Quantifying impacts of the COVID-19 pandemic on Australian life expectancy

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Global excess mortality caused by the COVID-19 pandemic can be clearly assessed from the perspective of years of life expectancy lost. The study by Aburto et al., on quantifying the impacts of the COVID-19 pandemic through life expectancy losses, presents changes in life expectancy between 2019 and 2020 for 29 populations with high-quality data, ranging from losses of 1.7 and –2.2 years for American females and males, respectively, to small increases of 0.1 and 0.2 years for females and males in Denmark and Norway, respectively. However, Australia, with its relatively strict COVID-19 containment measures of international border closures and lockdowns, resulting in just 898 COVID-19-related deaths in 2020, was not included in the study. Now official data are available (based on year of registration of death) and we present the results for Australia, with a comparison with Denmark and the USA which were clearly strong and poor performers, respectively, in terms of changes in life expectancy between 2019 and 2020. Given the relatively high number of deaths registered in 2019 in Australia that had occurred in earlier years, we used the average of 2017–19 to provide a clearer comparison of the past trend with the deaths in 2020 (sensitivity analysis on the years-comparison selection is included in the Supplementary data, available at IJE online).

Life expectancy in Australia in 2020 was 85.8 years for females and 81.8 years for males, ranking first among all the high-income countries presented in Aburto et al. (Figure 1A). Life expectancy increased between 2017–19 and 2020 by 0.7 years for females and males, again the largest increase among all the countries (Figure 1B). An increase of this magnitude has not been observed in Australia since the 1990s (Figure 1C). Contributions to the increase in life expectancy were observed across all ages, but particularly in older age groups (ages 0–59 by 0.1 years, 60–79 by 0.2, and 80-plus 0.3) (Figure 1D). Finally, there was a minimal decline in life expectancy due to COVID-19, which contrasts with other causes of death such as neoplasms, cardiovascular diseases, respiratory diseases and, to a lesser extent, external causes, which all contributed to life expectancy increase (Figure 1E). Although these results are based on deaths measured by year of registration, once data for year of occurrence become available, we expect (based on historical data) that any change in life expectancy will be minimal. Further details of the analyses and results are available as Supplementary data, available at IJE online.

Australia did not experience excess mortality related to the COVID-19 pandemic in 2020, and declines in mortality were observed for other causes of death. The increase in life expectancy in Australia from 2017–19 to 2020 was 4-fold for females and 7-fold for males compared with the average annual increases of 1 to 1.5 months per year from 2015 to 2019 (changes of 0.14 and 0.09 years for females and males, respectively). Our analysis shows survival increased equally across the country, with the three most populated states, namely New South Wales, Queensland and Victoria (accounting for 75% of the Australian population), each experiencing around half a year of increase in life expectancy (see Supplementary Figure S3, available as Supplementary data at IJE online). Although life expectancy rose in 2020, this year was particularly stressful for Australians given an intense ‘black summer’ fire season in the New Year followed by international and state border closures and mobility restrictions due to the pandemic. In 2021, the COVID-19 Delta and Omicron variants increased the number of cases to 323,285 and caused long lockdowns across a higher proportion of the population than in 2020. However, the roll-out of the vaccination programme and further lockdowns limited total COVID-19 deaths to 2202 (28 December 2021), with 898 occurring in 2020.

The measure of excess deaths has previously been used to convey that the death number related to COVID-19 might be higher than those reported. However no excess deaths were observed in Australia, as COVID-19 deaths were offset by lower mortality from other causes. Possible reasons for these declines could be: a sharp decline in spread of other infectious diseases due to the...
COVID-19 containment measures (for example, pneumonia and influenza deaths declined dramatically),\(^8\) which particularly benefited the older populations and also impacted on non-communicable disease mortality (there was a 20% fall in pneumonia or influenza being an associated cause of death, with most of these deaths having a non-communicable disease as the underlying cause);\(^3,9\) hospitals (not being overwhelmed to the extent of countries with high COVID-19 mortality) being able to continue with regular medical procedures; and a decline in social mobility triggering a large reduction in the number of road traffic accidents\(^10\) and in the spread of infections.\(^8\) Although there was a large increase in life expectancy in 2020, this is atypical given the longer-term slowdown in life expectancy in Australia.\(^11\) It remains to be seen how COVID-19 (and its variants) will affect future longevity. Despite the mortality reductions, the toll of lockdowns on mental health, particularly in Melbourne which experienced one the world’s longest lockdowns, is a major public health challenge. This comment also highlights the need for timely and accurate data on mortality for Australia, both nationally and by state, to facilitate international comparisons but more importantly to address any future demographic and epidemiological challenges promptly.

**Ethics approval**

This research project did not required ethics approval as it uses only macro data that are freely available online.

**Data availability**

The full datasets are publicly available online and the R-code of the programs used are included in the GitHub: [https://github.com/bhoule13/au-ex2020]. This information can also be requested from the corresponding author.

**Supplementary Data**

Supplementary data are available at *IJE* online.
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Author Contributions
V.C-R. conceptualized the study. V.C-R. and B.H. conducted the data management and analysis. All authors were actively engaged in discussing the ongoing progress of the analysis and interpretation of findings. V.C-R. drafted and revised the manuscript based on comments provided by B.H. and T.A. All authors have approved the final version of the manuscript. V.C-R. is the final guarantor of the study.

Conflict of Interest
None declared.

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