Age-standardised death rates calculated using the European Standard Population

Introduction

The simplest death rate is the so-called crude death rate, which is calculated from the total number of deaths and the size of the population. However, because the probability of death tends to increase with age, changes in the age-distribution of the population could have an effect on any apparent trend shown by the crude death rate. The extent (if any) to which death rates are really changing over time should be seen if one uses a time-series of rates which have been age-standardised to adjust for changes in the distribution of the population by age, and so show more clearly any trend in mortality.

Similarly, if two countries' populations have different age-distributions, a comparison of their crude death rates could give a misleading impression. Again, using age-standardised death rates will remove the effect of the differences between the countries' age-structures, and should show which one has the higher mortality.

Age-standardised death rates that are comparable over time and between different countries can be calculated using the European Standard Population (ESP). This is a theoretical population, defined as having a particular distribution by age, which does not change. The original ESP was introduced in 1976. Since then, age-structures may have changed greatly, so (in summer 2013) Eurostat (the European Union's statistical institute) introduced a new version of the ESP, whose distribution by age was designed to represent the average of the age-structures of most European countries in the years from 2011 to 2030. In order to distinguish between the original ESP and the new one, they are referred to as "the 1976 ESP" and the "the 2013 ESP" respectively.

From August 2014, NRS began calculating its age-standardised rates based on the 2013 ESP. The tables based on the 1976 ESP which were published prior to this time are still available on the website for comparison purposes.

Two points in particular should be noted about age-standardised rates that were calculated using the ESP:

- the first applies to rates that were calculated using either version of the ESP. Because the ESP's age-distribution differs from that of the Scottish population, an age-standardised death rate which was calculated using the ESP is not directly comparable to a crude death rate which was calculated simply from Scotland's number of deaths and total population; and
- the second applies mainly to rates that were calculated using the 1976 ESP. In general, age-standardised death rates which were calculated using the 1976 ESP are lower than the actual death rates for Scotland - this is because the 1976 ESP gives more weight to the younger age-groups, which usually have lower death rates. There is much less difference between age-standardised deaths rates calculated using the 2013 ESP and the actual death rates for Scotland, because the age-distribution of the 2013 ESP is much closer to the (current) age-distribution of the population of Scotland.

More information about the 1976 ESP and the 2013 ESP is available in a separate note, which provides additional Background on these matters.