

Health Expectancy in Germany

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 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?

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 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.

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 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).

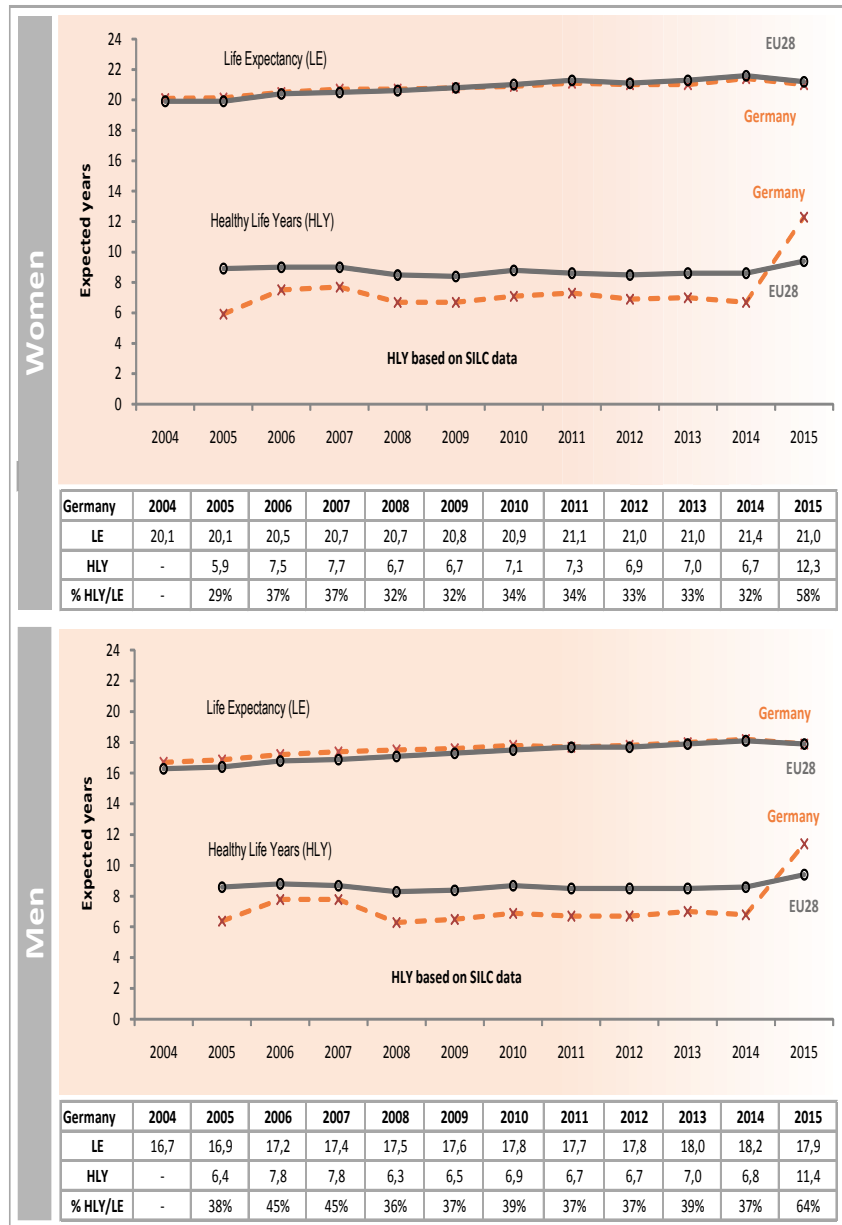
* Before the revision of 2008, the translations of the module used in some countries were not optimal (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality). This revision is being evaluated.

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

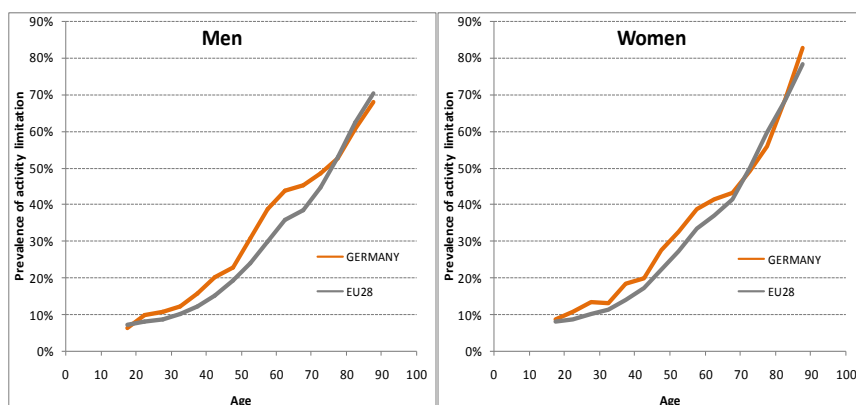
Key points:

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.



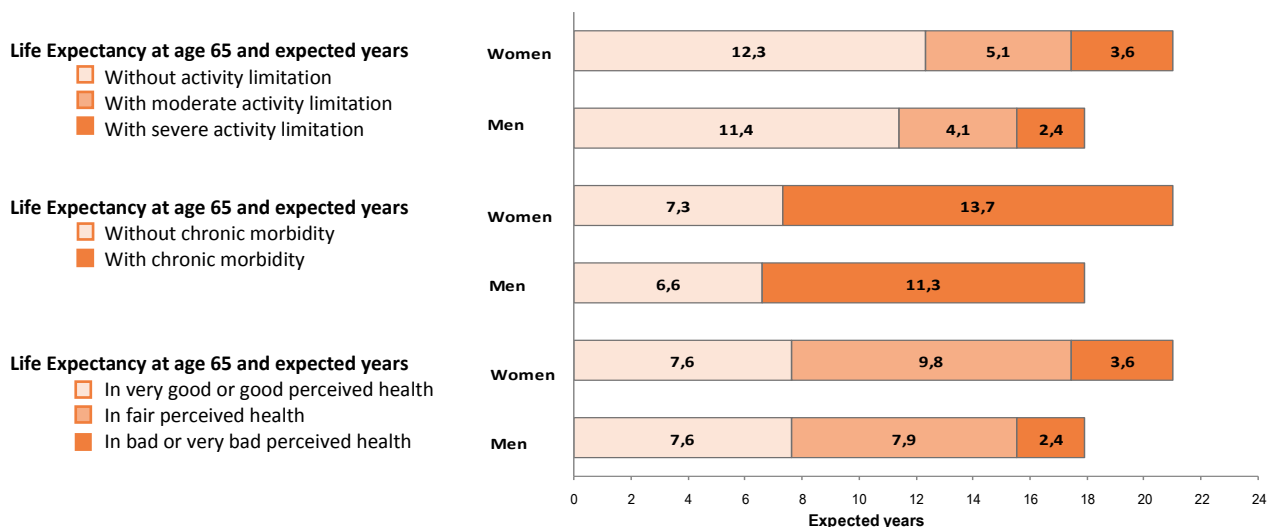
Prevalence of activity limitation in Germany and in the European Union (EU28) based on the GALI question, by sex and age group (SILC, Mean 2013-2015)



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

- Von der Lippe E., Fehr A., Lange C. Limitations to usual activities due to health problems in Germany. *Journal of Health Monitoring*. 2017; 2(3):84-90.
- JD Finger, AL Kratz, J Thelen. Disentangling the GALLI-Question in German – from concepts to practice. *European Journal of Public Health*, Volume 24, Issue suppl_2, 1 October 2014, cku161-093, <https://doi.org/10.1093/eurpub/cku161.093>
- Kroh M, Neiss H, Kroll L, Lampert T. Menschen mit hohem Einkommen leben länger. *Wirtschaft. Politik. Wissenschaft, DIW Wochenbericht* 38 (2012).
- Doblhammer G., Kreft D. Länger leben, länger leiden? Trends in der Lebenserwartung und Gesundheit, *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz* (August 2011), 54 (8), pg. 907-914.
- Thelen J., Kroll L.E., Ziese T. Qualitätsaspekte europäischer Gesundheitsindikatoren am Beispiel des Indikators „Gesunde Lebensjahre“. In: *Gesellschaft für Versicherungswissenschaft und -gestaltung (GVG)[Hrsg.] EU-Gesundheitspolitik im nicht-harmonisierten Bereich. Aktuelle Entwicklungen der Offenen Methode der Koordinierung*. Nanos Verlag, Bonn. S.179-199, 2010
- Pinheiro P., Krämer A. Calculation of health expectancies with official data for North Rhine Westphalia, a federal state of Germany, 1999-2005. *Popul Health Metr*. 2009;7(4).
- Kroll L.E, Lampert T., Lange C, Ziese T. *Entwicklung und Einflussgrößen der gesunden Lebenserwartung / Trends*

and Determinants of Healthy Life Expectancy: Veröffentlichungsreihe der Forschungsgruppe Public Health, Schwerpunkt Bildung, Arbeit und Lebenschancen. Wissenschaftszentrum Berlin für Sozialforschung (WZB) 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.

- 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.

- Unger R. Trends in active life expectancy in Germany between 1984 and 2003 - A cohort analysis with different health indicators. *Journal of Public Health*. 2006;14(3):155-163.

- Lange C., Thelen J., Wirz J. Lebenserwartung bei Gesundheit / [Healthy Life Expectancy]. *Gesundheitswesen*. 2006; 68(7: [Abstracts of the] 42th Annual Meeting of the German Society for Social Medicine and Prevention):77.

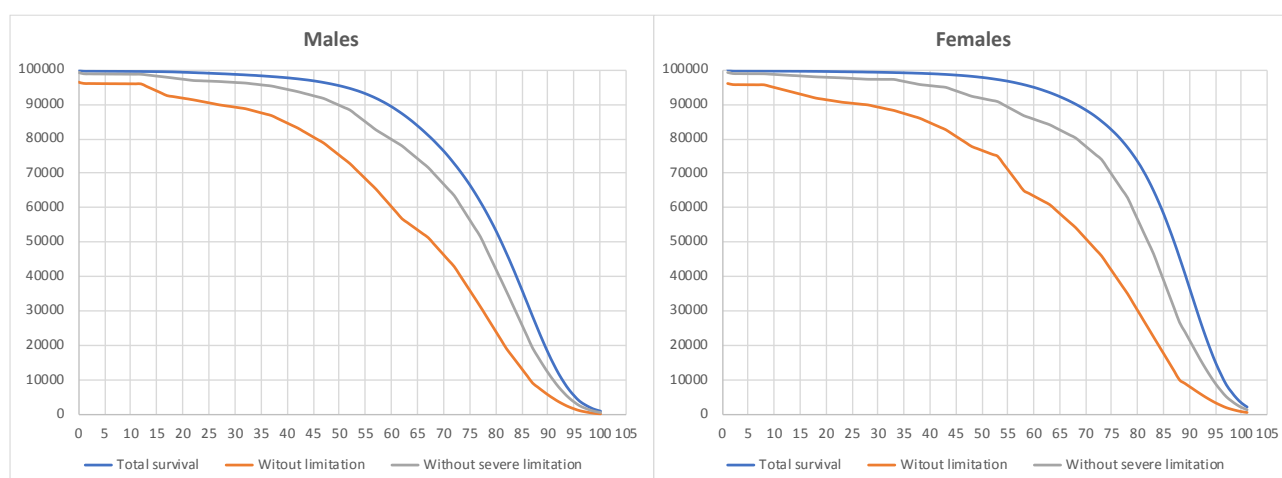
- Khoman E., Weale M. *Healthy life expectancy in the EU Member States: ENEPRI Research report n°33 - AHEAD WP5*. sl: ENEPRI; 2006.

- 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

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).

