REVIEW ON INDIA'S CRISIS MANAGEMENT: SARS-COV-2 PANDEMIC

This paper reviews the second wave of SARS-CoV-2 outbreak management in India by exploring the combination of scientific, political, public, and media responses. A lack of coordination between lawmakers and governing bodies, institutional claim-makers, and the media, between scientific and political levels suggests broader mismanagement of the Covid crisis during the second phase of the outbreak. Unless strict action is taken to combat this crisis millions of lives across the world are threatened. Many policymakers are facing a critical time as SARS-CoV-2 is slowly affecting the millions in the countryside. Despite the prolonged warnings from researchers and medical experts, decision makers are not taking things as grave as they have been predicted. This paper contributes towards informing lawmakers on significant lessons learned from the management of the SARS-CoV-2 in the second-most populous country in the world.

Introduction

This paper investigates the poor management practices by exploring the combined effort of scientific, media and political responses to the second wave of double mutant SARS-CoV-2 outbreak in India. In December 2019, the Chinese authorities reported a cluster of pneumonia cases of unknown aetiology in Wuhan (Hubei Province, China) (Corman Jan 2020) and on January 7, 2020 a novel Covid-19 was identified (WHO 2020a). Two weeks later, a new variant of coronavirus named as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was identified. SARS-CoV-2 is similar to the crown (Corona), which belongs to the species Betacoronavirus, similar to the severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV). Few months later, it spread across 18 countries (excluding China), and on January 30, 2020, the World Health Organization (WHO) declared the SARS-CoV-2 outbreak to be a Public Health Emergency of International Concern (PHEIC). Subsequently, on March 11, it was declared a global pandemic as it had spread to 113 countries including India. By March 31, 2020, more than a million people were affected. In terms of fatality, the rate of SARS-CoV-2 is 3.44%, lower than MERS-CoV (34.4%) and SARS-CoV (9.19%), although the absolute numbers affected are more.

Literature Review

The trajectories of the outbreak were classified as impossible to predict, but effective counter measures and prompt actions were encouraged to contain the spread of the infection (Ruiu Mar 2020). The WHO announced the global imperative for the scientific community to broadly share scientific advances and create collaborations to effectively and rapidly inform decision makers (Public Health Emergency of International Concern [PHEIC] 2020) (Ruiu Mar 2020). This paper investigates the Indian case study, which became the most affected country in the world and with India accounting for 46% new cases. This paper reviews the effects of emergency response strategies adopted by India, given that both transparencies of information and containment measures are important to control the spread of the virus. This is important in a risk-management perspective due to a potential spread of panic and stigmatisation of people affected (or suspected to be) by the disease (Weiss 2006). The Indian case study offers the opportunity to identify some gaffes in managing the crisis which could be the lesson for other countries to control the spread of this virus.

SARS vs SARS-CoV-2

SARS outbreak took place in 2002 in China and infected 8,422 people globally (Chan-Yeung 2003). The total number of deaths was 916 globally (Chan-Yeung 2003). As of March 31, 2020, the SARS-CoV-2 has infected over a million and has caused more than 50,000 deaths (WHO 2019). One reason why its spread is evidently much wider as compared to SARS is the rapid urbanisation and the increase in international travel during the last two decades. Hence, the control measures applied at the time of SARS are no longer adequate in these days, and more vigorous actions are required to control SARS-CoV-2 (Wilder-Smith A 2020). Another reason is related to a difference in the infectious period between patients infected with SARS and those infected with SARS-CoV-2. While in the former case, viral shedding peaks only when the patient's illness is advanced and respiratory symptoms occur, (Wilder-Smith A 2020) for SARS-CoV-2, transmission can occur in the early phase of the illness, when the patients are completely asymptomatic (A 2005).

Hence, isolation after the onset of symptoms might be ineffective in preventing virus transmission and this also makes temperature screening less effective (Quilty BJ 2019). Finally, SARS-CoV-2 has been proven to hold higher transmissibility and wider community spread than other betacoronaviridae (Wilder-Smith A 2020). Despite being highly infectious and having higher transmissibility, the severity of SARS-CoV-2 is much lesser compared to SARS (Wilder-Smith A 2020).

Lineage B.1.167

"Double mutation" refers to B.1.617's mutations in the gene observed in SARS-Cov-2 spike protein breaking in into E484Q and L452R. This is identified as 21A clade under Nextstrain phylogenetic classification system.

The detection of B.1.617 variant has caused havoc in some countries due to the lack of specialized kits for laboratories that can perform the testing. For instance, as of 18 May 2021, Pakistan has not reported any cases, but authorities noted that 15% of COVID-19 samples in the country were of an "unknown variant"; they could not say if it was B.1.617 because they were unable to test for it. Other countries have reported that the travellers arriving from Pakistan, were infected with B.1.617 (SHAKIL 18 May 2021).

Responses and Strategies

On February 10, 2021, at the start of the second wave, 11,000 cases were confirmed in India. The new SARS-CoV-2 variant has more than one mutation that differentiates it from previous virus variants already spread among the global population. The India variant which officially called B.1.617.2 is one of the four mutated versions of Covid-19 first identified in Maharashtra, India on 5 October 2020. It has been classified as a double mutation variant.

The second wave of SARS-CoV-2 has seen a significant rise in recorded deaths of more than 300,000 since the pandemic hit India in 2020. Around 40% of these deaths have occurred since the beginning of March 2021. The mortality rate in India surpassed all records as compared to the world mortality percentage. As of 14th, May 2021, Asia recorded over 5,600 daily Covid-19 deaths of which India accounted for more than 4,000 fatalities. Death was so omnipresent that crematoriums were running out of spaces in many metropolitans and glowing funeral pyres blazed throughout the nights and still there was a long queue. Cremations and burial grounds ran out of space and dead bodies were cremated on the roads outside crematoriums and in some reported cases bodies had to be taken to the outskirts of the city limits to perform the last rites. The above being only a tip of the iceberg, there were many more issues pertaining for those alive and struggling to at least breathe. The essential medicines known to cure Covid-19 ran out of stock. The most basic treatment -oxygen therapy was in short supply, leading to unprecedented mortality rate. Even hospitals with basic amenities i.e., beds, ventilators, ambulance services were scarce at grassroots levels. Basic tests done at Primary Health Centres took days to get the results furthering the delay in medication.

The first lockdown itself was a wake-up call for the administration to gear for another grave pandemic. Laxity on the part of the administration in handling the pandemic induced black-marketing of medicines and other essentials. Taking advantage of the shortage, black marketers have been selling essential drugs at high prices. Prices for remdesivir in the black market, which had been produced by several Indian pharmaceuticals, increased up to 20-fold to about $1,000 for a single vial.

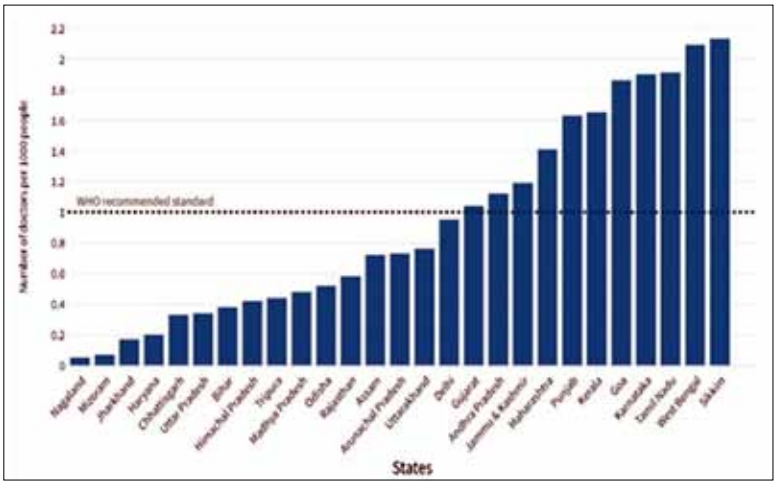

Chart -1: **Doctor to Population ratio for Indian states**

India's latest treatment guidelines by Indian Medical Council Research (ICMR) mirror those of the World Health Organization and the United States with a key exception: ICMR allows mildly and moderate ill patients to be given hydroxychloroquine or ivermectin, drugs used for certain tropical diseases. There is little evidence that these medications work against Covid-19 and the WHO strongly recommends against hydroxychloroquine and ivermectin's use for Covid-19 except in studies.

The deadly second wave in India caught an already weak public healthcare system unaware and unable to cope with no administrative responses to emergency hospitalisation. The World Health Organization (WHO), recommends a standard doctor to population ratio of 1:1000. Data shows that only 11 among India's 28 states meet the WHO standards. While India has a booming private healthcare sector, the PHCs operate at a dismal ratio of 0.08 doctors for 1000 people. The Indian states with the highest shortfall of doctors are Odisha, Uttar Pradesh, Chhattisgarh, and Madhya Pradesh that account for a huge share of India's rural population of more than 800 million. While Goa has the highest number of registered doctors, with a ratio of almost 2:1000. Incidentally, in the first wave, Goa was the first Indian state to be COVID-19 free, with no active cases.

Given that the PHCs are the basic functional and structural units of public health services, it is important to ensure that decision-makers must start addressing the shortage of doctors in that area. As per the 2018 government data, 10 Indian states face a shortage of doctors at Public Healthcare Centres. The need of the hour is to address this demand-supply gap in the healthcare sector. Many doctors in PHCs and private hospitals are already working overtime in shifts to decrease the spread of the disease. Yet, reports are emerging every day of doctors contacting COVID-19 and having to quarantine themselves. In the first wave of the pandemic in 2020, almost 750 doctors had succumbed to the virus, as per the Indian Medical Association, a voluntary organisation of medical professionals. On May 17, 2021, IMA stated that nearly 300 doctors succumbed to the disease in the second wave.

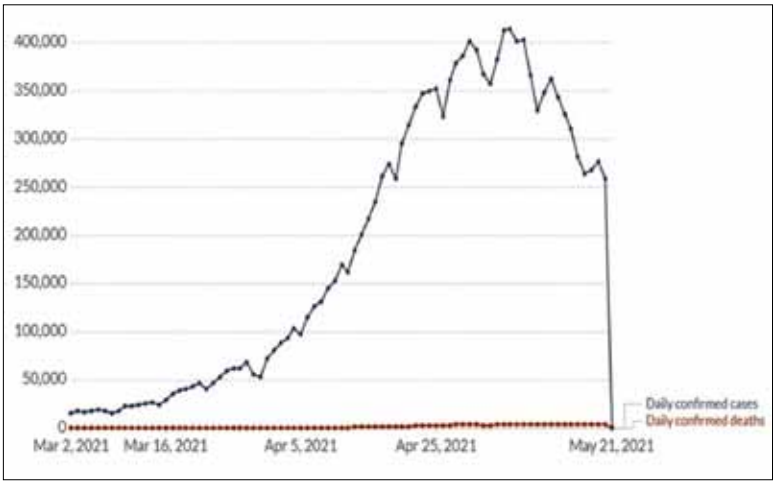

Chart -2: **Daily Confirmed Covid-19 Cases in India.**

B.1.617 Outbreak

Covid-19 has continuously spread for the last two years, but in every geography, there has been interval of surge that had been followed by relative break in the spread of this disease. In India, there has been two different intervals of surge, separated by an extended dull phase.

India's rise in positive cases began around mid-March and increased rapidly, spreading more than 400,000 recorded daily cases by 30 April 2021. And on Thursday, May 6, 2021, the daily recorded cases surged to a new high of more than 414,000 as shown below.

India's Covid Response

The second wave of SARS-CoV-2 has hit India hard, B.1.617, is believed to be responsible for many of these cases. Researchers and Medical experts believed that the Covid-19 pandemic offered a unique chance to witness the interplay between electoral politics and public opinion. The new study of *BMJ Collection on Democracy and Health*, was published in the online journal *BMJ Global Health* showed how political leaders and parties handled the pandemic, suggesting that how much health issues matter to electoral politics.

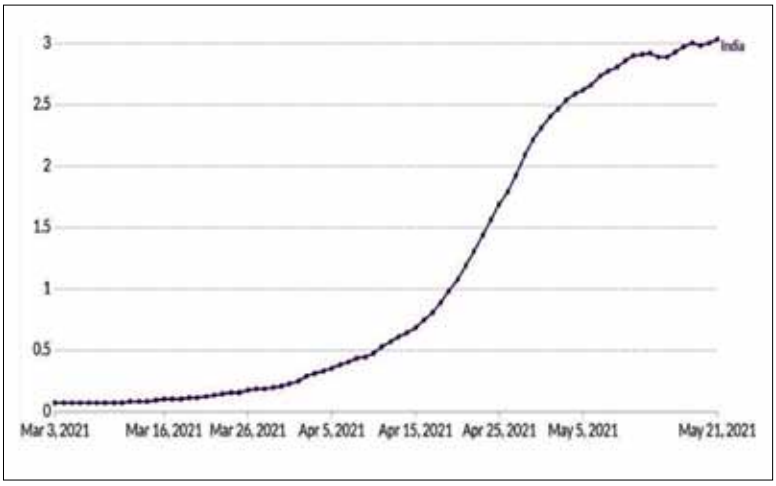

Chart -3: **Daily Confirmed Covid-19 Deaths per million people in India**

In early March 2021, the warning about the new variant, B.1.617 was issued by the Indian SARS-CoV-2 Genetics Consortium, or INSACOG. INSACOG shared its findings with the health ministry's National Centre for Disease Control (NCDC) before March 10, warning that infections could quickly increase in parts of the country. The INSACOG findings detected the signs of B.1.617 in 15% to 20% of samples from Maharashtra, India's worst-affected state. The lawmakers and bureaucrats took no steps to prevent gatherings and election campaigns that might hasten the spread of B.1.617 variant. According to the Ministry of Health and Family Welfare (MoHFW), India had 5,52,566 active cases as on April 1, 2021.

Proposed Strategies

India is the world's biggest producer of Covid vaccines, the predominant shots being used are the AstraZeneca shot, produced locally as Covishield, as well as an indigenous vaccine called Covaxin developed by Bharat Biotech. As on May 23, India had administered around 195 million doses of Coronavirus vaccines. In April, DGCI, Drugs Controller General of India approved Russia's Sputnik V vaccine for emergency use. According to government data, on May 4, only 30 million people have had the complete two doses of vaccine in India. That's a small number (just over 2%) of India's total population of 1.3 billion people – although around a quarter of that total are under 15-year old and are not eligible for a vaccine yet.

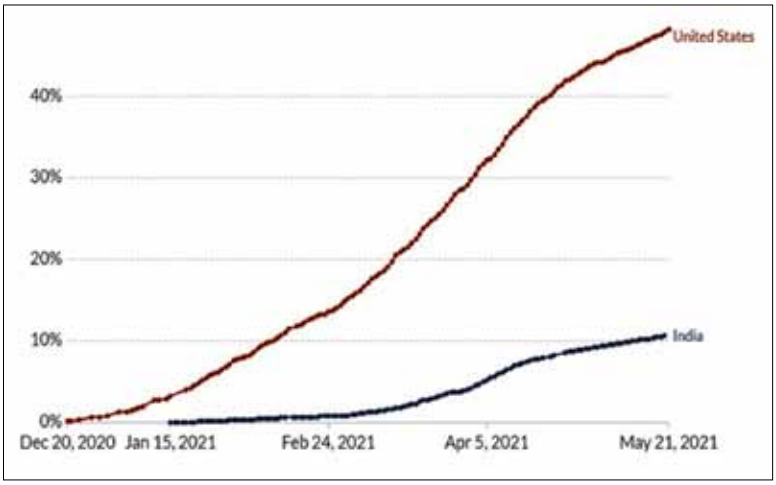

Chart-4: **Share of people who received at least one dose of COVID-19 vaccine**

The chart-4 shows the share of the total population that has received at least one dose of the COVID-19 vaccine. If a person receives the first dose of a 2-dose vaccine, this metric goes up by 1. If they receive the second dose, the metric stays the same.

The shortcoming in vaccine supplies has led to a deflection of blame over manufacturing capacity, vaccine prices and the destination of supplies. The real problem is the alarming shortage of vaccines due to lack of raw materials, delay in procurement, inadequate funds and restrictions imposed on export of essential supplies by developed countries.

Given the gravity of situation, the lawmakers and current officials must enumerate following strategies to ensure majority of the population have access to vaccines.

I. Foremost, the Indian government needs to take charge of all negotiations and procurement with vaccine manufacturers, foreign and domestic, without exception.

II. Centre must work with Serum Institute of India to ramp up the vaccine production. The Indian government needs to resolve conflicting demand for vaccine stock with SII and Covax, and take the responsibility to allocate vaccine stocks to the states and private facilities.

III. Pfizer and Moderna vaccines have the highest efficacy rate and works well on the B.1.617 variant. The Centre should work on procuring these vaccines which has ample manufacturing capacity. The two companies have added additional sites in the Europe and US to make the vaccine, and optimised production capacity that can be delivered within a time frame of 6-8 weeks.

IV. On May 1, the first consignment of 150,000 Sputnik V vaccine arrived in India, predominantly followed by larger supply. The Russian Direct Investment Fund entered into agreement with Indian Vaccine manufacturers to jointly ram up the production of Sputnik V vaccine, estimated around 850 million doses.

V. The World Health Organization has given the go-ahead to all the approved vaccines for emergency-use only. Medical experts in EU and India have raised concern for rare side-effects following vaccination by Covishield, and researchers in the US of Johnson & Johnson shots. Regulators and Scientists should keep a track of adverse events reported in India and foreign nations. In case of any adverse events, the Indian government should weigh the risk and carefully take appropriate measures.

Conclusion

The objective of this study is to contribute towards informing lawmakers on significant lessons learned from the management of the SARS-CoV-2 in the second-most populous country in the world. By studying vaccine allocation strategies and monitoring the progress of foreign and domestic vaccines under development, a





detailed plan supported by an effective review mechanism, has to be framed. The decision makers should help consolidate all vaccine supplies, under arrangement from all domestic and foreign companies. The supply plan should be classified into specific time intervals, monitoring daily for the first month, weekly for the next two months, and monthly for the next nine months, adding up to an annual plan. Realistically though, the vaccination drive would cover almost 2 billion shots by 2022, but this would depend entirely on the massive ramping up of vaccine production and the availability of efficacy and safety data of vaccine candidates. ■

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