and slightly higher after these ages.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Croatia comprised 7801 women and 7039 men aged 16 years and over.



## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Croatia (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Croatia was 18.7 years for women and 15.2 years for men.

Based on SILC 2015 data, women at age 65 spent 4.5 years (24% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 8.5 years (45%) with moderate activity limitation and 5.7 years (30%) with severe activity limitation.\*

Men of the same age spent 4.7 years (31% of their remaining life) without activity limitation compared to 6.2 years (41%) with moderate activity limitation and 4.3 years (28%) with severe activity limitation.\*

Although the total number of years lived by men were less than those for women, the number of HLY (and with regard to chronic morbidity and perceived health) were similar for men and women. Therefore, compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted with caution as health states of people living in institutions or nursing home are not surveyed.

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## Publications and reports on health expectancies for Croatia

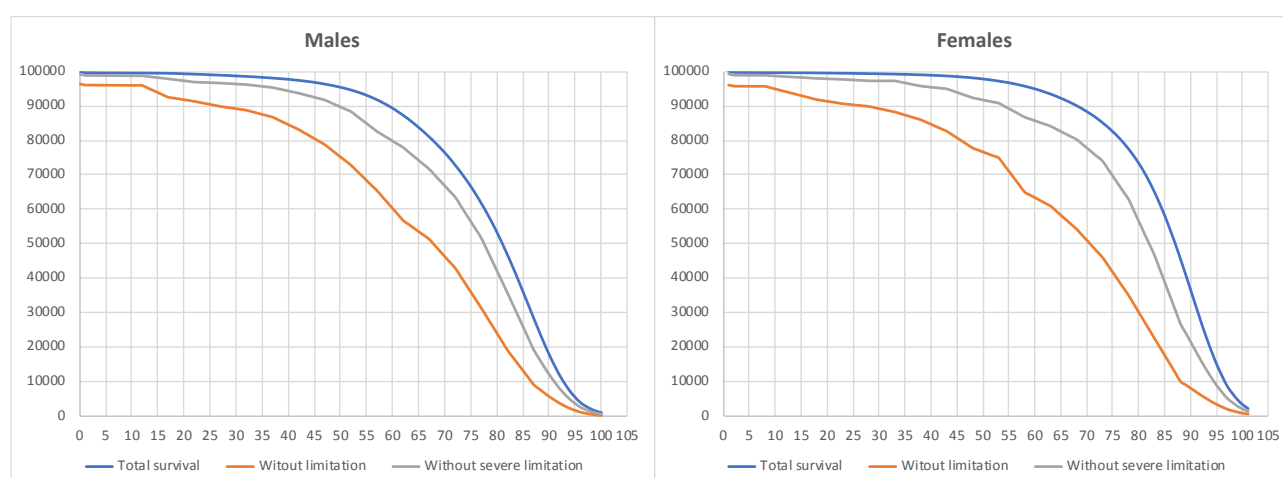
● Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p. 291-304.

● Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008; 372(9656):2124-2131.

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# Health Expectancy in Cyprus

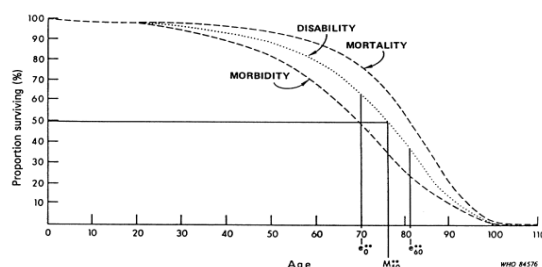
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$e_{60}^{**}$  and  $e_{65}^{**}$  are the number of years of autonomous life expected at birth and at age 60, respectively.  
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- Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131
- Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.
- Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.
- 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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Cyprus and the European Union (EU28) based on SILC (2005-2015)

### Key points:

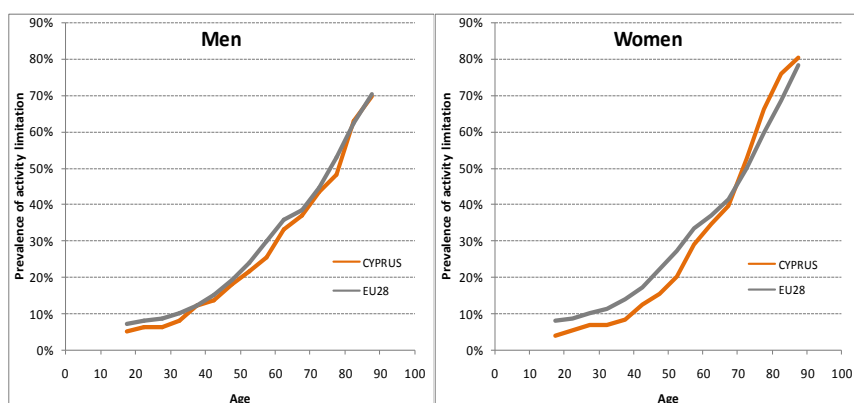
Cypriot life expectancy (LE) at age 65 has increased by 1.5 year for women and 1.9 years for men over the period 2004-2015. From 2004 onwards LE for men and women has an increasing trend and by 2015 LE for men was above the EU 28 average (21.2 for women and 17.9 for men) but below for women. For the first time LE decreased significantly for women and men in 2015.

The HLY series using the SILC data, initiated in 2006 in Cyprus, shows that in 2015 women and men at age 65 can expect to spend 35% and 46% of their life without *self-reported long-term activity limitations* respectively which is also a significant decrease.

The HLY values for Cyprus are 2.1 year below the EU28 average of 9.4 for women in 2015 and 1.0 year below the EU28 average of 9.4 for men. Between 2014 and 2015 HLY strongly decreased for women and men.



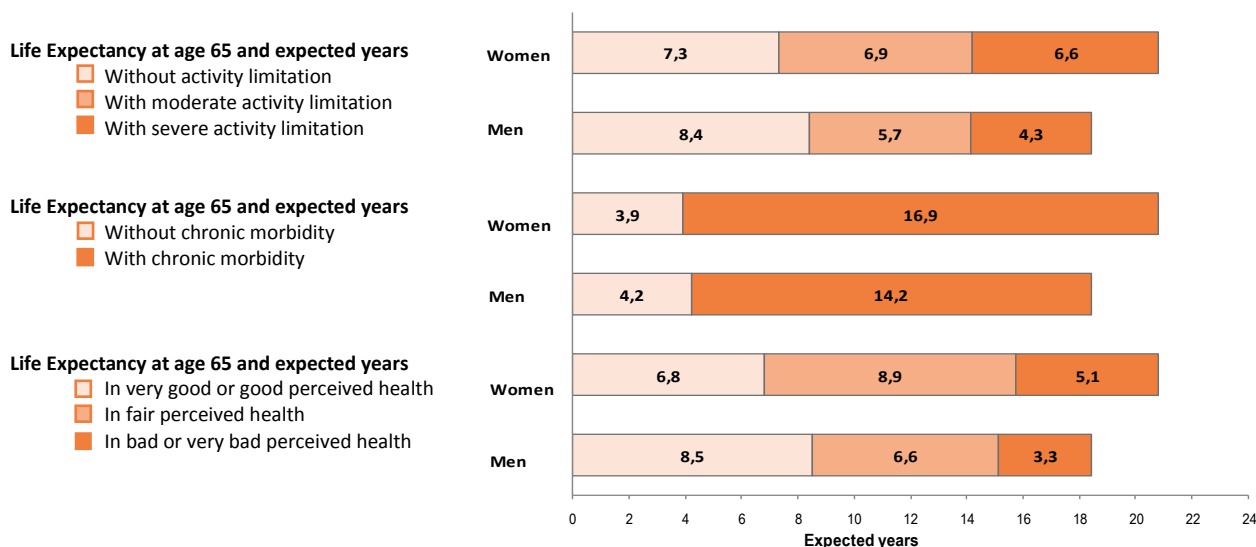
## Prevalence of activity limitation in Cyprus and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Cyprus tends to display slightly lower prevalence rates of activity limitation for both sexes but slightly higher prevalence rates after the age of 65 years for women.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015 the sample size for Cyprus comprised 5280 women and 4704 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Cyprus (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Cyprus was 20.8 years for women and 18.4 years for men.

Based on the SILC 2015 at age 65, women spent 7.3 years (35% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 6.9 years (33%) with moderate activity limitation and 6.6 years (32%) with severe activity limitation.\*

Men of the same age spent 8.4 years (46% of their remaining life) without activity limitation compared to 5.7 years (31%) with moderate activity limitation and 4.3 years (23%) with severe activity limitation.\*

Although the total years lived by men were less than those for women, for all the health expectancies the years of life spent in positive health were significantly greater for men than women.

Compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

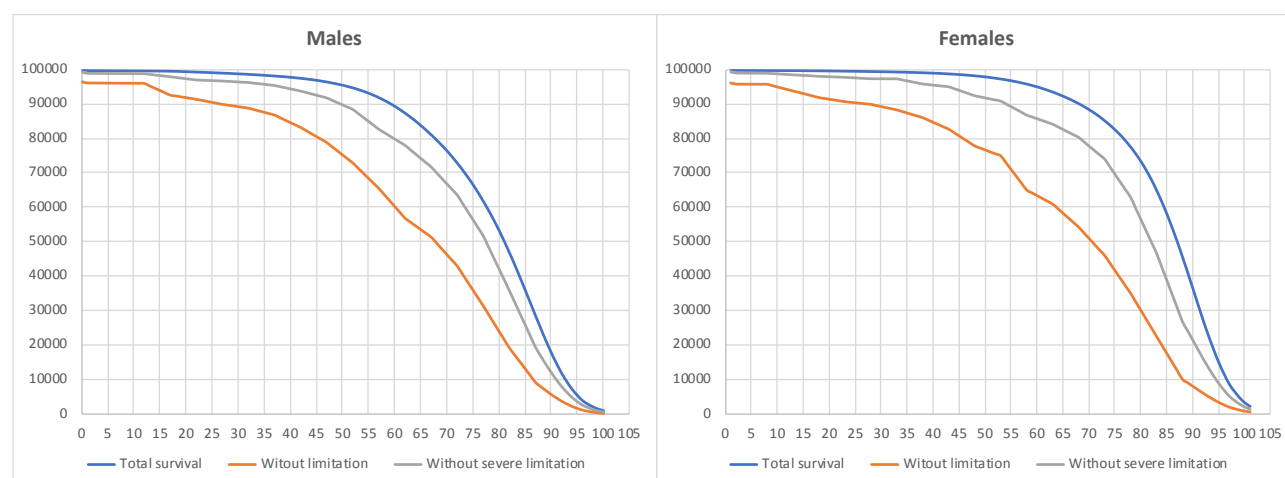
## Publications and reports on health expectancies for Cyprus

- Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656):2124-2131.
- Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p.291-304.

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).





# Health Expectancy in Czech Republic

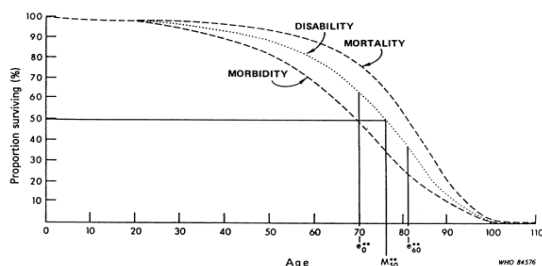
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2005 to 2015. The wording of the question has been revised in 2008.
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

## References

- Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131
- Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.
- Sullivan D.F. A single index of mortality and morbidity. *HSMHA Health Reports* 1971;86:347-354.
- 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).

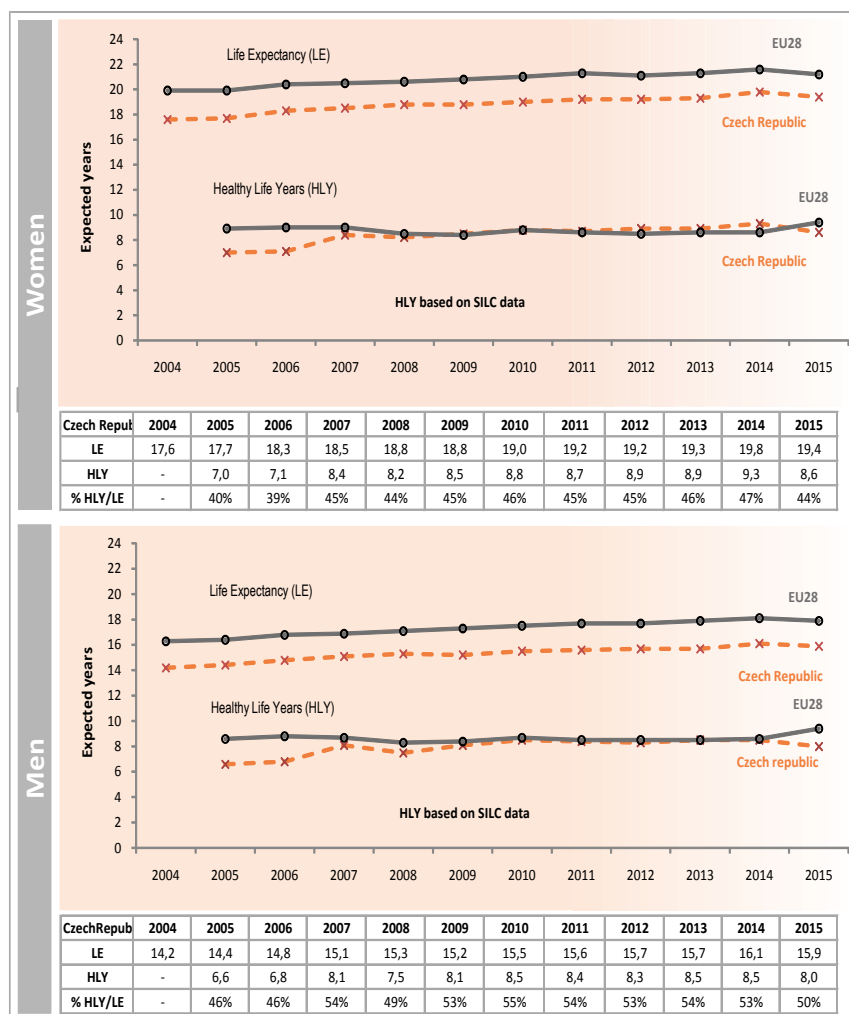
\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for the Czech Republic and the European Union (EU28) based on SILC (2005-2015)

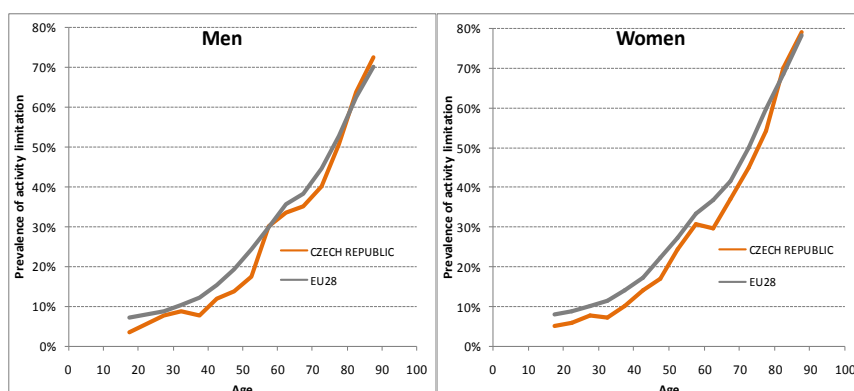
### Key points:

Czech life expectancy (LE) at age 65 has increased by 1.8 years for women and 1.7 years for men over the period 2004-2015.

LE was below the EU28 average (21.2 for women and 17.9 for men) in 2015 by 1.8 years for women and 2.0 years for men. The HLY series, initiated in 2005 with the SILC data, show that in 2015 women and men at age 65 can expect to spend 44% and 50% of their life without *self-reported long-term activity limitations* respectively. The HLY values for the Czech Republic in 2015 is 0.8 year below the EU28 average (9.4 for women and men) for women and 1.4 year below the EU28 average for men. The whole series should be interpreted with caution due to successive changes in the wording of the questions in the Czech Republic (in 2007 and then in 2008). Especially, the wording of the GALI question was changed to better reflect the EU standard. HLY decreased for women and men between 2014 and 2015.



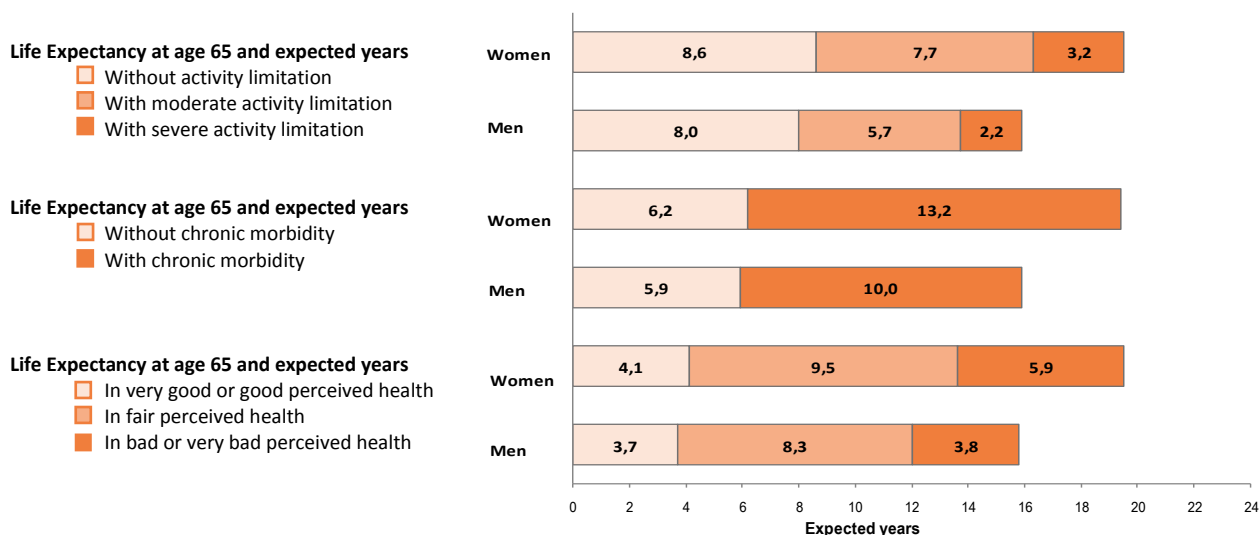
## Prevalence of activity limitation in the Czech Republic and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), the Czech Republic tends to display slightly lower prevalence rates of activity limitation at all ages.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015 the sample size for the Czech Republic comprised 8078 women and 7061 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for the Czech Republic (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in the Czech Republic was 19.4 years for women and 15.9 years for men.

Based on the SILC 2015, at age 65, women spent 8.6 years (44% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 7.7 years (40%) with moderate activity limitation and 3.2 years (16%) with severe activity limitation.\*

Men of the same age spent 8.0 years (50% of their remaining life) without activity limitation compared to 5.7 years (36%) with moderate activity limitation and 2.2 years (14%) with severe activity limitation.\*

Although all health expectancies were greater for women than men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

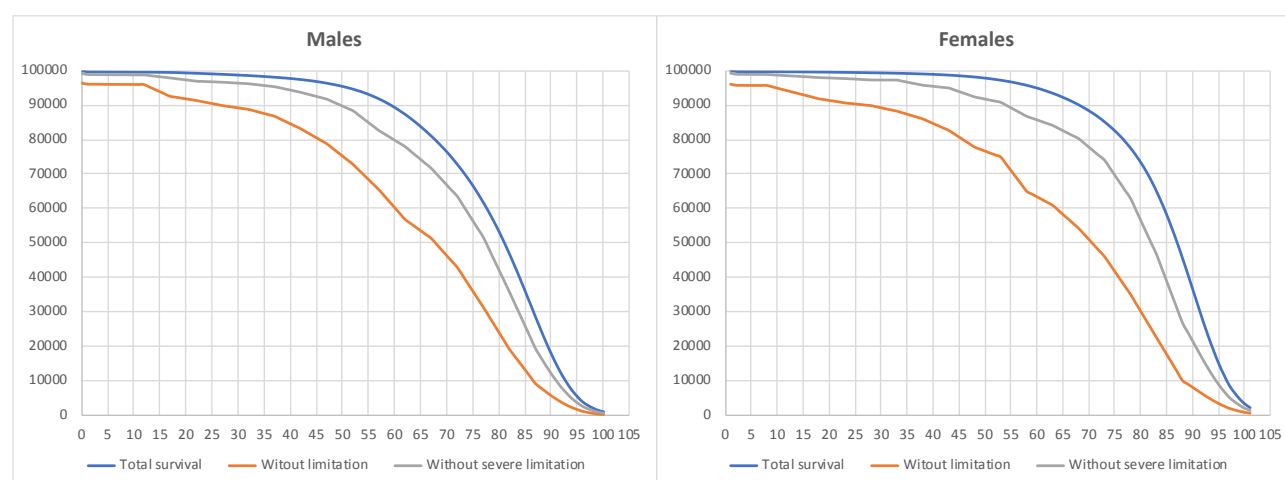
## Publications and reports on health expectancies for the Czech Republic

- Vrabcová J., Daňková Š., Faltysová K. Healthy Life Years in the Czech Republic: Different data sources, different figures. *Demografie*. 2017. 59(4):315-331.
- Langhamrová J. Délky života ve zdraví [Healthy life expectancies] In: Fórum sociální politiky 5/2014, p. 24-26
- Langhamrová J. Střední a zdravá délka života v evropských zemích [Life expectancy and Healthy life expectancy in European countries]. In Langhamrová J, Šídlo L. (eds) *Zdraví – výzvy a rizika*, sborník z XLIII. konference České demografické společnosti, Praha, 2013
- Daňková Š. Délka života ve zdraví a projekt EHLEIS v České republice [Healthy life expectancy and project EHLEIS in the Czech Republic]. In Langhamrová J., Šídlo L. (eds) *Zdraví – výzvy a rizika*, sborník z XLIII. konference České demografické společnosti, Praha, 2013
- Hrkal J. Střední délka života prožitá ve zdraví v České republice v roce 2006 [Healthy Life Expectancy in the Czech Republic in 2006]. *ÚZIS CR*. 2009(12):1-6.
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- Rychtaříková J. Naděje dožití ve zdraví [Disability free life expectancy]. *Demografie* 2000;42(1):41-48.

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in Denmark

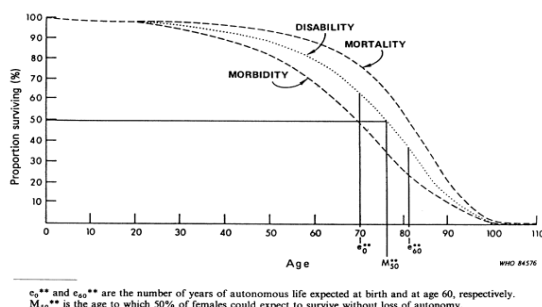
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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



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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “Healthy Life Years” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In this report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for Denmark and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2004 to 2015. The wording of the question has been revised in 2008.
- Prevalence of activity limitation in Denmark and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for Denmark, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

## References

- Brønnum-Hansen H. Ranking health between countries in international comparisons. *Scand J Public Health* 2014;42:242-244.
- Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131.
- Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.
- Sullivan D.F. A single index of mortality and morbidity. HSMHA Health Reports 1971;86:347-354. 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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

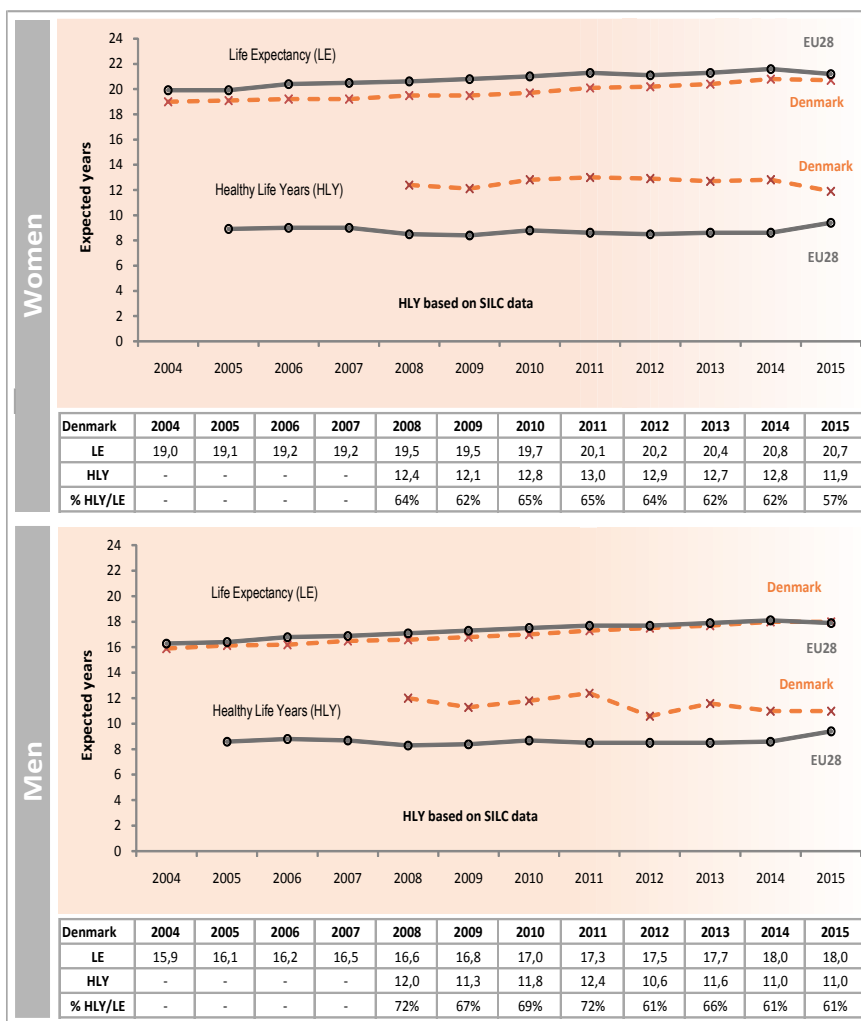


## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Denmark and the European Union (EU28) based on SILC (2004-2015)

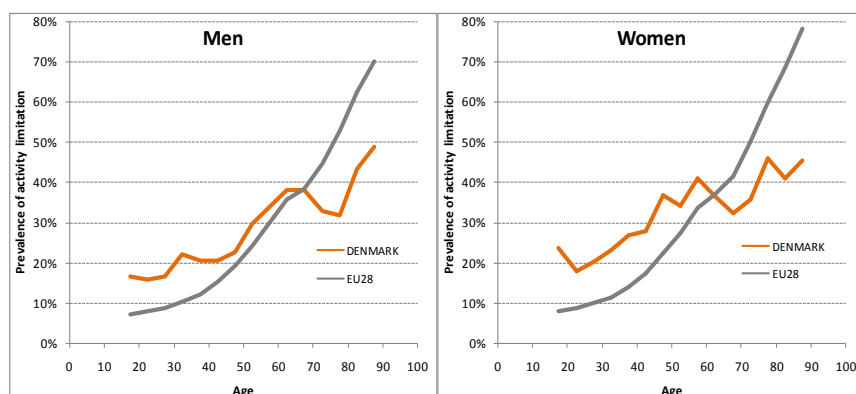
### Key points:

Danish life expectancy (LE) at age 65 has increased by 1.7 years for women and 2.1 years for men over the period 2004-2015. In 2015 LE for women was below the EU28 (21.2 for women and 17.9 for men) and slightly above for men.

Because the wording of the GALI question in the Danish survey was changed in 2008 to better reflect the EU standard, HLY estimates for Denmark are shown only from 2008. The Danish values were higher than the EU28 average in 2015 (9.4 for women and men), 2.5 and 1.6 years higher for women and men respectively. Therefore, Danish women and men at age 65 can expect to spend 57% and 61%, respectively, of their remaining life without *self-reported long-term activity limitations*. HLY remained almost stable for men but decreased for women between 2014 and 2015 in Denmark. The results should be interpreted with caution as the samples sizes are small.



## Prevalence of activity limitation in Denmark and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean2013-2015)



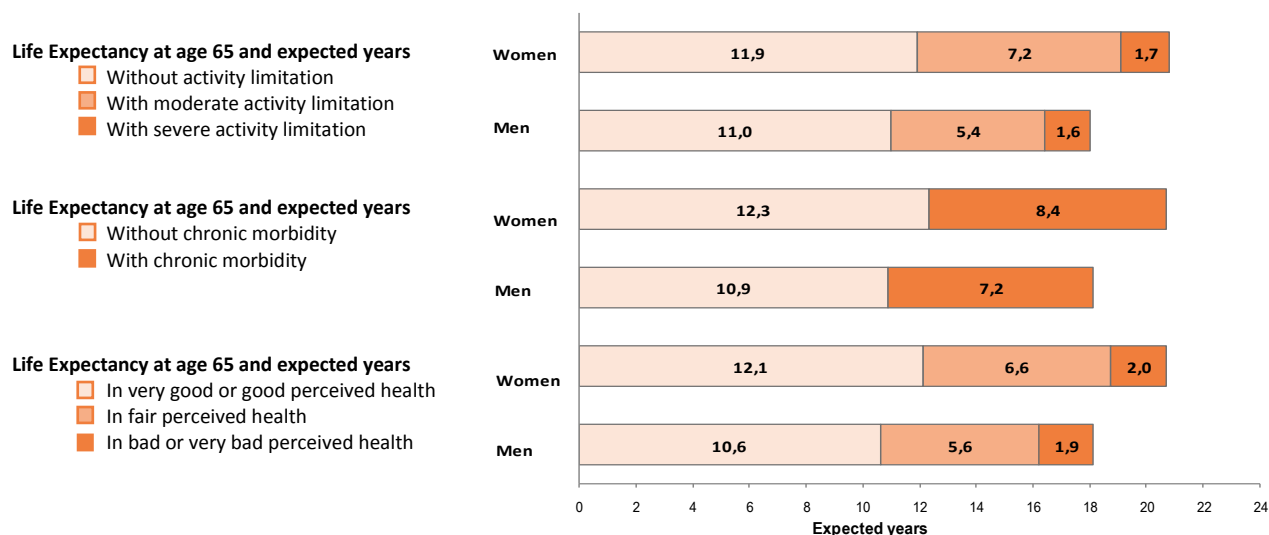
Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Denmark tends to display higher prevalence rates of activity limitation before the age of 60 years and much lower after this age.

Indeed prevalence of activity limitation reaches only 50% for men and 40% for women in Denmark at age 85 and over versus 70% and 78% respectively for men and women in the European Union on average.

These results should be interpreted with caution as the samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. Furthermore, the lack of institutionalized people in the Danish SILC surveys, such as people living in nursing homes, might contribute to an explanation of the results. In 2015 the sample size for Denmark comprised 3137 women and 2888 men aged 16 years and over.



## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Denmark (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Denmark was 20.7 years for women and 18.0 years for men.

Based on the SILC 2015, at age 65, women spent 11.9 years (57% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 7.2 years (35%) with moderate activity limitation and 1.7 years (8%) with severe activity limitation.

Men of the same age spent 11.0 years (61% of their remaining life) without activity limitation, 5.4 years (30%) with moderate activity limitation and 1.6 years (9%) with severe activity limitation.

Although for all the health expectancies the years of life spent in positive health were slightly greater for women than men, women spent a larger proportion of their life in ill health.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes, and the small sample size.

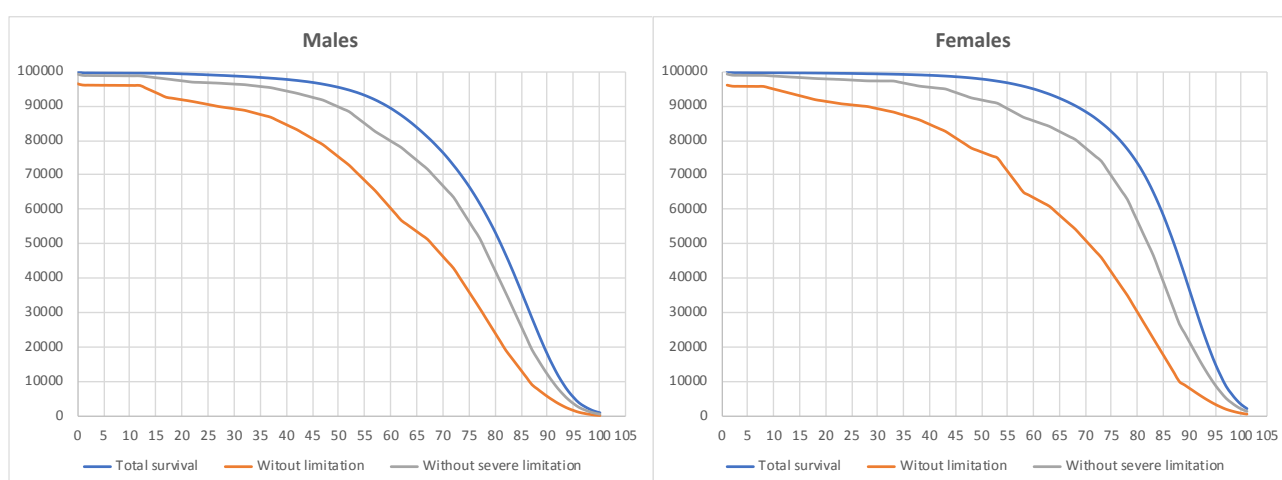
## Publications and reports on health expectancies for Denmark

- Brønnum-Hansen H. Socially disparate trends in lifespan variation: A trend study on income and mortality based on nationwide Danish register data. *BMJ Open* 2017; <http://bmjopen.bmj.com/content/7/5/e014489>.
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## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in Estonia

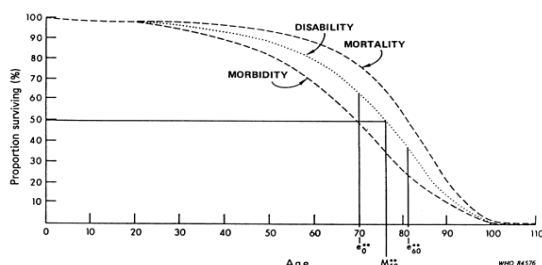
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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



$e_{60}^{**}$  and  $e_{65}^{**}$  are the number of years of autonomous life expected at birth and at age 60, respectively.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2004 to 2015. The wording of the question has been revised in 2008.
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.  
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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Estonia and the European Union (EU28) based on SILC (2004-2015)

### Key points:

Estonian life expectancy (LE) at age 65 has increased by 2.9 years for women and 2.5 years for men over the period 2004-2015. LE was below the EU28 average in 2015 (21.2 for women and 17.9 for men) although the gap with the EU28 average is reducing for women and men, women being much closer to the EU average than men.

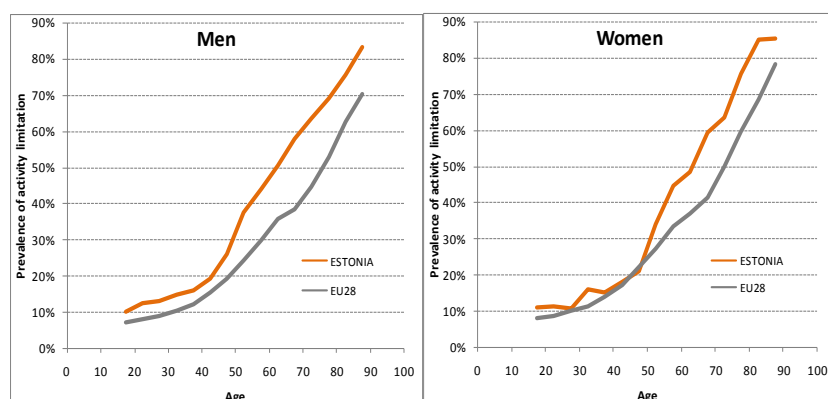
HLY series, initiated in 2004 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 26% and 34% of their life without *self-reported long-term activity limitations* respectively.

In 2015 the HLY values for Estonia are 4.1 years for women and 4.6 years for men, below the EU28 average (9.4 for women and 10.5 for men).

The wording of the GALI question was changed in Estonia in 2008 to better reflect the EU standard. After a strong increase in 2009, HLY remained stable for women and men until 2014.



## Prevalence of activity limitation in Estonia and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)

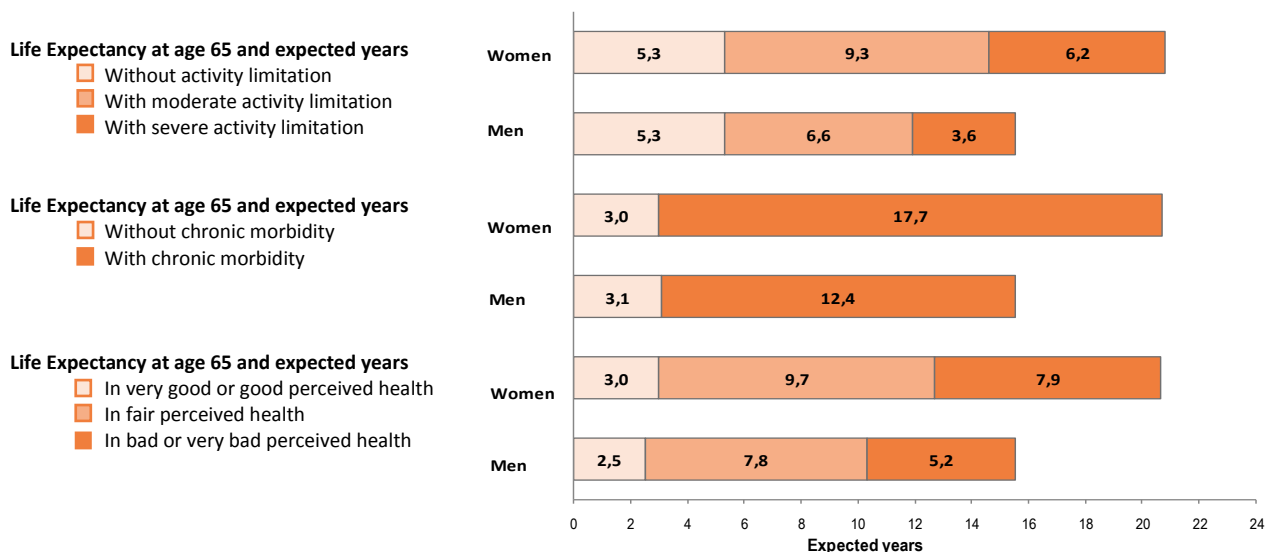


Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Estonia tends to display higher prevalence of activity limitation at all ages for men and at almost all ages except between 25 and 45 years for women.

Activity limitation in Estonia starts to increase already from age 45 for men and from age 50 for women.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Estonia comprised 6467 women and 5587 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Estonia (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Estonia was 20.7 years for women and 15.5 years for men.

Based on the SILC 2015, at age 65, women spent 5.3 years (26% of their remaining life) without activity limitation (corresponding to HLY), 9.3 years (45%) with moderate activity limitation and 6.2 years (30%) with severe activity limitation.\*

Men of the same age spent 5.3 years (34% of their remaining life) without activity limitation compared to 6.6 years (43%) with moderate activity limitation and 3.6 years (23%) with severe activity limitation.\*

Although the total years lived by women were 5.2 years longer than men, HLY is the same for women and men, and other positive health expectancies are similar for both sexes. Compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

\* These may not sum to Life Expectancy due to rounding

## Publications and reports on health expectancies for Estonia

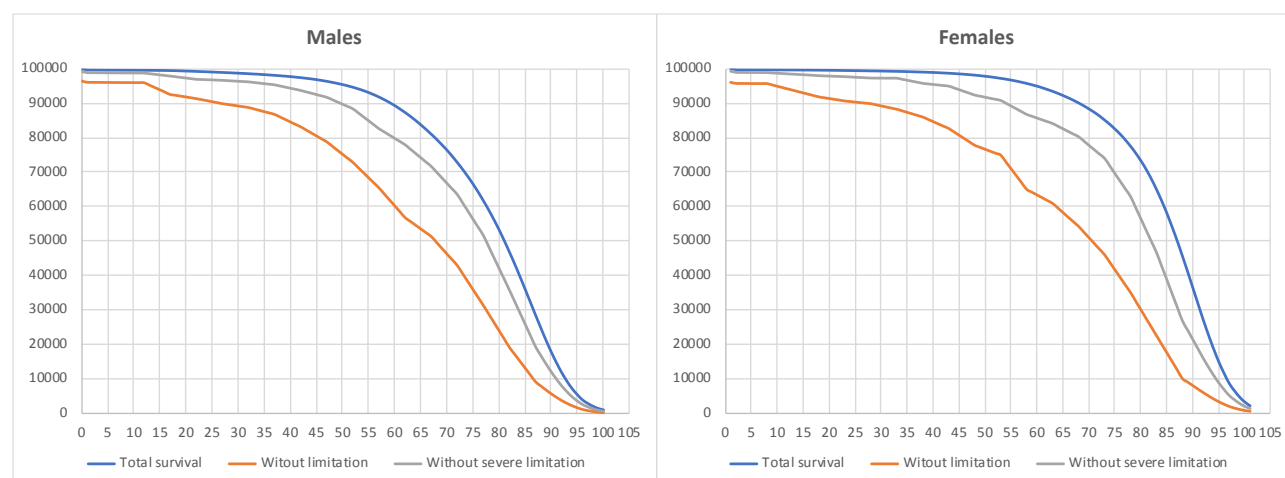
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## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

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# Health Expectancy in Finland

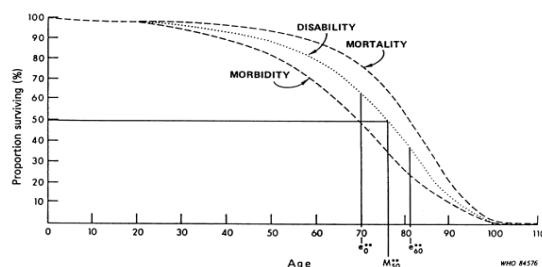
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

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- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

## References

- Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131
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- 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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Finland and the European Union (EU28) based on SILC (2004-2015)

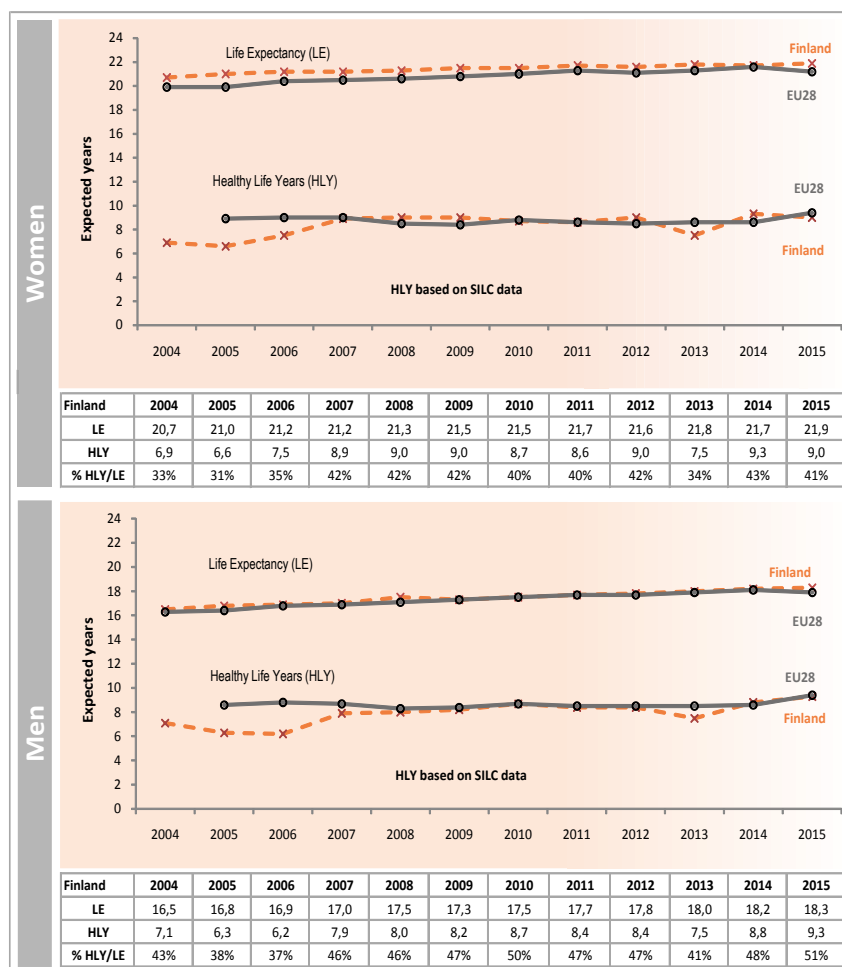
### Key points:

Finnish life expectancy (LE) at age 65 has increased by 1.2 years for women and 1.8 years for men over the period 2004-2015. By 2015 LE was slightly above the EU28 average (21.2 for women and 17.9 for men) for women and men.

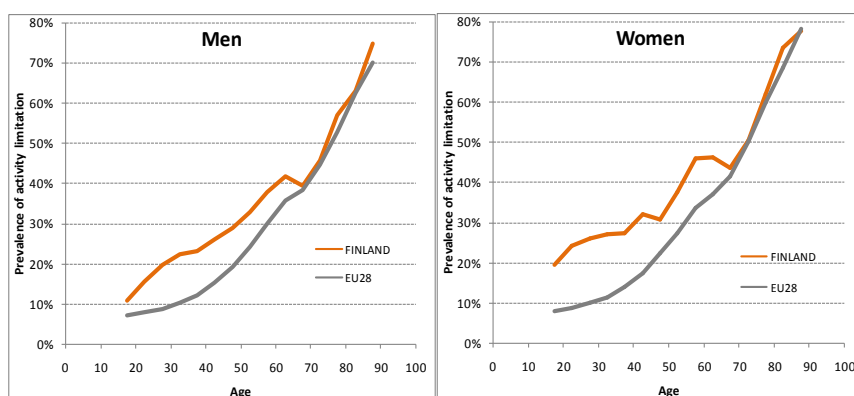
The HLY series, initiated in 2004 with the SILC data, shows values in Finland being in 2015 0.4 year below the EU28 average (9.4 for women and 17.9 for men) for women and 0.1 year below for men.

In 2015 women and men at age 65 can expect to spend 41% and 51% of their life without *self-reported long-term activity limitations* respectively.

Between 2014 and 2015 HLY slightly decreased for women and increased for men in Finland. The whole series should be interpreted with caution due to successive changes in the wording of the question used especially in 2007.



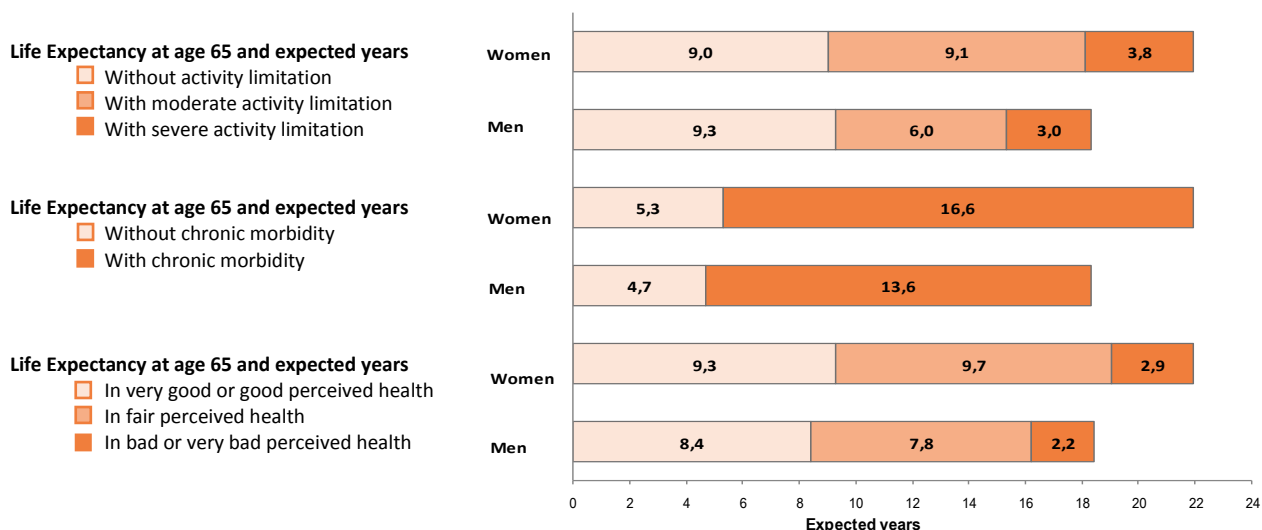
## Prevalence of activity limitation in Finland and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Finland tends to display a higher prevalence rate of activity limitation before the age of 65 years and a similar prevalence after this age.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Finland comprised 5267 women and 5459 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Finland (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Finland was 21.9 years for women and 18.3 years for men.

Based on the SILC 2015, at age 65, women spent 9.0 years (41% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY), 9.1 years (42%) with moderate activity limitation and 3.8 years (17%) with severe activity limitation.\*

Men of the same age spent 9.3 years (51% of their remaining life) without activity limitation compared to 6.0 years (33%) with moderate activity limitation and 3.0 years (17%) with severe activity limitation.\*

Although the total years lived by men were less than those for women, the number of years lived without chronic morbidity, without activity limitation, or in good perceived health was about the same. Compared to men, women spent a larger proportion of their life with chronic morbidity, disability and/or poor perceived health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

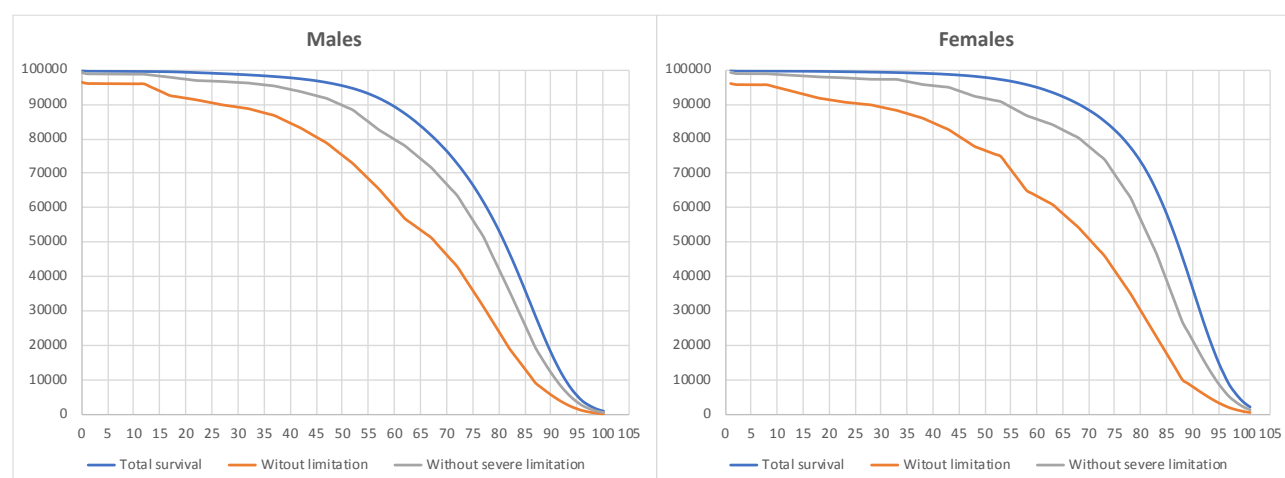
## Publications and reports on health expectancies for Finland

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## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in France

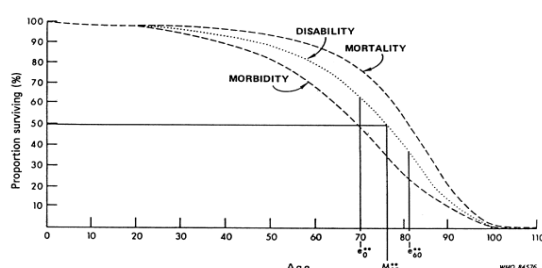
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{10}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of "Healthy Life Years" (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2004 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

## References

- Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131
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- Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.
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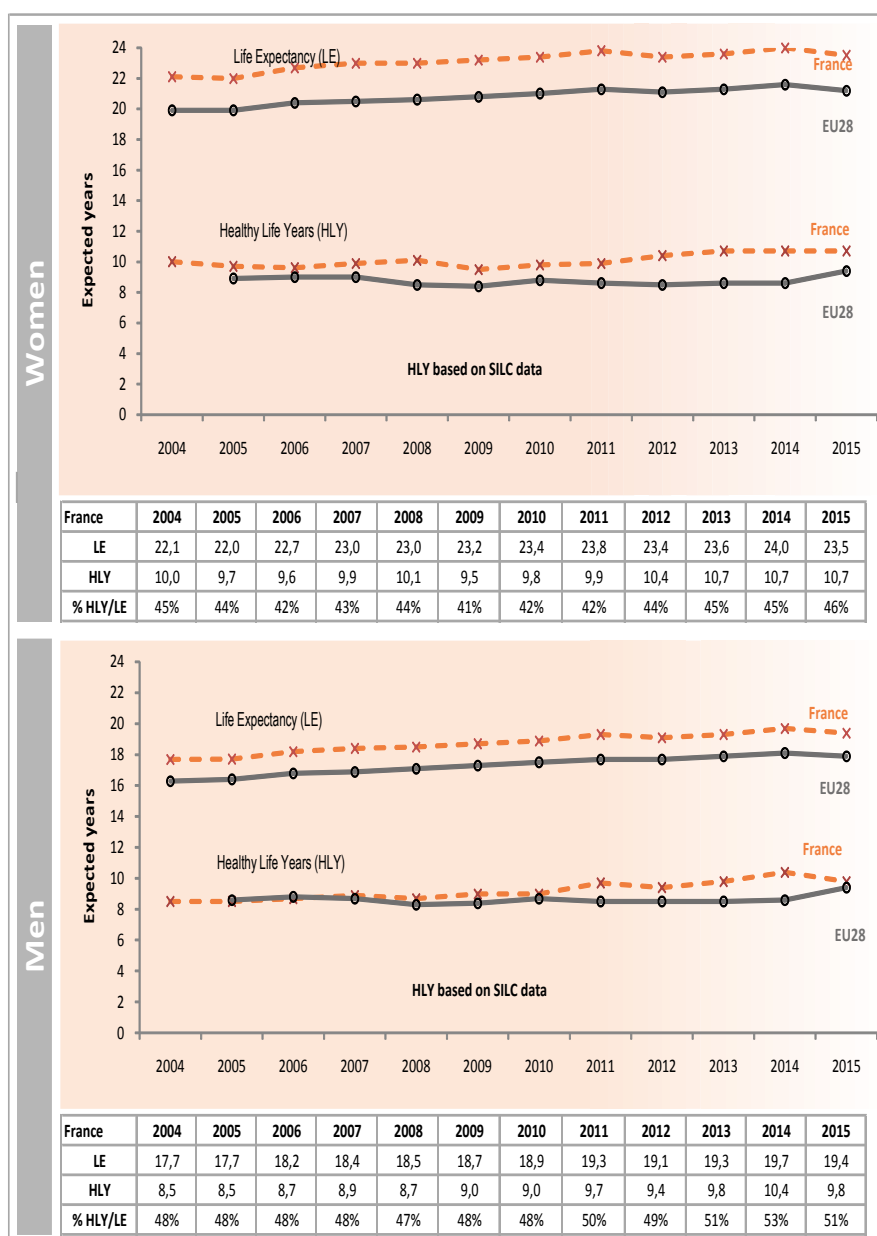
\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.



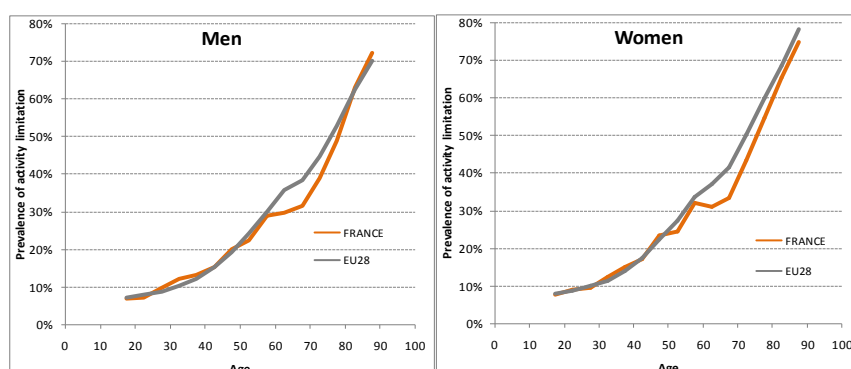
## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for France and the European Union (EU28) based on SILC (2004-2015)

### Key points:

French life expectancy (LE) at age 65 has increased by 1.4 years for women and 1.7 years for men over the period 2004-2015. By 2015 LE notably decreased for women and men but remained the highest in the EU28, the EU28 average being 21.2 for women and 17.9 for men. The HLY series, initiated in 2004 with the SILC data continues the earlier stable trend for France and is above the EU28 average of 9.4 for women and men. In 2015 women and men at age 65 can expect to spend respectively 46% and 51% of their life without *self-reported long-term activity limitations* respectively. Between 2014 and 2015 HLY notably decreased in France for men and remained stable for women. Note that the wording of the GALI question was marginally changed in France in 2008 to better reflect the EU standard. The small variations observed since 2007 (decrease for men in 2008 or for women in 2009) are possibly due to random fluctuations. Between 2004 and 2015, the proportion HLY/LE (%), higher for men than women, remained stable for women and slightly increased for men. We can underline the strong contrast between the excellent rank of France in the EU28 for LE at age 65 and the middle rank for HLY.



## Prevalence of activity limitation in France and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean2013-2015)

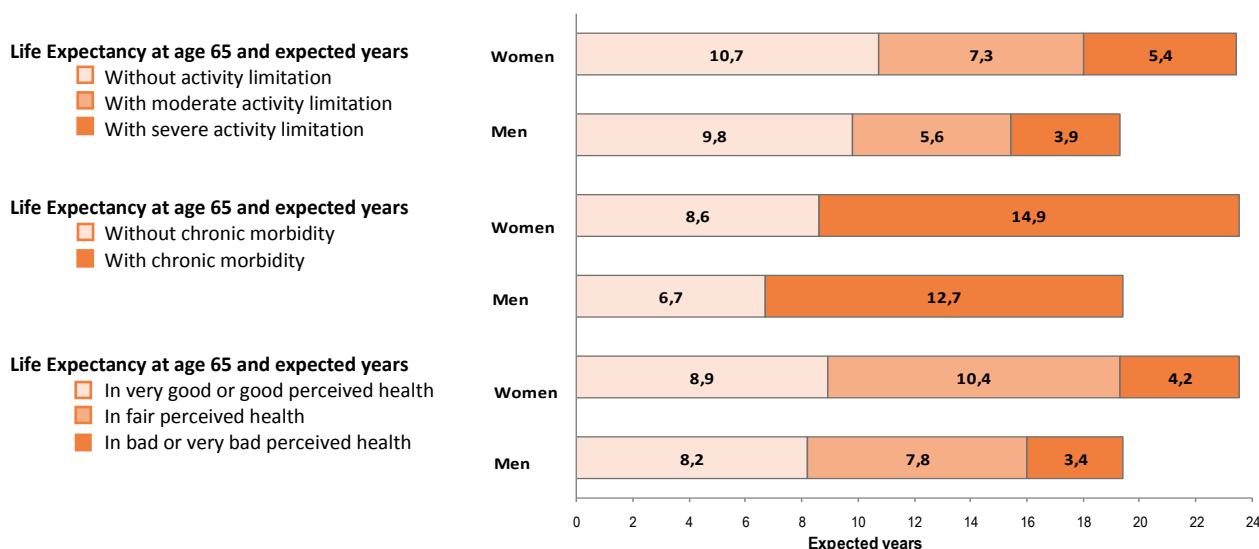


Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), France tends to display a similar prevalence rate of activity limitation before 55 years and a lower after this age for both sexes.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance, in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for France comprised 11238 women and 10054 men aged 16 years and over.



## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for France (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in France was 23.5 years for women and 19.4 years for men.

Based on the SILC 2015, at age 65, women spent 10.7 years (46% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 7.3 years (31%) with moderate activity limitation and 5.4 years (23%) with severe activity limitation.\*

Men of the same age spent 9.8 years (51% of their remaining life) without activity limitation compared to 5.6 years (29%) with moderate activity limitation and 3.9 years (20%) with severe activity limitation.\*

Although all health expectancies were greater for women than men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing home.

\*These may not sum to Life Expectancy due to rounding

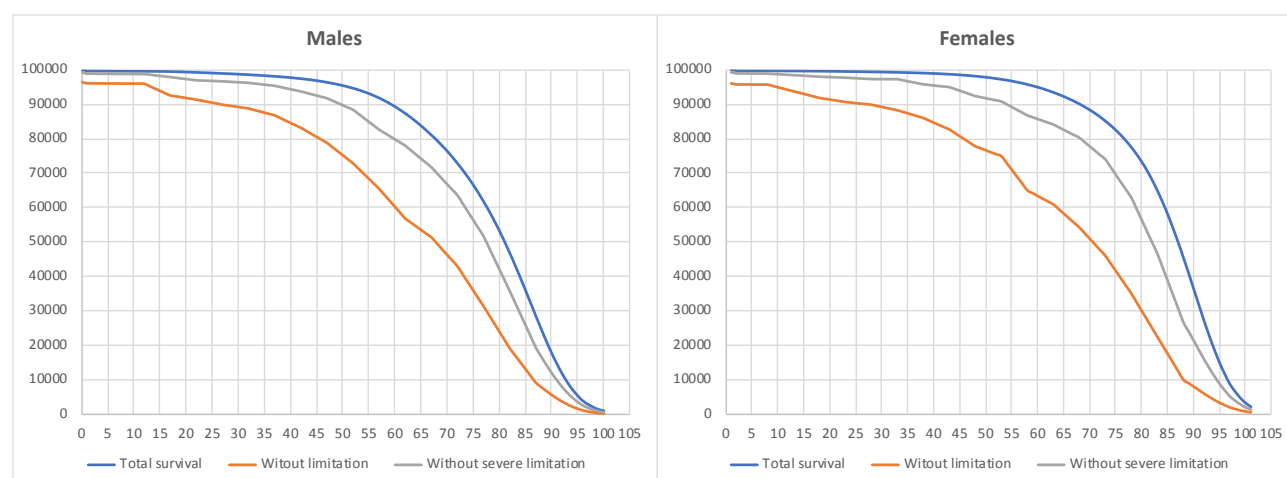
## Publications and reports on health expectancies for France

- Cambois E, Blachier A, Robine JM. Aging and health in France: an unexpected expansion of disability in mid-adulthood over recent years. *European Journal of Public Health* 2012;doi:10.1093/eurpub/cks136.
- Cambois E, Robine JM. Tendances et disparités d'espérance de vie sans incapacité en France. *Actualité et dossier en santé publique* 2012, 80 :28-32.
- Indicateurs synthétiques relatifs à la morbidité déclarée -l'état de santé de la population en France rapport 2015 p53-62.  
[http://www.drees.sante.gouv.fr/IMG/pdf/rappeds\\_v11\\_1603\\_2015.pdf](http://www.drees.sante.gouv.fr/IMG/pdf/rappeds_v11_1603_2015.pdf)
- La santé en France et en Europe : convergences et contrastes p136-144.  
[http://www.hcsp.fr/docspdf/avisrapports/hcspr20120301\\_sant\\_eFranceEurope.pdf](http://www.hcsp.fr/docspdf/avisrapports/hcspr20120301_sant_eFranceEurope.pdf)
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- Lievre A., Jusot F., Barnay T., Sermet C., Brouard N., Robine J.-M., Brieu A.-M., Forette F. Healthy working life expectancies at age 50 in Europe: a new indicator. *J NutrHealthAging*. 2007;11(6):508-514.
- Pérès K., Jagger C., Lièvre A., Barberger-Gateau P. Disability-free life expectancy of older French people: gender and education differentials from the PAQUID cohort. *Eur J Ageing*. 2005;2(3):225-233

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in Germany

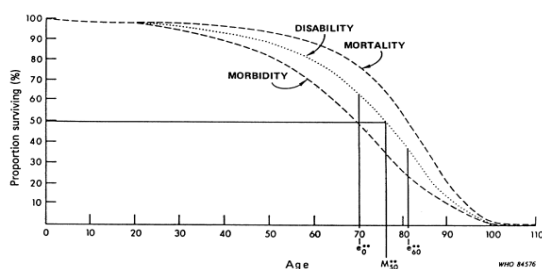
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 most common health expectancies are those based on self-perceived health, activities of daily living and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and self-perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2005 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
Sullivan D.F. A single index of mortality and morbidity. *HSMHA Health Reports* 1971;86:347-354.  
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).

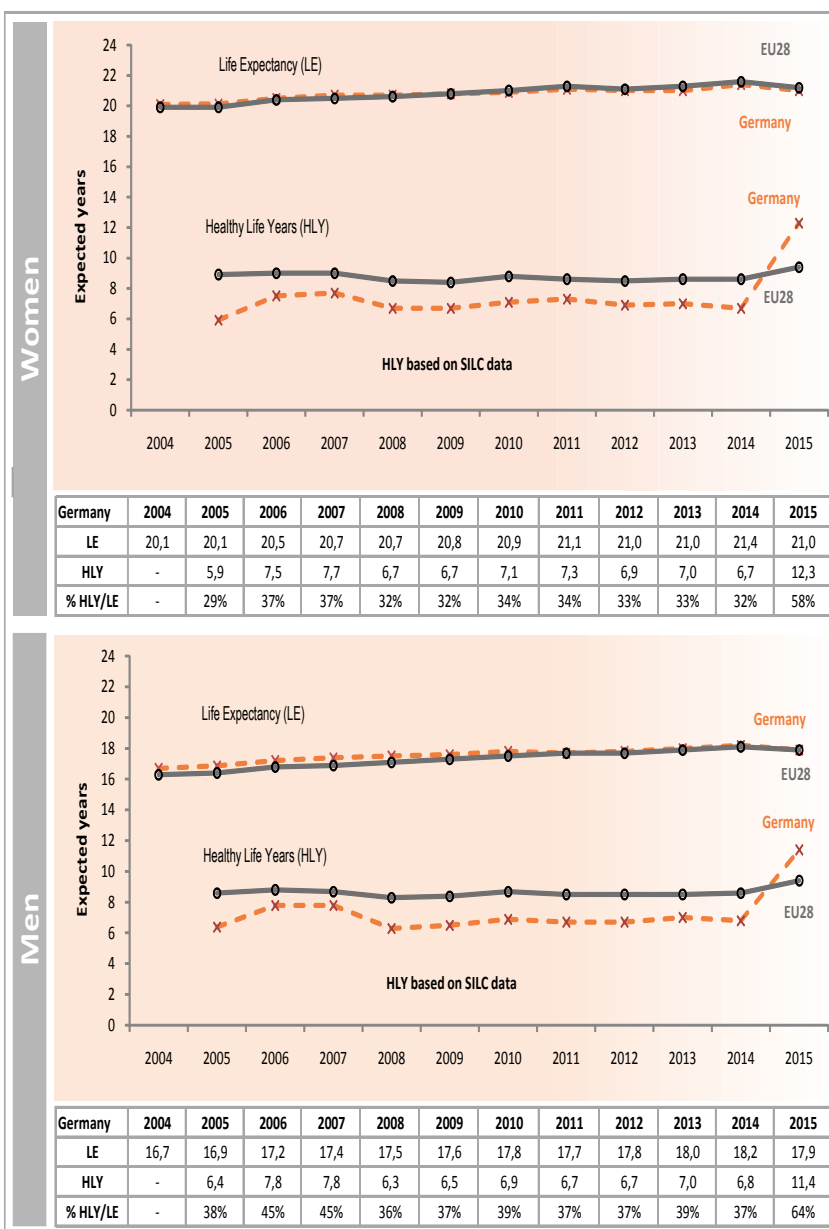
\* Before the revision of 2008, the translations of the module used in some countries were not optimal (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Germany and the European Union (EU28) based on SILC (2005-2015)

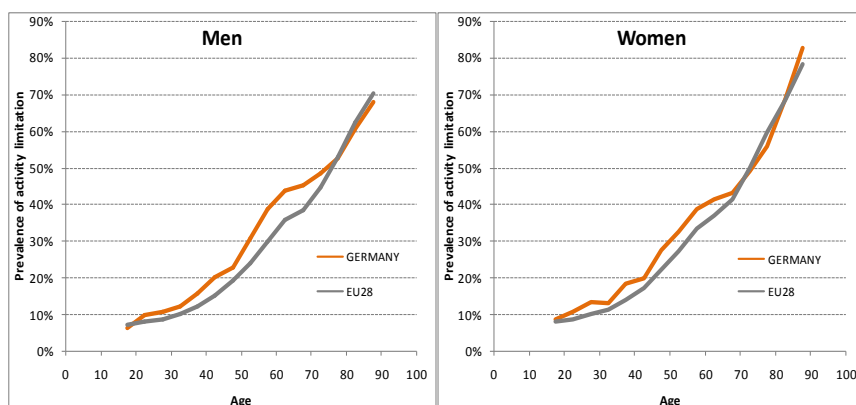
### Key points:

German life expectancy (LE) at age 65 has increased by 0.9 years for women and 1.2 years for men over the period 2004-2015. LE was close to the EU28 average in 2015 (21.2 for women and 17.9 for men), 0.2 years below for women and identical for men.

The HLY series, initiated in 2005 with the SILC data, shows values for Germany in 2015 being above the EU28 average (9.4 for women and men) by 2.9 years for women and 2.0 years for men. GALI was originally developed as a single-question, however, due to concern regarding the length and complexity of the question, prospectively a routed version will be implemented in all EU social micro-data collections concerned. Following a methodological study (s. Finger et al. (2014) below), Germany adapted the GALI to a routed, three-question version as of EU-SILC 2015 and EHIS wave 2, aiming to make the question easier to understand for survey participants. These changes in methods with regard to better understanding led to different estimates of HLY in Germany for women and men, which can be observed between 2014 and 2015. The methodological adaptations limit the degree to which results can be compared to results of earlier survey waves and with results from other countries.



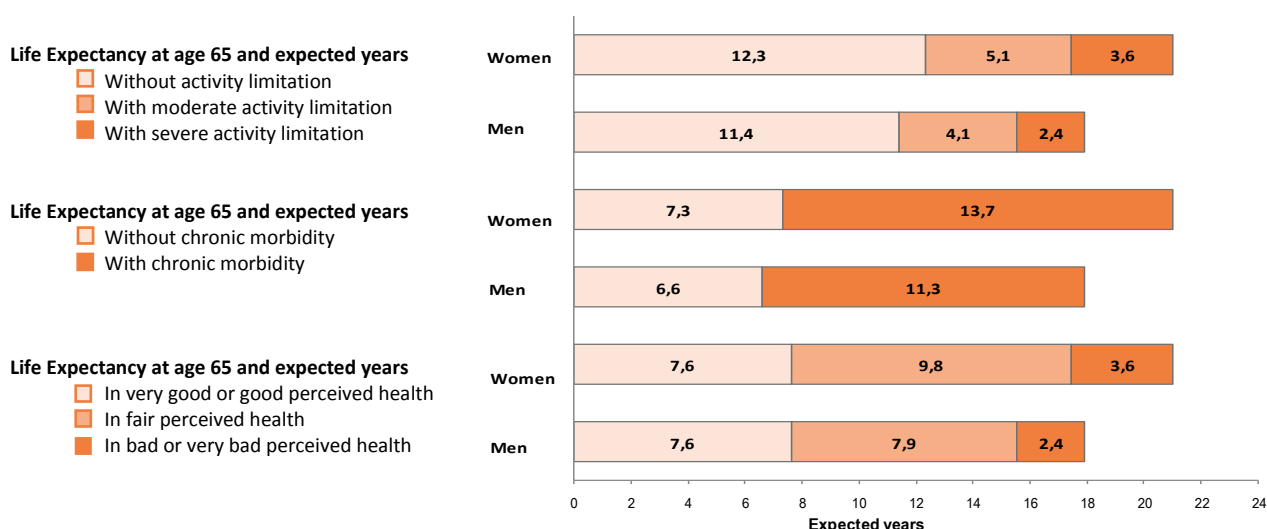
## Prevalence of activity limitation in Germany and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Germany tends to display a slightly higher prevalence rate of activity limitation before age of 65 for women and age of 75 for men and similar or slightly lower after these ages for both sexes.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance, in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Germany comprised 11913 women and 10852 men aged 16 years and over. Also, limitations due to methodological changes should be taken into account.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Germany (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Germany was 21.0 years for women and 17.9 years for men.

Based on the SILC 2015 at age 65, women can expect to spend 12.3 years (58% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 5.1 years (24%) with moderate activity limitation and 3.6 years (17%) with severe activity limitation.\*

Men of the same age spent 11.4 years (64% of their remaining life) without activity limitation compared to 4.1 years (23%) with moderate activity limitation and 2.4 years (13%) with severe activity limitation.\*

Although for all the health expectancies the years of life spent in positive health were slightly greater or equal for women than men, women spent a slightly larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population.

\* These may not sum to Life Expectancy due to rounding

## Publications and reports on health expectancies for Germany

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- Kroh M, Neiss H, Kroll L, Lampert T. Menschen mit hohem Einkommen leben länger. *Wirtschaft. Politik. Wissenschaft, DIW Wochenbericht* 38 (2012).
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*and Determinants of Healthy Life Expectancy: Veröffentlichungsreihe der Forschungsgruppe Public Health, Schwerpunkt Bildung, Arbeit und Lebenschancen. Wissenschaftszentrum Berlin für Sozialforschung (WZB) 2008*

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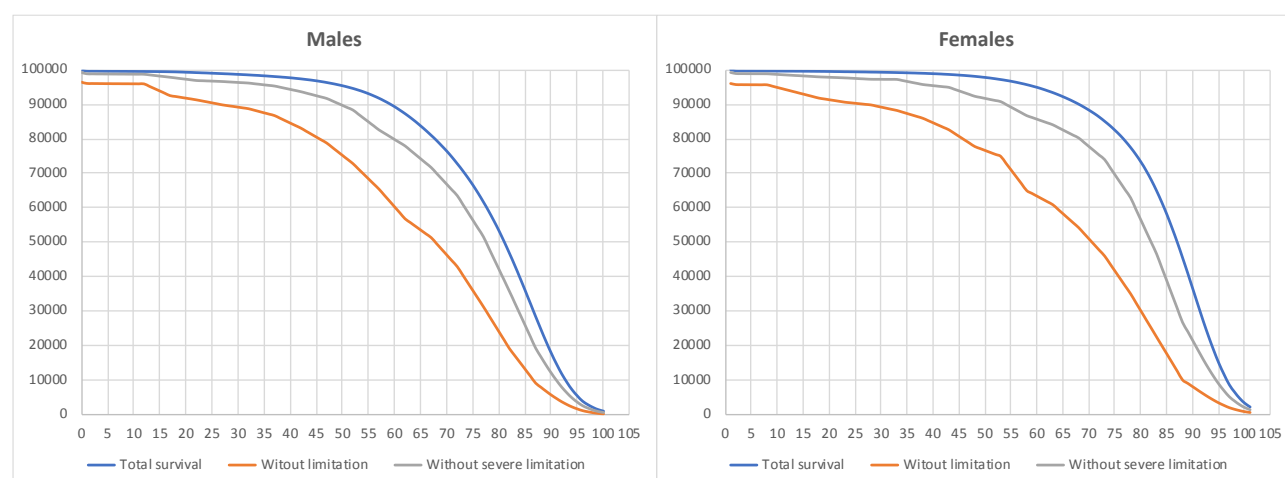
- Stürzer M., Cornelißen W. *Lebenserwartung im internationalen Vergleich, im Zeitvergleich sowie im regionalen Vergleich. Gender Datenreport*. München: Bundesministerium für Familie, Senioren, Frauen und Jugend; 2005. p. 474-480.



## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).





# Health Expectancy in Greece

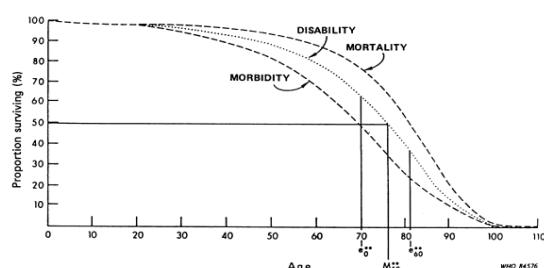
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2004 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.  
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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Greece and the European Union (EU28) based on SILC (2004-2015)

### Key points:

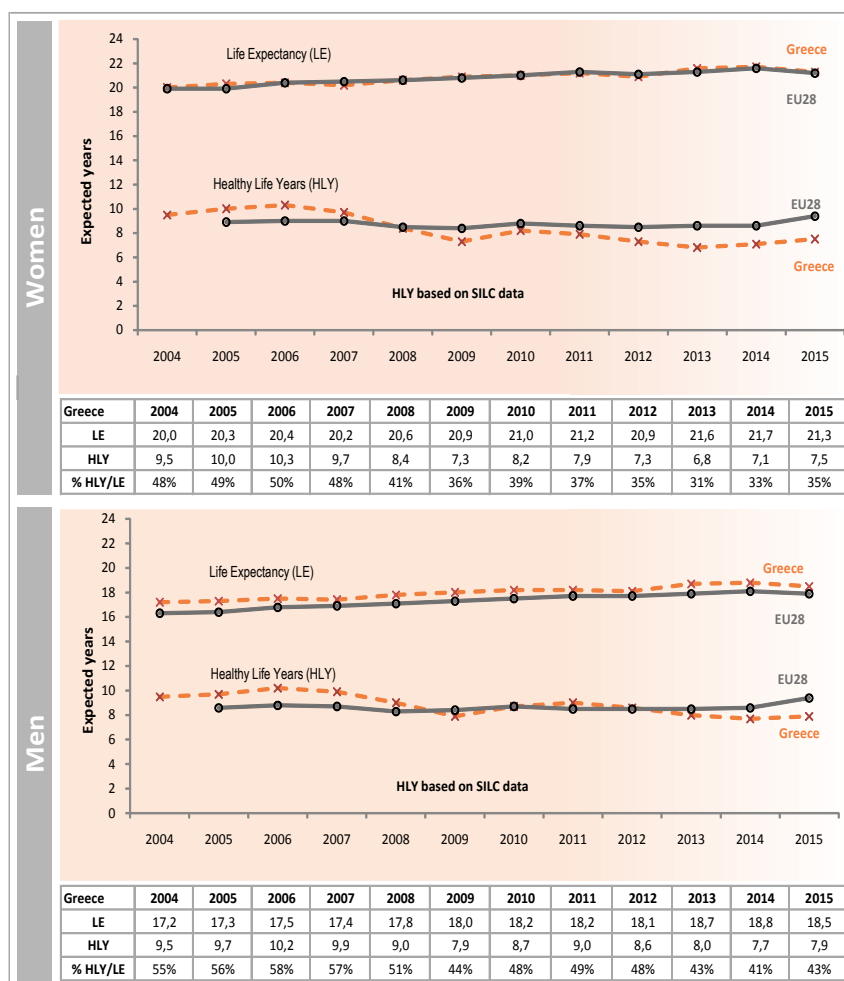
Greek life expectancy (LE) at age 65 has increased by 1.3 years for women and men over the period 2004-2015. In 2015, LE was above the EU28 average (21.2 for women and 17.9 for men) by 0.1 year for women and 0.6 year for men. Note that LE decreased in 2015 for both sexes.

The HLY series, initiated in 2004 with the SILC data, shows values for Greece being in 2015 below the EU28 average (9.4 for women and 9.4 for men) for women and men. In 2015 women and men at age 65 can expect to spend 35% and 43% of their life without *self-reported long-term activity limitations* respectively.

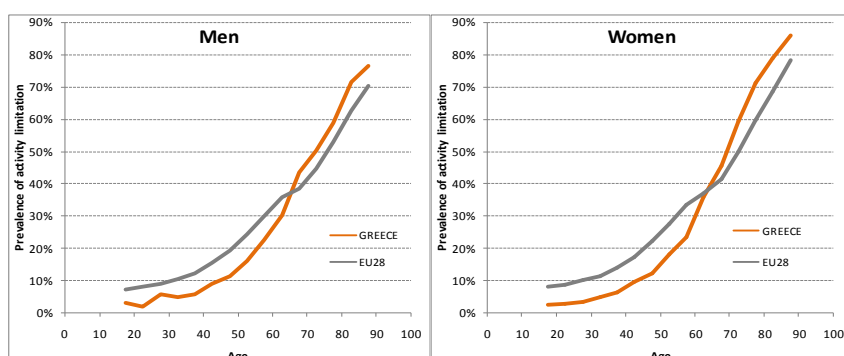
Note that the wording of the GALI question was changed in Greece in 2007 and 2008.

But it is not clear whether this better reflects the EU standard and can explain the strong decrease in HLY observed since 2007 in Greece.

HLY increased for men and women between 2014 and 2015.



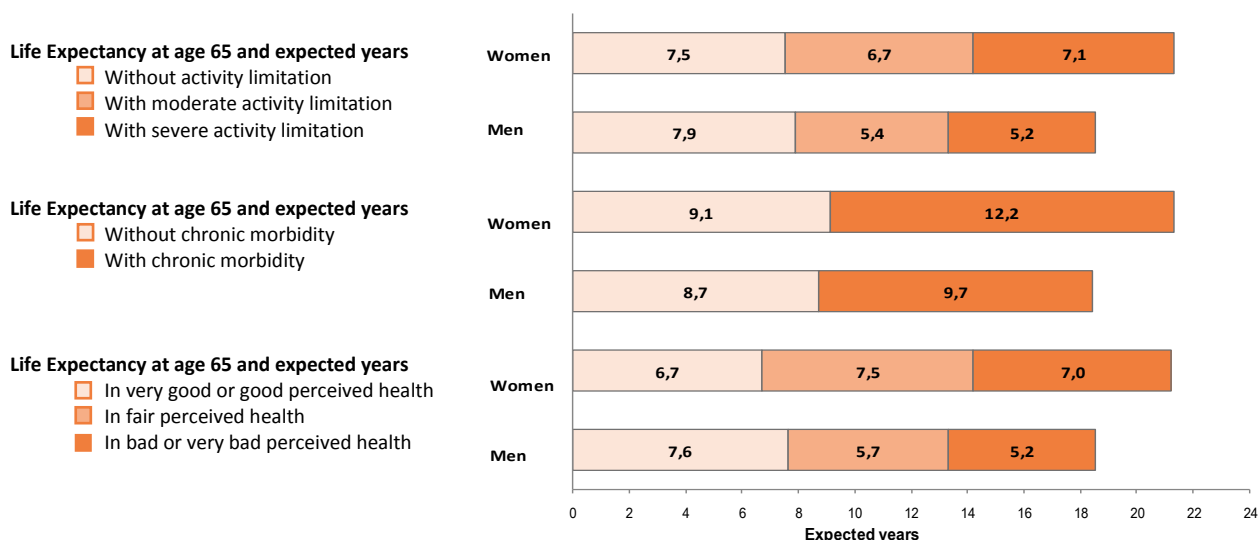
## Prevalence of activity limitation in Greece and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years 2013-2015 Greece tends to display lower prevalence rate of activity limitation before the age of 65 years for men and women and slightly higher after this age.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Greece comprised 15154 women and 14251 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Greece (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Greece was 21.3 years for women and 18.5 years for men.

Based on the SILC 2015, at age 65, women spent 7.5 years (35% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 6.7 years (31%) with moderate activity limitation and 7.1 years (33%) with severe activity limitation.\*

Men of the same age spent 7.9 years (43% of their remaining life) without activity limitation compared to 5.4 years (29%) with moderate activity limitation and 5.2 years (28 %) with severe activity limitation.\*

Although the total years lived by men were less than those for women, for all the health expectancies the years of life spent in positive health were greater for men than women.

Compared to men, women spent a much larger proportion of their life in ill health.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

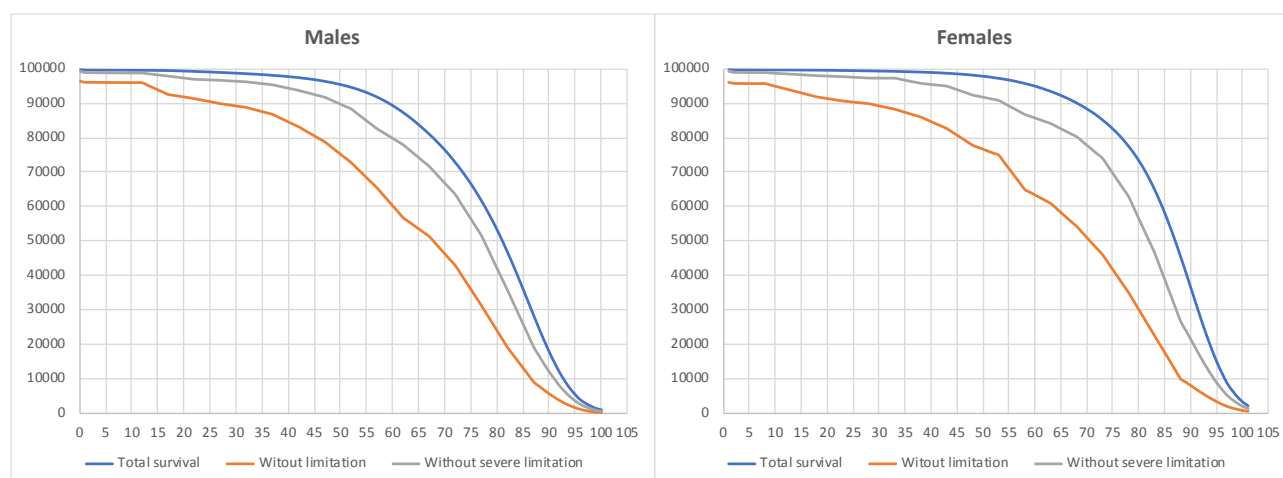
## Publications and reports on health expectancies for Greece

- Μπάγκας, Χ. 2014. «Η διάσταση του φύλου αναφορικά με το προσδόκιμο επιβίωσης και το προσδόκιμο υγείας στην Ελλάδα», στο Ανθοπούλου, Θ., Μπάγκας, Χ. και Στρατηγάκη, Μ. (επιμ.) *Οικογένεια, φύλο και μετανάστευση στη σύγχρονη Ελλάδα*. Αθήνα: Γκούτεμπεργκ, σελ. 227-245.
- Bagavos C. Gender and regional differentials in health expectancy in Greece. *Journal of Public Health Research*. 2013;2(2):66-73
- Χρήστος Μπάγκας, Η κατάσταση υγείας του πληθυσμού στην Ελλάδα, Προσδόκιμο επιβίωσης και προσδόκιμο υγείας, *Ινστιτούτο Εργασίας ΓΣΕΕ, Παρατηρητήριο Οικονομικών και Κοινωνικών Εξελίξεων, Ερευνητική Μονάδα Κοινωνικής Πολιτικής Φτώχειας και Ανισοτήτων*, Φεβρουάριος 2012, ISBN: 978-960-9571-21-0
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- Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008; 372(9656):2124-2131.
- Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p. 291-304.
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- Khoman E., Weale M. *Healthy life expectancy in the EU Member States: ENEPRI Research report n°33 - AHEAD WP5*. sl: ENEPRI; 2006.
- Jagger C., EHEMU team. *Healthy life expectancy in the EU 15*. In: Institut des Sciences de la Santé, editor. *Living longer but healthier lives: how to achieve health gains in the elderly in the European Union Europe Blanche XXVI, Budapest, 25-26 November 2005*. Paris: ISS; 2006. p. 49-62.

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in Hungary

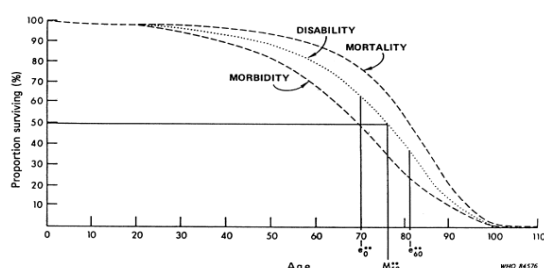
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

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**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

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- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
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### References

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\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.



## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Hungary and the European Union (EU28) based SILC (2005-2015)

### Key points:

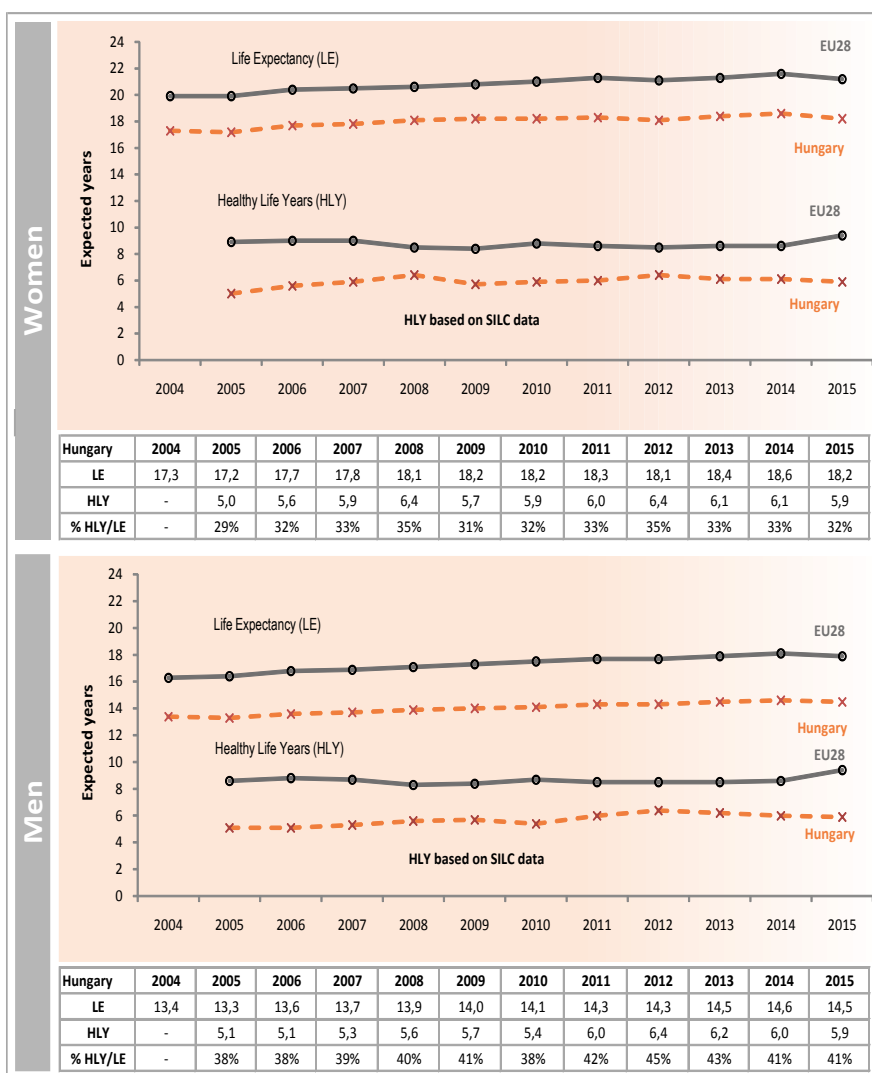
Hungarian life expectancy (LE) at age 65 has increased by 0.9 years for women and 1.1 years for men over the period 2004-2015.

LE was below the EU28 average (21.2 for women and 17.9 for men) in 2015 by 3.4 years for men and 2.0 years for women.

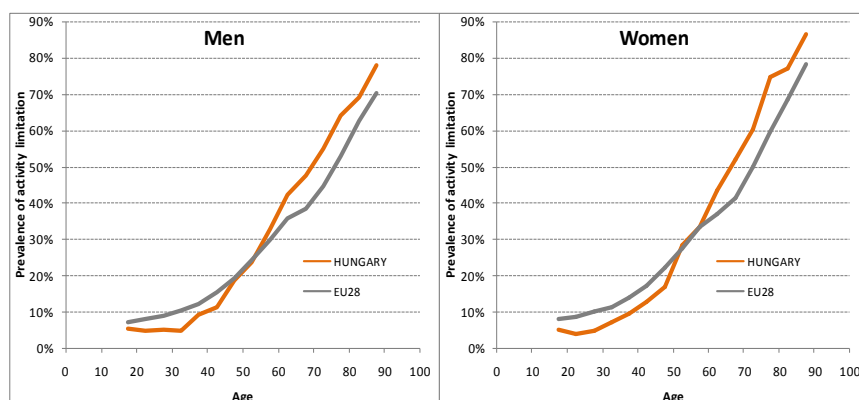
The HLY series, initiated in 2005 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 32% and 41% of their life without *self-reported long-term activity limitations* respectively.

In 2015 the HLY values for Hungary are 3.5 years below the EU28 average (9.4 for women and men) for women and men. Between 2014 and 2015 HLY remained almost stable in Hungary for men and women.

Note that the wording of the GALI question was changed in 2008 to better reflect the EU standard.



## Prevalence of activity limitation in Hungary and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean2013-2015)

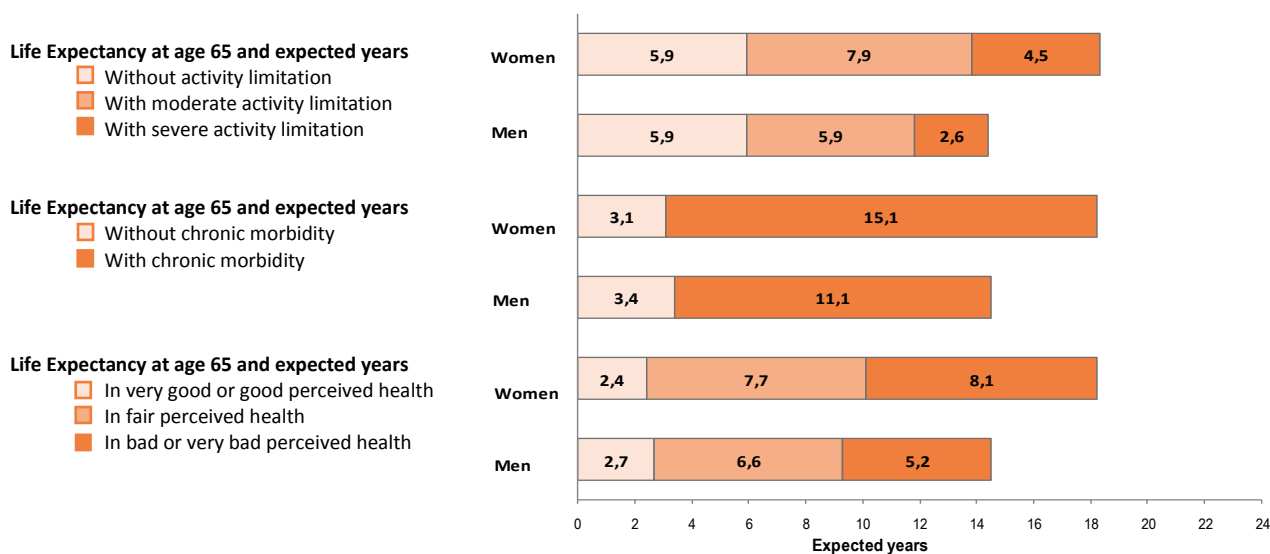


Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory observed in the European Union in the 3 years (2013-2015), Hungary tends to display lower prevalence rate of activity limitation before the age of 50 for women and men and slightly higher after this age.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Hungary comprised 8639 women and 7050 men aged 16 years and over.



## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Hungary (Health data from SILC 2015)



### Key points:

In 2015 LE at age 65 in Hungary was 18.2 years for women and 14.5 years for men.

Based on the SILC 2015, at age 65, women spent 5.9 years (32% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 7.9 years (43%) with moderate activity limitation and 4.5 years (25%) with severe activity limitation.\*

Men of the same age spent 5.9 years (41% of their remaining life) without activity limitation compared to 5.9 years (41%) with moderate activity limitation and 2.6 years (18%) with severe activity limitation.\*

Although for all the health expectancies the years of life spent in positive health were greater or equal for men than women, women spent a larger proportion of their life in ill health.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\*These may not sum to Life Expectancy due to rounding

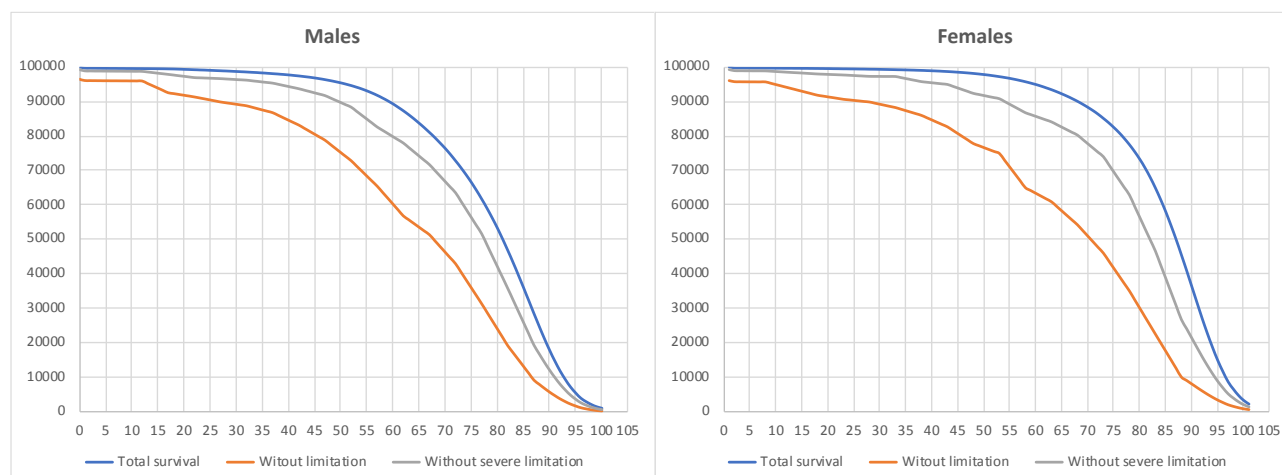
## Publications and reports on health expectancies for Hungary

- A fenntartható fejlődés indikátorai Magyarországon/ The sustainable development indicators in Hungary. KSH, 2012.
- See also Nők és férfiak Magyarországon, 2012 (in press) and the website: [http://portal.ksh.hu/pls/ksh/docs/hun/thm/2/indi2\\_8\\_1.html](http://portal.ksh.hu/pls/ksh/docs/hun/thm/2/indi2_8_1.html)
- Szabó Z., Hány egészséges életévre számíthatunk (Egészségesen várható élettartamok) KSH, 2009. [http://portal.ksh.hu/pls/ksh/docs/hun/elef/ka1\\_szabo.html](http://portal.ksh.hu/pls/ksh/docs/hun/elef/ka1_szabo.html).
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- The social development indices in Hungary (Health status 2000-2011) [http://www.ksh.hu/thm/2/indi2\\_8\\_1.html](http://www.ksh.hu/thm/2/indi2_8_1.html).
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- Farago M. *Egészségesen várható élettartamok Magyarországon 2005: Egy összetett, kvalifikált mutató a népesség egészségi állapotának mérésére [Healthy life expectancy in Hungary 2005: a summary measure of population health]*. Budapest: Hungarian Central Statistical Office; 2007.

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### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

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# Health Expectancy in Ireland

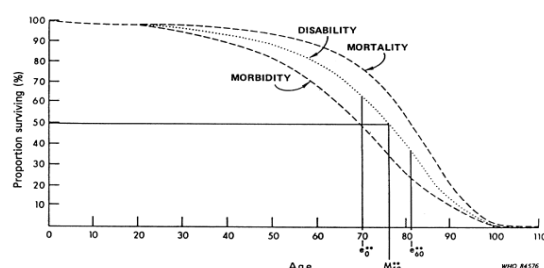
## What is health expectancy?

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 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.  $M_{50}^{**}$  is the age to 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 and on 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 subgroups: e.g. sexes, socio-professional categories, as well as countries within Europe (Robine et al., 2003).

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.

To address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

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- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

## References

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Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.

Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.

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\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Ireland and the European Union (EU28) based on SILC (2004-2015)

### Key points:

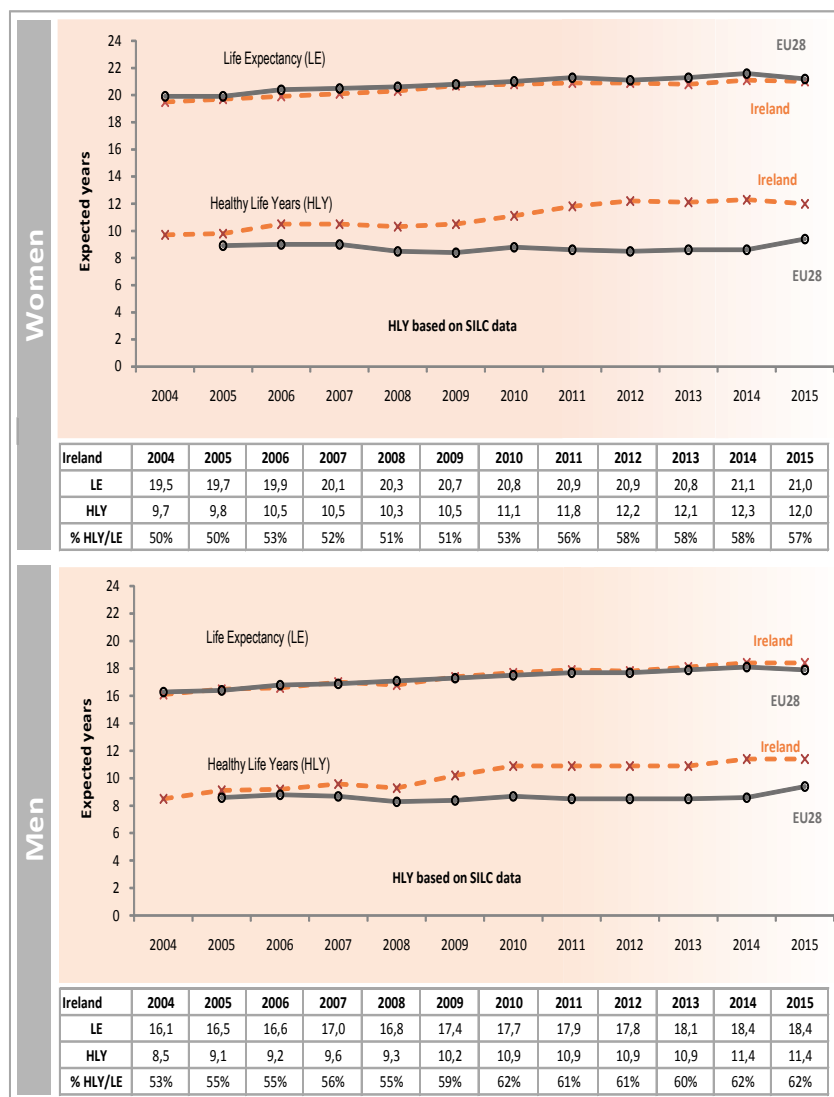
Irish life expectancy (LE) at age 65 has increased by 1.5 years for women and 2.3 years for men over the period 2004-2015. LE by 2015 was slightly below the EU28 average (21.2 for women and 17.9 for men) for women and slightly above for men.

The HLY series, initiated in 2004 with the SILC data, shows values for Ireland in 2015 notably above the EU28 average of 9.4 for women and men.

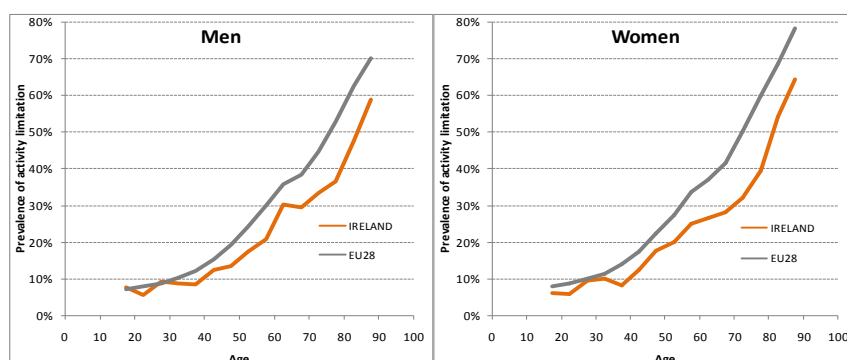
In 2015 women and men at age 65 can expect to spend 57% and 62% of their life without *self-reported long-term activity limitations* respectively.

Between 2009 and 2010 HLY strongly increased for men and women, and between 2014 and 2015 slightly decreased for women and remained stable for men.

Note that the wording of the GALI question did not need to be changed in Ireland in 2008.



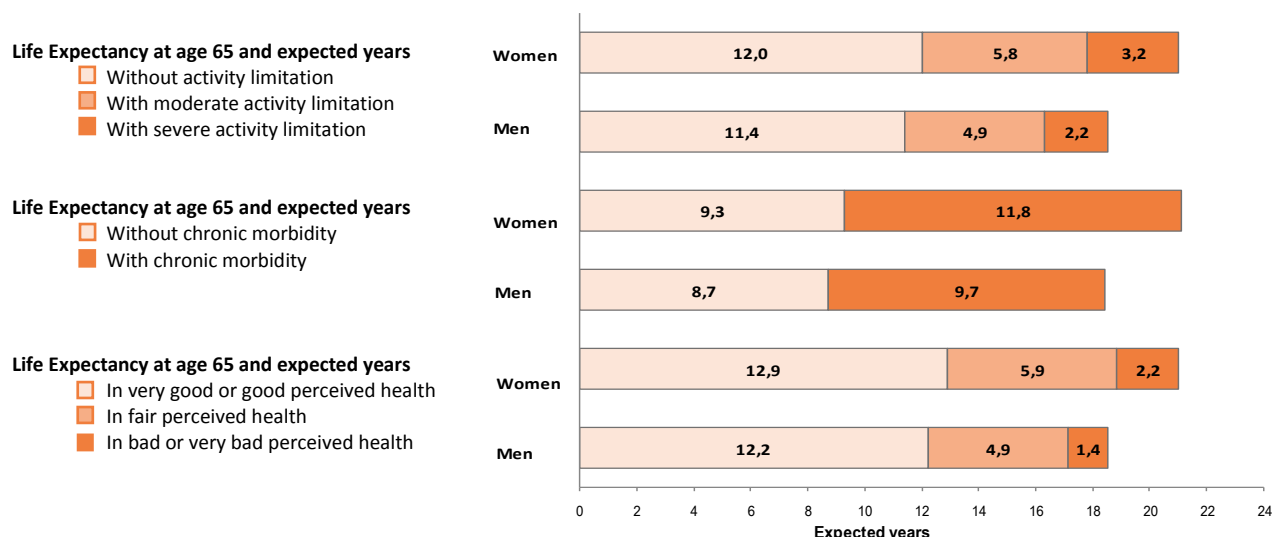
## Prevalence of activity limitation in Ireland and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age, observed in the European Union in the 3 years (2013-2015), Ireland tends to display lower prevalence rates of activity limitation after the age of 30 years for both sexes.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Ireland comprised 5465 women and 5063 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Ireland (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Ireland was 21.0 years for women and 18.4 years for men.

Based on the SILC 2015, at age 65, women spent 12.0 years (57% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 5.8 years (28%) with moderate activity limitation and 3.2 years (15%) with severe activity limitation.\*

Men of the same age spent 11.4 years (62% of their remaining life) without activity limitation compared to 4.9 years (27%) with moderate activity limitation and 2.2 years (12%) with severe activity limitation.\*

Although all health expectancies were greater for women than men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes (see: <http://www.cso.ie/releasespublications/nationaldisabilitysurvey06first.htm>).

\*These may not sum to Life Expectancy due to rounding

## Publications and reports on health expectancies for Ireland

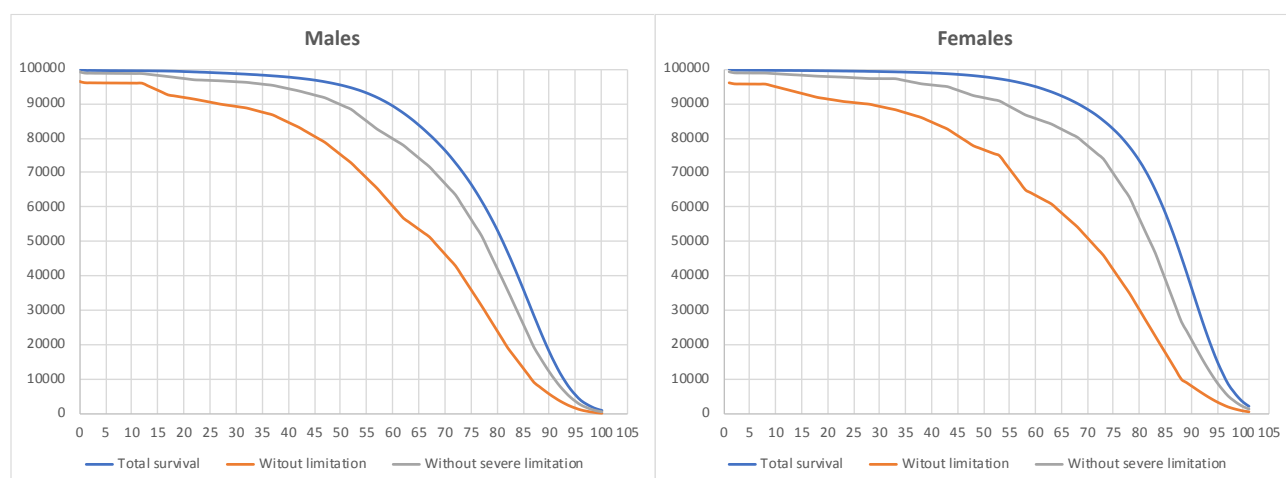
- Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008; 372(9656):2124-2131.
- Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p. 291-304.
- Khoman E., Weale M. *Healthy life expectancy in the EU Member States: ENEPRI Research report n°33 - AHEAD WP5*. sl: ENEPRI; 2006.
- Jagger C., EHEMU team. *Healthy life expectancy in the EU 15*. In: Institut des Sciences de la Santé, editor. *Living longer but healthier lives: how to achieve health gains in the elderly in the European Union Europe Blanche XXVI, Budapest, 25-26 November 2005*. Paris: ISS; 2006. p. 49-62.



## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in Italy

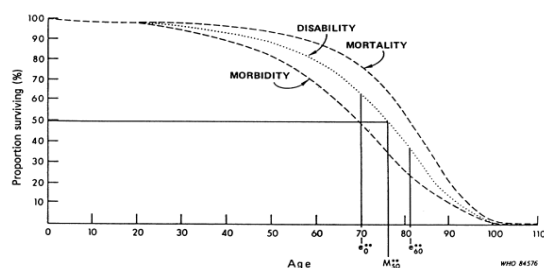
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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



$e_{60}^{**}$  and  $e_{60}^{***}$  are the number of years of autonomous life expected at birth and at age 60, respectively.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2004 to 2015. The wording of the question has been revised in 2008 for most countries. However it was made in 2007 in Italy;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
Sullivan D.F. A single index of mortality and morbidity. *HSMHA Health Reports* 1971;86:347-354.  
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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality).

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Italy and the European Union (EU28) based on SILC (2007-2015\*)

### Key points:

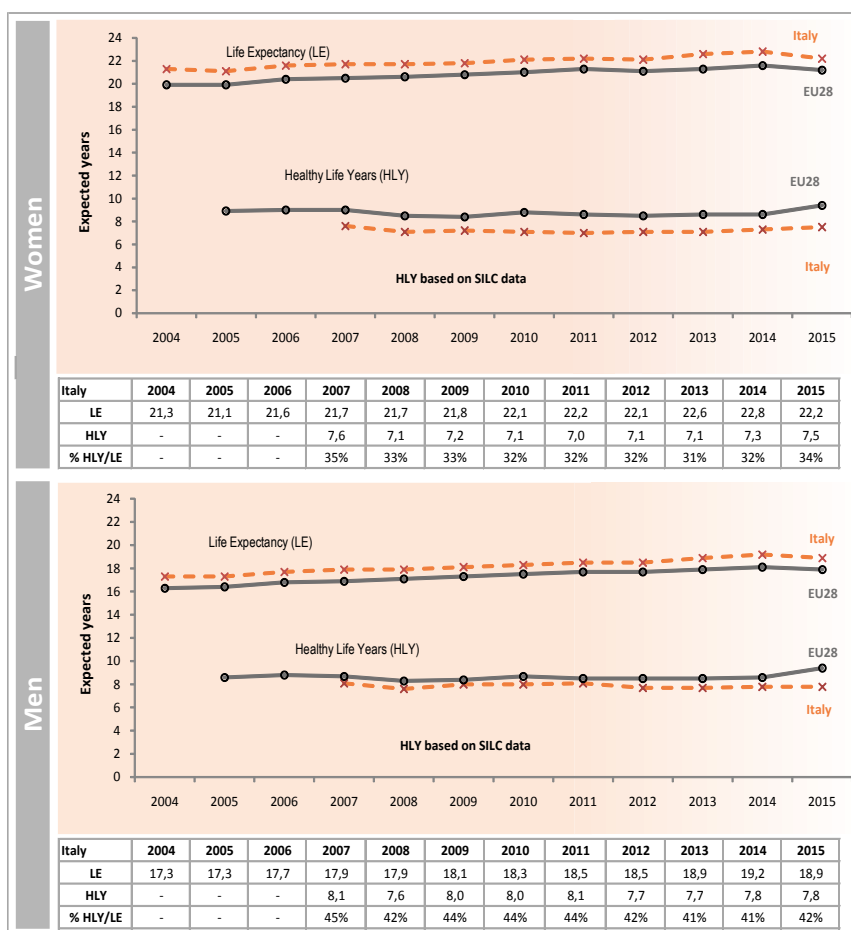
Italian life expectancy (LE) at age 65 has increased by 0.9 year for women and 1.6 years for men over the period 2004-2015. LE was above the EU28 average (21.2 for women and 17.9 for men) in 2015.

The HLY series shows values for Italy in 2015 being below the EU28 average which is 9.4 for women and men. In 2015 women and men at age 65 can respectively expect to spend 34% and 42% of their life without *self-reported long-term activity limitations*.

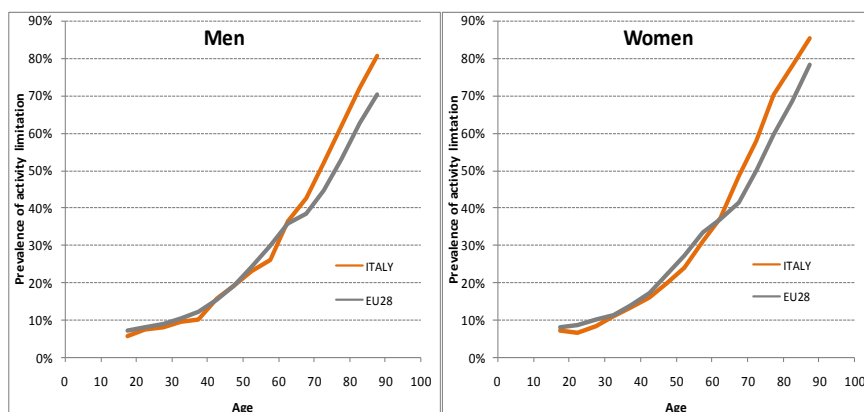
Between 2008 and 2011 HLY remained almost stable for women and men in Italy but all remained below the EU 28 average. From 2011 to 2012 HLY remained stable for women but decreased for men, while a slight increase is observed from 2013 to 2014. In 2015 HLY increased for women and remained stable for men.

\*Data on activity limitation for 2010 have been estimated as the mean prevalence of 2009 and 2011.

Time series of LE may be different from previous report because they have been recalculated according to Eurostat estimated.



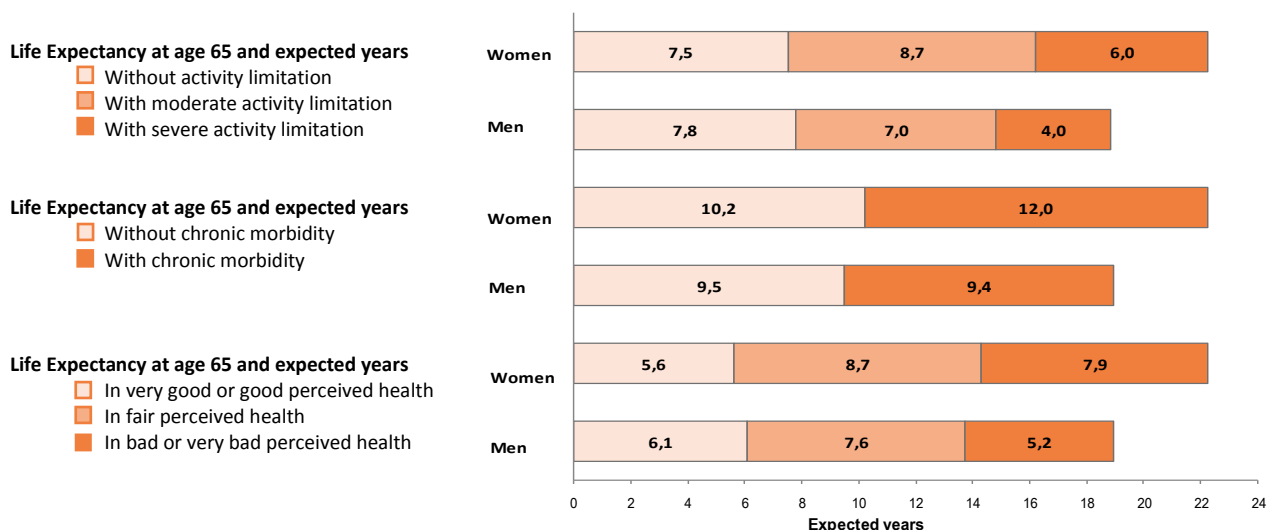
## Prevalence of activity limitation in Italy and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the years 2013-2015, Italy tends to display similar or slightly lower prevalence rate of activity limitation before the age of 65 years for men and 60 for women and higher after this age.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Italy comprised 19064 women and 17538 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Italy (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Italy was 22.2 years for women and 18.9 years for men.

Based on the SILC 2015, at age 65, women spent 7.5 years (34% of remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 8.7 years (39%) with moderate activity limitation and 6.0 years (27%) with severe activity limitation.\*

Men of the same age spent 7.8 years (41% of remaining life) without activity limitation compared to 7.0 years (37%) with moderate activity limitation and 4.0 years (21%) with severe activity limitation.\*

Although total years lived by men were less than those for women, the numbers of years lived in very good or good perceived health and the years lived without activity limitation were slightly larger for men. However, the number of years lived without chronic morbidity was greater for women than men.

Compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted with caution given the lack of the institutional population, such as people living in nursing homes, and the sample size. For Italy it comprises 5210 women and 4269 men aged 65+ years in 2015.

\*These may not sum to Life Expectancy due to rounding

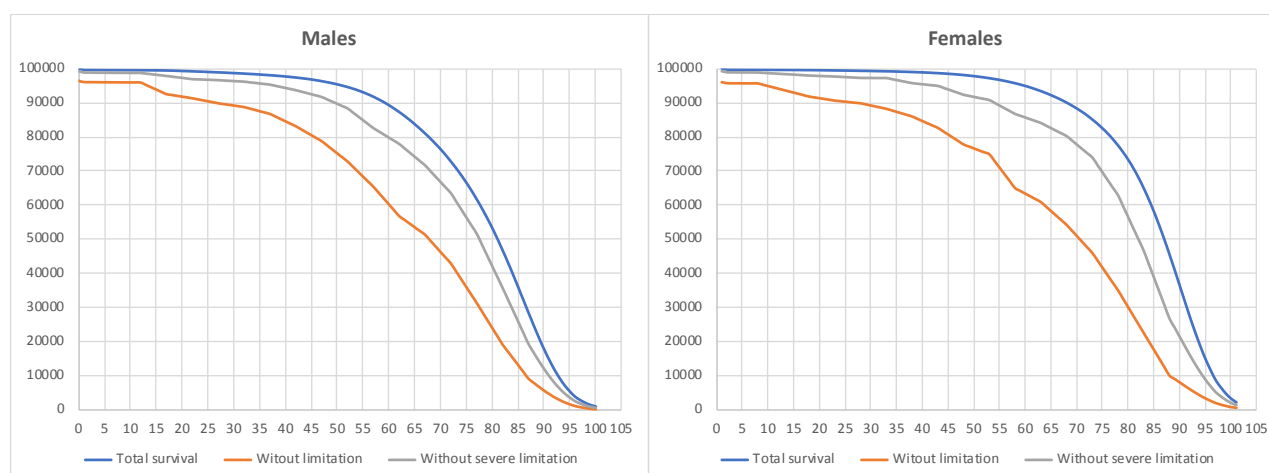
## Publications and reports on health expectancies for Italy

- Relazione Stato Sanitario del Paese 2017 "Qualità della sopravvivenza e confronti internazionali", in print.
- Zauli S., Battisti A., Frova L., Lauriola P. "La speranza di vita per condizioni di salute (Healthy Life Years): un indice di grande interesse, ma da utilizzare con prudenza" (Healthy Life Years: a very promising indicator to be handled with caution) Epidemiologia & Prevenzione 2014; 38
- Istat Health for All – Italia Sistema informativo territoriale su sanità e salute – Up-date June 2017 <http://www.istat.it/it/archivio/14562>
- ISTAT. BES Il Benessere equo e sostenibile. 2015 <http://www.misuredelbenessere.it/>
- Nova A., Pintaudi E., Donzelli A., Gli indicatori della speranza di vita in buona salute Politiche sanitarie 2012;13(4):204-215 ([http://www.politichesanitarie.it/articoli.php?archivio=yes&vol\\_id=1244&id=13727](http://www.politichesanitarie.it/articoli.php?archivio=yes&vol_id=1244&id=13727))
- Istat 'Speranza di vita per titolo di studio', April 2016, <http://www.istat.it/it/archivio/184896>.
- Frova L., Prati S. Sopravvivenza e Salute. In Rapporto sulla popolazione, L'Italia a 150 dall'Unità, Paperbacks, a cura di Associazione italiana per gli studi di popolazione, Salvini S., De Rose A., ed. Il Mulino, 2011:79-96.
- Relazione Stato Sanitario del Paese 2009-2010, "Qualità della sopravvivenza: confronti internazionali", 2011:16-23.
- Frova L., Battisti A., Burgio A. Are gaps in disability free life expectancies diminishing in Italy? Eur J Ageing. 2010;(7):239-247.
- Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. The Lancet. 2008;372(9656):2124-2131.

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

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# Health Expectancy in Latvia

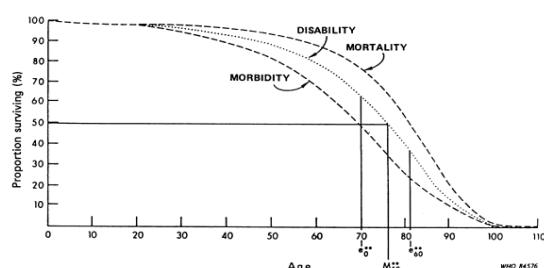
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2005 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.  
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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Latvia and the European Union (EU28) based on SILC (2005-2015)

### Key points:

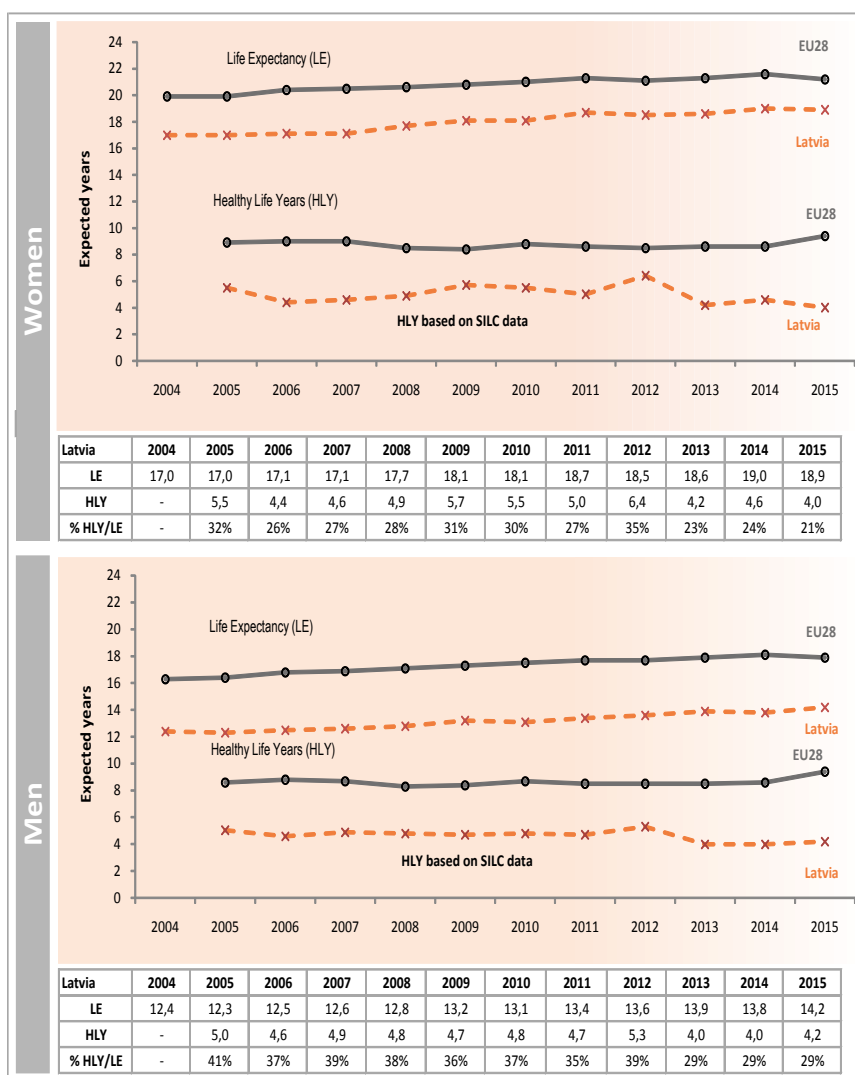
Latvian life expectancy (LE) at age 65 has increased by 1.9 years for women and 1.8 years for men over the period 2004-2015.

LE was below the EU28 average (21.2 for women and 17.9 for men) in 2015, 3.7 years for men and 2.3 years for women.

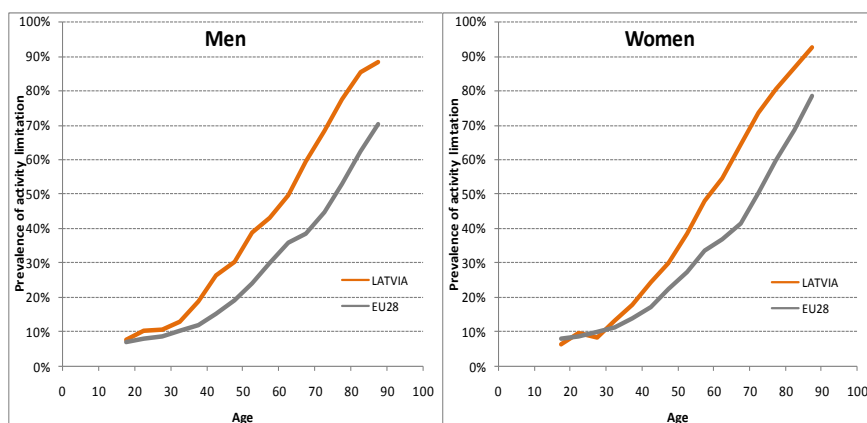
The HLY series, initiated in 2005 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 21% and 29% of their life without *self-reported long-term activity limitations* respectively.

In 2015 the HLY values for Latvia are 5.4 years and 5.2 years below the EU28 average (9.4 for women and men) for women and men respectively.

Since 2006 HLY tends to increase for women and men in Latvia and notably in 2012. But in 2013 HLY strongly decreased for both sexes, then remained stable in 2014. In 2015 HLY decreased again for women but not for men. Note that the wording of the GALI question was not changed in 2008.



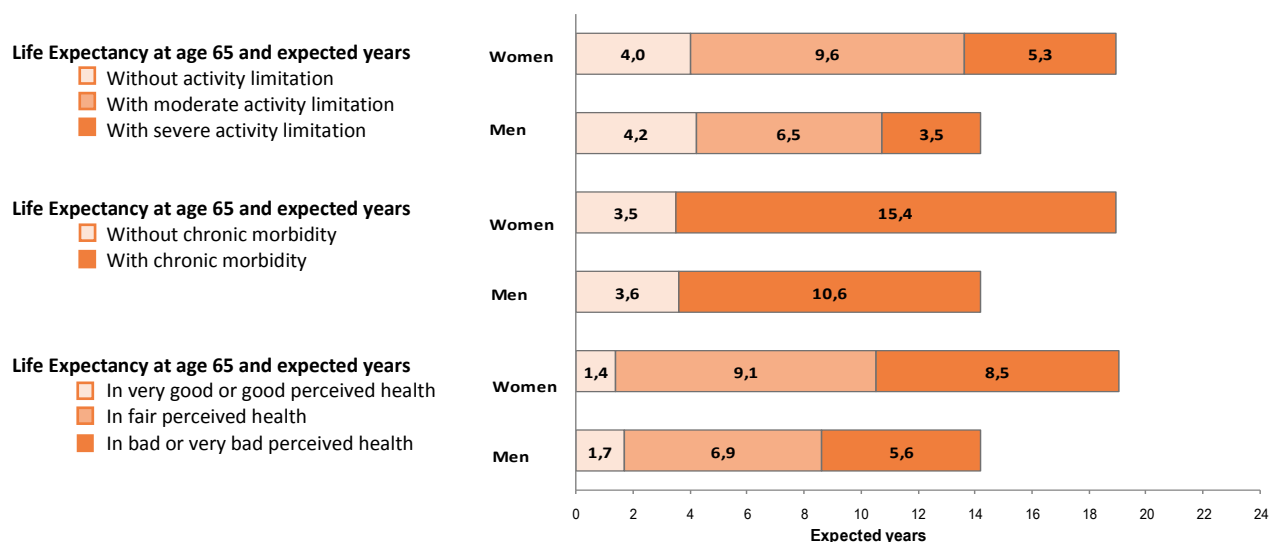
## Prevalence of activity limitation in Latvia and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the years (2013-2015), Latvia tends to display similar prevalence rate of activity limitation before the age of 30 years for men and 35 years for women and slightly higher after these ages.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Latvia comprised 6781 women and 4945 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Latvia (Health data from SILC 2015)



### Key points:

In 2015 LE at age 65 in Latvia was 18.9 years for women and 14.2 years for men.

Based on the SILC 2015, at age 65, women spent 4.0 years (21% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 9.6 years (51%) with moderate activity limitation and 5.3 years (28%) with severe activity limitation.\*

Men of the same age spent 4.2 years (29% of their remaining life) without activity limitation compared to 6.5 years (46%) with moderate activity limitation and 3.5 years (25%) with severe activity limitation.\*

Although women lived more years without chronic morbidity and/or without disability, compared to men, they spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

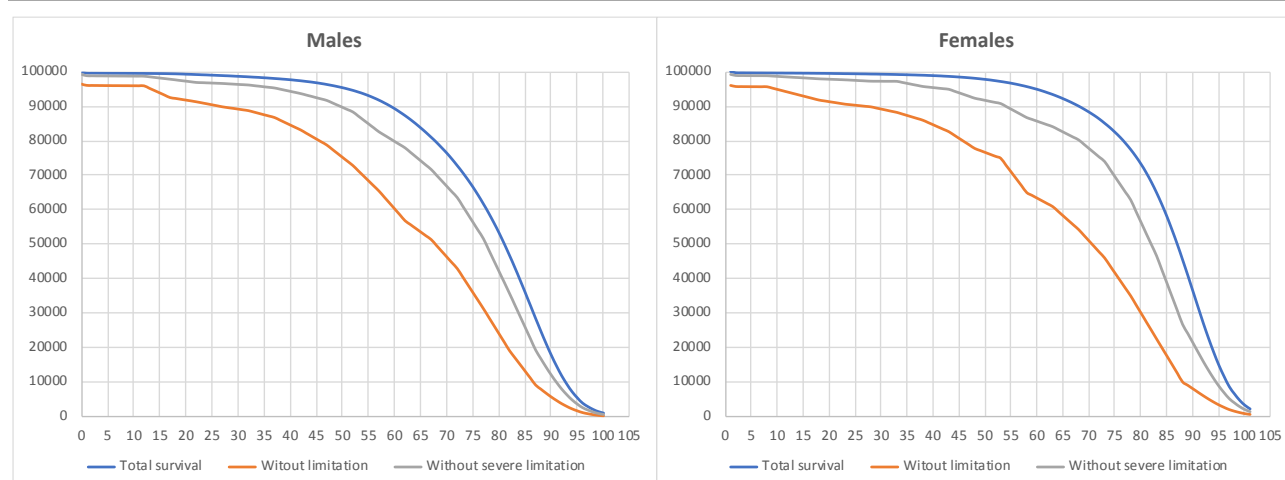
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- Dubkova N., Krumins J. Life expectancy and health expectancy in Latvia: changes and interpretation problems. Research papers of the Central Statistical Bureau of Latvia 2012. Riga, 2012, p. 21-33.
- Krumins J. Health Policy and Recent Changes in Mortality and Life expectancy in Latvia. *Humanities and Social Sciences: Latvia*. 2008; 1 (54): 57-71.
- Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008; 372(9656): 2124-2131.
- Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p. 291-304.
- Khoman E., Weale M. *Healthy life expectancy in the EU Member States: ENEPRI Research report n°33 - AHEAD WP5*. sl: ENEPRI; 2006.
- Jagger C., EHEMU team. *Healthy life expectancy in the EU 15*. In: Institut des Sciences de la Santé, editor. *Living longer but healthier lives: how to achieve health gains in the elderly in the European Union Europe Blanche XXVI, Budapest, 25-26 November 2005*. Paris: ISS; 2006. p. 49-62.

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

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# Health Expectancy in Lithuania

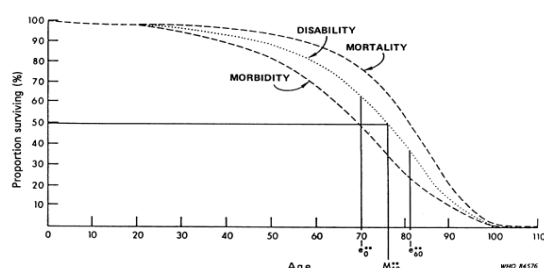
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2005 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;[372\(9656\)](https://doi.org/10.1016/S0140-6736(08)61224-2) 2124-2131  
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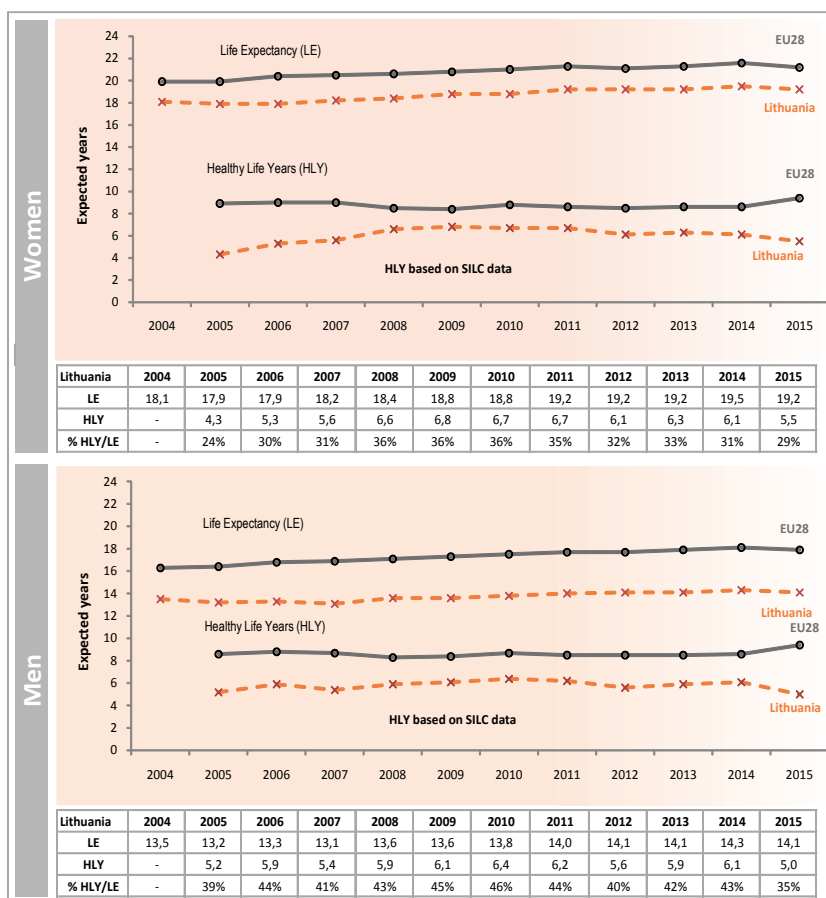


## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Lithuania and the European Union (EU28) based on SILC (2005–2015)

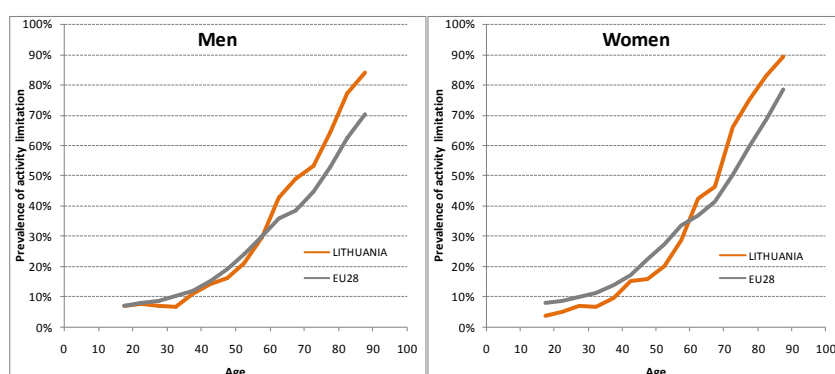
### Key points:

Lithuanian life expectancy (LE) at age 65 has increased by 1.1 year for women and by 0.6 year for men over the period 2004-2015. LE for both sexes was below the EU28 average (21.2 for women and 17.9 for men) in 2015, 3.8 years for men and 2.0 years for women. LE slightly decreased in 2015.

The HLY series, initiated in 2005 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 29% and 35% of their life without *self-reported long-term activity limitations* respectively. In 2015 the HLY values for Lithuania are 3.9 years below the EU28 average (9.4 for women and men) for women and 4.4 for men. HLY decreased for men and women in 2015. Note that the wording of the GALI question was changed in Lithuania in 2006 and again in 2007.



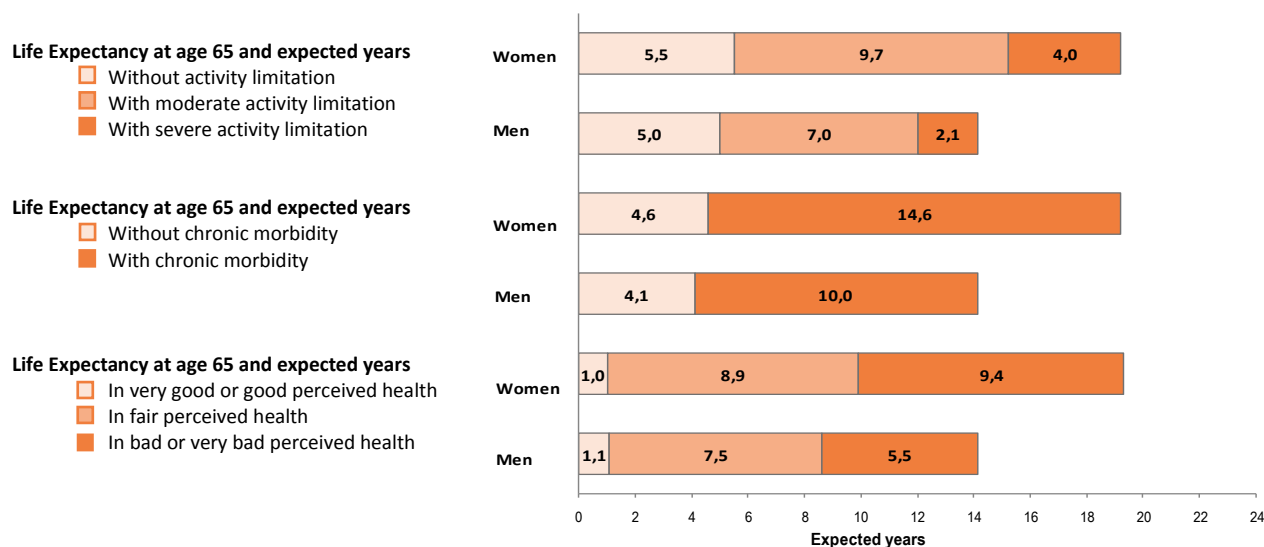
## Prevalence of activity limitation in Lithuania and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013–2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years 2013-2015, Lithuania tends to display lower prevalence rate of activity limitation before the age of 55 years for men and 60 years for women, but higher prevalence after these ages for both sexes.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015 the sample size for Lithuania comprised 5383 women and 4400 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Lithuania (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Lithuania was 19.2 years for women and 14.1 years for men.

Based on the SILC 2015 at age 65, women spent 5.5 years (29% of their remaining life) without activity limitation corresponding to Healthy Life Years (HLY), 9.7 years (50%) with moderate activity limitation and 4.0 years (21%) with severe activity limitation.\*

Men of the same age spent 5.0 years (35% of their remaining life) without activity limitation compared to 7.0 years (50%) with moderate activity limitation and 2.1 years (15%) with severe activity limitation.\*

Although the total years lived and the number of years lived without activity limitation was higher for women than men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\*These may not sum to Life Expectancy due to rounding

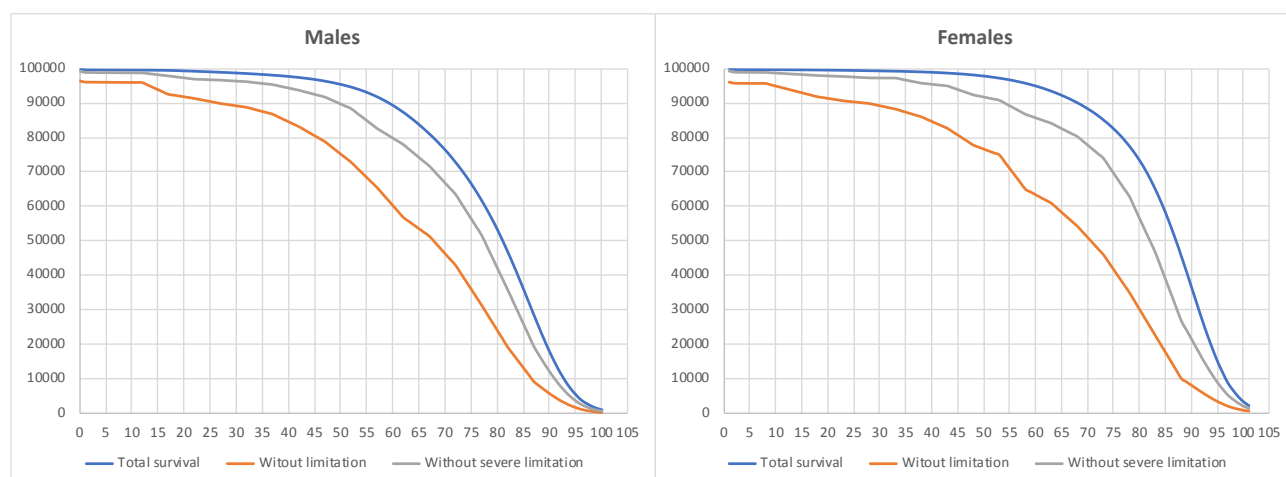
## Publications and reports on health expectancies for Lithuania

- Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008; 372(9656):2124-2131.
- Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p. 291-304.
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- Kalėdienė R., Petrauskienė J. Healthy life expectancy - an important indicator for health policy development in Lithuania. *Medicina* (Kaunas). 2004; 40(6):582-588.
- Petrauskienė J., Ambrozaitienė D., Kalėdienė R., Starkuvienė S. Assessment of disability-free life expectancy in Lithuania. *Medicina* (Kaunas). 2010; 46(10):707-711.

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

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# Health Expectancy in Luxembourg

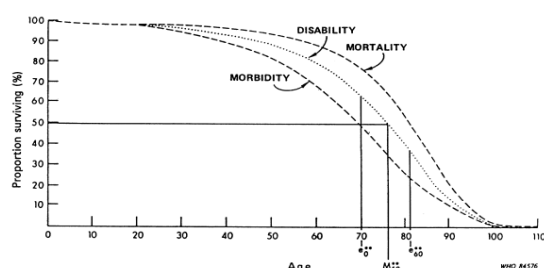
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**H**ealth expectancies were first developed to address whether or not longer life is being accompanied by an increase in the time lived in good health (the compression of morbidity scenario) or in bad health (expansion of morbidity). So health expectancies 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.



$e_{60}^{**}$  and  $e_{80}^{**}$  are the number of years of autonomous life expected at birth and at age 60, respectively.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

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### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
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\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Luxembourg and the European Union (EU28) based on SILC (2004-2015)

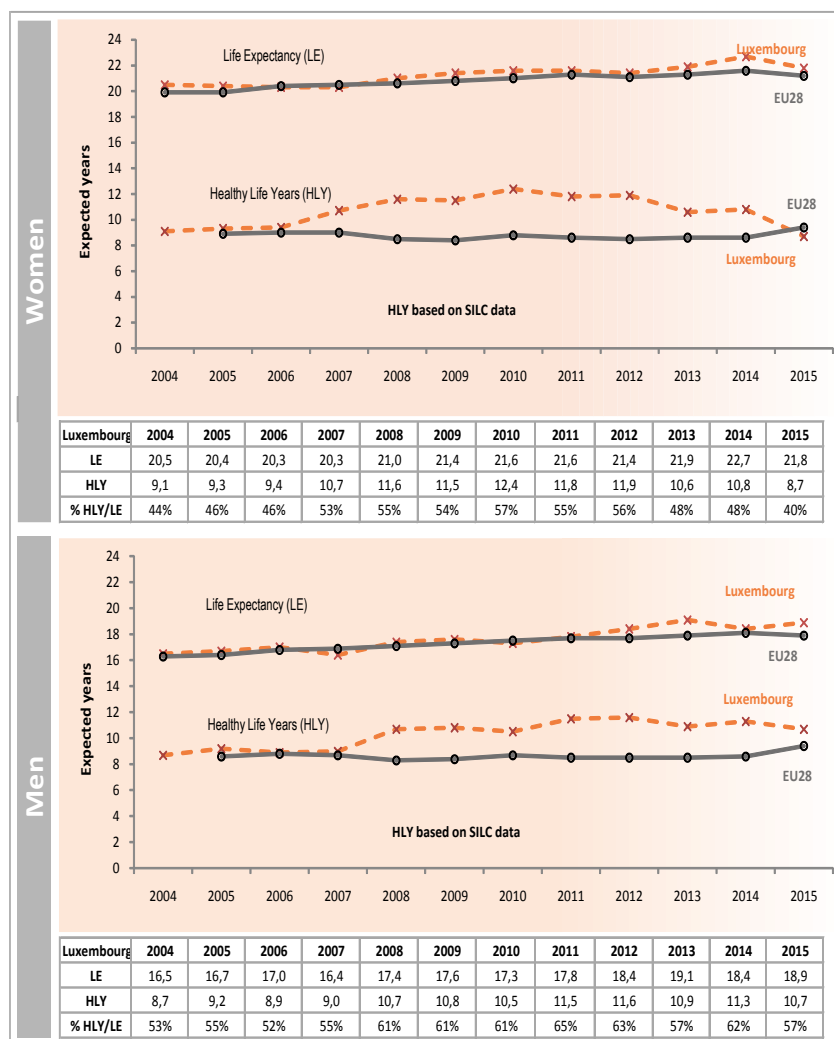
### Key points:

Luxembourg life expectancy (LE) at age 65 has increased by 1.3 years for women and 2.4 years for men over the period 2004-2015. By 2015 LE is 0.6 year above the EU28 average (21.2 for women and 17.9 for men) for women and 1.0 year above for men.

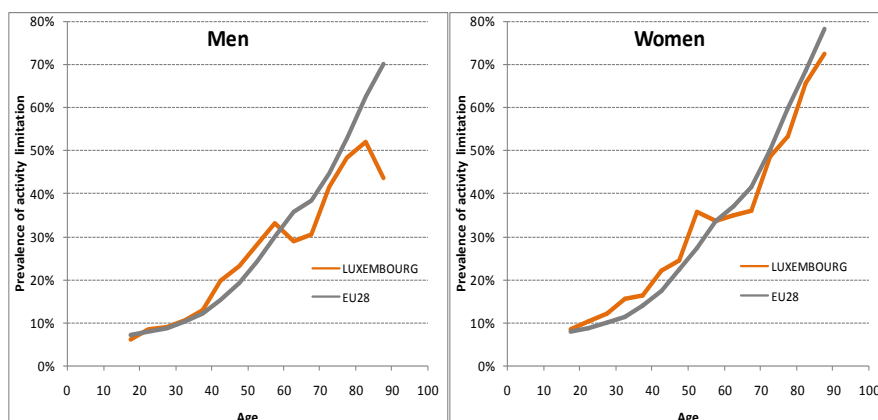
The HLY series, initiated in 2004 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 40% and 57% of their life without *self-reported long-term activity limitations* respectively.

In 2015, the HLY value for Luxembourg is below the EU28 average (9.4 for women and men) by 0.7 year for women and above for men by 1.3 years.

HLY decreased for women and men between 2014 and 2015 in Luxembourg and strongly for women.



## Prevalence of activity limitation in Luxembourg and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)

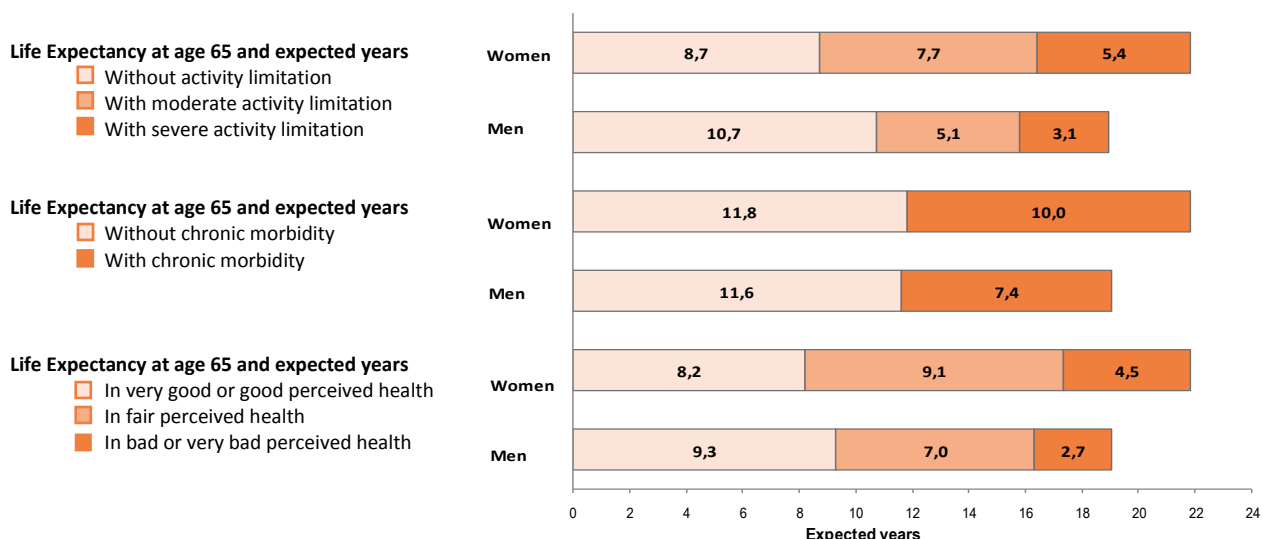


Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Luxembourg tends to display similar prevalence rate of activity limitation before the age of 55 years but very much lower after this age for both sexes.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Luxembourg comprised 3616 women and 3588 men aged 16 years and over.



## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Luxembourg (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Luxembourg was 21.8 years for women and 18.9 years for men.

Based on the SILC 2015, at age 65, women spent 8.7 years (40% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 7.7 years (35%) with moderate activity limitation and 5.4 years (25%) with severe activity limitation.\*

Men of the same age spent 10.7 years (57% of their remaining life) without activity limitation compared to 5.1 years (27%) with moderate activity limitation and 3.1 years (16%) with severe activity limitation.\*

Although the total number of years lived by men were less than those for women the relative number of HLY (and with regard to activity limitation and perceived health) were greater for men than women. Therefore compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted with caution given the lack of the institutional population, such as people living in nursing homes.

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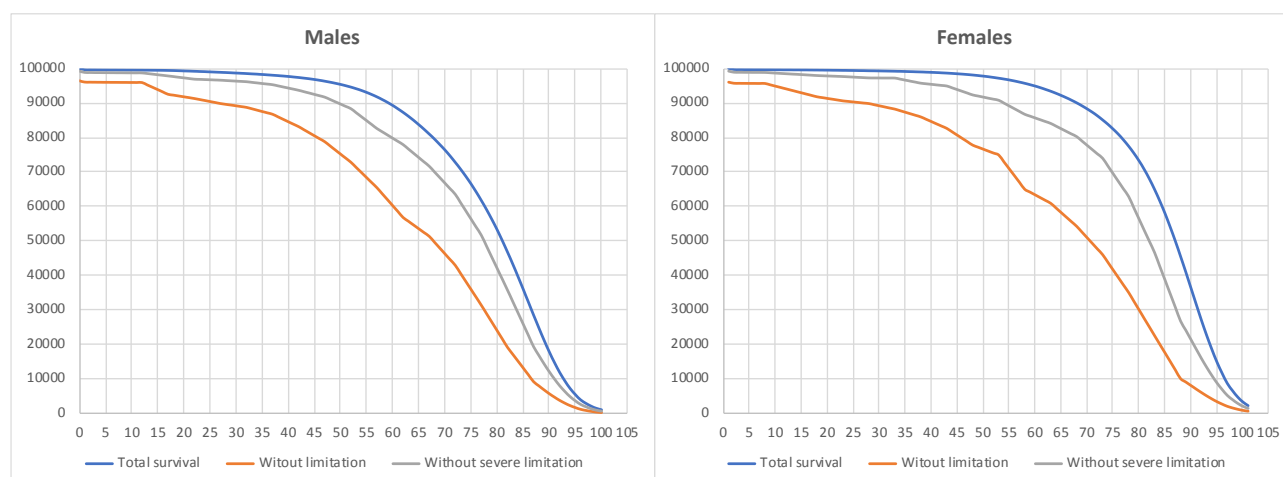
## Publications and reports on health expectancies for Luxembourg

- Peltier, F. Regards sur la mortalité, STATEC, Regards n° 18-2014, <http://www.statistiques.public.lu/fr/publications/series/regards/2014/18-14-mortalite/index.html>
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- Peltier F., Thill G., Schockmel M. 83 ans d'espérance de vie pour les femmes et 78 ans pour les hommes. STATEC, Statnews n°26-2008
- Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. The Lancet. 2008; 372(9656):2124-2131.
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### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

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Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

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# Health Expectancy in Malta

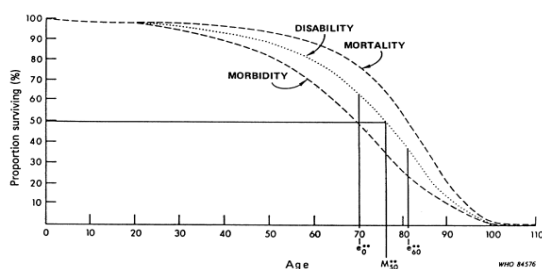
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$e_0^{**}$  and  $e_{60}^{**}$  are the number of years of autonomous life expected at birth and at age 60, respectively.  
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## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Malta and the European Union (EU28) based on SILC (2005-2015)

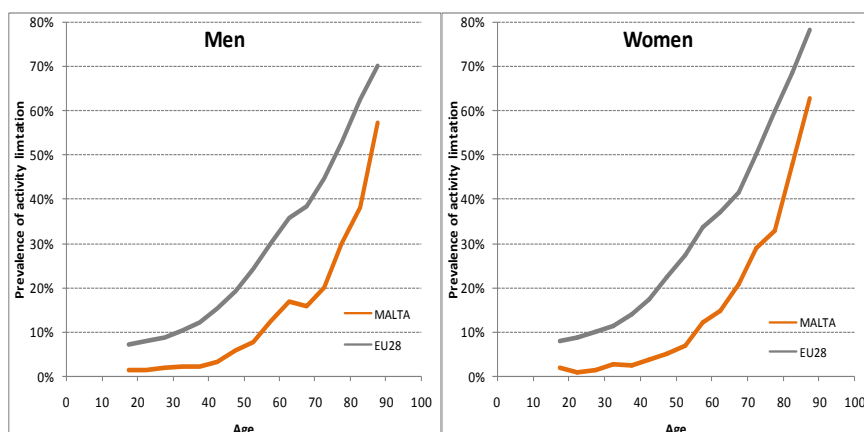
### Key points:

Maltese life expectancy (LE) at age 65 has increased by 2.5 years for women and 2.4 years for men over the period 2004-2015. By 2015 LE for both men and women is slightly above the EU28 average (21.2 for women and 17.9 for men).

The HLY series, initiated in 2005 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 65% and 71% of their life without *self-reported long-term activity limitations* respectively. In 2015 the HLY values for Malta are notably above the EU28 average (9.4 for women and 4.0 for men) by 4.6 years for women and 4.0 years for men. A slow but consistent increase in HLY can be observed, except for a dip in 2006. Furthermore, from 2006 onwards, the gap between Malta and EU 28 has been increasing. Note that the wording of the GALI question in Malta was not changed in 2008 however was amended in 2012. Between 2014 and 2015 HLY slightly increased.



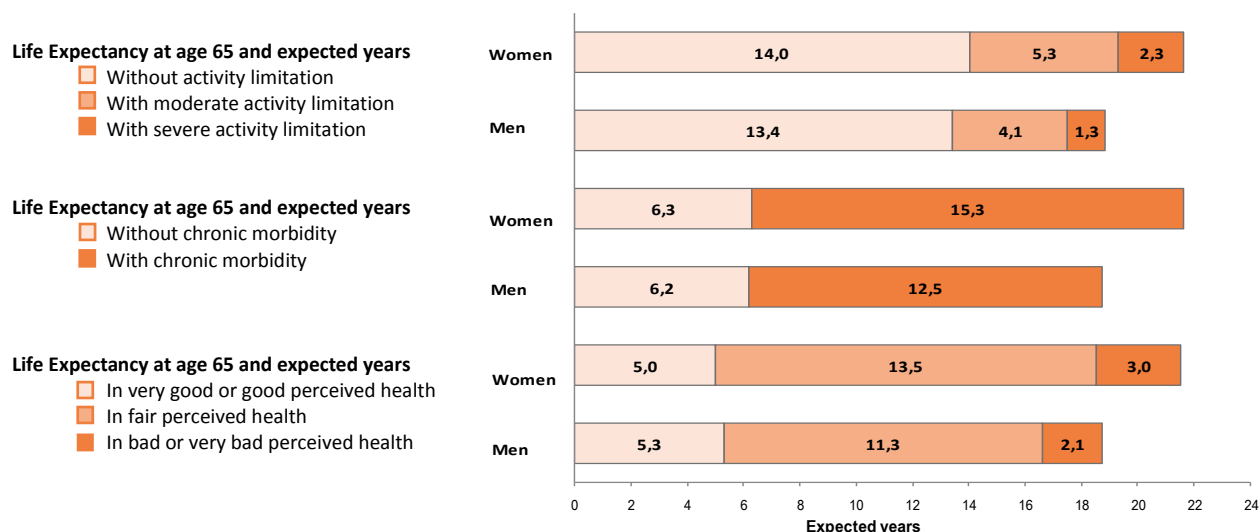
## Prevalence of activity limitation in Malta and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years 2013-2015, Malta tends to display strongly lower prevalence rate of activity limitation at all ages and for both sexes, women reaching almost the EU28 at age 85 years.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance, in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Malta comprised 4887 women and 4670 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Malta (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Malta was 21.6 years for women and 18.7 years for men.

Based on the SILC 2015 at age 65, women spent 14.0 years (65% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 5.3 years (24%) with moderate activity limitation and 2.3 years (11%) with severe activity limitation.\*

Men of the same age spent 13.4 years (72% of their remaining life) without activity limitation compared to 4.1 years (22%) with moderate activity limitation and 1.3 years (7%) with severe activity limitation.\*

Although total years lived by men was less than those for women, years lived without chronic morbidity, years lived without activity limitation and years lived in very good or good perceived health were almost similar for women and men.

Compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

## Publications and reports on health expectancies for Malta

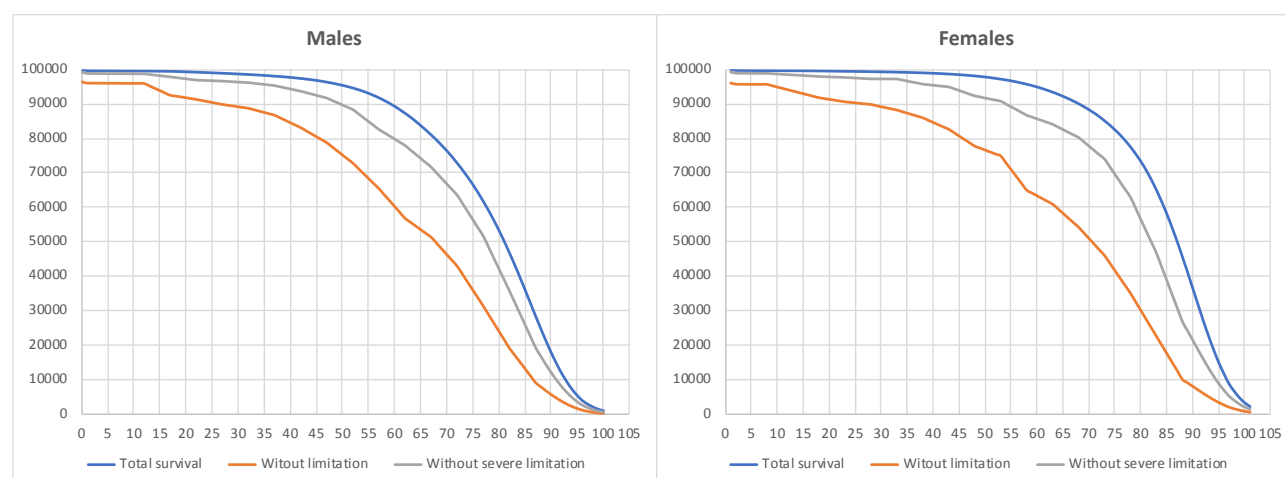
- Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008; 372(9656):2124-2131.
- Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p. 291-304.



## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in The Netherlands

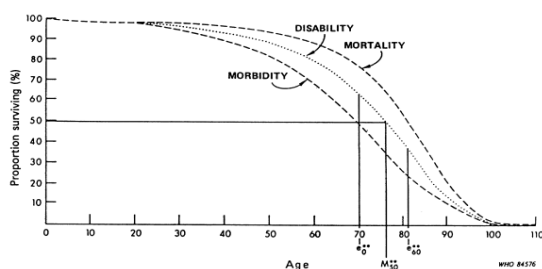
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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



$e_{60}^{**}$  and  $e_{65}^{**}$  are the number of years of autonomous life expected at birth and at age 60, respectively.  $M_{65}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2005 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

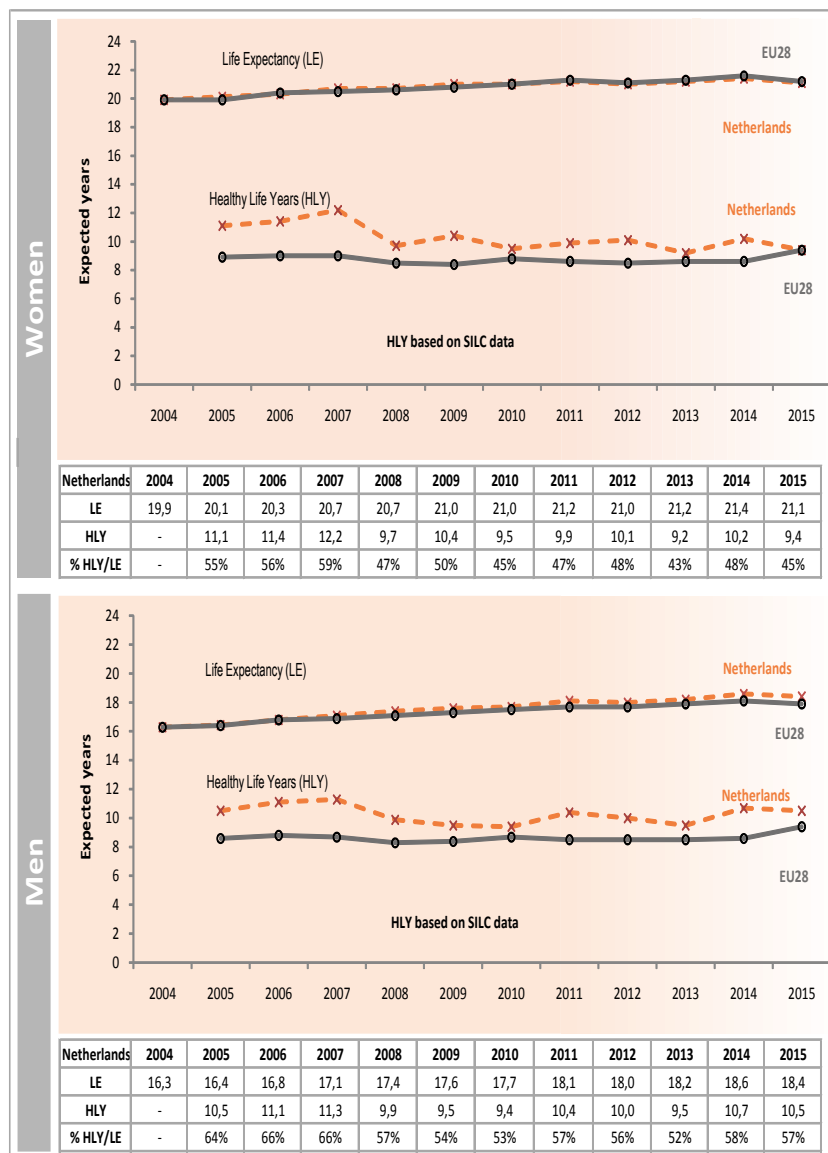
Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
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\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

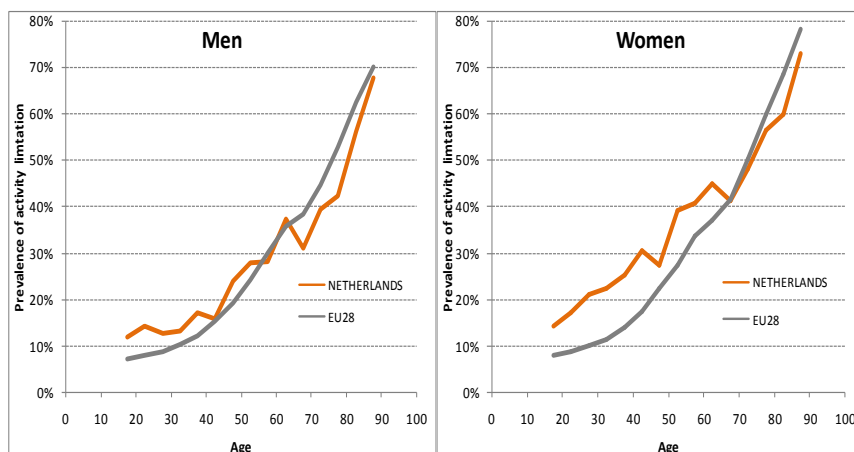
## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for The Netherlands and the European Union (EU28) based on SILC (2005-2015)

### Key points:

Dutch life expectancy (LE) at age 65 has increased by 1.2 years for women and 2.1 years for men over the period 2004-2015. By 2015 LE for Dutch women was very close to the EU28 average (21.2) but higher for men (18.4 in the Netherlands as compared to 17.9 for EU28). The HLY series, initiated in 2005 with the SILC data, show values for the Netherlands being in 2015 above the EU28 average (9.4 for women and men) by 1.1 year for men and similar for women. In 2015 women and men at age 65 can expect to spend 45% and 57% of their remaining life without *self-reported long-term activity limitations* respectively. Note that the wording of the GALI question was changed in the Netherlands in 2008 to better reflect the EU standard. This led to a clear decrease in HLY for men and women between 2007 and 2008. Since 2008, HLY remained more or less at the same level, with yearly fluctuations.



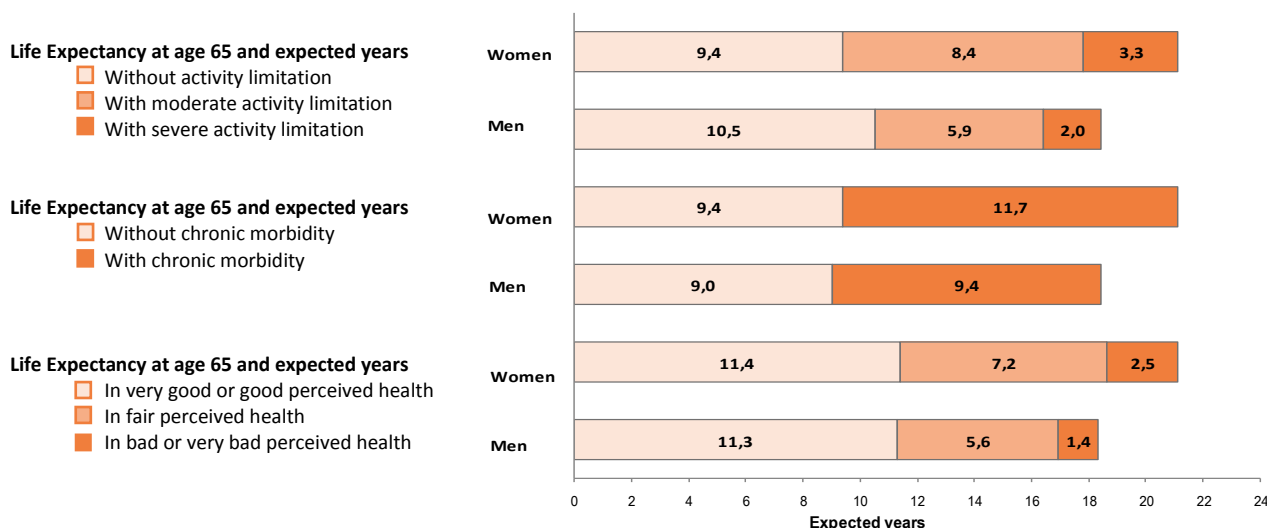
## Prevalence of activity limitation in the Netherlands and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), the Netherlands tends to display similar prevalence rate of activity limitation for men before the age of 55 years but lower after this age and for women higher prevalence rate before the age of 65 years but slightly lower after this age.

Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. These results should be interpreted with caution as samples sizes in the SILC survey for the Netherlands comprised 5312 women and 4493 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for The Netherlands (Health data from SILC 2015)



### Key points:

In 2015 LE at age 65 in the Netherlands was 21.1 years for women and 18.4 years for men.

Based on the SILC 2015, at age 65 women spent 9.4 years (45% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 8.4 years (40%) with moderate activity limitation and 3.3 years (16%) with severe activity limitation.\*

Men of the same age spent 10.5 years (57% of their remaining life) without activity limitation compared to 5.9 years (32%) with moderate activity limitation and 2.0 years (11%) with severe activity limitation.\*

Although the total number of years lived by men were less than those for women, for all health expectancies, the years of life spent in positive health were similar or higher in men as compared to women. Therefore, compared to men, women spent a larger proportion of their life in ill health.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

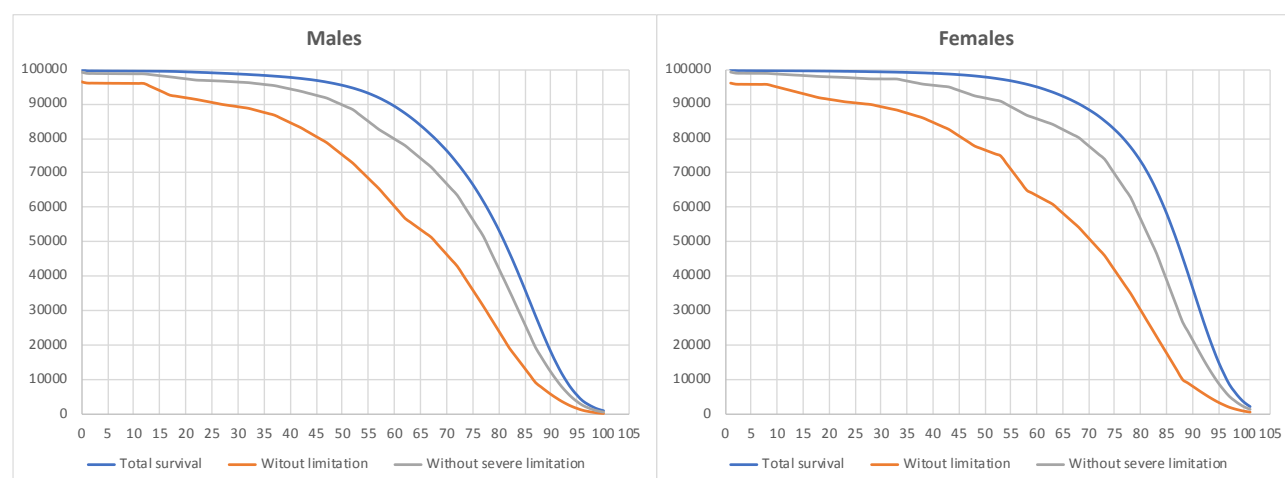
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## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).





# Health Expectancy in Poland

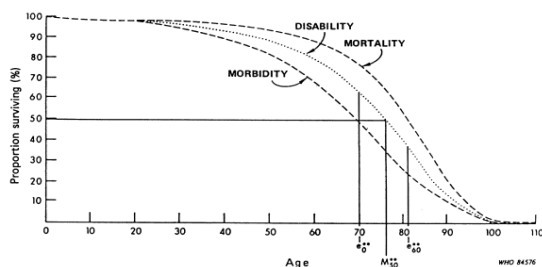
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2005 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

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Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.  
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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Poland and the European Union (EU28) based on SILC (2005-2015)

### Key points:

Polish life expectancy (LE) at age 65 has increased by 1.8 years for women and 1.5 years for men over the period 2004-2015. By 2015 LE was lower than the EU28 average (21.2 for women and 17.9 for men) by 1.1 year for women and 2.2 years for men.

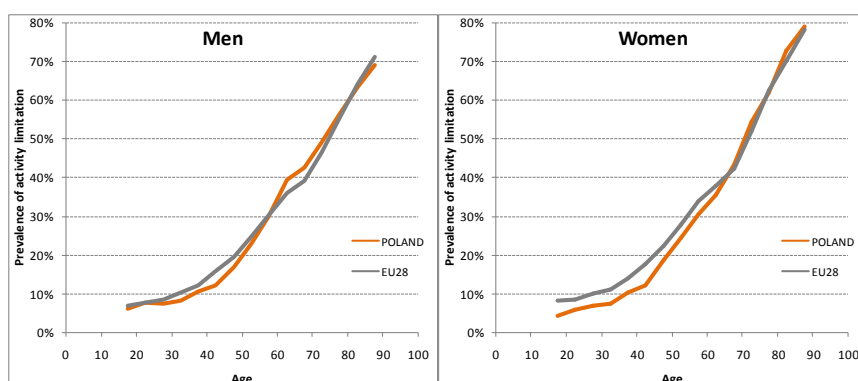
The HLY series, initiated in 2005 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 42% and 48% of their life without *self-reported long-term activity limitations* respectively.

In 2015 the HLY values for Poland are below the EU28 average (of 9.4 for women and men) by 1.0 year for women and 1.8 years for men. The HLY values remained stable in Poland since 2007, increased between 2010 and 2011 and slightly decreased in 2012 and 2013 for both sexes. In 2014 HLY increased notably for both sexes mostly for women and continue to increase in 2015.

Note that there are some differences in the wording of the GALI question the years 2005 and in 2006-2008 and 2009-2010 in Poland.



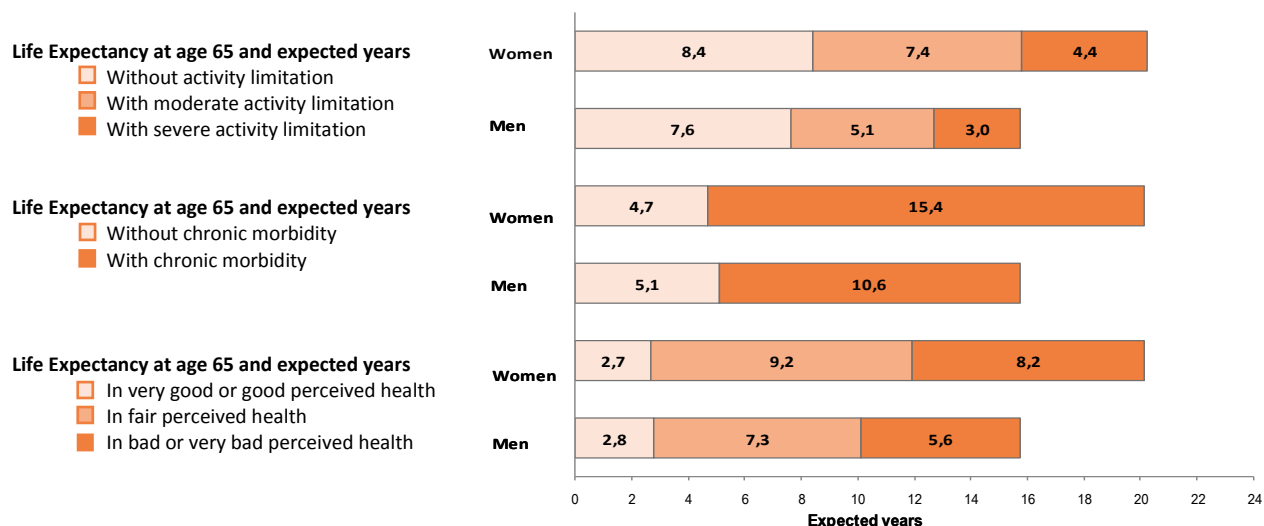
## Prevalence of activity limitation in Poland and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Poland tends to display almost similar prevalence rate of activity limitation at all ages for both sexes.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Poland comprised 14901 women and 13096 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Poland (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Poland was 20.1 years for women and 15.7 years for men.

Based on the SILC 2015, at age 65, women can expect to spend 8.4 years (42% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 7.4 years (37%) with moderate activity limitation and 4.4 years (22%) with severe activity limitation.\*

Men of the same age can expect to spend 7.6 years (48% of their remaining life) without activity limitation compared to 5.1 years (32%) with moderate activity limitation and 3.0 years (19%) with severe activity limitation.\*

Although the total years lived and the number of years lived without activity limitation was higher for women than men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

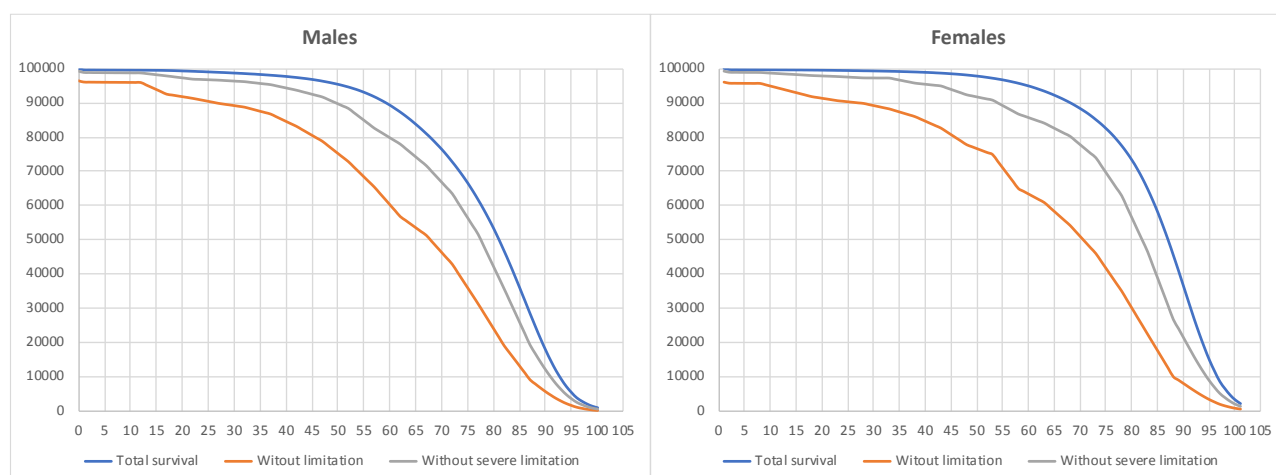
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## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

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# Health Expectancy in Portugal

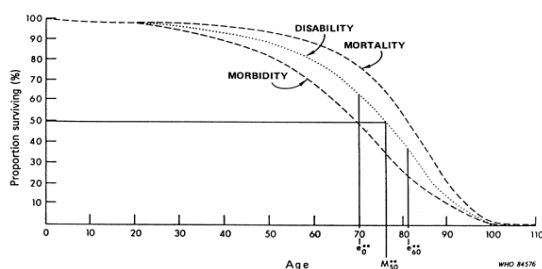
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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



$e_{60}^{**}$  and  $e_{80}^{**}$  are the number of years of autonomous life expected at birth and at age 60, respectively.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

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## What is in this report?

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- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
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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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.



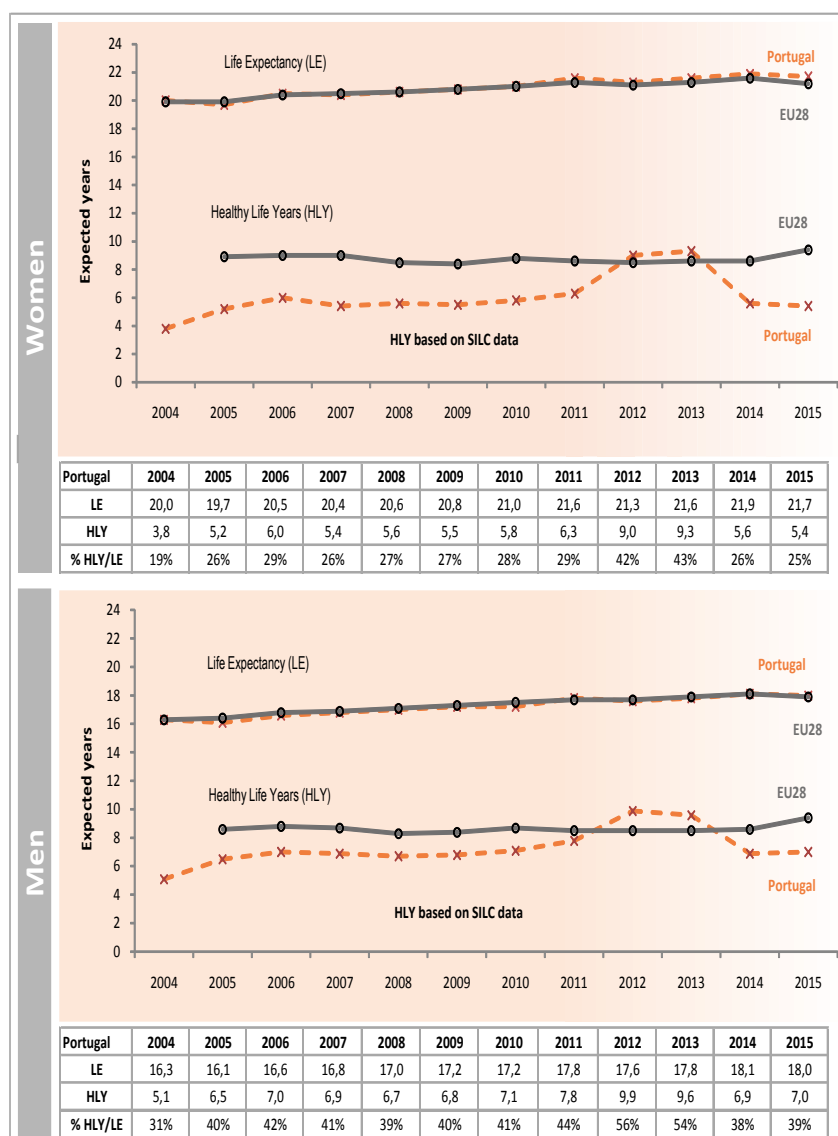
## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Portugal and the European Union (EU28) based on SILC (2004-2015)

### Key points:

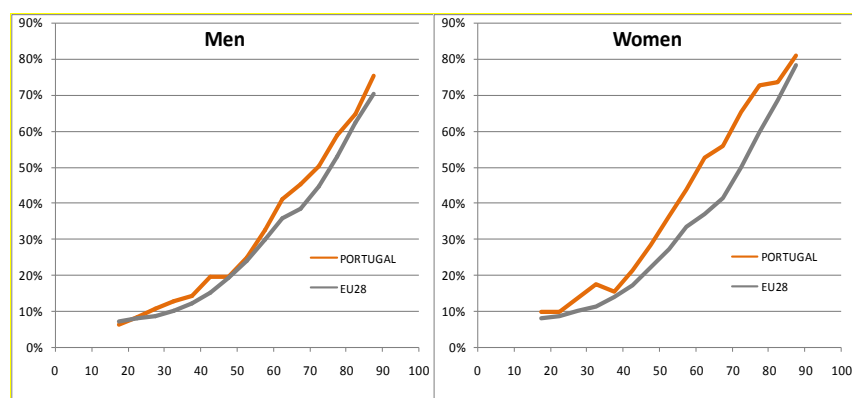
Portuguese life expectancy (LE) at age 65 has increased by 1.7 years for women and men over the period 2004-2015. In 2015 LE for Portugal was 0.5 year above the EU 28 average (21.2 for women and 17.9 for men) for women and 0.1 year above the EU28 average for men.

The HLY series, initiated in 2004 with the SILC data, shows values for Portugal being in 2015 lower than the EU28 average (9.4 for women and men) by 4.0 and 2.4 years for women and men respectively. In 2015 women and men at age 65 can expect to spend 25% and 39% of their life without *self-reported long-term activity limitations* respectively.

Since 2006 HLY remained stable for women and men in Portugal, increased notably in 2011 and highly in 2012. In 2013 HLY remained almost stable but in 2014 HLY strongly decreased for both sexes. In 2015 HLY remained almost stable for both sexes. Note that the wording of the GALI question was changed in 2008 to better reflect the EU standard, being again change in 2012 (break in series).



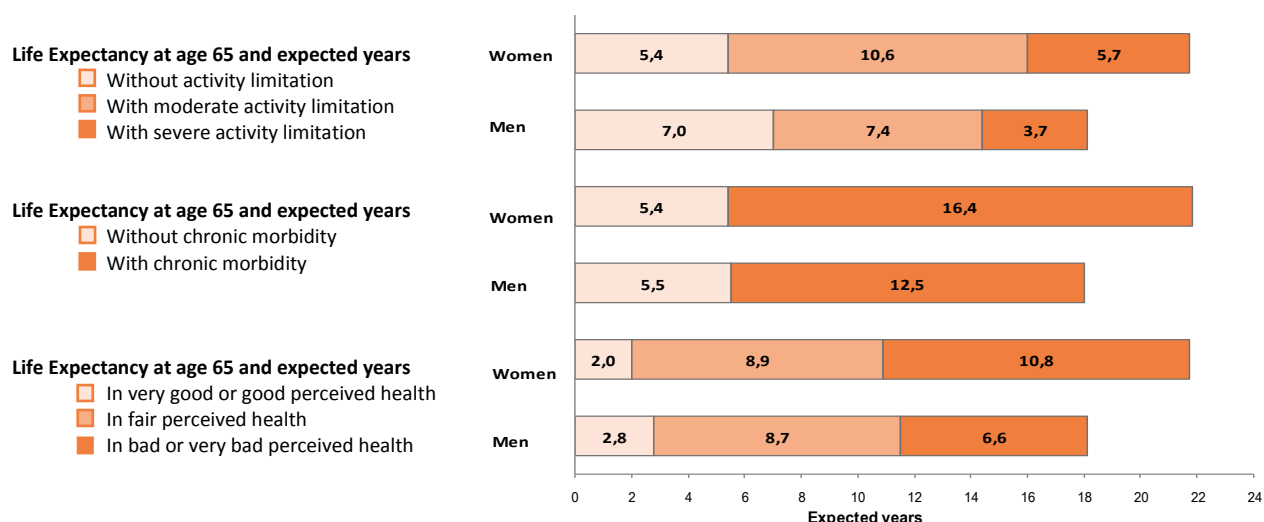
## Prevalence of activity limitation in Portugal and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013- 2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Portugal tends to display higher prevalence rate of activity limitation at all ages for women and similar for men to the EU27.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Portugal comprised 10055 women and 8647 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Portugal (Health data from SILC 2015)



### Key points:

In 2015 LE at age 65 in Portugal was 21.7 years for women and 18.0 years for men.

Based on the SILC 2015, at age 65, women spent 5.4 years (25% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 10.6 years (49%) with moderate activity limitation and 5.7 years (26%) with severe activity limitation.\*

Men of the same age spent 7.0 years (39% of their remaining life) without activity limitation compared to 7.4 years (41%) with moderate activity limitation and 3.7 years (21%) with severe activity limitation.\*

Although total years lived by men were less than those for women, for all the health expectancies the years of life spent in positive health were greater or equal for men than women. Therefore compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

## Publications and reports on health expectancies for Portugal

● Instituto Nacional de Estatística; *A Península Ibérica em Números – 2010/La Península Ibérica en Cifras - 2010*. Madrid/Lisboa. Instituto Nacional de Estadística, España/Instituto Nacional de Estatística, Portugal. 2011.

● Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p. 291-304.

● Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656):2124-2131.

● Lievre A., Jusot F., Barnay T., Sermet C., Brouard N., Robine J.-M., Brieu A.-M., Forette F. Healthy working life expectancies at age 50 in Europe: a new indicator. *J Nutr Health Aging*. 2007;11(6):508-514.

● Khoman E., Weale M. *Healthy life expectancy in the EU Member States: ENEPRI Research report n°33 - AHEAD WP5*. sl: ENEPRI; 2006.

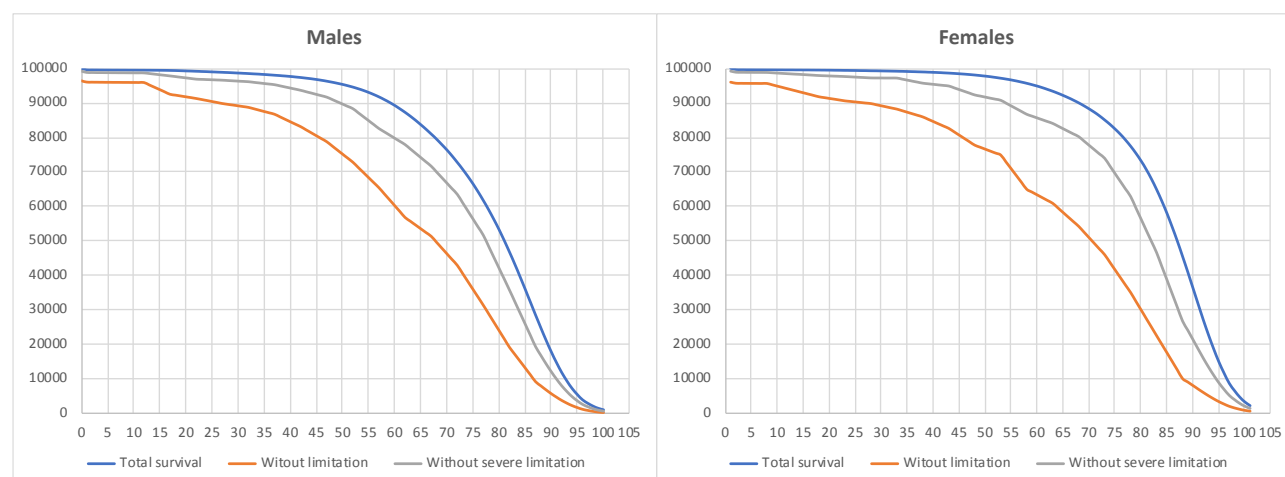
● Jagger C., EHEMU team. *Healthy life expectancy in the EU 15*. In: Institut des Sciences de la Santé, editor. *Living longer but healthier lives: how to achieve health gains in the elderly in the European Union Europe Blanche XXVI*, Budapest, 25-26 November 2005. Paris: ISS; 2006. p. 49-62.

● *Esperanças de vida sem incapacidade física de longa duração: Portugal continental: 1995-1996*. Portugal: Instituto Nacional de Estatística; 2000.

## Estimation of the general model of health transition for the European Union in 2015

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### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

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# Health Expectancy in Romania

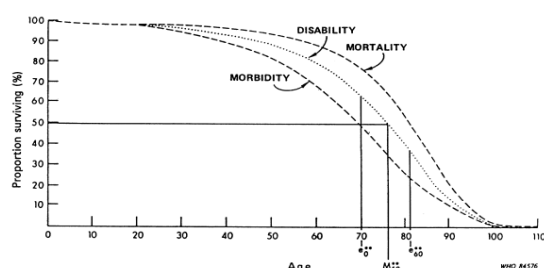
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

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\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Romania and the European Union (EU28) based on SILC (2005-2015)

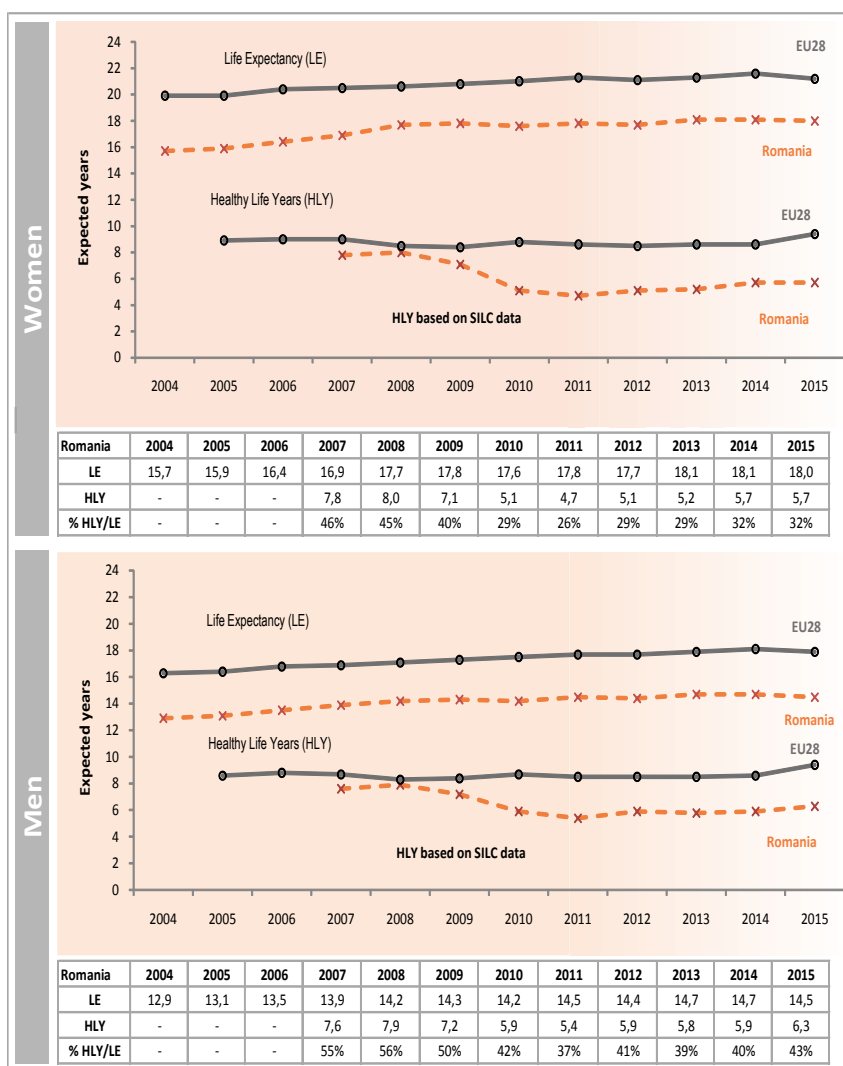
### Key points:

Romanian life expectancy (LE) at age 65 has increased by 2.3 years for women and 1.6 year for men over the period 2004-2015. By 2015 LE for men and women was largely below the EU28 average (21.2 for women and 17.9 for men).

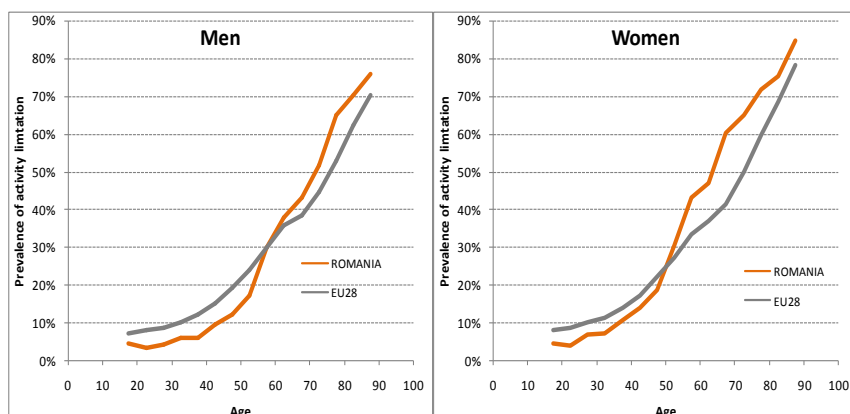
The HLY series, initiated in 2007 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 32% and 43% of their life without *self-reported long-term activity limitations* respectively.

The HLY values for Romania are 3.7 years and 3.1 years below the EU28 average (9.4 for women and men) for women and men respectively in 2015. The HLY values decreased strongly between 2009 and 2010 for both sex, continued a small decrease in 2011 but increased in 2012 and remained stable in 2013. In 2014 HLY slightly increased for women and men and continue to increase in 2015 for men.

Note that the wording of the GALI question was changed in 2008 and change again in 2010.



## Prevalence of activity limitation in Romania and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)

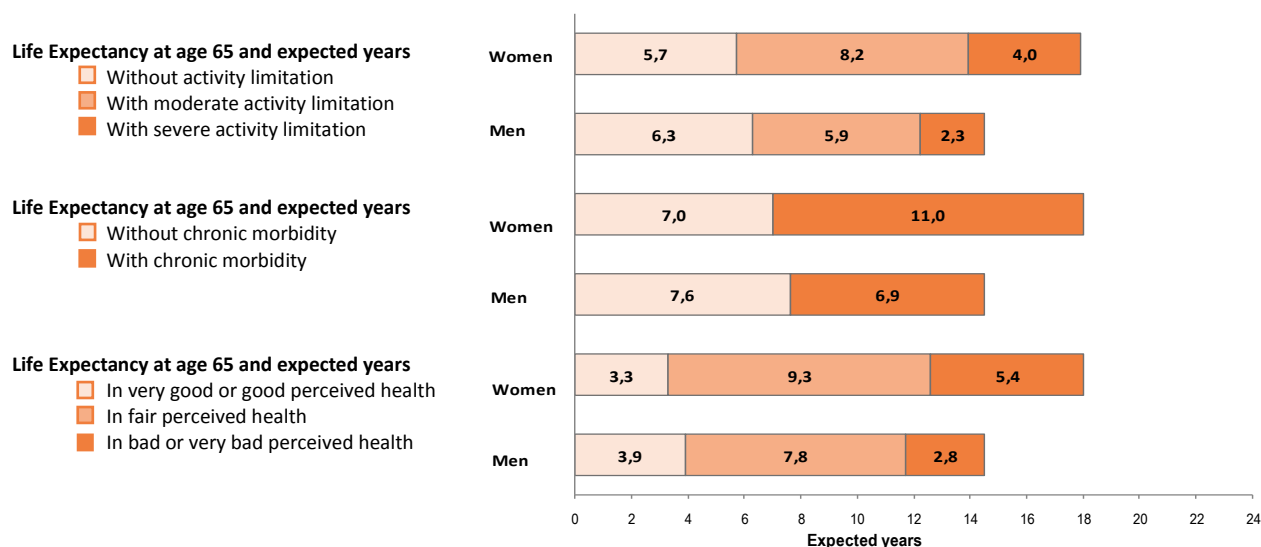


Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Romania tends to display lower prevalence rate of activity limitation before the age of 55 years for men and 45 years for women but higher prevalence after these ages.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Romania comprised 8219 women and 7455 men aged 16 years and over.



## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Romania (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Romania was 18.0 years for women and 14.5 years for men.

Based on the SILC 2015 at age 65, women spent 5.7 years (32% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 8.2 years (46%) with moderate activity limitation and 4.0 years (22%) with severe activity limitation.\*

Men of the same age spent 6.3 years (43% of their remaining life) without activity limitation compared to 5.9 years (41%) with moderate activity limitation and 2.3 years (16%) with severe activity limitation.\*

Although the total years lived by men were less than those for women, for all the health expectancies the years of life spent in positive health were greater for men than women. Therefore compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

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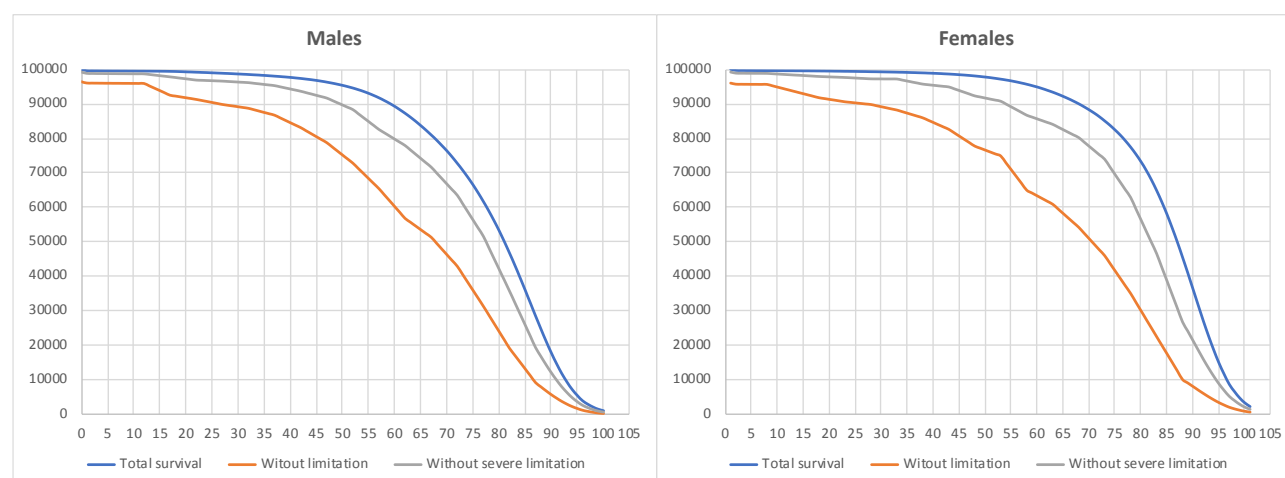
## Publications and reports on health expectancies for Romania

- OECD (2010), *Health at a Glance: Europe 2010*, OECD Publishing. [http://dx.doi.org/10.1787/health\\_glance-2010-en](http://dx.doi.org/10.1787/health_glance-2010-en);
- INS (2013), *Evolution of mortality in Romania*;
- INS (2014), *Women and men, life and work partnership*;
- INS (2016), *Health expectancy in Romania*.

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# Health Expectancy in Slovakia

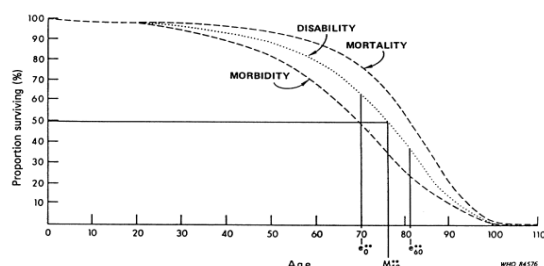
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- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.  
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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

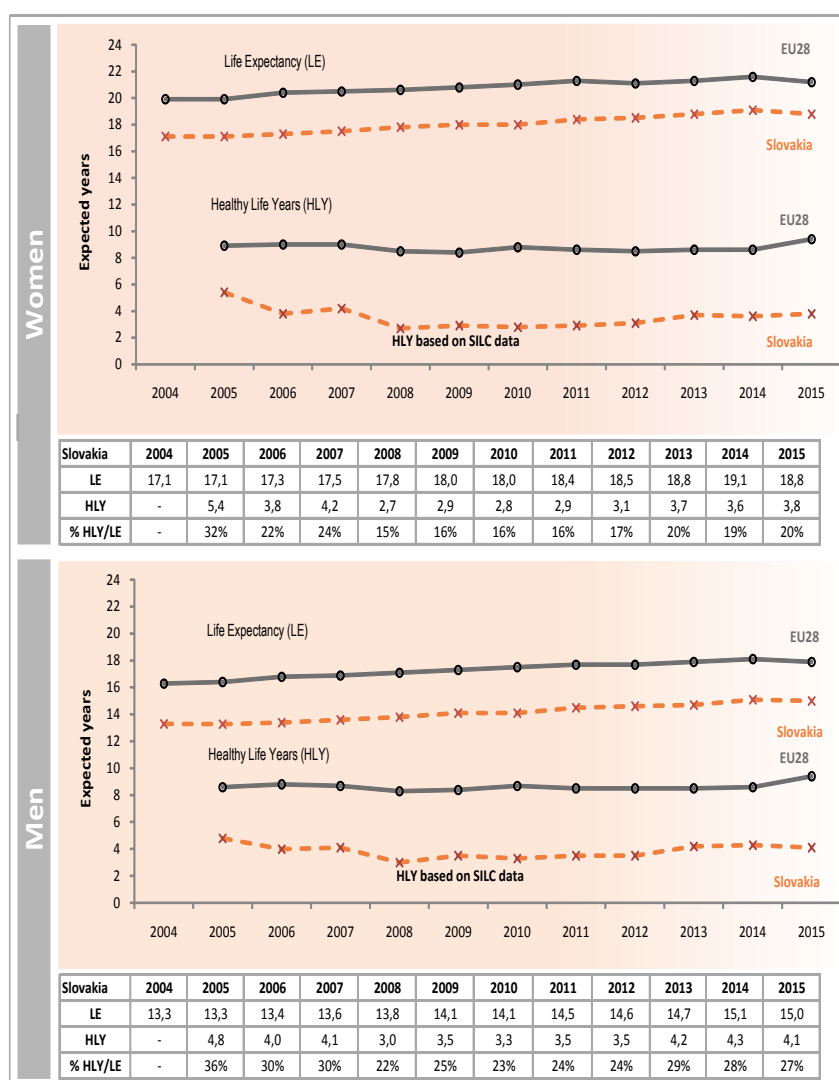
## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Slovakia and the European Union (EU28) based on SILC (2005-2015)

### Key points:

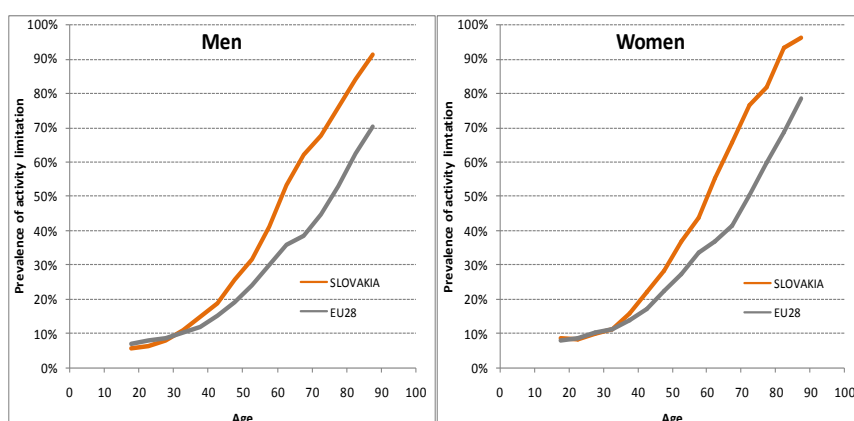
Slovak life expectancy (LE) at age 65 has increased by 1.7 years for women and men over the period 2004-2015. LE was below the EU28 average (21.2 for women and 17.9 for men) by 2.9 years for men and 2.4 years for women in 2014.

The HLY series, initiated in 2005 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend respectively 20% and 27% of their life without *self-reported long-term activity limitations*. In 2015 the HLY values for Slovakia are below the EU28 average (9.4 for women and men) by 5.6 years and 5.3 years for women and men respectively. Note that the wording of the GALI question was changed in 2008 to better reflect the EU standard. This led to a clear decrease in HLY for men and women between 2007 and 2008.

Then from 2008 to 2010 HLY remained almost stable for women and men and slightly increased in 2011, continue to increase in 2012, and increased notably in 2013. In 2014 HLY remained stable. In 2015 HLY slightly increased for women.



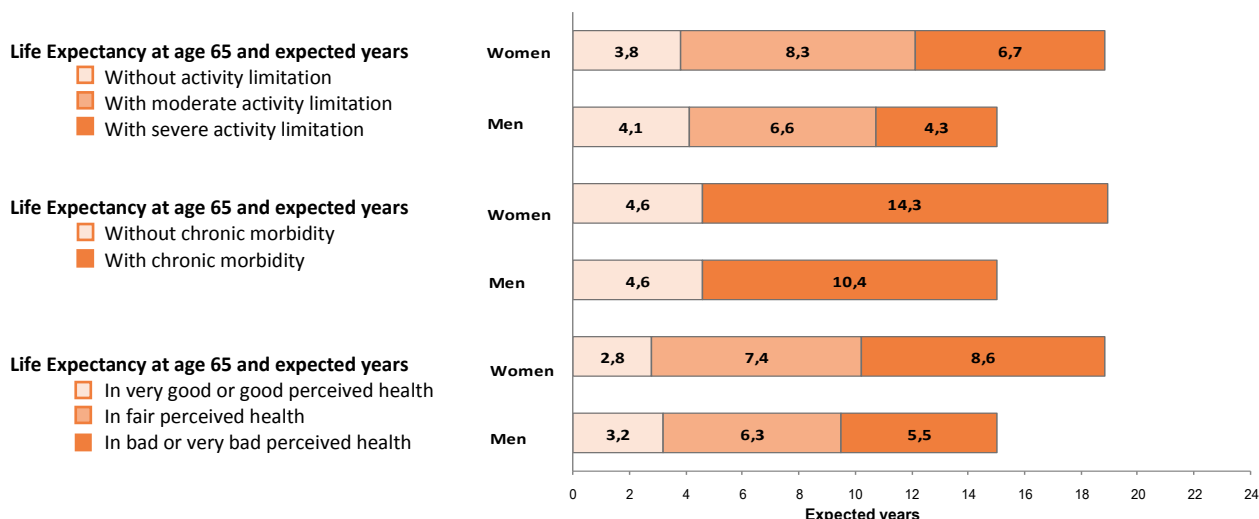
## Prevalence of activity limitation in Slovakia and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years 2013-2015, Slovakia tends to display higher prevalence rate of activity limitation after the age of 35 years for women and men, this prevalence reaching almost 100% at age 85 for men.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Slovakia comprised 7461 women and 6308 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Slovakia (Health data from SILC 2015)



### Key points:

In 2015 LE at age 65 in Slovakia was 18.8 years for women and 15.0 years for men.

Based on the SILC 2015, at age 65, women spent 3.8 years (20% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 8.3 years (44%) with moderate activity limitation and 6.7 years (36%) with severe activity limitation.\*

Men of the same age spent 4.1 years (27% of their remaining life) without activity limitation compared to 6.6 years (44%) with moderate activity limitation and 4.3 years (29%) with severe activity limitation.\*

Although total years lived by men were less than those for women, for all the health expectancies the number of years of life spent in positive health were greater for men than women. Therefore compared to men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

## Publications and reports on health expectancies for Slovakia

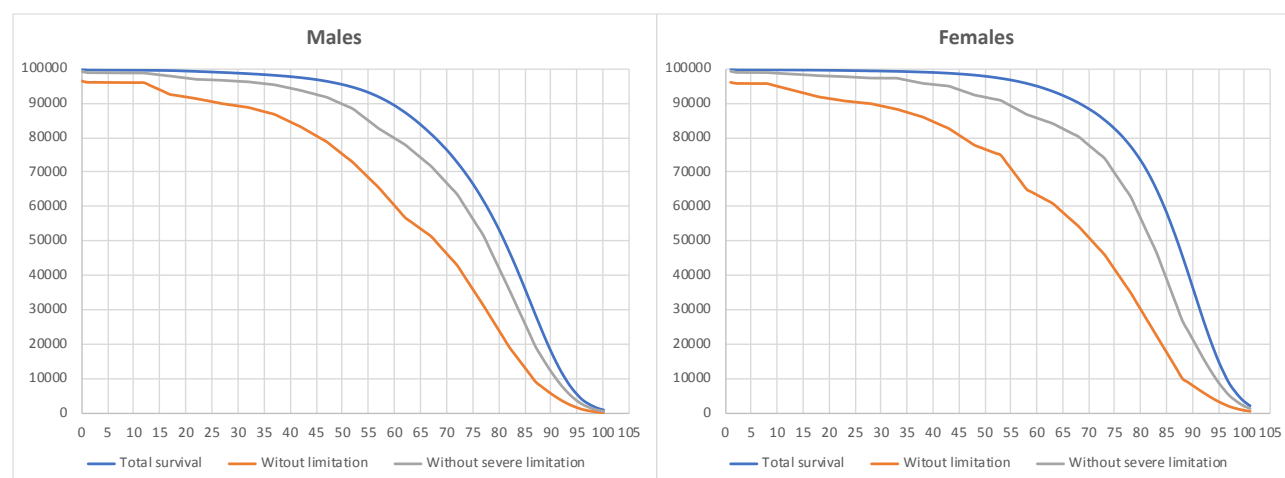
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- Meszaros J. Ako dlho žije populácia Slovenskej republiky v zdraví? [For how long the population of the Slovak Republic live in health?]. Slovenská štatistika a demografia. 2007(1-2): 133-140.
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- Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity*. In: European Commission, editor. *Major and chronic diseases - report 2007*. Luxembourg: European Communities; 2008. p. 291-304.
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- Mészáros J. Výpočet strednej dĺžky života v zdraví (metodický materiál). INFOSTAT Bratislava 2009.



## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in Slovenia

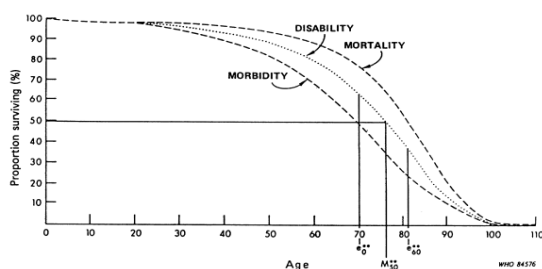
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2005 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

### References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.  
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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). The revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Slovenia and the European Union (EU28) based on SILC (2005-2015)

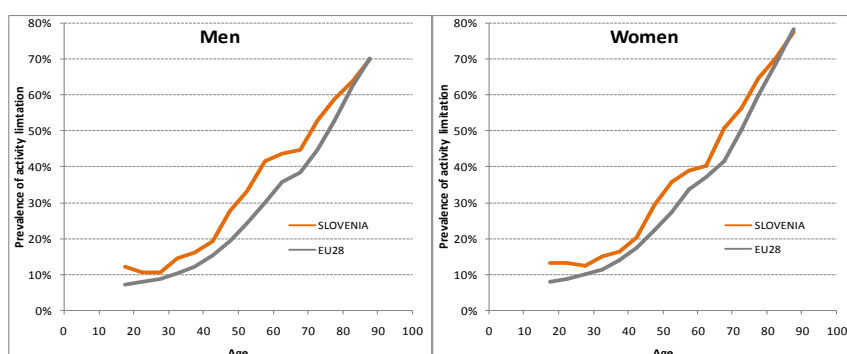
### Key points:

Slovenian life expectancy (LE) at age 65 has increased by 2.0 years for women and 2.6 years for men over the period 2004-2015. LE was above the EU28 average (21.2 for women and 17.9 for men) for women and below the EU28 average for men in 2015. However gaps are reducing.

The new HLY series, initiated in 2005 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 38% and 47% of their life without *self-reported long-term activity limitations* respectively. In 2015 the HLY values for Slovenia are below the EU28 average (9.4 for women and men) for women and men. Between 2005 and 2009 HLY increased for men in Slovenia. For women, HLY increased until 2007 then stabilized. Note that the wording of the GALI question changes in Slovenia in 2010. However, this slightly change hardly explains the strong decrease of HLY observed in 2010. In 2013 HLY strongly increased for women and remained stable for men. In 2014 HLY increased for women and men. In 2015 HLY decreased for women and continued to increase for men.



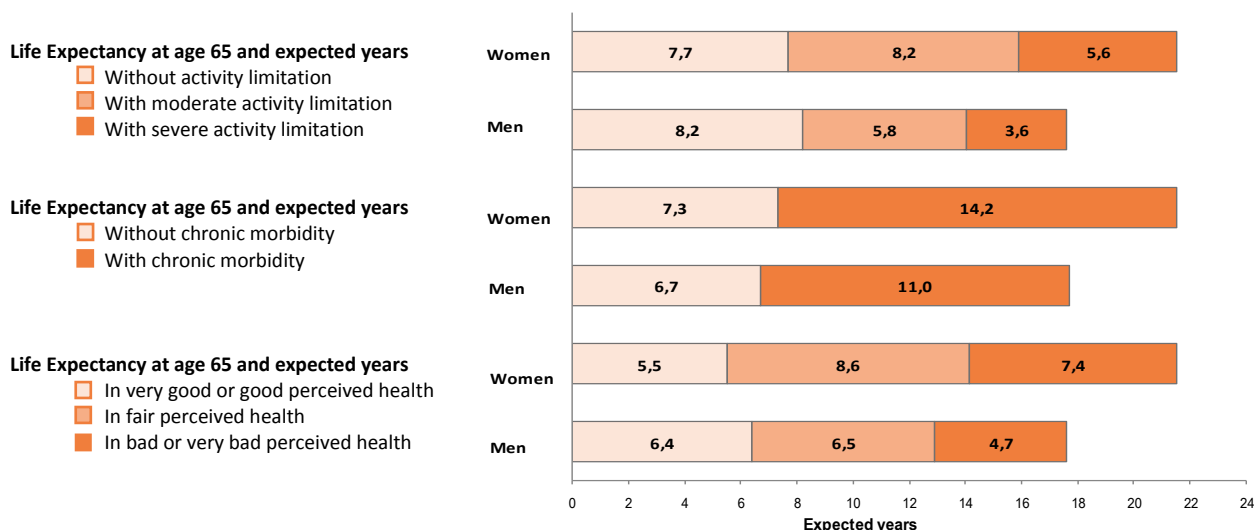
## Prevalence of activity limitation in Slovenia and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years 2013-2015, Slovenia tends to display generally higher prevalence rate of activity limitation at all ages and for both sexes.

These results should be interpreted with caution, samples sizes in the SILC survey vary remarkably ranging between 5859 in Sweden to 36602 in Italy for instance in 2015. In 2015, the sample size for Slovenia comprised 4550 women and 4135 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Slovenia (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Slovenia was 21.4 years for women and 17.6 years for men.

Based on the SILC 2015, at age 65, women spent 7.7 years (36% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 8.2 years (38%) with moderate activity limitation and 5.6 years (26%) with severe activity limitation.\*

Men of the same age spent 8.2 years (47% of their remaining life) without activity limitation compared to 5.8 years (33%) with moderate activity limitation and 3.6 years (20%) with severe activity limitation.\*

Although for life expectancy without chronic morbidity and for life expectancy without activity limitation the years of life spent in positive health were greater for women than men, women spent a larger proportion of their life in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

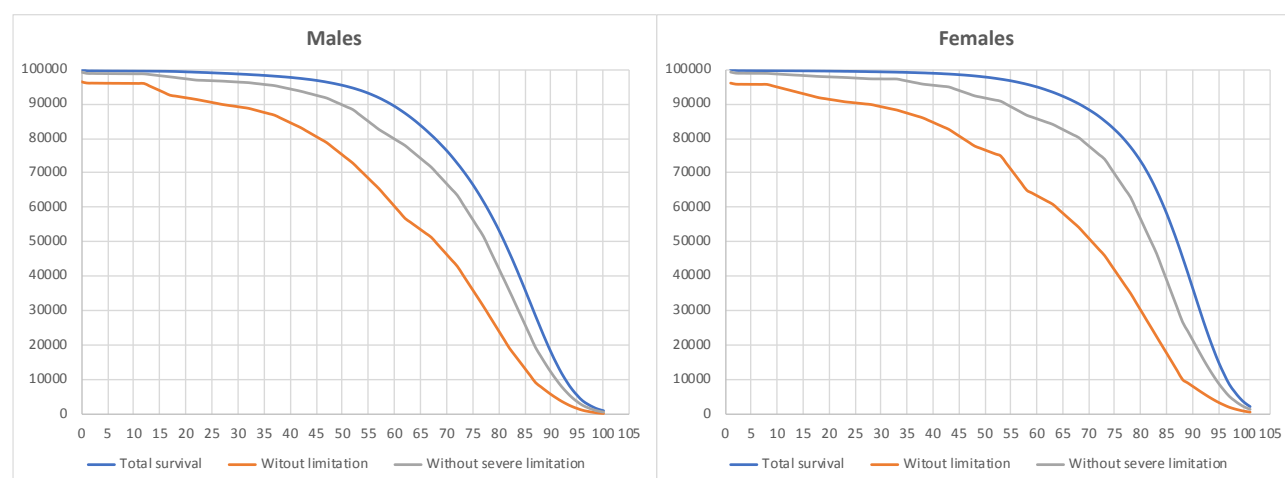
## Publications and reports on health expectancies for Slovenia

- Moravec Berger D., Zupanic T., Lavtar D. *Novi Kazalnik Zdravja: "Leta Zdravega Življenja" / New Indicator of Health: "Healthy life years" (HLY) 18th Statistical Days: Intergenerational solidarity - challenge facing modern societies.* Radenci, Slovenia Statisticni Dnevi; 2008.
- Jagger C., Robine J.-M., Van Oyen H., Cambois E. *Life expectancy with chronic morbidity.* In: European Commission, editor. *Major and chronic diseases - report 2007.* Luxembourg: European Communities; 2008. p. 291-304.
- Jagger C., Gillies C., Mascone F., Cambois E., Van Oyen H., Nusselder W.J., Robine J.-M., EHLEIS team. *Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis.* *The Lancet.* 2008; 372(9656):2124-2131.
- Zaletel, M., Lavtar, D. *Strukturni kazalnik Zdrava leta življenja /Structural indicator Healthy Life Years.* Published at [http://www.stat.si/doc/sosvet/Sosvet\\_26/Sos26\\_s1911-2013.pdf](http://www.stat.si/doc/sosvet/Sosvet_26/Sos26_s1911-2013.pdf).

## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

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# Health Expectancy in Spain

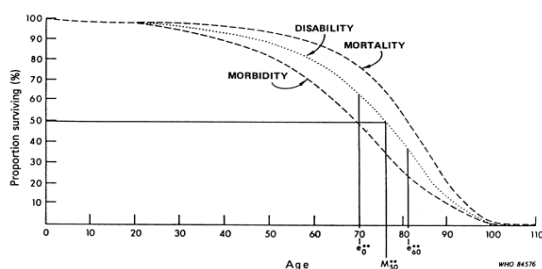
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 most common health expectancies are those based on self-perceived health, activities of daily living and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and self-perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2004 to 2015. The wording of the question has been revised in 2008;
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;

## References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
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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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). The revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Spain and the European Union (EU28) based on SILC (2004-2015)

### Key points:

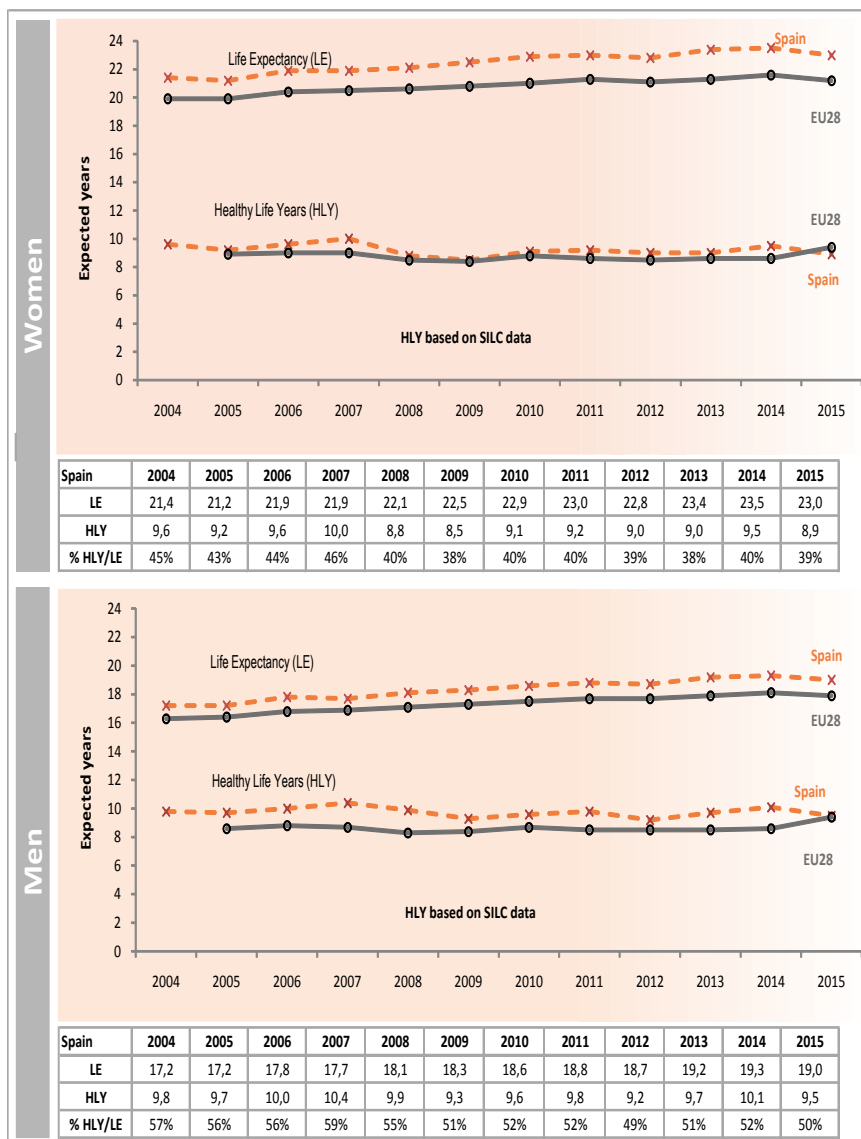
Spanish life expectancy (LE) at age 65 has increased by 1.6 years for women and 1.8 years for men over the period 2004-2015. LE was above the EU28 average (21.2 for women and 17.9 for men) in 2015. Note that LE slightly decreased in 2015 as a lot of countries in EU28.

The new HLY series, initiated in 2004 with the SILC data, shows values for Spain being in 2015 below the EU28 average (9.4 for women and men) by 0.5 year for women and above by 0.1 year for men.

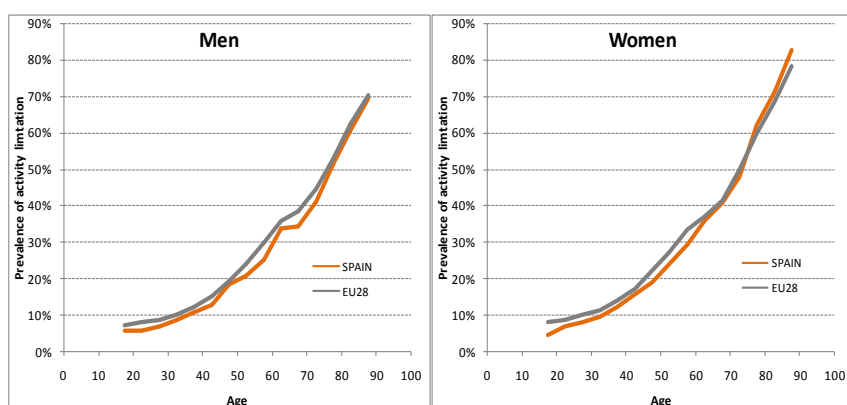
In 2015 women and men at age 65 can expect to spend 39% and 50% of their life without *self-reported long-term activity limitations* respectively.

Note that the wording of the GALI question was changed in Spain in 2008 to better reflect the EU standard.

This may explain the strong decrease in HLY observed for men and women between 2007 and 2008. Between 2010 and 2011 HLY increased for both sexes, decreased slightly in 2012 and by 2013 rose to its previous level. Between 2013 and 2014 HLY increased notably for both sexes and decreased again in 2015.



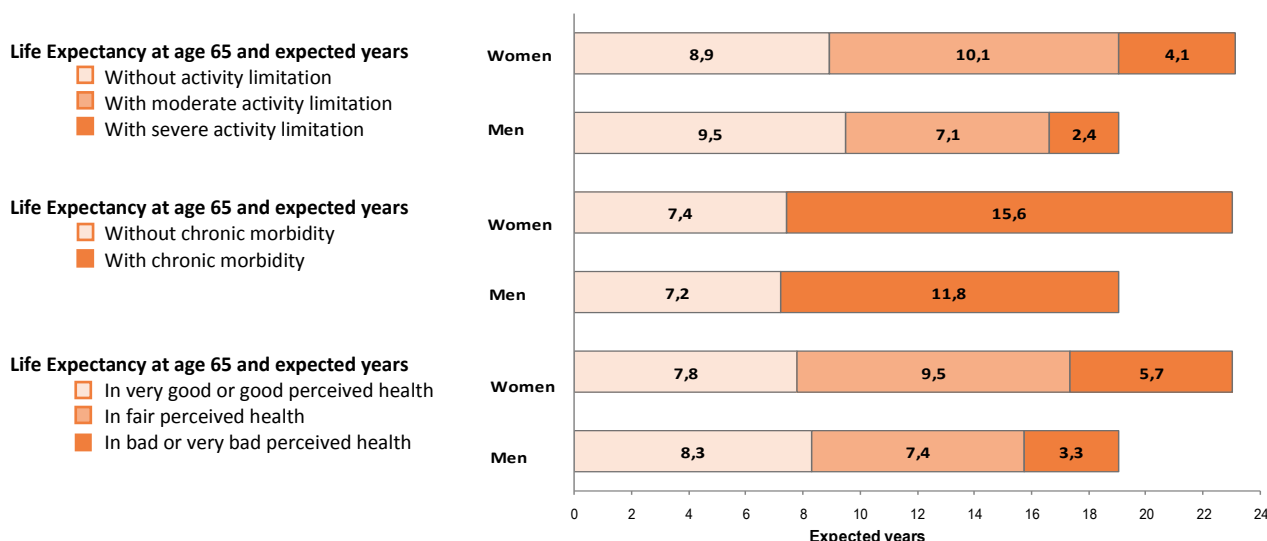
## Prevalence of activity limitation in Spain and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years 2013-2015, Spain tends to display lower prevalence rate of activity limitation at all ages except at age 85 and over where the prevalence become slightly higher than EU28 for women only.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Spain comprised 14241 women and 12974 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Spain (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Spain was 23.0 years for women and 19.0 years for men.

Based on the SILC 2015, at age 65, women spent 8.9 years (39% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 10.1 years (44%) with moderate activity limitation and 4.1 years (18%) with severe activity limitation.\*

Men of the same age spent 9.5 years (50% of their remaining life) without activity limitation compared to 7.1 years (37%) with moderate activity limitation and 2.4 years (13%) with severe activity limitation.\*

Although total years lived by men were less than those for women, for life expectancy in very good or good perceived health and for life expectancy without activity limitation the years of life spent in positive health were greater for men than women. Therefore compared to men, women spent a larger number of years and a larger proportion in ill health and these years of ill health were more likely to be years with severe health problems.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in nursing homes.

\* These may not sum to Life Expectancy due to rounding

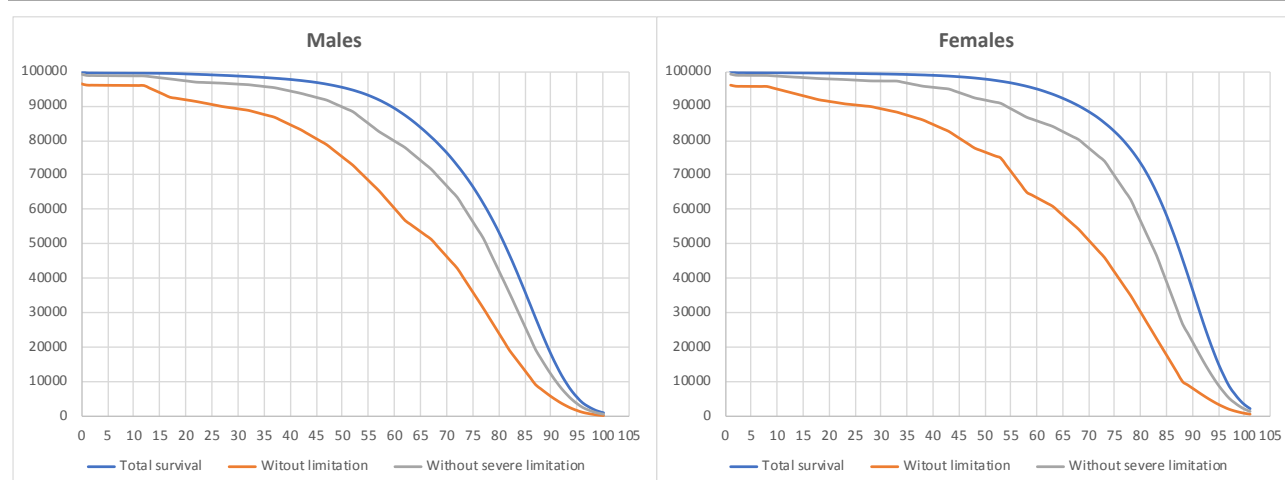
## Publications and reports on health expectancies for Spain

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## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).



# Health Expectancy in Sweden

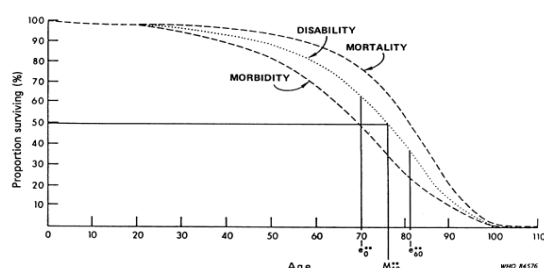
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent in different states: total survival, disability-free survival and survival without 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.  
 $M_{50}^{**}$  is the age to 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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2004 to 2015. The wording of the question has been revised in 2008.
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

## References

Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131  
Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.  
Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.  
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).

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

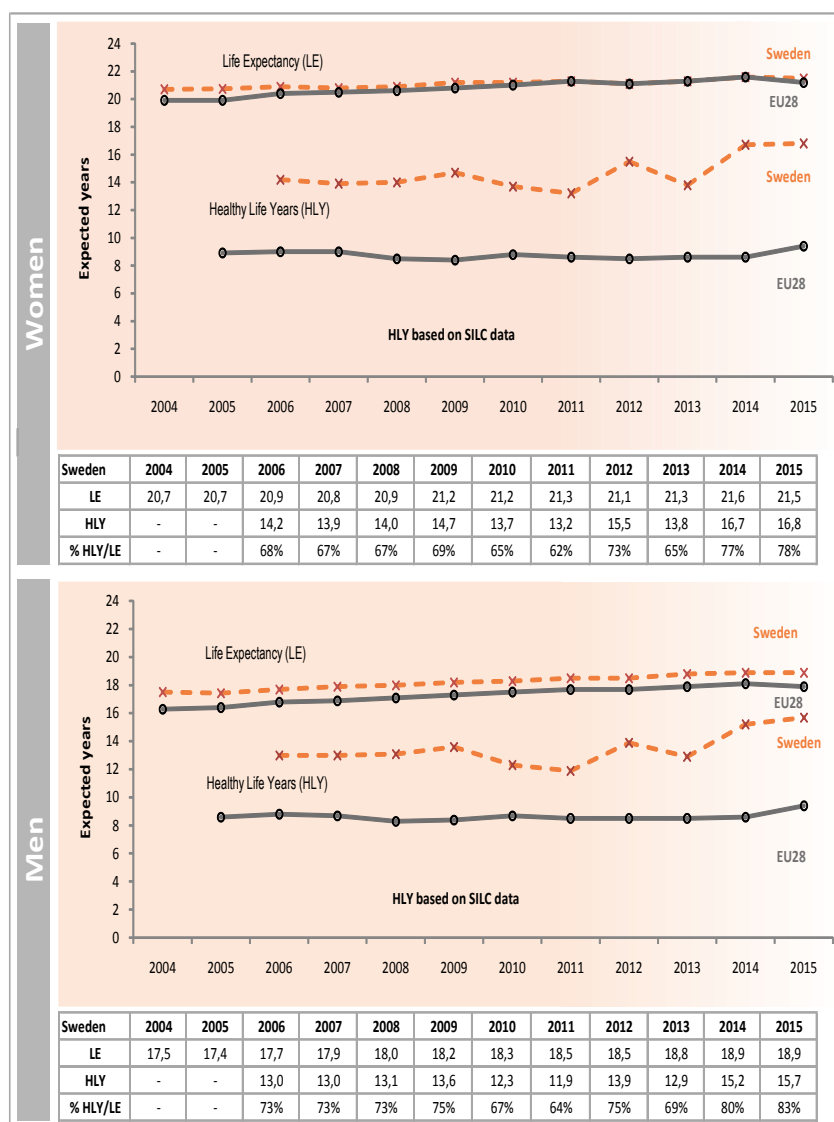


## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Sweden and the European Union (EU28) based on SILC (2004-2015)

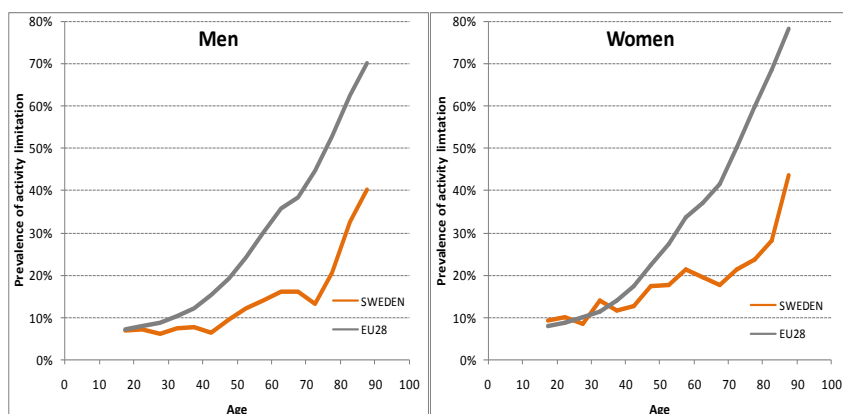
### Key points:

Swedish life expectancy (LE) at age 65 has increased by 0.8 years for women and 1.4 years for men over the period 2004-2015. LE was 0.1 year above the EU28 average (21.2 for women and 17.9 for men) for women and 1.0 year above for men in 2015.

The new HLY series, initiated in 2004 with the SILC data, shows values for Sweden in 2015 being above the EU28 average (9.4 for women and men) by 7.4 and 6.3 years for women and men respectively. In 2015 women and men at age 65 can expect to spend 78% and 83% of their life without *self-reported long-term activity limitations* respectively. The HLY trends should be interpreted with caution. Before 2006 (values not displayed) the wording of the GALI question was not comparable with the later years. The new wording was again changed in 2008. Between 2008 and 2009 HLY strongly increased in Sweden for women and men but decreased in 2010 and 2011. Then HLY slightly increased for both sexes until 2013. Between 2013 and 2014 HLY strongly increased for both sexes and continued to increase in 2015.



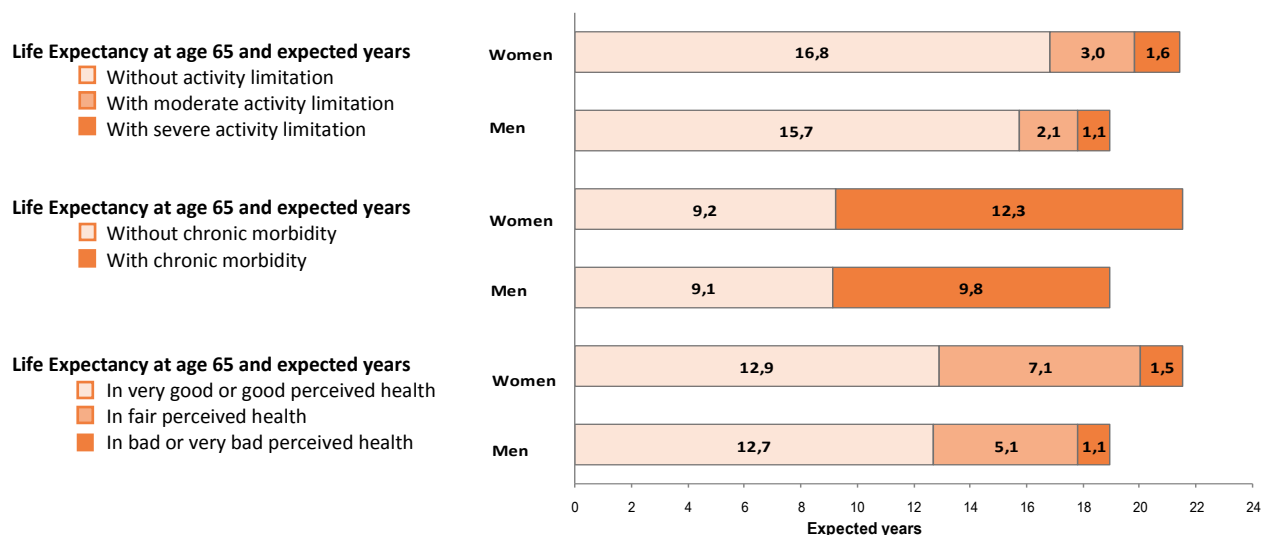
## Prevalence of activity limitation in Sweden and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the 3 years (2013-2015), Sweden tends to display much lower prevalence rate of activity limitation after the age of 30 years for both sexes. Indeed this prevalence reaches only about 45% for men and 40% for women at age 85 and over versus 70% and 75% in the European Union.

These results should be interpreted with caution as samples sizes in the SILC survey vary remarkably; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for Sweden comprised 2980 women and 2879 men aged 16 years and over.

## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for Sweden (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in Sweden was 21.5 years for women and 18.9 years for men.

Based on the SILC 2015, at age 65, women spent 16.8 years (78% of their remaining life) without activity limitation (corresponding to Healthy Life Years (HLY)), 3.0 years (14%) with moderate activity limitation and 1.6 years (7%) with severe activity limitation.\*

Men of the same age spent 15.7 years (83% of their remaining life) without activity limitation compared to 2.1 years (11%) with moderate activity limitation and 1.1 years (6%) with severe activity limitation.\*

Although for the life expectancy without activity limitation and the life expectancy in good perceived health, the years of life spent in positive health were greater for women than men, women spent a slightly larger proportion of their life in ill health.

These results should be interpreted cautiously depending on response rate problems in the SILC survey.

\* These may not sum to Life Expectancy due to rounding

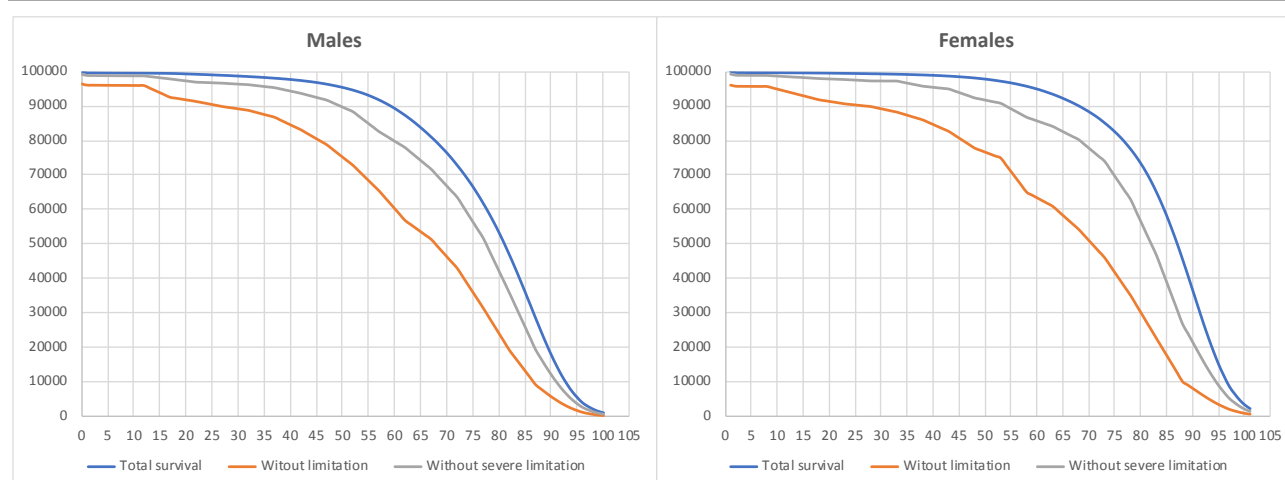
## Publications and reports on health expectancies for Sweden

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## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

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# Health Expectancy in United Kingdom

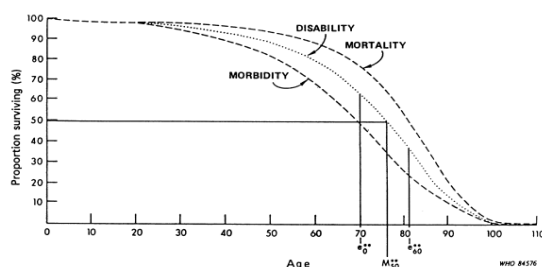
## What is health expectancy?

**H**ealth 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?

**T**he general model of health transitions (WHO, 1984) shows the differences between life spent indifferent states: total survival, disability-free survival and survival without 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



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 and on chronic morbidity.

## How do we compare health expectancies?

**H**ealth 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 (Robine et al., 2003).

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.

**T**o address this, the European Union has decided to include a small set of health expectancies among its European Core Health Indicators (ECHI) to provide summary measures of disability (i.e., activity limitation), chronic morbidity and perceived health. Therefore the Minimum European Health Module (MEHM), composed of 3 general questions covering these dimensions, has been introduced into the Statistics on Income and Living Conditions (SILC) to improve the comparability of health expectancies between countries.\* In addition life expectancy without long term activity limitation, based on the disability question, was selected in 2004 to be one of the structural indicators for assessing the EU strategic goals (Lisbon strategy) under the name of “**Healthy Life Years**” (HLY).

Further details on the MEHM, the European surveys and health expectancy calculation and interpretation can be found on [www.eurohex.eu](http://www.eurohex.eu).

## What is in this report?

**T**his report is produced by the European Health and Life Expectancy Information System (EHLEIS) as part of a country series. In each report we present:

- Life expectancies and Healthy Life Years (HLY) at age 65 for the country of interest and for the overall 28 European Union member states (EU28), using the SILC question on long term health related disability, known as the GALI (Global Activity Limitation Indicator), from 2005 to 2015. The wording of the question has been revised in 2008.
- Prevalence of activity limitation in the country of interest and in the European Union based on the GALI question by sex and age group;
- Health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2015;
- Estimation of the general model of health transition for the European Union in 2015

## References

- Jagger C., Gillies C., Moscone F., Cambois E., Van Oyen H., Nusselder W., Robine J.-M., EHLEIS Team. Inequalities in healthy life years in the 25 countries of the European Union in 2005: a cross-national meta-regression analysis. *The Lancet*. 2008;372(9656) 2124-2131 Robine J.-M., Jagger C., Mathers C.D., Crimmins E.M., Suzman R.M., Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.
- Sullivan D.F. *A single index of mortality and morbidity*. HSMHA Health Reports 1971;86:347-354.
- 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)

\* Before the revision of 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

## Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for United Kingdom and the European Union (EU28) based on SILC (2005-2015)

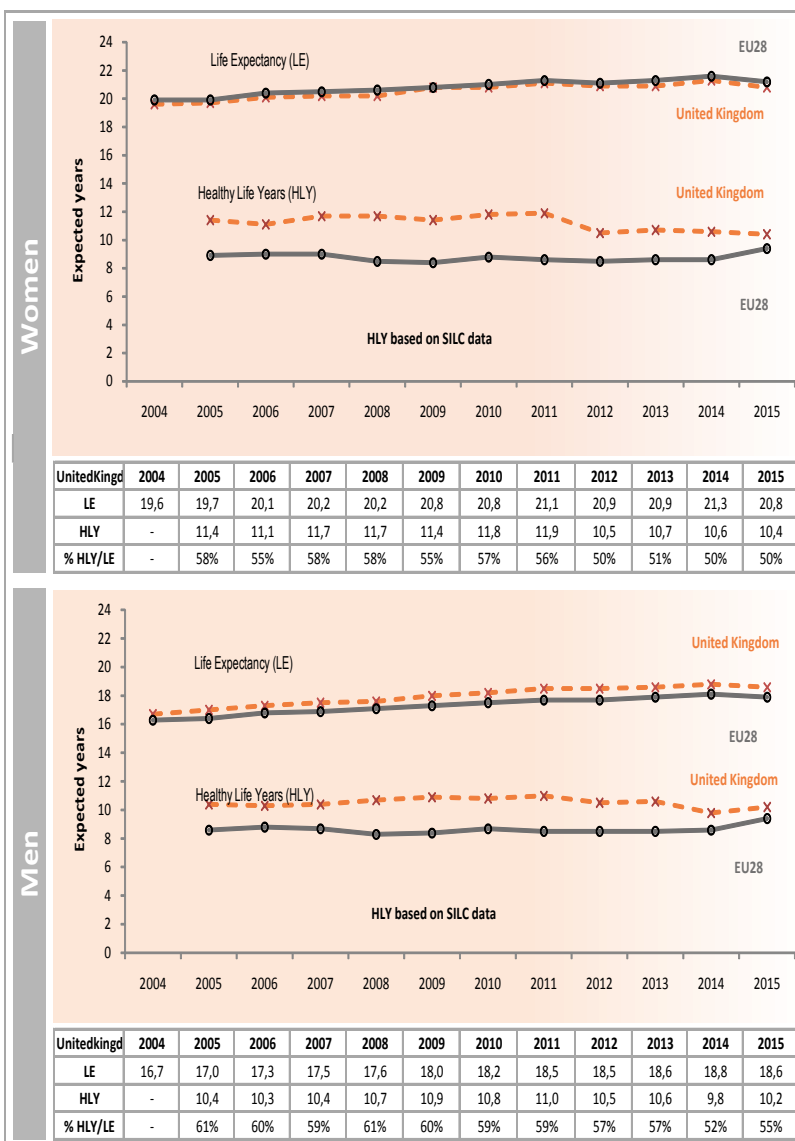
### Key points:

UK life expectancy (LE) at age 65 has increased by 1.2 years for women and 1.9 years for men over the period 2004-2015. In 2015 LE was above the EU28 average of 17.9 for men and slightly below the EU28 average of 21.2 for women. LE decreased slightly in 2015.

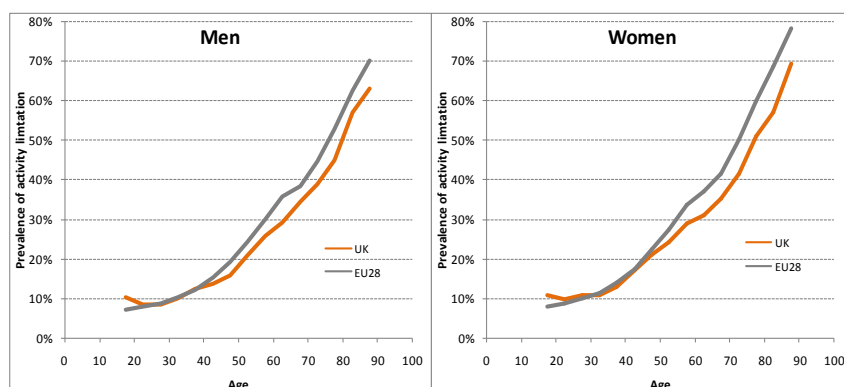
The new HLY series, initiated in 2005 with the SILC data, shows values for the UK being in 2015 above the EU28 average (9.4 for women and men) by 1.0 year for women and 0.8 year for men. Women and men at age 65 can expect to spend 50% and 55% of their life without *self-reported long-term activity limitations* respectively. HLY for men in the UK grew by 0.6 years between 2005 reaching 11.0 years in 2011 before falling back to 9.8 years in 2014. For women HLY was highest in 2011 at 11.9 years, but the pattern to then was irregular, fluctuating between 11.1 and 11.8 years. HLY declined markedly by 1.4 years in 2012, with small fluctuations to 2014 and 2015. The wording of the GALI question was not revised in UK in 2008, but the data source and questions did change in 2012; the survey source changed from the General Lifestyle Survey to the Family Resources Survey from April 2012. The EU-SILC data for 2012 was based only on data collected between April 2012 and September 2012 and therefore the available sample for the UK was reduced compared with previous years. The revised data items for activity limitation measurement changed from April 2012, using different responses categories, time periods and terminology. These differences in combination are likely reasons for the abrupt reduction in HLY observed in 2012 and 2013. FRS collects data on benefits, likely to affect reporting of activity limitation.

Question changes can be seen at:

[http://www.eurohex.eu/pdf/Reports\\_2014/2014\\_TR4%206\\_SILC%20questions\\_Backtranslation.pdf](http://www.eurohex.eu/pdf/Reports_2014/2014_TR4%206_SILC%20questions_Backtranslation.pdf)



## Prevalence of activity limitation in United Kingdom and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean2013-2015)

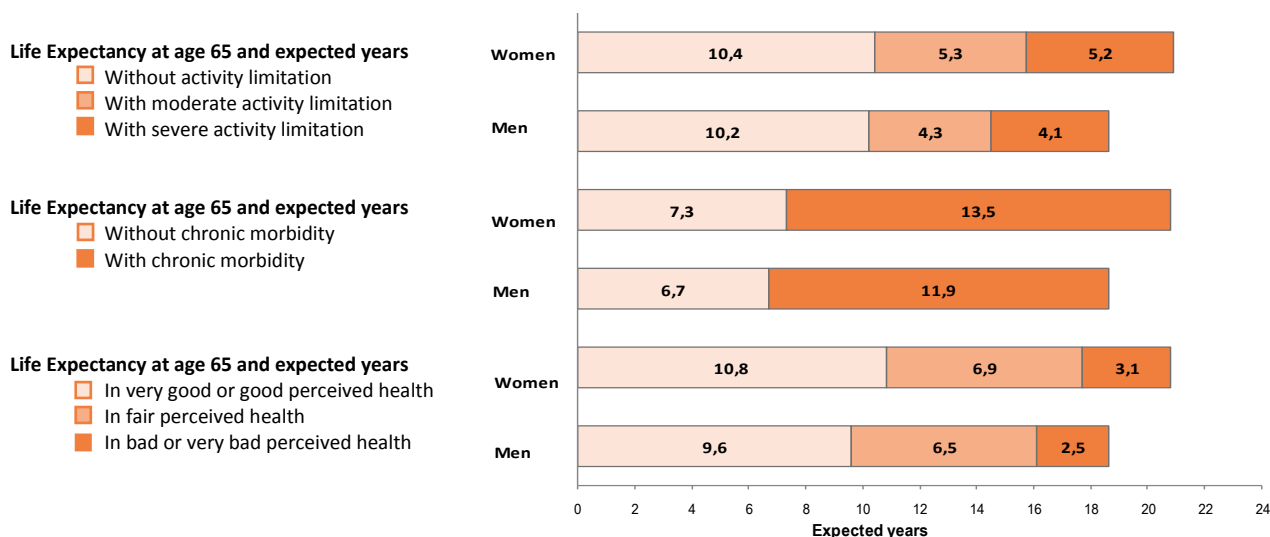


Reports of limitation in usual activities strongly increase with age in the European Union and women systematically report slightly more activity limitation than men. Compared to the mean trajectory by age observed in the European Union in the years 2013-2015, United Kingdom tends to display a lower prevalence rate of activity limitation after the age of 40 years for men and women, remaining lower at old age.

These results should be interpreted with caution as samples sizes in the SILC survey vary markedly; for instance in 2015 they ranged from 5859 in Sweden to 36602 in Italy. In 2015, the sample size for United Kingdom comprised 8789 women and 7932 men aged 16 years and over.



## Life and health expectancies at age 65 based on activity limitation (Healthy Life Years), chronic morbidity and perceived health for United Kingdom (Health data from SILC 2015)



### Key points:

In 2015, LE at age 65 in United Kingdom was 20.8 years for women and 18.6 years for men.

Based on the SILC 2015 at age 65, women spent 10.4 years (50% of their remaining life) without activity limitation (corresponding to Healthy Life Years, HLY), 5.3 years (25%) with moderate and 5.2 years (25%) with severe activity limitation.\*

Men of the same age spent 10.2 years (55% of their remaining life) without activity limitation, 4.3 years (23%) with moderate and 4.1 years (22%) with severe activity limitation.\*

For all health expectancies the years of life spent in positive health were greater for women than men; however, because women have longer life expectancies than men, they experience a slightly higher proportion of their lives in unfavourable health states than men.

These results should be interpreted cautiously given the lack of the institutional population, such as people living in residential and nursing homes, which constitute a higher proportion of those aged 65+ years.

\*These may not sum to Life Expectancy due to rounding

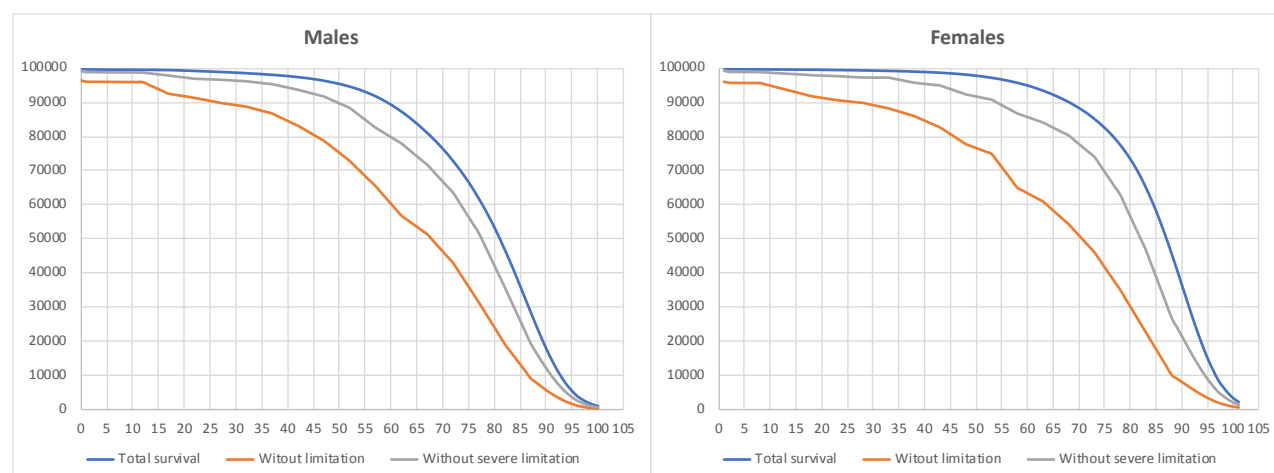
## Publications and reports on health expectancies for United Kingdom

- ONS (2016) [Health State Life Expectancies, UK 2013-15](http://www.ons.gov.uk/ons/rel/disability-and-health-measurement/health-expectancies-at-birth-by-middle-layer-super-output-areas--england/2009-2013/index.html).
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- ONS (2014) [Disability-Free Life Expectancy by Upper Tier Local Authority: England 2009-11 and comparison with 2006-08](http://www.ons.gov.uk/ons/rel/disability-and-health-measurement/health-expectancies-at-birth-by-middle-layer-super-output-areas--england/2009-2013/index.html)
- ONS (2014) [Inequality in Healthy Life Expectancy at Birth by National Deciles of Area Deprivation: England, 2009-11](http://www.ons.gov.uk/ons/rel/disability-and-health-measurement/health-expectancies-at-birth-by-middle-layer-super-output-areas--england/2009-2013/index.html)
- Sub-national health expectancies summary podcast. Available on the ONS website at: <http://www.ons.gov.uk/ons/rel/disability-and-health-measurement/sub-national-health-expectancies/subnational-health-expectancies-summary-podcast.html>
- UK question changes introduced in SILC in 2012 can be seen at <http://www.ons.gov.uk/ons/guide-method/harmonisation/primary-set-of-harmonised-concepts-and-questions/long-lasting-health-conditions-and-illnesses--impairments-and-disability.pdf>
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## Estimation of the general model of health transition for the European Union in 2015

Thanks to the vital and EU-SILC statistics collected by Eurostat from the Member States, we can estimate the general model of health transition proposed by the World Health Organization more than 30 years ago (see the introduction of this country report). In our application of this model, we distinguished three different survival curves: the total survival depending only of the mortality conditions of 2015, the survival without activity limitations depending both of the mortality and disability conditions observed in 2015, and the survival without severe limitations. The surfaces under the three curves represent, respectively, the total life expectancy, the life expectancy without activity limitations - known as **Healthy Life years (HLY)** -, and the life expectancy without severe activity limitations. The area between the red and blue line and the grey and blue line are respectively the life expectancy with activity limitations and the life expectancy with severe activity limitations.

### Total survival, survival without activity limitations and survival without severe limitations, under the health and mortality conditions of 2015 in EU28, by sex



Source: EHLEIS, [www.eurohex.eu](http://www.eurohex.eu)

### Key points:

In 2015, total life expectancy (LE) at birth reached 77.9 years for men and 83.3 years for women in the European Union (EU28).

Life expectancy free of activity limitations, known as the Healthy Life Years (HLY), reached 62.6 years for men and 63.3 years for women in EU28 for the same calendar year.

Life expectancy free of severe limitations reached 72.9 years for men and 76.4 years for women.

Gaps in favour of females decrease from 5.4 years for the total LE to 3.5 years for the life expectancy without severe limitations and 0.7 years for the Healthy Life Years (HLY).

Men experienced in 2015 a higher proportion of their life expectancy free of activity limitations than women, 80.4% in men versus 76.0% in women.

### BRIDGE-Health (Bridging Information and Data Generation for Evidence-based Health Policy and Research)

The **European Health and Life Expectancy Information System (EHLEIS)** is part of **BRIDGE-Health** which aims to prepare the transition towards a sustainable and integrated EU health information system within the third EU Health Program, 2014-2020 ([www.bridge-health.eu](http://www.bridge-health.eu)).





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