Longevity in the age of pandemics

Pensions Institute director, Professor David Blake, considers the implications for life expectancy when living in a pandemic age

The global Covid-19 coronavirus pandemic lasted from March 2020 until May 2023 and killed seven million people globally. It was supposed to be a one in 100-year event. The previous global pandemic, Spanish Flu, killed at least 50 million people between 1918 and 1920.

But far from being able to relax for the next century, some scientists predict a new 'pandemic age'. Professor Eddie Holmes, a virologist at the University of Sydney, says: 'Climate change and pandemics go hand-in-hand….The more animals are forced to mix, the more viruses will jump species'. The World Health Organization has recently added the Black Death plague, bird flu and the mpox virus to its pandemic watchlist.

I have been involved in two pieces of recent research that investigated the implications for future life expectancy of living in a pandemic age as a result of analysing Covid-19 mortality data for England.

The first study is called *Covid-19 mortality: The Proportionality Hypothesis*. We discovered the following remarkable linear relationship between all-cause deaths by age and Covid deaths by age during Wave 1 (March-August 2020) and Wave 2 (September 2020-February 2021) of the pandemic.

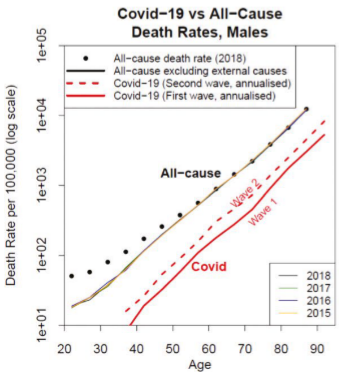
This allowed us to propose the Proportionality Hypothesis (PH), which states that Covid-19 infection fatality rates are approximately proportional to all-cause death rates by age (excluding external causes, such as accidents). The PH is particularly useful for informing governments about the groups most at risk: 97 per cent of Covid death victims were aged above 50 in the UK. It is also useful for informing future government policy, e.g. on lockdowns. Was it sensible to lock down a country for 18 months, at the cost of £410 billion (£6,000 per person) and an ongoing mental health crisis when the Covid death rate was just 1 per cent (230,000 UK Covid deaths and 24.9 million Covid cases)?

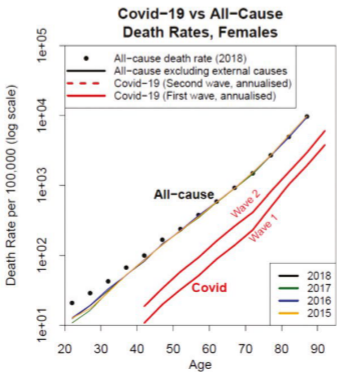
We also showed that vaccination played a significant role in preventing people infected with Covid-19 from needing to be hospitalised, since it reduced the average severity of an infection. Death rates involving Covid-19 were significantly lower for people in the fully vaccinated group compared to the unvaccinated group.

The second study is called *ADM's APPLE: The Accelerated Deaths Model with an application to the Covid-19 pandemic*. The Accelerated Deaths Model (ADM) builds on the hypothesis that, within a given age cohort, those who are less healthy are more likely to die if infected with Covid-19 than healthier people, leaving a pool of on-average healthier survivors. We use the term 'detrimental selection', which has two complementary aspects: The lower years of life lost by those who experienced an accelerated death; and the higher average life expectancy of survivors, which we call their 'adjusted post-pandemic life expectancy' (ADM's APPLE).

We find, in the case of the Covid-19 pandemic in England, that the years of life lost by those who experienced an accelerated death (9 to 12 years) was much greater than reported in the media at the time where experts suggested that two-thirds of Covid victims would have died within nine months from other causes even if they had not caught Covid. We also find that the increase in the mean life expectancy of survivors was very small because of the relatively small number of people who sadly died from Covid.

The ADM has potentially wide application, such as, to other types of contagion and to climate-related deaths, where we would expect there to be a positive correlation between deaths and all-cause mortality (consistent with the PH), but where the degree of detrimental selection might be different.





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