





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

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Global excess mortality caused by the COVID-19 pandemic¹ can be clearly assessed from the perspective of years of life expectancy lost.² The study by Aburto *et al.*, on quantifying the impacts of the COVID-19 pandemic through life expectancy losses,² 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 2020,³ was not included in the study. Now official data are available (based on year of registration of death),^{3,4} 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 2020.² 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.*² (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.³ 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 Year⁵ 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 2020.⁶ 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 2020.³

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.⁷ However no excess deaths were observed in Australia, as COVID-19 deaths were offset by lower mortality from other causes.³ Possible reasons for these declines could be: a sharp decline in spread of other infectious diseases due to the

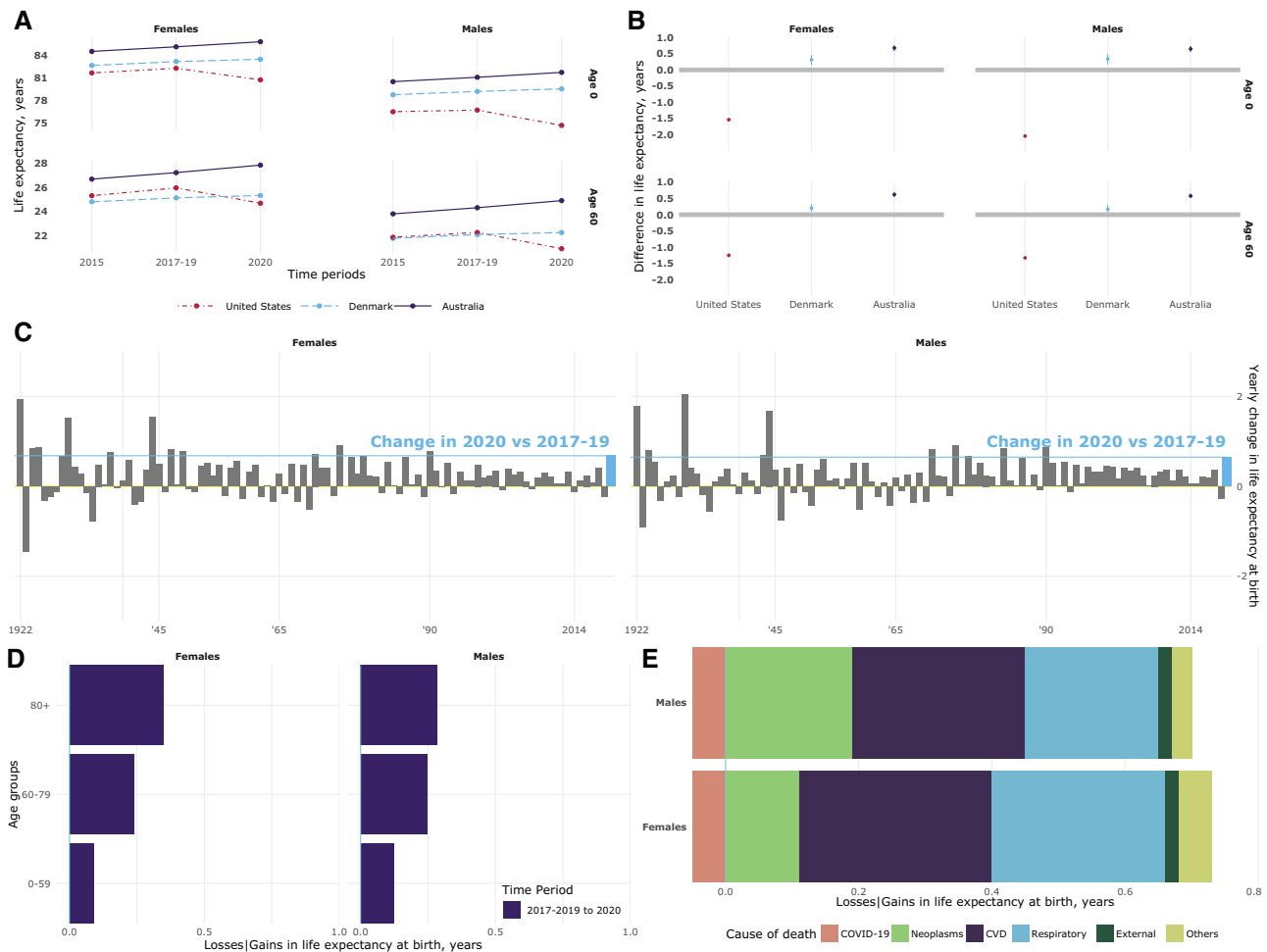


Figure 1 A) Life expectancy at birth (age 0, top panel) and at age 60 years (lower panel) by country and sex, in 2015, 2017–19 and 2020. Estimates for females (left), males (right). B) Change in life expectancy at birth (age 0) and age 60 years, by country and sex, from 2017–19 to 2020. C) Annual change in Australian life expectancy at birth since 1921 by sex. The straight blue line indicates the change from 2017–19 to 2020, with the black bars representing year-on-year change. D) Contributions (in years) to changes in Australian life expectancy at birth from 2017–20 to 2020, attributable to mortality at age <60, 60–80 and >80 years by sex. E) Contributions (in years) to changes in Australian life expectancy at birth from 2017–19 to 2020 attributable to official COVID-19 deaths and other causes of death. All sources and data points are provided in the [Supplementary data](#), available at *IJE* online

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 accidents¹⁰ 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 of 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 require 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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