# A STATISTICAL STUDY ON THE IMPACT OF COVID-19 ON HEALTH IN INDIA

- The first reported case and the initial reaction to COVID-19

The first official cases of COVID-19 were recorded on the 31st of December, 2019, when the World Health Organization (WHO) was informed of cases of pneumonia in Wuhan, China, with unknown cause. On 7th January, 2020, the Chinese authorities identified a novel coronavirus, temporally named 2019-nCoV, as the cause of these cases.

Weeks later, on 30th of January 2020, the WHO declared the rapidly spreading COVID-19 outbreak as a Public Health Emergency of International Concern. It wasn't until the following month, however, on the 11th of February that the novel coronavirus got its official name - COVID-19. Nine days later, the US Centers for Disease Control and Prevention (CDC) confirmed the first person to die of COVID-19 in the country.

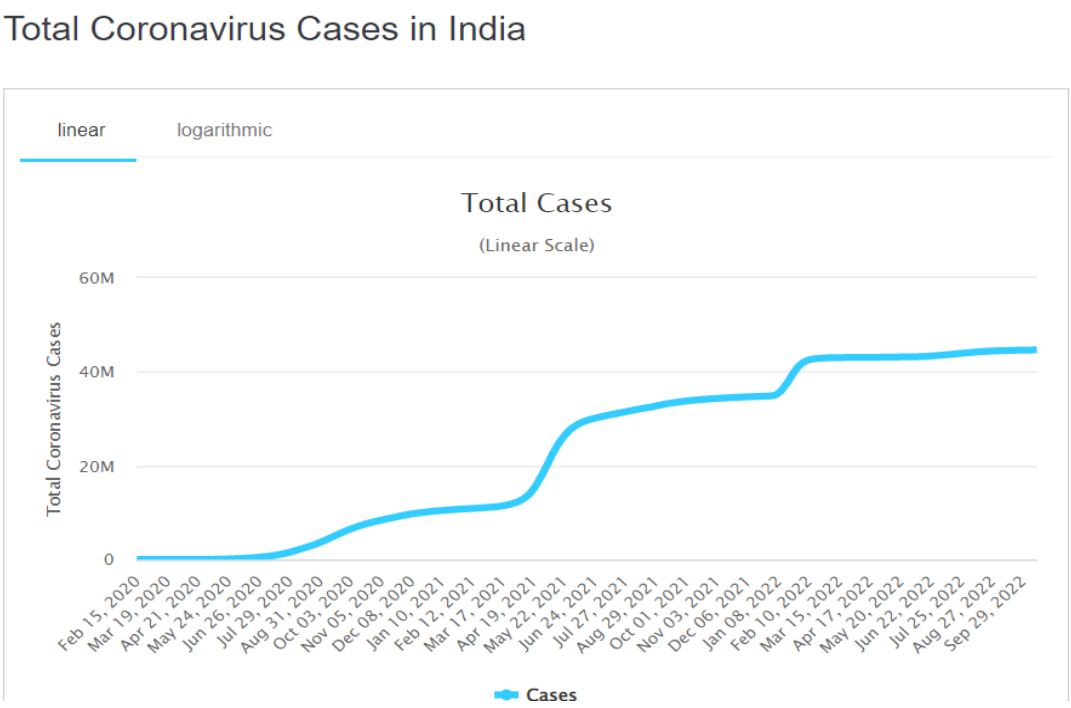



Fig 1: Total Coronavirus cases in India

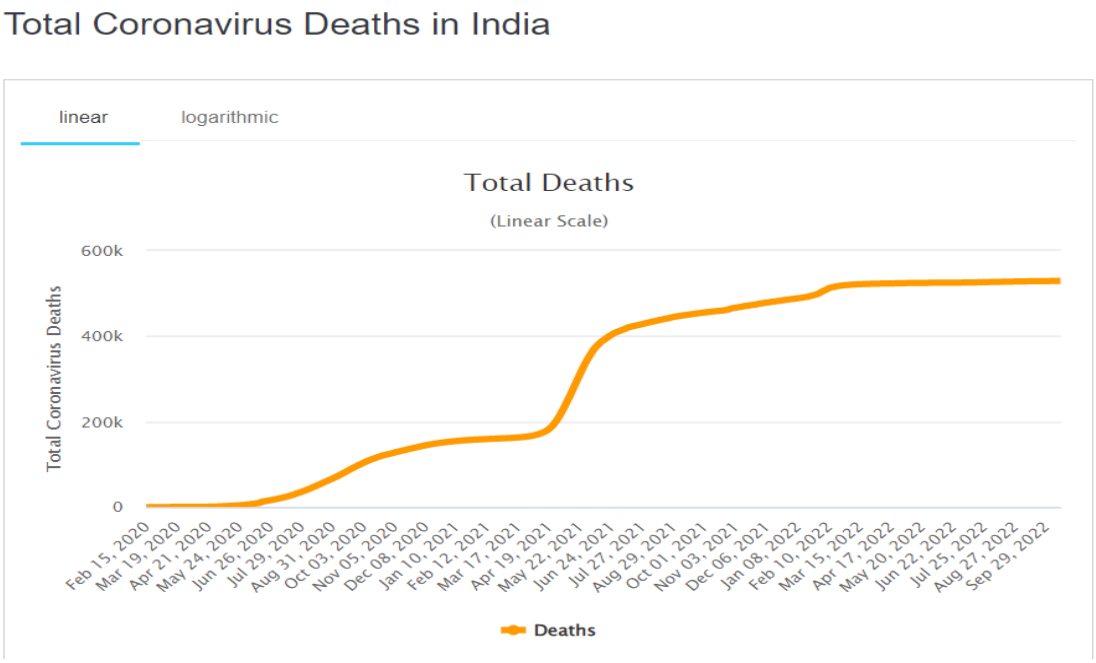



Fig 2: Total Coronavirus Deaths in India

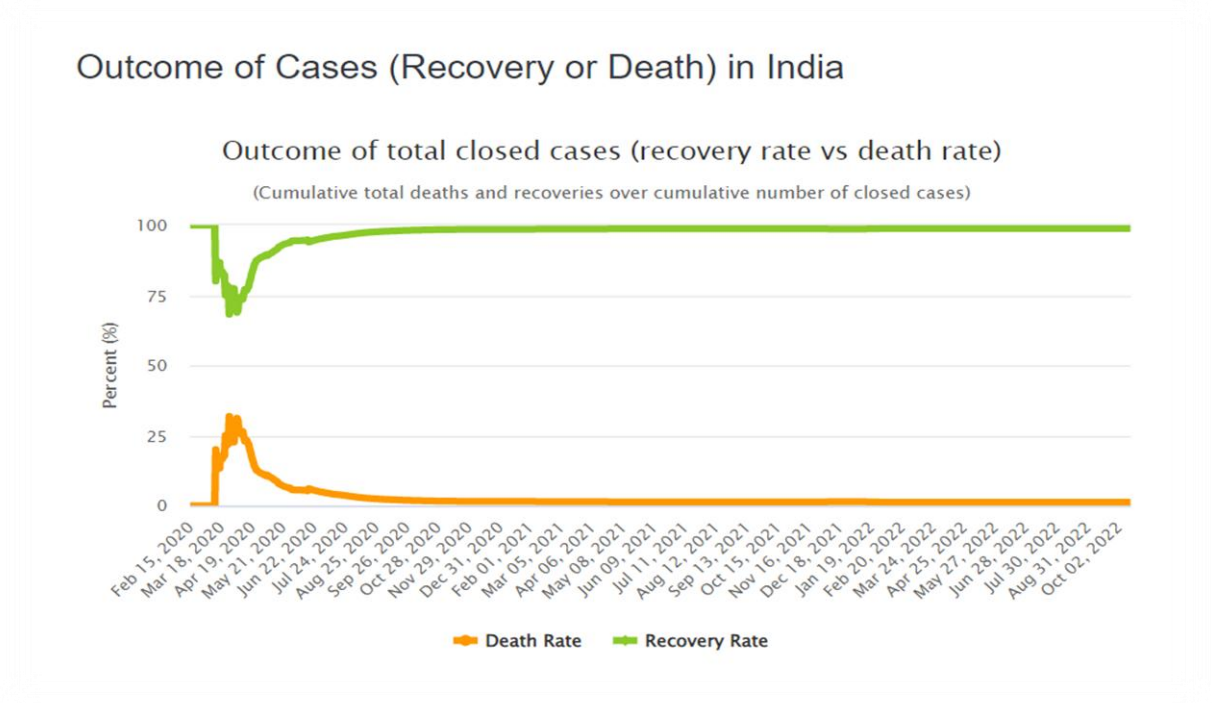



Fig 3: Outcomes of cases (Recovery or Death) in India

Source = https://www.worldometers.info/coronavirus/country/india/

- We discuss in brief what happened in first wave and the second wave

1.Increase in Cases

The increase in the number of cases in the first wave has been more gradual. While the first wave of COVID-19 touched approx. one lakh cases in India, it was a more gradual increase, than the second one.

In comparison, the rise has been sharper in the Second wave. In the Mid-February, India was recording approx. 10,000 cases per day. However, by the end first week of May, the daily tally had touched an average of 4 lakh cases.

2. Response to the Pandemic

The focus in the first wave, was majorly on arresting the import of virus, by monitoring the inflow of passengers from the affected countries. The arrival of an unfamiliar virus with its rising death toll led to an increase in fear in the country, leading to the announcement of lockdown. This gave time to revamp and scale-up the health infrastructure to match the rising spread of the pandemic.

The second wave has been characterised by a false sense of normalcy. The elections in multiple states, including assembly as well as Panchayat elections have led to large gatherings. Also, Public places were opened and there were large religious gatherings leading to crowded places and spread of virus. Apart from that, the focus has now shifted from stopping the import of the disease to stopping the community transmission between the already infected and the rest of the population.

3. Medical Treatment

While, to this date, the confusion prevails over the treatment of COVID, the first wave was relatively more confusing for the medical professionals. Also, there was a complete absence of vaccines at that time, leading to a sense of helplessness.

The social media has been replete with cries of help from the people, asking for hospital beds or oxygen cylinders for their loved ones. This shows a gross state of unpreparedness in the health infrastructure. The creation of new facilities is not proportionate to the rising number of infections.

- **Front line health workers facing stress, anxiety and burnout**

As the State rides the third wave of COVID-19 and the focus shifts to how normal life can be resumed, the crippling impact the pandemic has left on the State’s health system is more stark than ever.

Two years of fighting SARS-CoV-2 has been catastrophic not just for the State's health system, which expended all its energy on futile exercises to tie down the virus and lay claim to exceptionalism, but also the healthcare workers, most of whom are exhausted and suffering burnout.

The stigma surrounding COVID, anxiety over personal safety and that of families back home, physical rigours of operating donning a suffocating PPE kit and helplessness of having to watch people die every day were humbling and distressing, said doctors.

## Covid-19: India outrage over 'no oxygen shortage death data' claim

Corona virus: 'India's healthcare system failed my family'

People are waiting for up to 12 hours to get a cylinder filled

- Why India is running out of oxygen again?

To try to get supplies to where they are needed, the government has now started an "oxygen express", with trains carrying tankers to wherever there is demand. The Indian Air Force is also airlifting oxygen from military bases. The government has said it will be releasing oxygen supplies from armed forces reserves and has approved plans for more than 500 oxygen generation plants across the country to boost supplies.

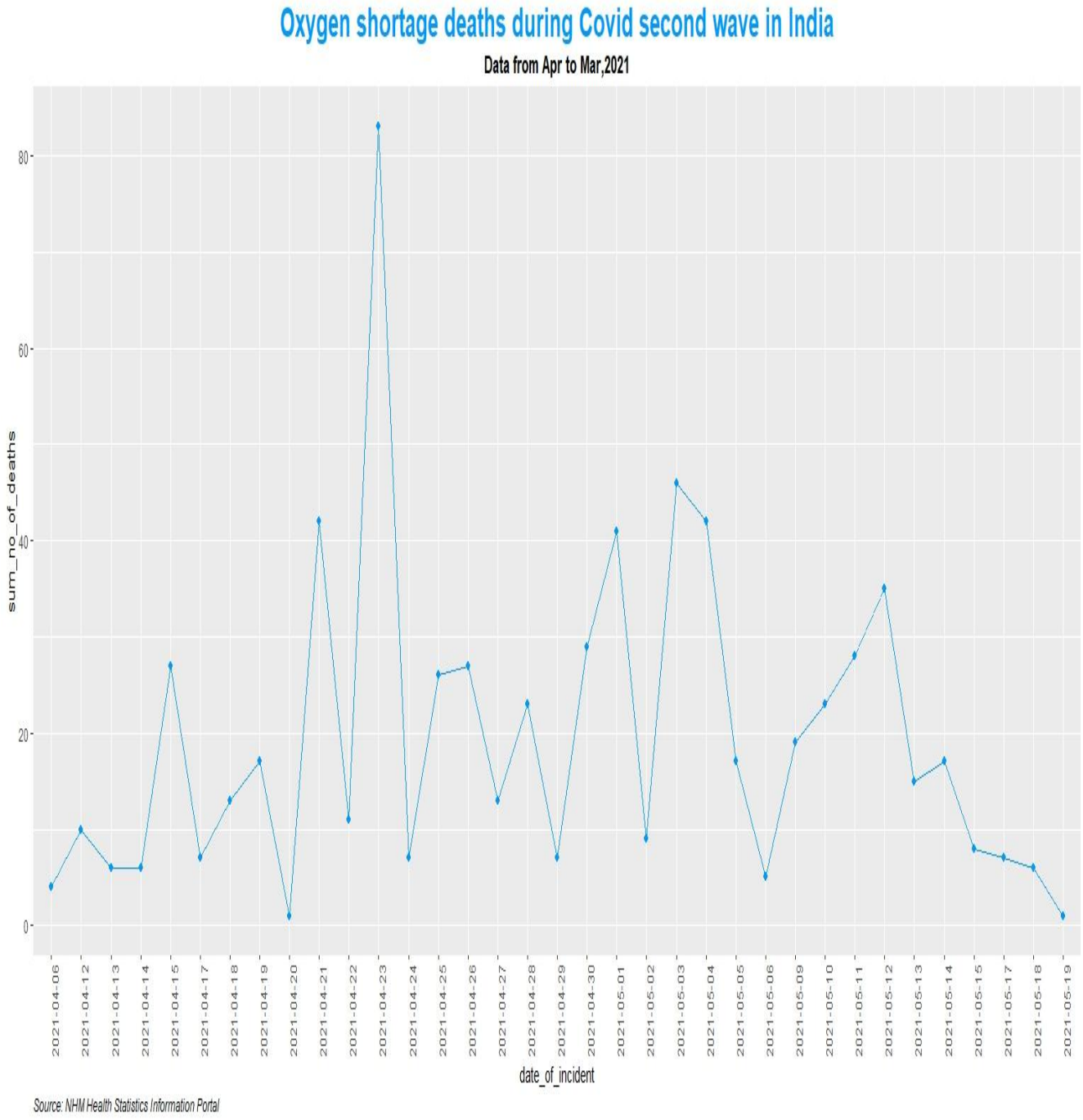



Fig 4: Oxygen shortage death during covid 19 second wave in India

**Data source link:**

https://raw.githubusercontent.com/datameet/covid19/master/data/oxygen_shortage_deaths_in_india.csv

- **Covid vaccine: India becomes second country to cross two billion Covid jabs**

The Serum Institute of India (SII) was due to supply around half of the two billion vaccines for Covax this year but there were no shipments for March, April or May. The shortfall is expected to rise to 190 million doses by the end of June.

"Unfortunately, we're in a situation where we just don't know when the next set of doses will materialise," said Gian Gandhi, Unicef's Covax co-ordinator for supply.

The move came days after the country cut the gap between the second and third doses of the vaccine to six months from nine.

The Hindustan Times newspaper reported last week that 92% of Indians who were eligible for a booster dose haven't taken it yet.


Vaccine crisis in India

- **Impact of COVID-19 pandemic on health system**

**How has this impacted healthcare companies in India?**

While public policy measures have been implemented to contain the spread of COVID-19, the measures have resulted in significant operational disruption for many companies including those in the Indian healthcare industry. Staff quarantine, supply-chain failures, and sudden reductions in customer demand have generated serious complications for companies across a wider range of sectors than initially anticipated. For most, the revenue lost in this period represents a permanent loss and has put sudden, unanticipated pressure on working capital lines and liquidity.

Despite the current crisis being a healthcare issue, the private healthcare system in the country continues to reel under the negative impact of COVID-19. There has been a significant drop in both in-patient and out-patient footfall for private hospital chains—be it a single speciality, multi-speciality, tertiary-care hospitals or even diagnostics businesses, during this lockdown.

This sudden decline in business has had an immediate effect on hospitals' ability to sustain fixed costs. The inability of new centres/hospitals to start generating cash, debt repayment obligations, decreased levels of medical tourism, and increased scheme revenues (which represents credit revenue) are some of the many factors impacting cash flow.

## • Best Healthcare Apps in India

Do you know India sets a new world record by administering over 75Crores Covid vaccine doses in the fight against corona? Thanks to the CoWIN app, the indigenous healthcare app in India that protects you from the precarious effects of coronavirus. The app allows you to follow a 3-step easy process viz.,booking an appointment, getting the vaccine as per slot allotted, and finally, downloading the COVID certificate, your licensed health certificate. The pandemic has accelerated digital adoption in healthcare, and people are increasingly resorting to web & mobile app-based home healthcare services, telemedicine. All these trigger digital health leading to quality personalized healthcare services across geographical boundaries. Be it healthcare providers, hospitals, clinics, businesses, or patients, healthcare apps are dominating the healthcare sector in India. Let's find out a few of the best healthcare apps in India!

- **Google Playstore –** *Free & Paid Apps*

**1. PharmEasy –** Online Medicine **Ordering App**

PharmEasy app is one of the most popular healthcare apps in India specializing in online pharmacy. It allows you to buy healthcare products, medical equipment, and OTC products online. You can even book online diagnostic tests and other preventive health checkups from the comfort zone of your home. **Online Rating** – 4.5

**2. Practo- Online Doctor Appointments & Consultation**

Practo app allows you to access a wide network of multiple clinics, doctors who provide online consultations to patients across the country. The app has more than 5 million installs by now across India. Patients can have a direct chat and calls with the doctors. The app uses Google Map to identify doctors who are available in the locations near to patients. **Online Rating** – 4.5

**3. mFine**

mFine has 2 million app downloads. It offers 24*7 AI-enabled telemedicine services The very app connects more than thirty specializations for consultancy services. A patient has to pay for booking an appointment over the app but needs not to pay again during follow-ups. The app

arranges for personalized digital prescriptions as well as home-diagnostic tests. **Online Rating** – 4.5

**4. Pedi -STAT**

A significant healthcare app for pediatric patients in the emergency and critical care wards. Pedi-STAT app works for a timely and rapid reference for paramedics, RNs, physicians, and pediatricians. **Online Rating** – 4.5

**5. Critical – Medical Guide**

A marvelous app that takes care of the entire critical care needs and a comprehensive guide for that regard.A complete critical care reference app for RNs, physicians, and other healthcare professionals. **Online Rating** – 4

- **iOS Appstore –** *Free & Paid Apps*

**1. Apollo 247**

Apollo 24|7 app provides outstanding app- services like a personalized level of health experience in all, priority access, and valued Prices. Absolutely a complete healthcare buddy that is available 24*7 anywhere in India. **Online Rating- 4**

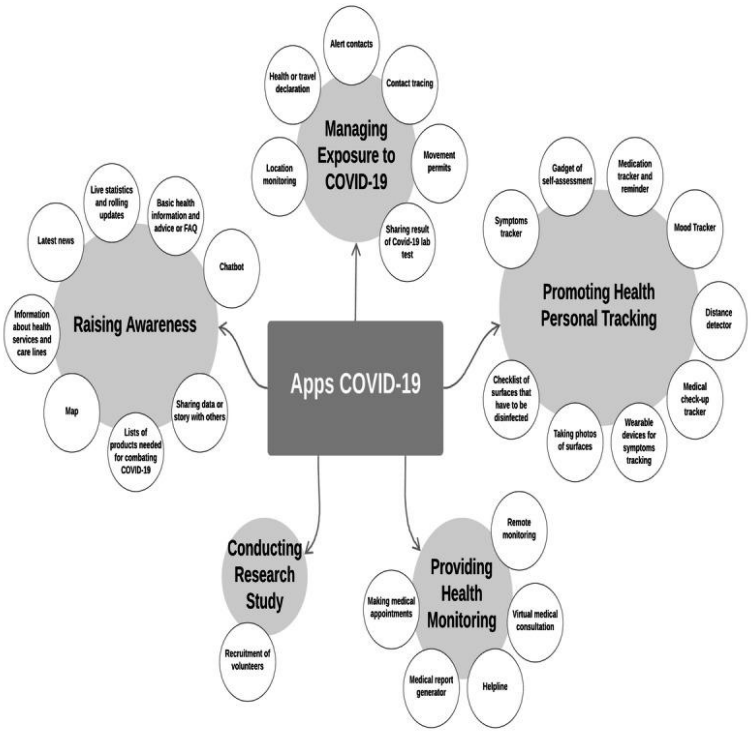
**2. Netmeds**

Netmeds app makes your medicine delivery an easy process. The Netmeds healthcare app in India also allows you to consult doctors online, book lab tests, and obviously, home delivers your medicines. **Online Rating-4.5**

**3. Hompath FireFly**

It is a popular homeopathy app based in AppStore. Hompath FireFly app refers to 10 repertories directly from Kent, Boericke, Kent, Boenninghausen, and many more, while effectively managing patients' cases over virtual mode anytime, anywhere. **Online Rating – 3**

- ## Purposes of Apps Related to COVID-19

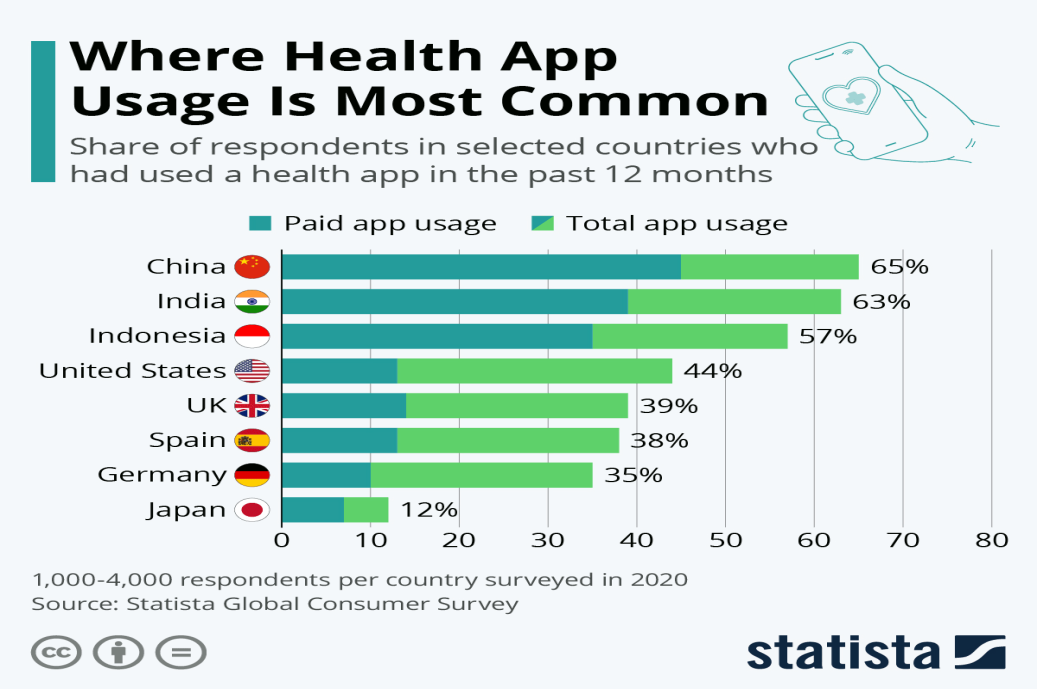



- ## Future of health care apps in India

By KPMG Mantra Editorial Team the contagious nature of COVID-19 and its adverse ramifications necessitated a significant transformation across the global healthcare ecosystem. Precipitated by the rising demand for effective treatment, we observed a surge in digital technologies within the ambit of healthcare, leading to the evolution of an array of solutions comprising e-pharmacies, teleconsultation, e-diagnostics, among others. This is clearly reflected in the tremendous growth of the digital healthcare market. Valued at INR116.6 billion in 2018, it is expected to reach INR485.4 billion by 2024, at a CAGR of ~27.4 per cent during the 2019-2024 period.

While the decrease in physical interactions and mobility has enabled patients to get online services, increasing internet penetration together with the adoption of e-commerce has further accentuated the demand for digital healthcare. Unquestionably, tools facilitating affordable consultations and an easy interface connecting everyone across health systems are likely to be the new normal. This imperative transformation is gradually helping seep healthcare access to smaller towns and rural areas.

- **Comparison of usage of health apps for India with other countries**



- ## Effect on mental health, unemployment and surge in suicidal cases:

Suicide rates in India increased during the first year of the COVID-19 pandemic, and although the increase in suicide rates, especially among males, predates the pandemic, the increase in suicide rates was highest in 2020, compared to increases in previous years. Further research is warranted to understand the potential ongoing impact of the COVID-19 pandemic on suicide in India. Mental health services in India have undergone a period of scaling up over the past decade, and new initiatives were commenced during the COVID-19 pandemic. Yet, as in many middle-income countries, critical shortages remain in mental health personnel and other health system infrastructure in several parts of the country. It is possible that the mental health system in less developed parts of India was less able to be as responsive to the increased mental health burden in the community during the COVID-19 pandemic compared to settings with more resourced mental health systems. Moreover, mental health issues are highly stigmatized in India, contributing further to gaps in help-seeking and service provision.

It was observed that the increase in suicide rates was substantially greater among males compared to females. The traditional role of males as the—"breadwinners"—of the family in India and the pressures of providing for the family have been highlighted as a potential reason for male suicides in India. While untested, it is possible that the economic consequences of the pandemic (e.g., loss of job/income) and the associated role strain and shame might have been experienced more severely, on average, among males.

Crude suicide rates from 2010 to 2020 were calculated for the three specific groups of Indian states categories based on their Sociodemographic Index (SDI); low SDI, middle SDI and high SDI, with the low SDI states being the most underdeveloped in terms of per capita income and literacy and fertility rates In India, the higher increase in male suicide rates in low SDI states, compared to middle and high SDI states, might be reflective of the severity of the negative social and economic impacts of the pandemic among already disadvantaged households.

In conclusion, suicide rates in India increased in 2020, and although this occurred in the context of increasing trends in suicide, the increase in suicide rates was higher in 2020 compared to preceding years. The increase was more pronounced among males compared to females. The reasons for an increase in suicides in 2020 are not clear but the social disruptions caused by the COVID-19 pandemic might have, in part, contributed towards this increase above what would otherwise have been expected. However, further research is required to measure potential impact of COVID-19 on suicide rates in India. Ongoing monitoring and consideration of specific sub-populations (e.g., age-groups, religion, and caste) remains paramount in order to determine any ongoing impacts of the COVID-19 pandemic on suicide rates in India.

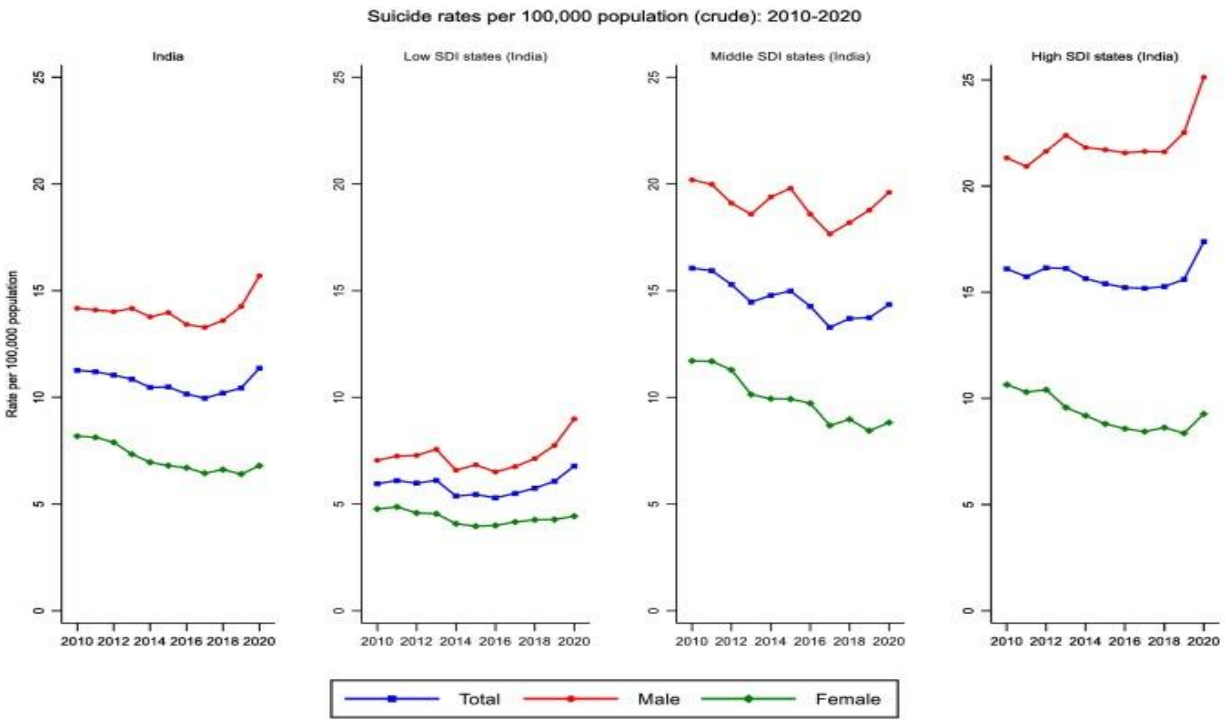



Fig5: Suicide rates (crude): India and by Socio-Demographic Index (SDI) state categories (2010–2020).

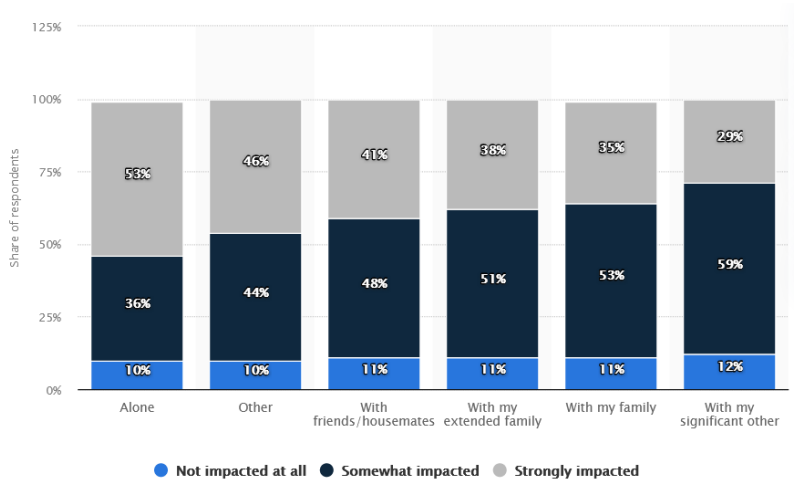
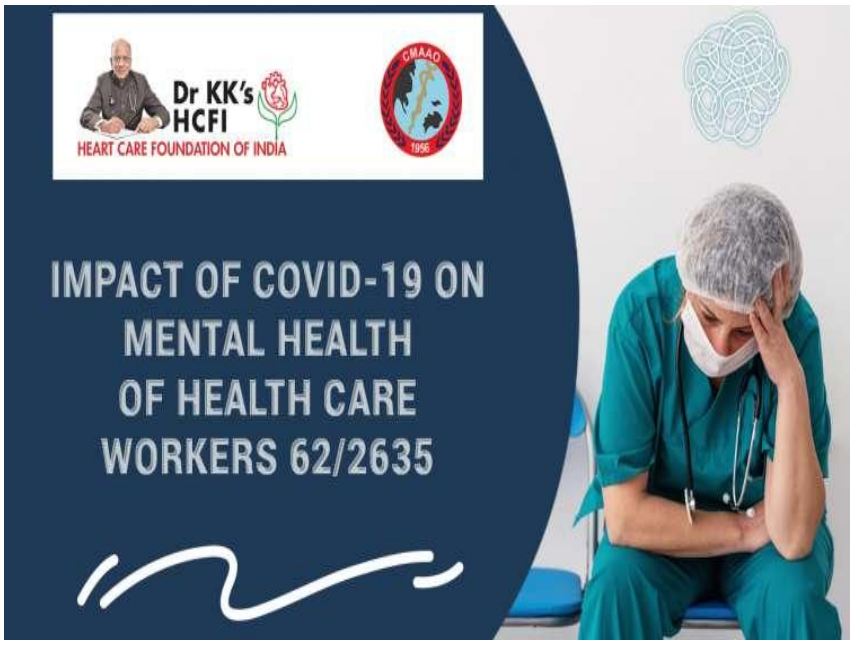



Fig 6: Impact on mental health during the corona virus (COVID-19) lockdown in India as of April 2020, by companion

Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8983610/#bb0050

## Mental Health impact on MHWs

Scoping review highlighted working during the pandemic has causing elevated levels of anxiety, burnout, depression, and stress among MHWs. The primary data echoed similar findings with elevated stress levels, anxiety, fear and mental fatigue Primary reasons gleaned from both primary and secondary data include long working hours, increased workload, and fear being infected and/or infecting family members. MHWs engaged in direct management of COVID-19 in ambulatory services, ICU, and isolation facilities have been most affected. Additionally, primary data highlighted dealing with difficult patients and family members, change in roles and responsibilities and resource constraints as reasons.




## Impact on Physical health of MHWs

Stress on the health system has severely impact MHWs physically. Working conditions of MHWs, demands of the job, and susceptibility to infection has resulted in insomnia, lethargy, loss of appetite etc. Psychological distress and physical stress have been positively associated. Primary data highlights increased instance of fatigue, exhaustion and burnout, stemming from increased workload and the use of PPE kits. PPE kit usage further led to suffocation, dehydration, and skin conditions



- ## Conclusion

As we enter the COVID-19 recovery phase, it will be critical to reflect on the role of health systems - in fostering resilient societies. The global health crisis and the lockdown that followed have brought to the fore professions that have often been taken granted, renewing our awareness of their value to society. This helped restore a sense of esteem for those workers who have worked relentlessly during this time to keep economies afloat.

The frontline healthcare workers are at risk of physical and mental consequences directly as the result of providing care to patients with COVID-19. Even though there are few intervention studies, early data suggest implementation strategies to reduce the chances of infections, shorter shift lengths, and mechanisms for mental health support could reduce the morbidity and mortality amongst HCWs.

The most commonly reported adverse events with COVID-19 vaccines are expected vaccine side effects, such as headache, fatigue, muscle and joint pain, fever and chills and pain at the site of injection. The occurrence of these adverse events is consistent with what is already known about the vaccines from clinical trials.

The impact of COVID-19 pandemic and lockdown on health and healthcare was negative. The exaggeration of income inequality during lockdown can be expected to extend the negative impacts beyond the lockdown.

- # References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