

July 6, 2025

Will the Government Finally Acknowledge the Scale of India's Covid-19 Tragedy?

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Newly released 2021 government mortality data shows 3 million excess death registrations in India during Covid-19, suggesting over 4 million total excess deaths. The pandemic's real impact then was far greater than the official estimate: Covid deaths were around nine times the official death toll.

What was the mortality impact of the Covid-19 pandemic in India? In the four years since its devastating peak, data have emerged that demonstrate conclusively that the toll was many times higher than the official 0.48 million confirmed Covid-19 deaths. But how much higher? In May 2025, several years behind schedule, and during a national security crisis, new government reports containing mortality data for 2021 were released, which shed light on this question.

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Before we examine the data in these reports, we might ask—should we let sleeping dogs lie? Despite the passage of only a few years and periodic upticks in Covid-19 cases, the pandemic and its havoc can sometimes feel like the distant past. We all recall the overflowing crematoriums, the people frantically searching for oxygen, and the bodies lining the banks of the Ganga. Had there been an honest and transparent official reckoning of the pandemic, the discussion now might focus on epidemiology, healthcare infrastructure, and how to avoid such calamities in the future.

But there has been no such reckoning, and we are forced back to questions of sheer numbers—how do we reconcile the nightmarish images, now seared into our collective memory, with continuing government claims of low mortality and exemplary pandemic management?

Since 2021, each new study presenting evidence of large numbers of pandemic deaths has been met with strident government “rebuttals”, often focused on the incomplete or unofficial nature of the underlying data. In this context, now that we finally have some official data, it seems crucial to examine what exactly it tells us.

New mortality data

First, what are the new data now available? In May, the Office of the Registrar General and Census Commissioner of India, overseen by the Home Ministry, released [a statistical report for 2021](#) based on the Civil Registration System (CRS) of India. The report provides an account of births and deaths registered that year. It is this data that forms the basis of our analysis.

Alongside this, a Sample Registration System (SRS) report for 2021, which includes estimates of mortality rates based on survey data, was also released. We will discuss the SRS, but primarily to explain why we will not be using its data in our estimates of pandemic mortality.

To understand the significance of the newly released CRS data, let us recall that all estimates of pandemic excess mortality released during the past four years have indicated that India saw many times more pandemic deaths than the official toll. Moreover, most of these estimates (though not all) were based on civil registration data obtained by journalists. However, this data was incomplete.

The World Health Organization (WHO), for instance, used data from 17 states, in most cases available only for the period January 2020 to May 2021, [to estimate that there were 4.7 million excess deaths in India during 2020 and 2021](#). In [our own estimates](#), we relied on data from a smaller number of states where the data appeared to be more reliable, and attempted to factor in various sources of uncertainty—this resulted in estimates ranging from 2.8 million to 5.2 million excess deaths nationally for the period April 2020 to June 2021, with a central estimate of 3.8 million excess deaths during this period. [Several other authors](#) have arrived at comparable figures. However, the unofficial and incomplete nature of the data was used to cast doubt on the estimates. So, what does the newly available official data tell us?

Surge in death registrations

Now that the 2021 civil registration system reports are available, it is possible to produce updated estimates. These reports contain detailed data that is worthy of analysis, for instance, by rural/urban residence, sex, and age. Here, we focus only on overall patterns. The raw numbers are as follows. In 2019, the civil registration system registered 7.6 million deaths across all states and territories. In 2020, it registered 8.1 million deaths—0.47 million more than in 2019. In 2021, the number jumped to 10.2 million, nearly 2.6 million more than in 2019.

If we assume that the number of deaths registered in 2020 and 2021 would have been approximately the same as in 2019 had the pandemic not happened, we get more than 3 million excess death registrations during 2020–2021, or about 20% more than expected each year. The bulk of these excess registrations occurred in 2021.

Estimating excess mortality

There are several reasons why we should not take the 3 million excess registered deaths as the true toll of the pandemic. To begin with, a substantial portion of deaths in India are not registered. If we can credibly estimate registration completion (the proportion of deaths that are registered), we can use it to estimate total deaths in 2019, 2020, and 2021. Information about the fraction of deaths that are registered comes from two main sources—the SRS and the National Family Health Survey (NFHS).

The SRS, an annual survey conducted by the central government in randomly selected villages and urban blocks, estimated that about 92% of deaths were registered in 2019. If we suppose that this pattern continued during the pandemic, that around 8% of deaths went unregistered, it would imply 0.51 million excess deaths in 2020 and a further 2.8 million in 2021, pushing the total during 2020 and 2021 up to 3.3 million. However, [we have previously presented substantial](#) evidence that the SRS underestimates mortality in India, and thus overestimates registration completion.

First, and most tellingly, in several states the CRS records many more deaths than estimated by the SRS. Second, according to the SRS itself, registration levels in 2019 were as low as 52% in Bihar, 59% in Jharkhand, and 63% in Uttar Pradesh. It is hard to imagine that registration levels could be as high as 92% nationally when they are so low in several populous states with high mortality.

Third, we know that mortality is highest in older age groups, but the SRS population sample is biased by age, containing a smaller proportion of older adults than indicated by the census and population projections. Finally, mortality estimates from the NFHS, including for [child mortality](#) and [maternal mortality](#), are consistently higher than those of the SRS. Thus, issues related to both data quality in mortality measurement and sampling biases in terms of age contribute to the underestimation of mortality in the sample registration system.

Unlike the sample registration system, which has to be compared to the civil registration system to calculate registration completion, the NFHS directly asks household members of deceased persons if their deaths were registered.

While the SRS had systematic failings before the pandemic, [its reports](#) for the pandemic period—the 2020 report and the recently released 2021 report—are even less reliable. The SRS report for 2020, produced during the pandemic, [had more inconsistencies than usual](#). Additionally, in interviews with state census officials responsible for conducting the SRS, we learnt that the pandemic and lockdown affected data collection. Anganwadi workers and other local government staff, who are responsible for SRS data collection in randomly selected villages and urban blocks, could not conduct interviews during the lockdown of 2020 or during the Delta wave in 2021, and vital events during these months were likely missed. For these reasons, we avoid using the sample registration system 2020 and 2021 reports to estimate mortality or registration completion during the pandemic.

The NFHS is a high-quality survey which, like the sample registration system, is an official survey of the Indian government. Unlike the SRS, the underlying NFHS data are publicly available. And unlike the SRS, which has to be compared to the CRS to calculate registration completion, the NFHS directly asks household members of deceased persons if their deaths were registered.

The fifth survey in the series, the NFHS-5, was conducted in phases between August 2019 and April 2021. Phase 1 states were interviewed in the latter half of 2019, and phase 2 states in early 2020 (before the 2020 national lockdown) and early 2021 (before the Delta variant). This allows us to estimate registration completion for all states and at the national level for 2019. This is the latest year

for which completion estimates for all states and territories can be calculated using the NFHS-5.

Table 1: Excess Death Estimates for Pandemic Period (2020-21)

A	Confirmed Covid-19 deaths, 2020-21	481,524
B1	Registered deaths, 2019	7,641,076
B2	Registered deaths, 2020	8,115,882
B3	Registered deaths, 2021	10,224,506
C1	Excess registrations, 2020 (B2 - B1)	474,806
C2	Excess registrations, 2021 (B3 - B1)	2,583,430
C3	Excess registrations, 2020-21 (C1 + C2)	3,058,236
D1	Death registration completion, Sample Registration System-Civil Registration System comparison, 2019	92%
D2	Death registration completion, NFHS-5, 2019	72%
E1	Excess deaths (C3/D1), 2020-21	3,324,170
E2	Excess deaths (C3/D2), 2020-21	4,270,087

For 2019, the NFHS estimates that 71.6% of all deaths were registered. And when we calculate excess deaths assuming these death registration levels held during the pandemic, we get around 0.66 million in 2020 and 3.6 million in 2021, making a total of 4.3 million excess deaths in 2020 and 2021. This latter estimate, based on data from all states in India, is not far from the WHO's original estimate of 4.7 million excess deaths, based on data from fewer than half of India's states and missing the latter part of 2021.

We thus arrive at a plausible estimate of around 4.3 million excess deaths during 2020-21, using official death registrations and estimates of pre-pandemic registration completion from the NFHS. The data and calculations underlying this and the other estimates above are in Table 1.

Of course, all such estimates should be treated with some caution. Most importantly, there may have been fluctuations in registration completion during the pandemic. We have previously presented evidence, based on NFHS data for the regions available, [that registration completion fell](#) during 2020, very likely as a result of lockdown. Consistent with this finding, our [recent study](#) using available NFHS data for 2020 suggests that the excess death toll for 2020 could be 1.2 million. This would be consistent with a modest drop in registration completion of 3–4% during 2020.

We remark, as an aside, that this work also found that marginalised populations, including women, Muslims, Scheduled Castes, and Scheduled Tribes, saw the greatest decreases in life expectancy during 2020. We do not know of any currently available data that allows an examination of mortality inequalities beyond 2020.

In the opposite direction, could registration completion over the pandemic period have exceeded 2019 levels, perhaps as a result of improved registration during 2021 in line with pre-pandemic trends? Without concrete data to back this up, we should remain sceptical of any such claim—after all the pandemic was a time of intense disruption to healthcare and public services. In our view, the estimate of 4.3 million excess deaths during the two main pandemic years is likely to be conservative. We also note that monthly patterns in available CRS data obtained by journalists [were strongly correlated with the waves of the pandemic](#), suggesting that the data track excess pandemic mortality and not registration improvement.

Estimates

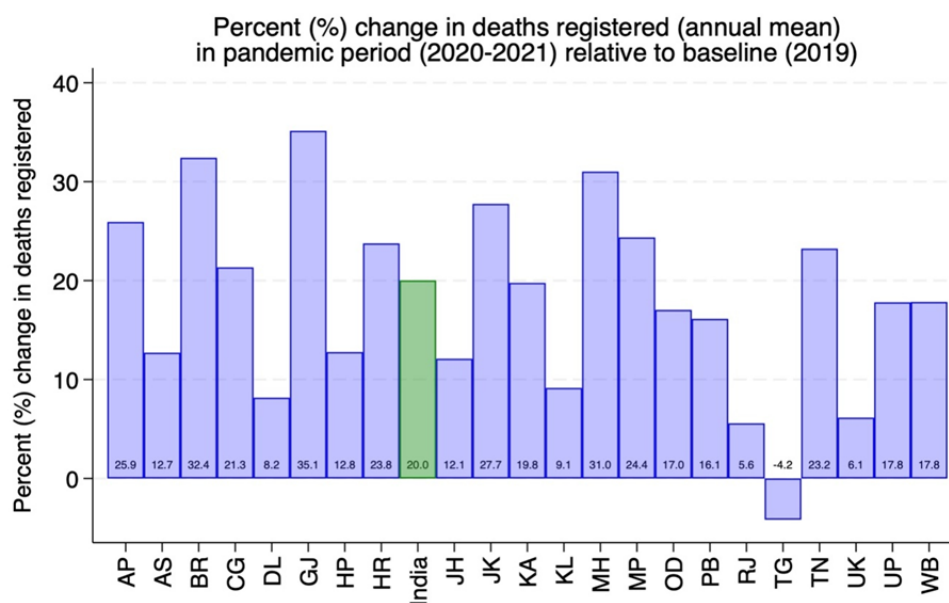
Having examined the national picture, we may get more insight into the patterns of pandemic mortality by looking at state-specific death registration data during 2020-21 from the CRS reports. Before we look at this data, it is worth stressing that interpreting state-wise mortality data presents even more challenges than interpreting national data. Not only does death registration completion vary widely across states and territories, it is also likely that pandemic disruption to healthcare and local government facilities had varying

effects on registration.

For example, urban centres with a greater number of tertiary health facilities such as Delhi may see, in normal times, registration of many deaths of residents of surrounding states. This would likely have been disrupted during the pandemic. Additionally, different regions typically see different degrees of delay to death registrations, and patterns of delay may have altered during the pandemic.

In Figure 1, we present the percentage increase in death registrations during 2020–21, relative to 2019, for larger states and union territories, which are home to 98.4% of India’s population.

Figure 1: Number of Deaths Registered Increased in Most States



The figure shows increases in registered deaths of 15% or more on average per year during 2020–2021 in most states. At 35%, the highest increase was observed in Gujarat, while Bihar and Maharashtra also saw increases of more than 30%. Unlike Bihar, pre-pandemic death registration in Maharashtra and Gujarat was estimated to be quite high by both the SRS (100% for both Maharashtra and Gujarat) and the NFHS (84% and 91%, respectively). So these large increases in mortality cannot be explained by improvements in registration. Even in Bihar, where registration levels were quite poor before the pandemic, it is unlikely that the increase in registration is due to increased completion. As we remarked earlier, it is more likely that completion suffered during the pandemic.

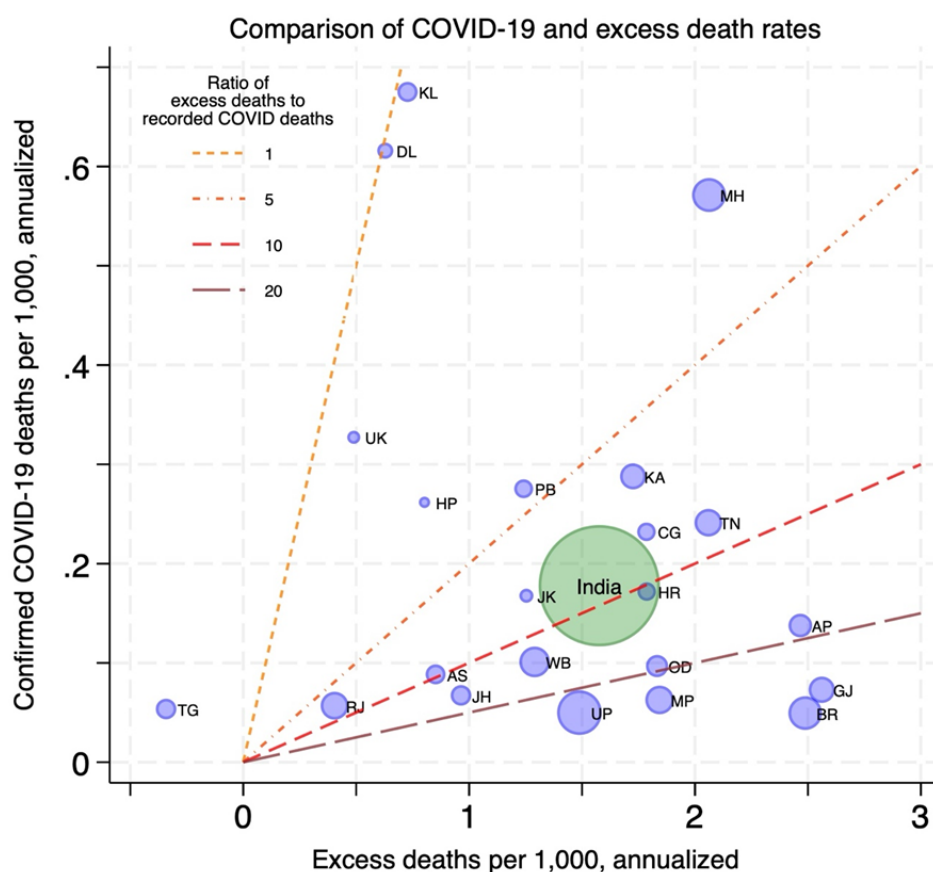
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States such as Andhra Pradesh, Chhattisgarh, Haryana, Jammu and Kashmir, Madhya Pradesh, and Tamil Nadu saw above average increases in death registrations. Except for Chhattisgarh and Madhya Pradesh, most of these states also had decently performing registration systems before the pandemic. In contrast, excess death registrations in Kerala, Delhi, Rajasthan, and Uttarakhand were relatively low. One notable outlier is Telangana, where average deaths registered during 2020–21 were lower than in 2019. This data is at odds with a [significant reported surge](#) in death registrations in Hyderabad during April 2020 to May 2021, leading us to speculate that there might be questions around the integrity of the Telangana data. This would benefit from further investigation.

Comparing death rates

It is instructive to use the state-wise data to try and quantify the extent to which reported Covid-19 deaths underestimated the pandemic death toll in different states. While not all excess deaths were necessarily directly from the disease, the disparity between these numbers is likely a good measure of the extent of undercounting of Covid-19 deaths. Figure 2 compares reported Covid-19 deaths per 1,000 people with excess deaths per 1,000 people for 2020–21.

Figure 2: Covid-19 Deaths Were Much Lower than Excess Deaths in Most States



We see that nationally there were around nine times as many excess deaths as reported Covid-19 deaths. But the variations are huge. At one end of the spectrum, Kerala appears to have captured the great majority of its excess deaths as official Covid-19 deaths. At the other end, states such as Uttar Pradesh, Madhya Pradesh, Gujarat, and Bihar saw eye-watering disparities between reported Covid-19 deaths and excess deaths, with more than 20 times as many excess deaths as reported Covid-19 deaths.

That official Covid-19 data from these states almost entirely failed to capture the pandemic toll was the backdrop to propaganda dressed up as science. For example, the [2021 Economic Survey](#) included bold statements such as “Uttar Pradesh, Gujarat and Bihar have restricted the case spread the best”, a statement entirely at odds with both seroprevalence and mortality data. Meanwhile, Indian Institute of Technology, Kanpur released a [highly publicised report](#) praising the Uttar Pradesh government’s stellar management of the pandemic resulting in low pandemic mortality. On the other hand, [our own extrapolations from local reports](#) suggested there could have been a quarter to half a million second-wave Covid-19 deaths in Uttar Pradesh, consistent with the civil registration system data now available.

More striking than differences in pandemic mortality [...] are the huge variations in the extent to which the official Covid-19 death toll reflected the true loss of life.

Significant attention throughout the pandemic focused on a few regions such as Delhi, Kerala, and Maharashtra, from where a large fraction of the cases and confirmed Covid-19 deaths were reported. Media and government commentary sometimes suggested that the poor management of the pandemic was to blame for the rapid spread of disease and consequent high mortality in these regions. While Maharashtra was severely affected, the effect was magnified by the fact that it reported many more of its deaths than most other states. Delhi and Kerala, on the other hand, almost certainly saw considerably lower mortality than states such as Bihar, Madhya Pradesh, and Gujarat. But weak monitoring of Covid-19 cases and deaths in the latter states meant that they did not feature prominently in much of the discourse at the time.

Summary

To summarise, recently released official mortality data for 2021 indicates around 3 million excess death registrations during the pandemic, corresponding to a likely total of more than 4 million pandemic excess deaths, around nine times the official Covid-19 death toll. These numbers are close to previous estimates based on partial data, and conclusively confirm that the pandemic toll was many times higher than official figures suggested.

To this day, there has been no government recognition of the extent to which the Covid-19 pandemic hit India. It remains to be seen whether this will change now that such a clear story has emerged from the government's own data.

State-level data adds new layers to the story. It suggests some variability in the extent to which the disease hit different regions; but we must bear in mind that layered over any epidemiological explanations are local patterns of civil registration and pandemic disruption. More striking than differences in pandemic mortality per se are the huge variations in the extent to which the official Covid-19 death toll reflected the true loss of life.

A few states and territories appear to have captured the majority of their pandemic deaths in official data. This suggests that pandemic mortality surveillance in a country like India is not a hopeless cause. On the other hand, several of India's most populous states almost entirely failed to record pandemic deaths. Some of this could be explained by relative levels of development, and consequent variations in health and testing infrastructure. But, in addition, the extreme politicisation of pandemic data, driven from the centre, no doubt incentivised weak data gathering and data manipulation.

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