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Abstract

This study aims to assess whether there was any excess mortality among the Aboriginal and non-Aboriginal populations in the Northern Territory (NT), Australia, during the COVID-19 pandemic. A time-series analysis using death data (2017–2023) was applied separately to the monthly and yearly death counts to develop an excess mortality surveillance model (using Auto-Regressive Integrated Moving Average (ARIMA)) for the NT population. Excess mortality was calculated by comparing expected deaths with actual deaths. In 2022, there was a statistically significant excess mortality of 193 ($p < 0.01$), compared with 82 recorded COVID-19 deaths. Excess mortality was significant for both the Aboriginal ($N = 91$) and non-Aboriginal ($N = 102$) populations in 2022. Even though some months had significant excess mortality among both Aboriginal and non-Aboriginal populations, the recorded COVID-19 deaths were not high in these months. This was associated with the peak of COVID-19 fatalities. The ARIMA model demonstrates deviations from expected deaths and helps understand the pandemic impact on the NT. Excess deaths occurred in 2022; however, no large spikes in most of the months suggest public health success in the NT.

Nationally and globally, excess mortality due to the coronavirus disease (COVID-19) was observed [,]. Globally, there have been 7,070,128 COVID-19 deaths reported to the World Health Organisation (WHO) until 6 October 2024 [], while estimated excess deaths were 14.83 million during 2020–2021 [ ]. Australia reported a relatively lower number of COVID-19 deaths compared to other parts of the world [] with a total of 20,095 COVID-19 related deaths from 2020 to August 2023 [], and of the total deaths registered by the Australian Bureau of Statistics (ABS) until January 2024, 3.2% (21,827 of the 687,639) died from or with COVID-19. Among these, COVID-19 was the underlying cause of death for 17,276, while it contributed to a further 4,551 deaths caused primarily by other conditions (mainly chronic cardiac conditions) []. From August 2021 to January 2024, COVID-19 has caused 394 deaths among Aboriginal and Torres Strait Islander peoples []. According to the Actuaries Institute, Australia's mortality rate was 12% higher than the expected for the full year 2022 during the global pandemic of COVID-19 [ ], and excess mortality was 14.1% as per ABS for the first 8 months of 2022 [ ].

With a population of 245,000 and an area of more than a million square kilometres, the Northern Territory (NT) is a geographically isolated and sparsely populated Australian jurisdiction [ ]. The Howard Springs International Quarantine Facility at the Centre for National Resilience in the NT was used as Australia's COVID-19 quarantine facility []. The NT population has a higher risk of COVID-19 mortality due to the higher proportion of Aboriginal population (30.8%) which has a high burden of chronic disease [,]. This increased disease burden, along with the geographical remoteness, increased barriers to accessing healthcare and the high mobility of the NT Aboriginal population, increases the risk of COVID-19 transmission and poor outcomes [,]. It is unclear if there were excess deaths during COVID-19 in the NT.

Relying on recorded COVID-19 deaths risks underestimating the true burden of mortality due to the pandemic [ ]. Not only are there issues with inaccurate case ascertainment but counting only recorded COVID-19 deaths ignores those deaths which may have arisen indirectly from the pandemic due to the impact of isolation, restricted access to routine health care and disruption of the health system []. Excess mortality is considered to be the most appropriate indicator [ ] of the true burden, comparing actual deaths with those predicted had the pandemic not occurred [,].

Our objective was to investigate whether there was excess mortality in the NT during the COVID-19 pandemic among Aboriginal and non-Aboriginal populations.

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