

Health Expectancy in Luxembourg

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 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.

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 dimension 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.

What is in this report?

This 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 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.

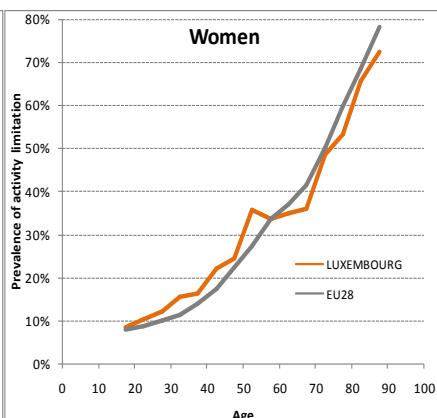
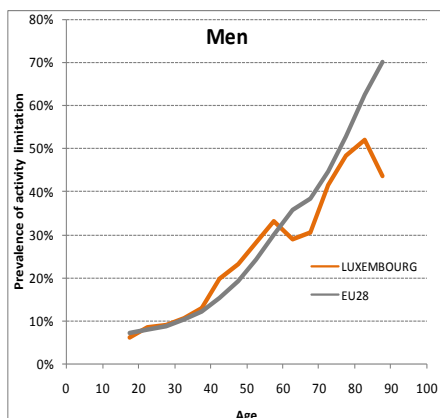
The HLY series, initiated in 2004 with the SILC data, shows that in 2015 women and men at age 65 can expect to spend 40% and 57% of their life without *self-reported long-term activity limitations* respectively.

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.



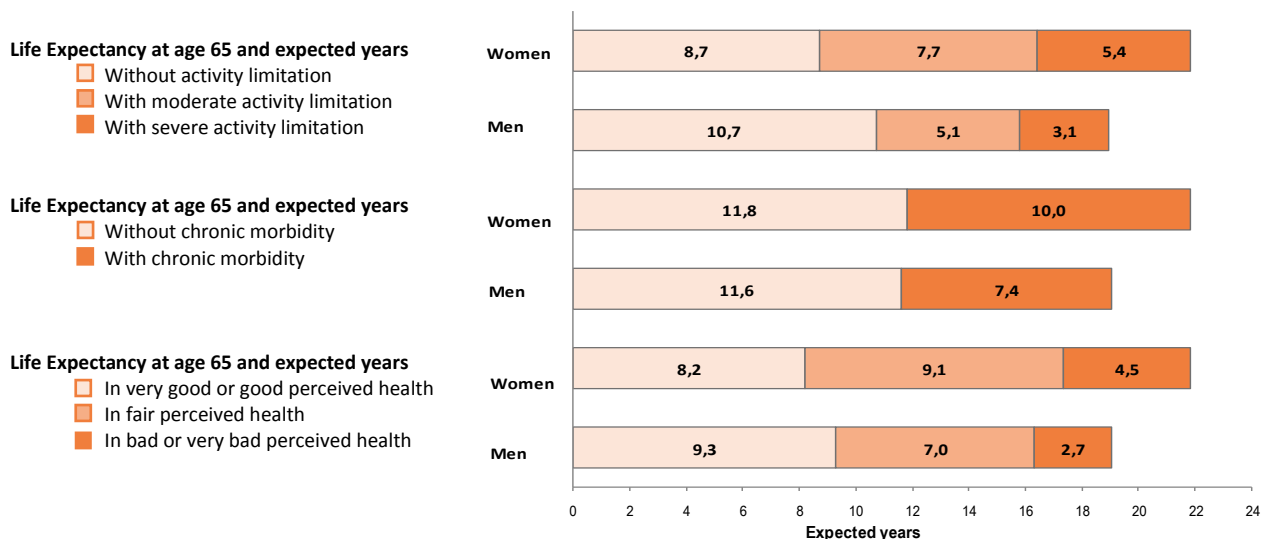
Prevalence of activity limitation in Luxembourg and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



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.

* These may not sum to Life Expectancy due to rounding

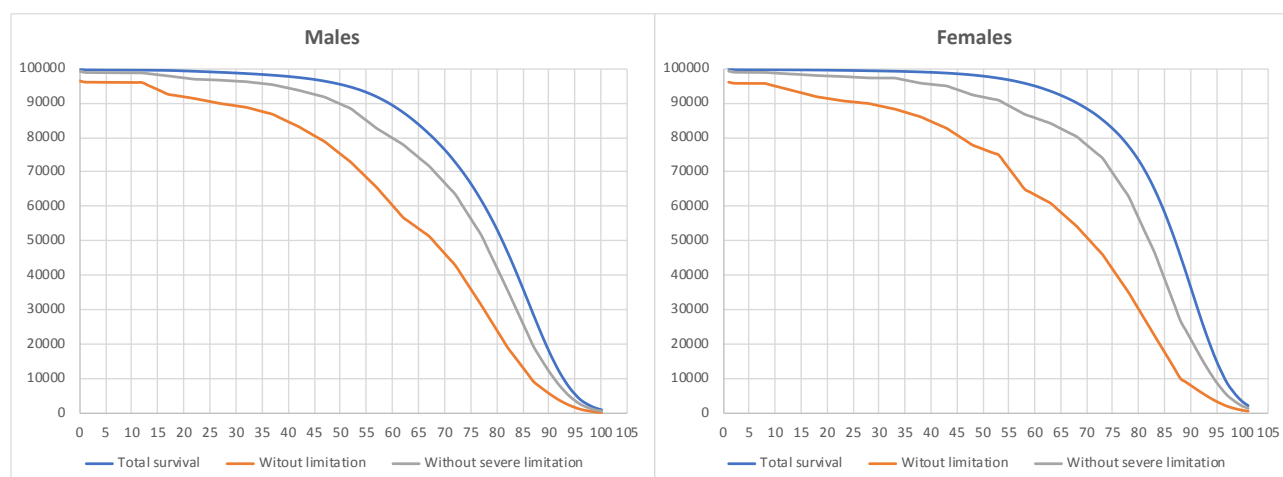
Publications and reports on health expectancies for Luxembourg

- 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>
- Peltier, F. Regards sur la mortalité, STATEC, Regards n° 19-2013, <http://www.statistiques.public.lu/catalogue-publications/regards/2013/PDF-19-2013.pdf>
- Zahlen P. La perception de la santé. STATEC, Regards n°03-2013. <http://www.statistiques.public.lu/fr/publications/series/regards/2013/03-13-sante/index.html>
- Osier G. Le nouvel indicateur communautaire d'espérance de vie en bonne santé. STATEC, Regards n°17-2012. <http://www.statistiques.public.lu/fr/publications/series/regards/2012/17-12-esperance-vie/index.html>
- Langers J., Peltier F., Zahlen P., Thill G., Schockmel M. Projections socio-économiques. Bulletin du STATEC n°5-2010.
- Peltier, F. La mortalité au début du 21^e siècle au Luxembourg. Bulletin du STATEC n° 7-2009, <http://www.statistiques.public.lu/fr/publications/series/bulletin-statec/2009/07-09-mortalite/index.html>
- Robine J.-M. et al. Healthy life years in the European Union: facts and figures 2005. Ed. European Commission. 2008
- 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.
- 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

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

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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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).

