Future mortality in selected European countries, taking into account the impact of lifestyle epidemics

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Abstract

Estimates of future mortality often prove inaccurate, as conventional mortality projection methods do not capture (i) the impact of lifestyle 'epidemics', different over time between men and women, and across generations and countries; and (ii) the mortality experience of other countries.

We coherently projected mortality in selected European countries taking into account the impact of the smoking, obesity and alcohol 'epidemics'.

We used age-, sex-, year- and country-specific (i) all-cause mortality data from the Human Mortality Database, (ii) lung cancer mortality data from WHO to indirectly estimate smoking-attributable mortality, (iii) alcohol-attributable mortality data from the Global Burden of Disease Study (ages 20-64) supplemented with WHO cause-specific mortality data, and (iv) obesity prevalence data from the NCD Risk Factor Collaboration study to estimate obesity-attributable mortality.

We projected smoking, alcohol and obesity-attributable mortality fractions by novel projection methodologies that account for the wave pattern of lifestyle 'epidemics', and combined these into future lifestyle-attributable mortality fractions (LAMF) using a multiplicative approach. Future LAMF estimates are combined with Li-Lee coherent projections of non-lifestyle-attributable mortality. Our projections of life expectancy at birth (e0) up to 2065 are compared with direct individual and coherent all-cause mortality projections.

The past increase in e0 (1990-2014) is less strong for non-lifestyle-attributable mortality compared to all-cause mortality among men, but slightly stronger among women. LAMF is projected to further decline among men and to first increase and then decline among women. When we integrate lifestyle epidemics in individual projections, future e0 (eventually) moves back to e0 for non-lifestyle-attributable mortality. Including lifestyle epidemics when coherently forecasting mortality results in higher e0 levels and more convergence between men and women.

Mortality projections that take into account likely future changes in smoking, alcohol and obesity, thus, result in higher future e0 and - when projecting coherently - in larger convergence between the sexes.