

Tracking excess mortality across countries during the COVID-19 pandemic with the World Mortality Dataset

Ariel Karlinsky^{1,✉} and Dmitry Kobak^{2,✉}

¹*Hebrew University, Jerusalem, Israel*

²*Institute for Ophthalmic Research, University of Tübingen, Germany*

`ariel.karlinsky@mail.huji.ac.il, dmitry.kobak@uni-tuebingen.de`

September 22, 2021

Abstract

Comparing the impact of the COVID-19 pandemic between countries or across time is difficult because the reported numbers of cases and deaths can be strongly affected by testing capacity and reporting policy. Excess mortality, defined as the increase in all-cause mortality relative to the expected mortality, is widely considered as a more objective indicator of the COVID-19 death toll. However, there has been no global, frequently-updated repository of the all-cause mortality data across countries. To fill this gap, we have collected weekly, monthly, or quarterly all-cause mortality data from 105 countries and territories, openly available as the regularly-updated World Mortality Dataset. We used this dataset to compute the excess mortality in each country during the COVID-19 pandemic. We found that in several worst-affected countries the excess mortality was above 50% of the expected annual mortality (Peru, Ecuador, Bolivia, Mexico) or above 400 excess deaths per 100,000 population (Peru, Bulgaria, North Macedonia, Serbia). At the same time, in several other countries (e.g. Australia and New Zealand) mortality during the pandemic was below the usual level, presumably due to social distancing measures decreasing the non-COVID infectious mortality. Furthermore, we found that while many countries have been reporting the COVID-19 deaths very accurately, some countries have been substantially underreporting their COVID-19 deaths (e.g. Nicaragua, Russia, Uzbekistan), by up to two orders of magnitude (Tajikistan). Our results highlight the importance of open and rapid all-cause mortality reporting for pandemic monitoring.