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The changing meaning of old age

The decline in mortality and increase in life expectancy is one of the greatest human achievements of the twentieth century. Increasing life spans offer new opportunities and challenges as we adapt to a new protracted life course. This briefing investigates the changing meaning and timing of old age and makes policy recommendations in response to our ageing society.

Key Points

- There is no commonly accepted age at which old age begins.
- Demographically we can define 'old' age as the age at which there is a 1% chance of dying and 'oldest-old' age as when there is a 10% chance.
- 60 is the new 50 - In 1955 men aged 52 had a 1% chance of dying, in 2015 men were 63 before they had a 1% chance of death.
- Using period and cohort age specific mortality rates gives us different estimates of the age at which there is a 1% or 10% chance of death.
- There is a high likelihood young people today will survive into their 90's and 100's, social protection should reflect longer, more complex, lives.

Introduction

The decline in mortality is one of the great success stories of the twentieth century. In 1901, average life expectancy for UK men was estimated at 45; by 2001 it had risen to 75 years – an increase of 30 years in a 100 year period, equivalent to gaining just over 7 hours of life expectancy every day across the century. This rise in life span reflects public health and medical progress, rising standards of living, better education, improved nutrition and changes in lifestyles. The changes in life expectancy have also led to changes in the life course, with more people living to older ages and experiencing retirement. When the first old age pension was introduced by Lloyd George in 1908, the age of entitlement was 70, whilst average life expectancy was below 50. Today everyone aged 65 and over who has made the necessary levels of contribution is entitled to the state pension, whilst a new-born baby boy is expected to live to age 79 and a girl to age 82, if currently mortality rates continue.

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When is old age?

The improvements in mortality are leading to discussions around the meaning of age itself. When does old age begin? There is no commonly accepted definition of an older person, in most developed countries the cut-off is age 65 but it is recognised that this is somewhat arbitrary and is associated at the age one can begin to receive pension and other benefits. The United Nations generally uses 60+ years to refer to the older population. Some commentators are now arguing that instead of chronological age (years lived) a better measure might be thanatological age (years left). Another approach is to look at the levels of mortality associated with different ages, which is the approach adopted in this study.

The study

In December 2015, the Office of National Statistics (ONS) published a new set of life tables. The latest release combined with historical data allows us to look at how life expectancy has been changing and is predicted to change in the future. The 2014-based life tables (Table D1.1 1951-2064, UK principal projection), form the basis of this study. These tables provide single age estimates of mortality for all years from 1951 through to 2064. We calculated period (i.e. annual) measures, using age-specific mortality rates for a given year to provide estimates of the average number of years that a new born baby would live if s/he experienced those annual age-specific mortality rates through her or his life. By using the projections, we can also calculate life expectancy for a birth cohort

using the relevant age-specific rates for each year of life, depending on their year of birth.

Main findings

The chance of dying

Figures 1 and 2 show the annual mortality schedule i.e. the probability of dying per 100,000 population of that age, for men and women over the period 1955 – 2035. The probability is plotted on a logarithmic scale. The underlying shape of the curves has not changed significantly over time, with both boys and girls experiencing a relatively high chance of dying at birth, then mortality falls and is low until age 16 after which it begins to rise. Males have higher mortality rates than females throughout the life course, but especially between aged 16 and 25, with more deaths associated with car accidents and other risk taking behaviors including alcohol and drug use. However it is also clear from the graphs that over time death rates have fallen at virtually every age, with each curve lying below that of the previous one, with the exception of teenage boys in 1975 and 1995 where death rates were as high as 1955.

10 years younger

If one thinks of the onset of old age as being when there is a 1% chance of dying and the onset of 'older old age' as being when there is a 10% chance of dying, it is clear that old age is being increasing postponed (Table 1). Levels of mortality that used to prevail for people aged in their early 50s are now prevailing in the early 60s; for men the age where there is first a 1% of chance of dying
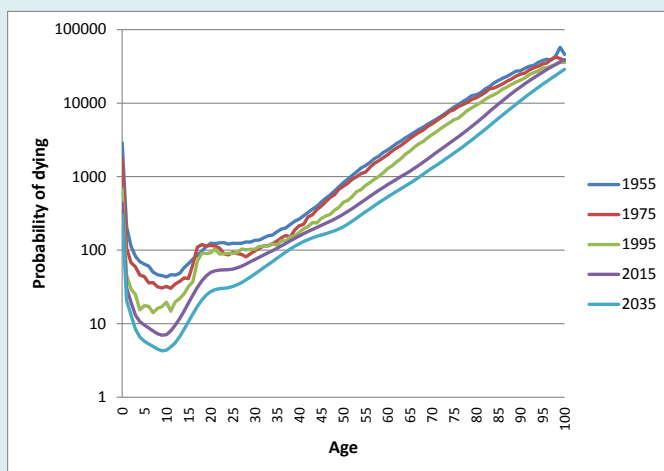

Figure 1: Probability of dying per 100,000 population, males, 1955 – 2035
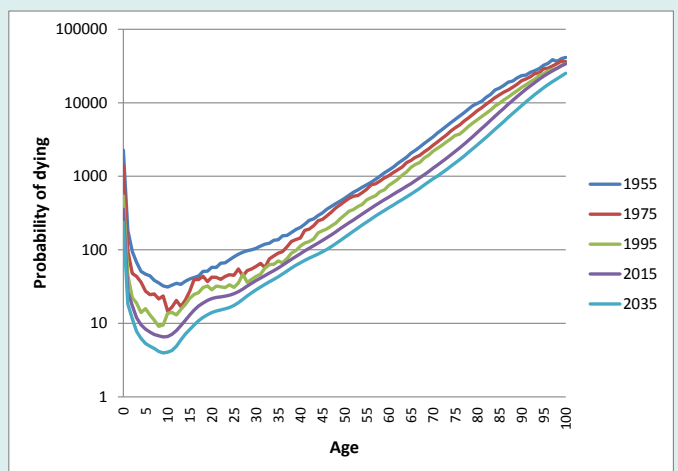

Figure 2: Probability of dying per 100,000 population, females, 1955 – 2035

has risen from 52 in 1955 to 63 in 2015 and for women it has shifted from 58 to 68. Similarly the onset of older old age has moved from 77 for men in 1955 to 86 in 2015, and from 80 to 88 amongst women. The good news is that sixty really is the new fifty.

	Age at which there is a 1% chance of dying (starting to be 'old')	Age at which there is a 10% chance of dying (starting to be 'older old')
Men, 1955	52	77
Men, 2015	63	86
Women, 1955	58	80
Women, 2015	68	88

Table 1: Age at reaching a probability of dying of 1% and 10%, men and women, 1955 and 2015

The findings reported so far have all used period life tables, i.e. use age-specific mortality rates for a specific year, for example for 2015 we use rates of death at each age that were true for people of that age in 2015. In reality of course, individuals live their lives across a number of years. Those girls and boys born in 1955 will be age 20 in 1975, 40 in 1995 and 60 in 2015. Using a combination of actual mortality rates (up to 2014) and then the ONS principal mortality projections, it is also possible to look at the mortality schedules for birth cohorts. Figures 3 and 4 show these for men and women for four birth cohort, born in 1955, 1975, 1995 and 2015; for the last cohort the figures are based entirely on projections. The improvement in survivorship across cohorts is even more marked when we look at the probability of dying in this way.

	Age at which there is a 1% chance of dying (starting to be 'old')	Age at which there is a 10% chance of dying (starting to be 'oldest old')
Men		
Born in 1955	65	91
Born in 1975	69	93
Born in 1995	72	96
Born in 2015	75	98
Women		
Born in 1955	70	92
Born in 1975	73	95
Born in 1995	76	97
Born in 2015	78	100

Table 2: Age at reaching a probability of dying of 1% and 10% for selected birth cohorts, men and women

Table 2 suggests that the onset of old age for men born in 1955 will be around age 65 and for women this will be at age 70. However, older-old age (i.e. the first point at which there is a 10% of dying) will not occur until age 91 for this cohort of men and 92 for women. Given that some of those born in 1955 are starting to retire today, this suggests that they will be able to look forward to an active and healthy retirement. Moreover a boy born in 2015 can expect to reach 75 before the onset of later life and will reach 98 before older old age sets in, whilst a girl born in 2015 who has survived her first year of life is likely reach 100 before her mortality risk reaches 10%.
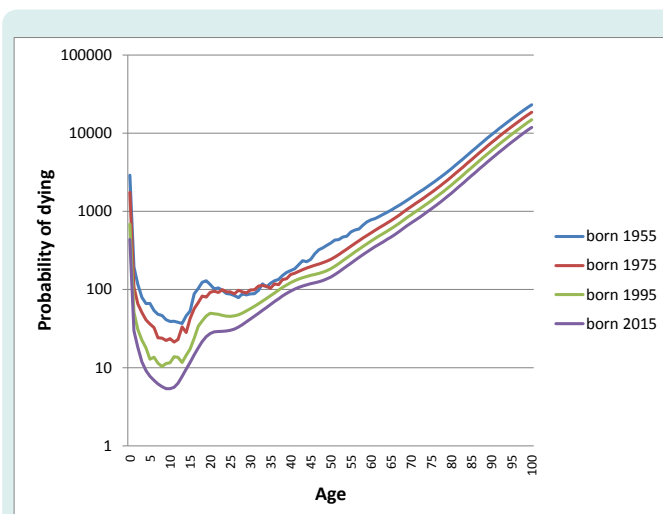

Figure 3: Probability of dying per 100,000 population, males, by birth cohort (using ONS principal variant)
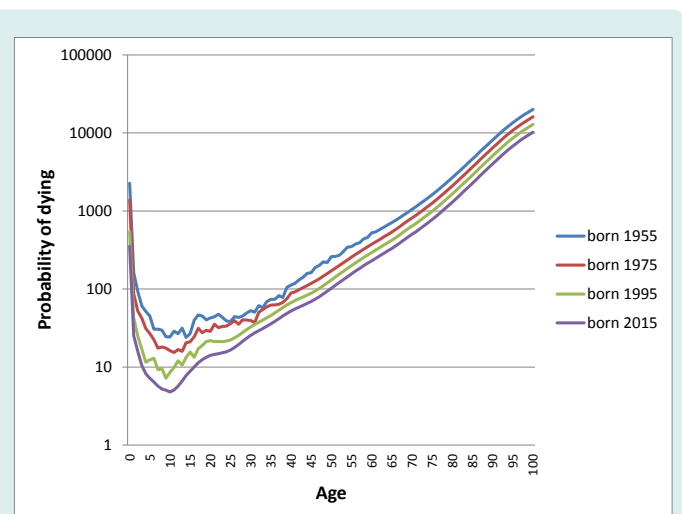

Figure 3: Probability of dying per 100,000 population, females, by birth cohort (using ONS principal variant)

Policy implications

Given the high likelihood of today's cohorts of young people surviving into their late 90's, as well as new patterns in relationships and family formation and increasingly diverse work lives with more career shifts, perhaps it is time to rethink the traditional lifecourse of education, employment, family, retirement, and the distribution of time within it. Today the period of family formation coincides with the time people are establishing their careers, leading to the 30s and 40s being described as the 'rush hour' of life. Moreover during their 50s and 60s, more people are facing the challenge of caring for grandchildren, supporting adult children, caring for increasingly frail parents and working longer. The challenge for policy makers is to design lifecourse sensitive policies. As we live longer healthier, what is required is an innovative system of social protection that will facilitate a redistribution of paid and unpaid work over the lifecourse from periods when we are time rich to those when we might be time poor, juggling work and family responsibilities.

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