

Interpreting Health Expectancies



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Most countries in the world are ageing rapidly with longer and longer life expectancies. Whether these extra years are healthy or with increasing disability and dependence is important for governments, health services and individuals. Health expectancies were first developed to answer this question. The European Health Expectancy Monitoring Unit (EHEMU) has developed this guide to aid the understanding and interpreting health expectancies and to accompany the more technical guide on how to calculate health expectancies¹.

What are health expectancies?

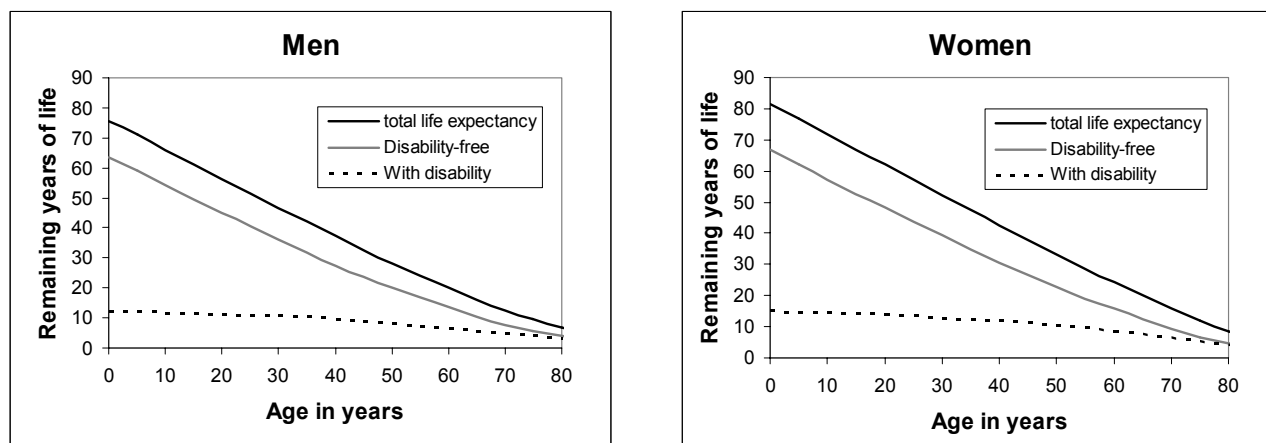
Health expectancies are a natural extension of the well known indicators of life expectancies. Life expectancies measure the number of remaining years to be lived at a particular age, considering the current mortality level of the country. For example in 2004 the female life expectancy at birth in Belgium was 81.4 years, so a baby girl born in 2004 could expect to live to age 81 years, assuming the conditions of 2004 prevailed over her whole life. By considering not only mortality but also ill-health at particular ages we can divide this remaining number of years into years spent in good and bad health – these are then health expectancies. Health expectancies add a quality dimension to the quantity of life lived.

As there are many dimensions of health, there are many health expectancies. The proposed new EU structural indicator **Healthy Life Years (HLY)** is based on limitations in daily activities and is therefore a **disability-free life expectancy**, one of the most common health expectancies reported. Others include **healthy life expectancy** (based on the self-rated health question: ‘How is your health in general?’) and life expectancy free of specific diseases, for instance **dementia-free life expectancy**.

Example 1

A common way to illustrate health expectancies is shown in Figure 1 where we have plotted life expectancy (LE) and disability-free life expectancy (DFLE) for Belgium men and women in 2004. The graphs show how life expectancy is divided into years spent with and without disability at each age. In 2004 Belgium females had a DFLE at birth of 66.6 years and thus 82% (66.6 years out of a total LE of 81.4 years) were spent free of disability. For males in 2004 the LE at birth was 75.4 years of which 63.4 years, or 84% would be free of disability. Women almost universally live longer than men but spend a greater number of absolute years and a greater proportion of their life with disability and ill-health.

Figure 1: Life expectancy and Disability-free life expectancy for Belgium males and females in 2004



¹ Both guides are available on the EHEMU website www.chemu.eu

What does health expectancy add?

We often measure the amount of ill-health or disability in a population by the prevalence of disability – the proportion of people who have disability. Since our populations are getting older and older, with an increasing number of men and women in the oldest age groups) and since older people are more likely to have disability, the overall prevalence of disability in a population may increase without individuals actually being more at risk of disability than before. Health expectancies take into account both the changes in living with a disability and the changes in mortality which are responsible for the increase in life expectancy. Therefore, an improving health situation at each age in an ageing population leads to an increase in the part of life expectancy free of disability, in spite of an increase in the overall prevalence of disability due to more and more people being at risk. Health expectancy is therefore a potent tool to identify the interaction between health, ill-health and mortality.

Why measure health expectancy?

Monitoring health expectancies helps countries evaluate their population's health to see whether longer life is being spent in good health (compression of morbidity) or ill-health (expansion of morbidity). Health expectancies are used to highlight health inequalities within and between countries, to target resources for health promotion, to evaluate the impact of health policies and they are increasingly used to inform the long-term planning for health, social and fiscal policy. For example, in the UK the Turner Commission's pensions report suggested that the state pension age should be raised in line with increasing life expectancy but others suggested that healthy life expectancy was a better indicator as it is health rather than age alone that determines an individual's capacity to work.

Interpreting trends in health expectancy

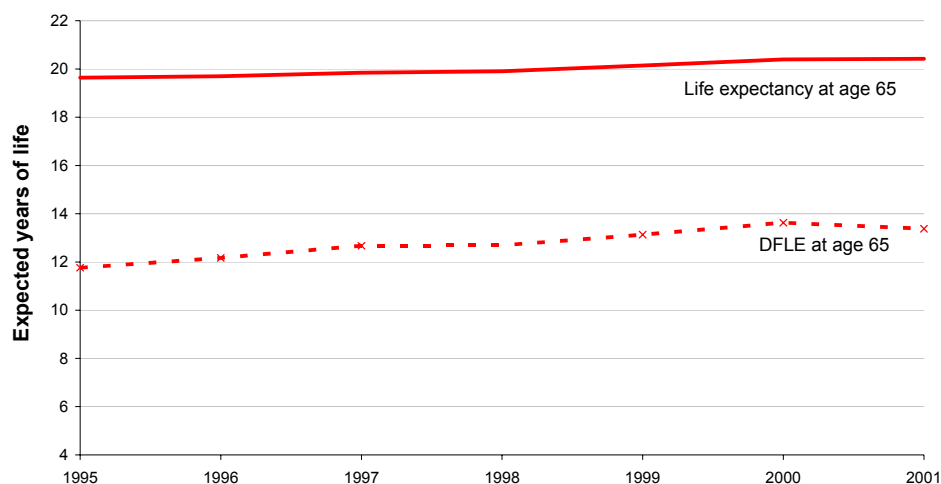
We have already noted that health expectancies are often used to monitor the health of the population in relation to increasing longevity. There are two main scenarios for the relationship between health expectancy (HE) and life expectancy (LE) that are of interest:

- Compression of morbidity where HE is increasing more quickly than LE and the proportion of life spent healthy is increasing;
- Expansion of morbidity where HE is not keeping pace with LE and the proportion of life spent healthy is decreasing.

Example 2

Figure 2 shows the life expectancy and disability-free life expectancy (DFLE) at age 65 for Italian women using data from the European Community Household Panel 1995 – 2001.

Figure 2: Life expectancy and Disability-Free Life Expectancy (DFLE) at age 65 for Italian women 1995-2001 (Source: European Community Household Panel)



Between 1995 and 2001 female life expectancy rose by around 9 months from 19.6 years to 20.4 years. DFLE on the other hand rose by over one and a half years, from 11.8 years to 13.4. In 1995 60% of remaining life at age 65 was spent without disability but by 2001 this had risen to 65%. As DFLE is rising more quickly than life expectancy and the proportion of life spent free of disability is also increasing, this suggests that Italy was experiencing a compression of disability over this time period.

Other explanations for the trends

As well as true improvements in (or worsening of) disability there are two main alternative reasons for observing the trends shown:

1. Health measure changing over time though health does not – over time questions on surveys may alter, sometimes imperceptibly, and these may affect the responses. Or an individual's health perceptions may change whilst their health does not: if over the whole population health has improved people may be less likely to tolerate their health problems and report them more systematically when they would not have mentioned them in the past. Finally, a change in the situation of people with disability may influence how they feel rather than how they are: improving the environment can help people with disability to be more active and feel and report less disability. Showing several health expectancy indicators (free of disability, in good health) together can help to clarify the situation in a country and trends over time
2. Although it is advisable to try to assess the health of the whole population, this may not happen in practice since response rates may differ over time as people may become less ready to answer questions. Assessment of only part of the population may also occur since surveys often omit those in institutions and this is particularly relevant at older ages where there may be a high proportion in institutional care. If social or health policies in the country are implemented that affect this proportion of the population, such as the UK Community Care programme which aimed to support older people at home rather than going into institutional care, this may cause an apparent 'worsening' of health as the frailer section will not be included in the earlier period. Research in the UK has shown that the effect of this can be noticeable (Breakwell, 2005).

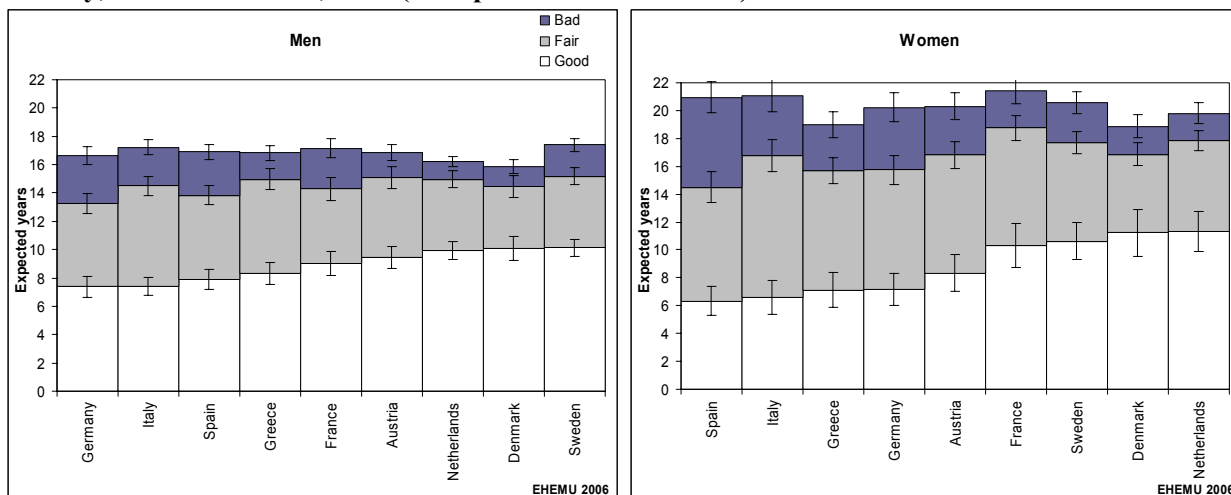
Interpreting comparisons between countries

Another common use of health expectancies is to highlight health differences between countries. The benefit of using health expectancies to compare the health of different countries is that they are relatively independent of the size of populations and of their age structure.

Example 3

The Survey of Health and Retirement in Europe, SHARE (see <http://www.share-project.org>) was conducted in 9 European countries. The participants were asked how their health was in general: very good, good, fair, bad, very bad. Figure 3 compares the life expectancy at age 65 and the expected remaining years spent in good (very good or good), fair and bad (very bad or bad) health, for men and women. The total length of each bar represents the life expectancy at age 65, the expected remaining years in total.

Figure 3: Life expectancy and expected years in good, fair and bad perceived health at age 65 by country, men and women, 2004 (European version SHARE)



Sources: Eurostat and SHARE 2004

For both men and women, having more expected years in good health does not necessarily mean longer life expectancy in total. For instance women in the Netherlands can expect to live fewer years in bad health than women in Spain even though their overall life expectancy is shorter. This means that women in the Netherlands live a smaller proportion of their remaining life in self-reported bad health, and so a greater proportion healthy, than do women in Spain. Similarly men in Denmark can expect to live more years in good health than men in Germany, even though Danish men have shorter life expectancies. It is not obvious from these results that countries with the longest life expectancies are the healthiest.

Other explanations for the results

Just as the previous example where we examined trends in health expectancies over time, there may be other reasons for our findings:

1. The question may be understood differently in different countries. One reason is that there may be cultural differences in the propensity to feel oneself in good shape or in bad shape, especially in the case of measuring "self-perceived health". Another reason for this is that the question may not have been correctly translated to really reach the underlying concept being measured.
2. The effect of not including the whole population, as discussed in example 2, is even more problematic when we compare countries because the proportion of older people in institutions differs considerably between countries. Since SHARE only covered respondents living in the community, this is a potential explanation for the differences found.
3. Response patterns to the survey may differ between countries. In some countries non-respondents may mostly be the frail and ill, in others it may be the healthy who don't have time to answer surveys.

Longitudinal or cross-sectional data?

Longitudinal data in which the same individuals are followed over time provide important information that can help us to understand the different reasons why people become disabled, recover or die. The investment needed to collect these data is enormous and so very few nationally representative longitudinal data are available, especially across different countries. Cross-sectional data inform us about the proportion of the population that is healthy or that is unhealthy and are much easier to obtain through surveys. Both types of data can be used to calculate health expectancy. Several studies have shown that for describing the health of a population, comparing the health of a population over time, comparing countries or public health policy development and evaluation, cross-sectional data are sufficient and may be better since they do not suffer from the attrition inherent in longitudinal studies and are therefore more representative over time.

References

Breakwell C, Bajekal M. (2005). Review of sources and methods to monitor Healthy Life Expectancy. *Health Statistics Quarterly* **26**(Summer): 17-22.

About EHEMU

The European Health Expectancy Monitoring Unit (EHEMU) is funded by the European Public Health Programme (2004-2007) and is a collaboration between: the French National Institute of Health and Medical Research (INSERM) and CRLC Montpellier, University of Leicester (UK), the Scientific Institute of Public Health (ISP Belgium) and the French National Institute of Demography (INED). The main aim of EHEMU is to provide a central facility for the co-ordinated analysis and synthesis of life and health expectancies and its specific objectives are to:

- undertake analysis of health expectancies from current harmonized data;
- co-ordinate the dissemination of results, through paper and web-based reports;
- act as repository for past and current data on EU health expectancies;
- undertake regular transfers of meta-information to European databases;
- develop web-based training material for interpreting and calculating health expectancies for a wide audience;
- promote harmonization of practice.

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