

HEALTH EXPECTANCY IN BULGARIA

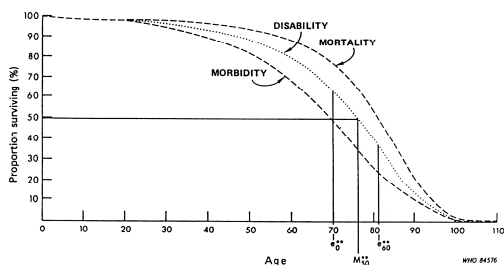
What is health expectancy?

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_{60}^{**} and e_{66}^{**} 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 Community Health Indicators (ECHI) to provide synthetic measures of disability, 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.ehemu.eu.

What is in this report?

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

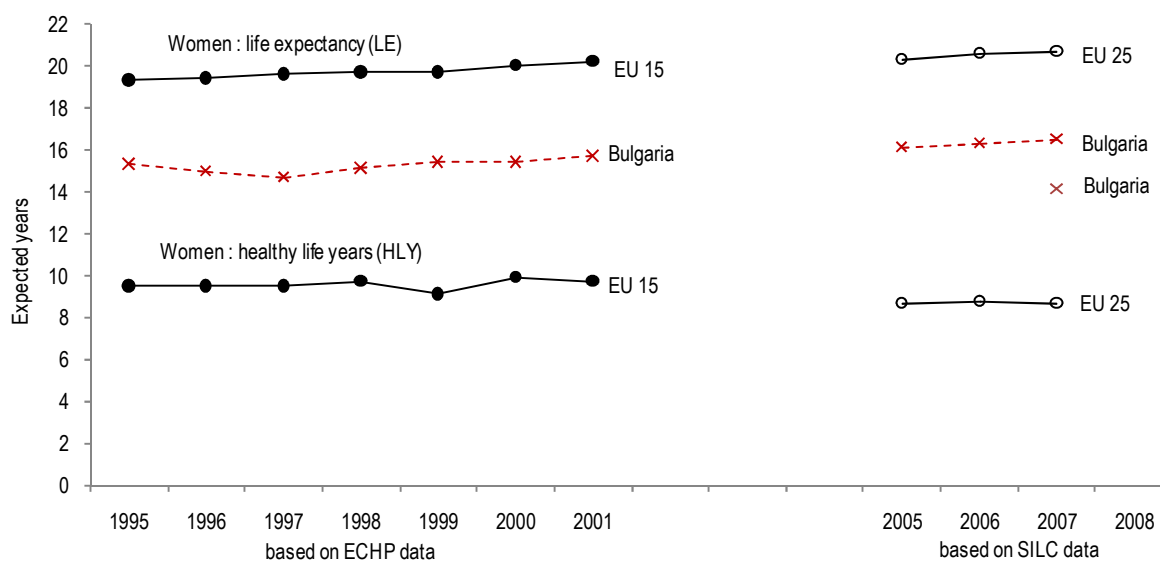
- Life expectancies** and health expectancies at age 65 based on activity limitation (HLY) for the country of interest and for the overall 25 European Union member states (EU25), using the SILC question on long term activity limitation for 2005, 2006 and 2007. As the SILC has been only recently initiated, to document trends we provide previous HLY series based on the disability question of the 1995-2001 European Community Household Panel (ECHP)
- health expectancies based on the two additional dimensions of health (chronic morbidity and self-perceived health) for the country of interest, based on SILC 2007
- a global analysis of health expectancies of European countries, based on the SILC 2007

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)61594-9) 2124-2131 (doi:10.1016/S0140-6736(08)61594-9)
- Robine JM, Jagger C, Mathers CD, Crimmins EM, Suzman RM, Eds. *Determining health expectancies*. Chichester UK: Wiley, 2003.
- Sullivan DF (1971) A single index of mortality and morbidity. *HSMHA Health Reports* **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).

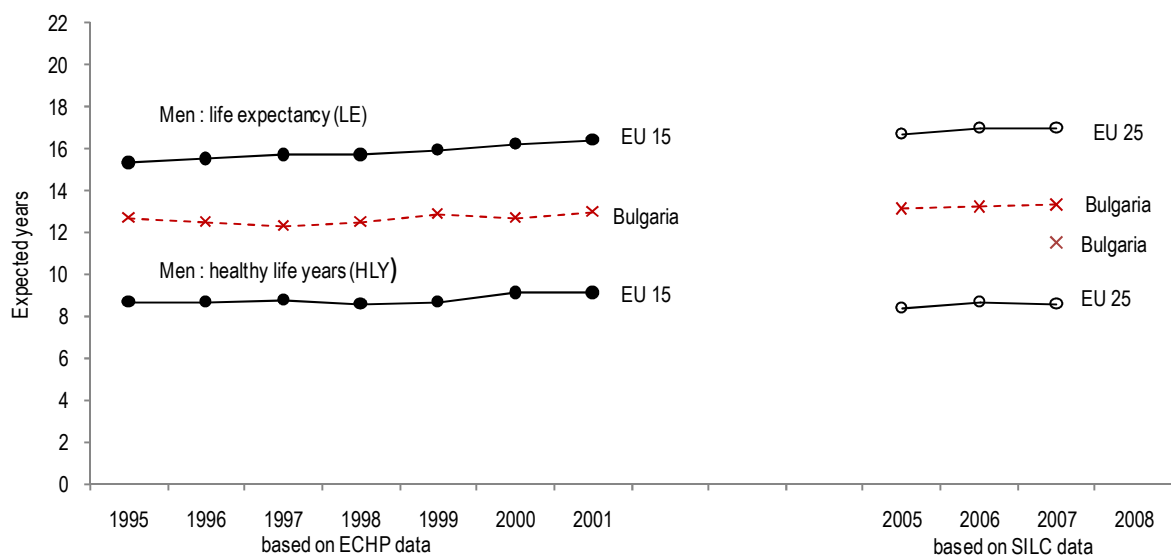
* Nevertheless, before 2008, the translations of the module used in some countries were not optimum (See Eurostat-EU Task Force on Health Expectancies common statement about the SILC data quality); ** Computed with the Eurostat method.

Life expectancy (LE) and Healthy Life Years (HLY) at age 65 for Bulgaria and the European Union (EU15 and EU25) based on ECHP (1995-2001) and SILC (2005-2007)



| Bulgaria | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 ^P | 2008 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|-------------------|------|
| Women : LE | 15.3 | 15.0 | 14.7 | 15.1 | 15.4 | 15.4 | 15.7 | | | | 16.1 | 16.3 | 16.5 | |
| Women : HLY | | | | | | | | | | | | | 14.1 | |
| % HLY/LE | | | | | | | | | | | | | 85% | |

^P = provisional values



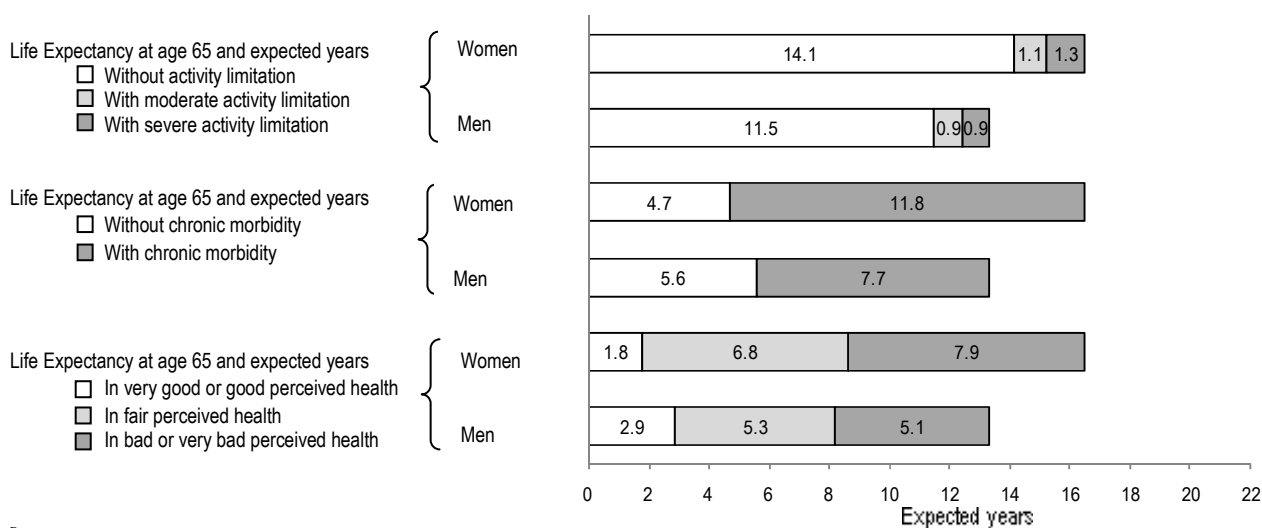
| Bulgaria | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 ^P | 2008 |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|-------------------|------|
| Men : LE | 12.7 | 12.5 | 12.3 | 12.5 | 12.9 | 12.7 | 13.0 | | | | 13.1 | 13.2 | 13.3 | |
| Men : HLY | | | | | | | | | | | | | 11.5 | |
| % HLY/LE | | | | | | | | | | | | | 86% | |

^P = provisional values

Key points:

- Bulgarian life expectancy (LE) at age 65 has increased by 1.8 years for women and 1.0 years for men over the 1997-2007 period : LE for men and women between 1995-2001 remained lower than the EU15 average. By 2007 LE for men and women was below the EU25 average.
- Because Bulgaria joined the European Union in 2007, health expectancy based on activity limitation (HLY) is not available before 2007.
- The new HLY series, initiated in 2005 with the SILC data, shows that in 2007 women and men at age 65 can expect to spend 85% and 86% of their life without *self-reported long-term activity limitations* respectively. The HLY values for Bulgaria are 5.4 years above the EU25 average for women and 2.9 years above for men in 2007. These unexpected results should be interpreted with great caution as the wording of the SILC questions is clearly different in Bulgaria compared to other EU countries.

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 2007^P)



^P = provisional values

Key points:

- In 2007, LE at age 65 in Bulgaria was 16.5 years for women and 13.3 years for men.
- Based on the SILC 2007 at age 65, women spent 85% of their remaining life (14.1 years) without activity limitation (corresponding to Healthy Life Years (HLY)), 7% (1.1 years) with moderate activity limitation and 8% (1.3 years) with severe activity limitation.*
- Men of the same age spent 86% (11.5 years) of remaining life without activity limitation compared to 7% (0.9 year) with moderate activity limitation and 7% (0.9 year) with severe activity limitation.*
- The prevalence of reported activity limitation appears to be extremely low in Bulgaria and is out of the range of the values observed in other European countries. The prevalence of chronic morbidity and of poor perceived health is more in line with other European values.
- Although the total years lived by men were less than those for women, the number of years lived in very good or good perceived health and the years lived without chronic morbidity were 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 and in some countries the small sample size. The sample size for Bulgaria comprised 1377 women and 970 men aged 65+ years in 2007. However these health data were collected for the first time in Bulgaria in 2007.

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

Published results and other reports of health expectancies for Bulgaria

Mutafova M.N., van de Water H.P.A., Maleshkov C., Tonkova S., Perenboom R.J.M., Boshuizen H. *Attempt for assessment the mental health of the population in Bulgaria (Session 9-I)*. In: Egidi V, editor. *Towards an integrated system of indicators to assess the health status of the population*. Rome: ISTAT; 1999. p. 323-328.

Mutafova M.N., Van de Water H.P.A., Perenboom R.J.M., Boshuizen H.C. Health expectancy calculations as a new approach to studying population health in Bulgaria. *Bull Who*. 1997; 75(2): 147-153.

Mutafova M.N., Van de Water H.P.A., Perenboom R.J.M., Boshuizen H.C., Maleshkov C. Occupational handicap-free life expectancy in Bulgaria 1976-1992 based on the data of the medical expert commissions. *Soc Sci Med*. 1996; 43(4):537-542

Mutafova M.N., 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.

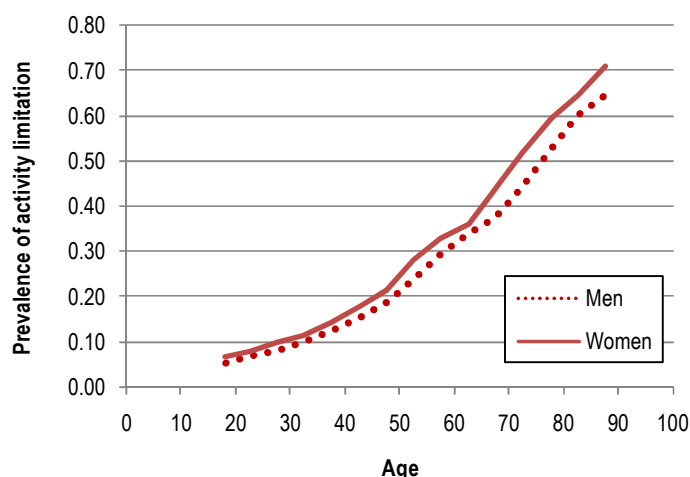
Mutafova M.N. *Disability-free life expectancy in Bulgaria*. In: Robine J-M, Mathers CD, Bone MR, Romieu I, editors. *Calculation of health expectancies: harmonization, consensus achieved and future perspectives / Calcul des espérances de vie en santé : harmonisation, acquis et perspectives*. Montrouge: John Libbey Eurotext; 1993. p. 323-329.

The prevalence of activity limitation in Europe in 2007 and change over time

Since 2005, SILC (Statistics on Income and Living Conditions) has allowed activity limitation to be monitored at the EU25 level thanks to the Global Activity Limitation Indicator (GALI), a key component of the Healthy Life Years (HLY).

After three years of monitoring, three main points can be made which confirm and generalize previous studies made in specific EU countries (Figure and Table below).

Prevalence of activity limitation in Europe in 2007, by age group and gender, SILC EU25, 2007



1. Limitation in usual activities strongly increases with age, from a few percent of the population below age 20 to more than 50% after age 75.

2. Women systematically report more activity limitation than men. It is noteworthy that this difference declines with age from about 25% for the youngest (0.07 vs 0.05) to about 10% for the most elderly (0.71 vs 0.65)

3. The prevalence of activity limitation in the EU25 appears to have remained stable over time as demonstrated by the standardized prevalence rate at age 65 and over (see Table).

Standardized prevalence of activity limitation at age 65 years and over, SILC EU25, 2005-2007ⁿ

From a methodological point of view, this picture clearly suggests that the irregularities observed for some countries, by age or over time, might be fluctuations due to smaller sample size. At the EU level, SILC provides sound information on disability and more specifically on limitation in usual activities.

| | 2005 | 2006 | 2007 |
|-------|------|------|------|
| Men | 0.45 | 0.44 | 0.44 |
| Women | 0.50 | 0.50 | 0.50 |

ⁿStandardized to the 2007 EU Population

From a public health point of view, these results suggest that the current increase in life expectancy in Europe is not accompanied by an increase in the prevalence of activity limitation.

About EHEMU

The European Health Expectancy Monitoring Unit (EHEMU) and its current project European Health and Life Expectancy Information System (EHLEIS) are funded by the European Public Health Programme (2004-2008) and is a collaboration between: the French national institute on health and medical research (INSERM) and CRLC (Montpellier, France), the University of Leicester (UK), the Scientific Institute of Public Health (ISP Belgium), the French National Institute of Demography (INED), University Charles (Czech Republic), Erasmus University Medical centre (The Netherlands) and University of Rostock (Germany). EHEMU aims to provide a central facility for the co-ordinated analysis, interpretation and dissemination of life and health expectancies to add the quality dimension to the quantity of life lived by the European populations. Further details about EHEMU can be found on the websites: www.ehemu.eu and www.healthy-life-years.eu