

First peer-reviewed study on excess mortality in India during the COVID-19 pandemic published

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Researchers at the Government of Tamil Nadu, CDDEP, University of California Berkeley, and Johns Hopkins recently published 'All-cause

mortality during the COVID-19 pandemic in Chennai, India: an observational study' in *Lancet Infectious Diseases*. The study aimed to assess changes in mortality during the COVID-19 pandemic in Chennai, Tamil Nadu, using data on all-cause mortality within the district. This is the first study examining excess all-cause mortality in India. The authors had previously published the largest COVID-19 contact tracing study in *Science* in 2020.

As of December 20th, 2021, India has reported over 480,000 COVID deaths. While this is a significant burden, India has reported substantially lower deaths relative to total infections than many other countries. In several [high-income countries](#), all-cause mortality data from comprehensive vital registration systems have provided insight into the true extent of underreporting of COVID-related deaths, as well as differences in mortality risks across socioeconomic groups.

In this study, researchers analyzed comprehensive death registrations in Chennai, Tamil Nadu, with the aim of measuring changes in mortality during the period of the COVID-19 [pandemic](#). Data on [death](#) registrations were obtained from the state's Civil Registration System (CRS) and closely matched mortality estimates from India's demographic survey-based Sample Registration System—a reliable source for mortality surveillance. The study further examined differences in pandemic-associated mortality across socioeconomically distinct communities within Chennai, and during specific periods of the pandemic.

Overall, the key findings of the study are as follows:

- Estimates of excess mortality during the COVID-19 pandemic in Chennai, India, exceed those from numerous higher-income settings despite India's younger age distribution
- Deaths during the COVID period exceeded those of years prior

at a rate of 5.2 deaths per 1000 residents. This represents a 41% increase over typical mortality levels in the city

- Most excess deaths occurred during the [second wave](#) of the pandemic when mortality peaked at levels 4.75-times higher than pre-pandemic observations
- Excess mortality was substantially higher in older age groups
- Greater increases in mortality were observed in communities with lower socioeconomic status during the second wave of infections, but not during the first wave
- Communities with lower socioeconomic status had reductions in mortality during the early lockdown, but also had the greatest increases in mortality during the second wave
- Fewer deaths were registered among children than expected based on pre-pandemic observations.

According to the study's lead author, Dr. Ramanan Laxminarayan, Director, CDDEP, "The enormous toll taken by COVID-19 on many countries is evident but poorly measured. In India, the high quality of deaths recording in Chennai made possible a careful study of the effect of COVID on all-cause mortality. There are very few large-scale studies examining all-cause mortality in low-income and middle-income countries (LMICs). With new variants spreading rapidly, the pandemic wears on, and there is a greater need for understanding socioeconomic patterns for all-cause [mortality](#), and dissimilarities between various settings to strengthen public health decision-making."

More information: Joseph A Lewnard et al, All-cause mortality during the COVID-19 pandemic in Chennai, India: an observational study, *The Lancet Infectious Diseases* (2021). [DOI: 10.1016/S1473-3099\(21\)00746-5](#)

Ramanan Laxminarayan et al, Epidemiology and transmission dynamics of COVID-19 in two Indian states, *Science* (2020). [DOI:](#)

[10.1126/science.abd7672](https://doi.org/10.1126/science.abd7672)

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