

## **Trends in activity limitation and Healthy Life Years between 2005 and 2009: the effect of harmonisation of measures**

Carol Jagger<sup>1</sup>, Tony Fouweather<sup>1</sup>, Wilma Nusselder<sup>2</sup>, Jean-Marie Robine<sup>3</sup> for the EHLEIS Group

<sup>1</sup>Newcastle University, UK <sup>2</sup>Erasmus Medical Center, the Netherlands <sup>3</sup>INSERM and INED, France

### **Objectives:**

The EU has committed to improving the health of its population and its preferred measure is Healthy Life Years (HLY) a measure of disability-free life expectancy that combines information on quality and quantity of life. HLY measures remaining years free of activity limitation with the main purpose to monitor health trends and gaps in Europe. A basic foundation for valid comparisons of HLY between countries is a harmonized measure; for HLY this is the underlying Global Activity Limitation Indicator (GALI) question in the EU Statistics of Income and Living Conditions (EU-SILC) survey. Since the first inclusion of the GALI in EU-SILC in 2005, there has been an on-going effort to improve harmonization, with a particular effort at retranslation into national languages in 2008. In 2005 only 3 countries had their national GALI question classified as ‘fully comparable’ to the standard version, 10 were ‘partially comparable’, with the remaining 12 ‘not comparable’. In 2008 concerted efforts were made to further improve comparability and by 2009 13 countries were ‘fully comparable’, 8 ‘partially comparable’ and 5 remained ‘not comparable’.

The aim of this study is to determine the effect of GALI harmonisation efforts on: a) trends in the AL prevalence compared to trends the prevalence of the other SILC health measures (morbidity and self-rated health); and b) inequalities in HLY across all the EU27.

### **Methods:**

We used EU-SILC micro data from 2005-2009, specifically the Mini European Health Module comprising three questions: the GALI assessing AL ‘For at least the past 6 months, to what extent have you been limited because of a health problem in activities people usually do? Would you say you have been: severely limited, limited but not severely, or not limited at all?; Chronic morbidity (CM) ‘Do you suffer from (have) any chronic (long standing) illness or condition (health problem)?’ with responses yes/no; and self-rated health (SRH) ‘How is your health in general?’ with responses very good/good/fair/bad/very bad.

### **Analysis:**

We investigated change in prevalence of each condition over time within countries, first graphically using box plots, then through fitting logistic regression models using SAS SURVEYLOGISTIC. We were particularly interested in differential time trends in prevalence between the three measures and between age and gender groups. Findings were assessed alongside Eurostat’s assessment of the GALI question in each language for each year from 2005-2009 to assess change in question and comparability to the standard. Finally using the Sullivan method we applied the age and gender specific prevalence of AL to life tables for each year and country to calculate HLY and compared HLY at age 50 between countries in 2005 and 2008.

### **Results:**

Time trends in prevalence of the three health measures were assessed first by boxplots. For AL the median prevalence was relatively constant between 2005 and 2009 for both men and

women, though lower for men (16.1-16.4%) than women (17.9-19.2%), and variation across countries (indicated by the interquartile range) was also constant. Reporting of severe AL was much more variable across countries than for any AL (mild or severe) and with a decrease in the median prevalence of severe AL for both men and women between 2005 and 2009. The median prevalence of chronic morbidity (CM) mirrored the results for any AL remaining relatively constant for both men and women, although lower for men (26.2%-27.3%) than women (29.2%-31.2%) but with the variation in prevalence across countries reducing for men and women. For SRH, on average across countries men and women reported relatively constant levels of fair or poor SRH over the period (men median: 25.8%-27.9%; women: 26.5%-28.7%) although the spread (interquartile range) was slightly larger for men than women and reduced over time. Similar conclusions resulted when the analysis was restricted to more extreme ill-health (bad SRH).

Using logistic regression we assessed age and gender differences in AL prevalence and whether and how these patterns change over time to assess the potential impact of the harmonization. Some countries showed a systematic change over time that differs between age groups (agegrp\*year interaction) but not between genders (gender\*year interaction not significant for all countries except Germany). No countries showed strong evidence that changes over time differed by age group and gender (agegrp\*gender\*year interaction significant  $p < 0.001$ ). When we compared results from models of AL with those of CM and SRH we found that gender differences over time were mirrored in the other measures but differential trends by age group were not.

When these results were viewed alongside comparability status of the GALI, three countries (Belgium, France, Ireland) were 'fully comparable' throughout the period, and for these countries there was no significant change in AL prevalence over time. All other countries, even if non-comparable over the period, showed significant change in AL prevalence over time and in countries which became comparable there were mostly differential effects between age groups over time.

Finally we assessed inequalities in HLY across all the EU27 in 2008 as compared to 2005. Overall HLY at age 50 for men in 2008 was 17.8 years, 60% of remaining LE of 29.5 years; women could expect to live 4.3 years more than men but only 0.7 HLY more than men so the majority of extra years of life for women were spent with AL. Over the period of harmonisation (2005 – 2008) inequalities in LE and HLY fell slightly for men but slightly increased for women.

### **Conclusion:**

Harmonisation of self-report health measures is key for accurate evaluation of health inequalities across Europe. We assessed trends in AL, CM and SRH between 2005 and 2009 against efforts to harmonise the AL question. Countries which were fully comparable to the gold standard throughout the period showed little change in AL prevalence over time whilst those which were not did, although in general changes in AL prevalence were reflected in CM and SRH. For the present trends in AL over time from EU-SILC and trends in HLY should be viewed alongside any changes in question, although from 2012 values will be comparable for all but four countries.

**Key words:** Activity limitation, self-rated health, chronic morbidity, time trends, healthy life years