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Excess mortality in men and women in Massachusetts during the COVID-19 pandemic

Suggestions that more men than women are dying from COVID-19 have appeared in scientific journals¹ and newspapers.^{2,3} To our knowledge, however, no comparisons have been made of relative or absolute mortality differences between women and men. Both matter: a small relative increase in rates applied to a high baseline rate can lead to the same excess counts of deaths as a large relative increase applied to a lower baseline rate.

When assignment of cause of death to COVID-19 is dynamic and incomplete, given developing scientific evidence, one important strategy for assessing differential impacts of COVID-19 is that of evaluating the overall excess of deaths, as compared to the same time period in previous years.⁴ We obtained Massachusetts mortality data for the period Jan 1 to April 14 for the years 2015–20. For people categorised as women and as men, we computed their age-standardised 2020 mortality rates and compared them, in both relative and absolute terms, to their average rates for 2015–19, by 2-week intervals.

Notably, the sharp rise in excess mortality observed during the first 2 weeks of April, 2020, was similar for women and men (appendix), whereby the age-standardised rate ratio for 2020 versus 2015–19 equalled 1.48 (95% CI 1.13–1.94) for women and 1.55 (1.19–2.03) for men. The corresponding age-standardised rate differences equalled 240.4 deaths per 100 000 person-years (95% CI 75.5–404.4) for women and 404.1 (158.8–648.1) for men, compared to the 2015–19 baseline age-standardised rates of 499.3 (95% CI 393.6–605.1) for women and 732.0 (578.9–885.0) for men.

Women and men in Massachusetts therefore experienced virtually identical

relative increases in the rise in the total burden of mortality as deaths from COVID-19 began their quick ascent, even though the absolute difference in mortality rates was larger for men. One implication is that it might be misleading to focus solely on men's higher death counts for COVID-19,^{1,3} since absolute differences, by definition, will be higher, despite similar relative risk, given men's higher baseline mortality rates.

Debates over the extent to which biological expressions of gender, sex-linked biology, both, or neither matter for exposure, susceptibility, and health outcomes is long standing.⁵ In the case of COVID-19, speculation has focused on both social aspects of gender (eg, greater likelihood of smoking and less handwashing among men compared to women) and biological susceptibility (eg, as perhaps related to sex hormones).^{1,3} Robust evidence regarding both relative and absolute difference in rates is needed to inform these debates.

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Minimise, manage, and modify: the UK must create and use time

The UK Government's change in strategy to the COVID-19 pandemic is a move from a Contain–Delay–Mitigate–Research approach to what Richard Horton has termed “Suppress–Shield–Treat–Palliate”.¹ Horton argues that “the gravity of [the national] scandal has yet to be understood”.¹ Analysing the actions of the past is only helpful to the extent that we can learn and improve for the present. Fortunately, there is immediate value in understanding, and changing, the flawed assumptions underpinning the UK Government's strategy.

Both strategies appear to have the same flaw: neither appropriately value the commodity of time. The strategies have two common core public health goals: to minimise the lives lost to COVID-19 and to manage the demand pressures on the National Health Service (NHS) and avoid health-care system collapse. What is less well articulated is that time is the most important commodity for both strategies: time to scale up public health infrastructure such as testing and tracing, invest in health-care systems and crucial infrastructure, and eventually discover and distribute treatments and vaccines. Although the UK Government has now acted to minimise the spread of infection (the effectiveness of which remains to be seen), it must do more to manage the number of new cases and, going forward, modify its political judgments on the basis of the growing evidence base.

The initial major flaw in the UK Government's thinking was its perception of an inevitable choice between either containing the spread of COVID-19 at the cost of destroying the economy now or tolerating more lives lost now to save the economy later. The UK Government never believed it possible to suppress the epidemic, only mitigate it.²



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See Online for appendix

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