

The Rise And Impact Of COVID-19 In India:Aarogyasetu App

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Abstract:

*The corona virus disease (COVID-19) pandemic, which originated in the city of Wuhan, China has quickly spread to various countries, with many cases having been reported worldwide of 8th May 2020 in India, 56,342 positive cases have been reported. In India, a population of more than 1.34 billion. The second largest population in the world have difficulty in controlling the transmission of severe acute respiratory syndrome coronavirus 2 among its population. **METHOD:** Multiple strategies should be highly necessary to handle the current outbreak include computational modelling, statistical tools and quantitative analyses to control the spread as well as the rapid development of a new treatment. The Ministry of Health and Family Welfare of India has raised awareness about the recent outbreak and has taken necessary actions to control the spread of COVID-19. The central and state governments was taking several measures and formulating several wartime protocols to achieve the goal. Indian government implemented as 55-days lockdown of the country. He started on 25th March 2020 to reduce the transmission of the virus. The outbreak is inextricably linked to the economy of the nation, as it has dramatically impeded industrial sectors because people worldwide are currently cautious about engaging in business in the affected regions.*

Keywords: COVID-19, SARS-CoV-2, India, economy, safety measures

CURRENT SCENARIO IN INDIA

Severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) it causes corona virus disease (COVID-19) was first identified in December 2019 in Wuhan city, China, and later spread to many provinces in China. 8th, May 2020, the World Health Organization had documented 3,759,967 positive COVID-19 cases and the death toll attributed to COVID-19 had reached 259,474 worldwide. It more than 212 countries and territories have confirmed cases of SARS-CoV-2 infection. On 30th, January 2020, the World Health Organization declared COVID-19 a Public Health Emergency of International Concern. The first SARS-CoV-2 positive case in India was reported in the state of Kerala on 30th, January 2020. Subsequently, the number of cases drastically rose. According to the press release by the Indian Council of Medical Research on

8th, May 2020 a total of 14, 37,788 suspected samples had been sent to the National Institute of Virology Pune and as related testing laboratory .Among them 56,342 cases tested positive for SARS-CoV-2 .Nearly 197,192 Indians have recently been repatriated from affected regions, and more than 1,393,301 passengers have been screened for SARS-CoV-2 at Indian airports with 111 positive cases observed among foreign nationals .The 8th, May 2020, Maharashtra, Delhi and Gujarat states was reported to be hotspots for COVID-19 with 17,974, 5,980, and 7,012 confirmed cases, respectively.16,540 patients had recovered and 1,886 deaths have been reported in India .To impose social distancing, the “Janata curfew” (14-h lockdown) was ordered on March 22nd, 2020. A further lockdown was initiated for 21 days, starting on March 25th, 2020, and the same was extended until May 3rd, 2020 but, owing to an increasing number of positive cases, the lockdown has been extended for the third time until May 17th, 2020 .Currently, out of 32 states and eight union territories in India, 26 states and six union territories have reported COVID-19 cases. Additionally, the health ministry has identified 130 districts as hotspot zones or red zones, 284 as orange zones (with few SARS-CoV-2 infections), and 319 as green zones (no SARS-CoV-2 infection) as of May 4th, 2020. These hotspot districts have been identified to report more than 80% of the cases across the nation. Nineteen districts in Uttar Pradesh are identified as hotspot districts, and this was followed by 14 and 12 districts in Maharashtra and Tamil Nadu, respectively .The complete lockdown was implemented in these containment zones to stop/limit community transmission .As of May 8th, 2020, 310 government laboratories and 111 private laboratories across the country were involved in SARS-CoV-2 testing. As per ICMR report, 14, 37,788 samples were tested till date, which is 1.04 per thousand people.

COVID-19 and Previous Coronavirus Outbreaks

The recent outbreak of COVID-19 in several countries is similar to the previous outbreaks of SARS and Middle East respiratory syndrome (MERS) that emerged in 2003 and 2012 in China and Saudi Arabia. Coronavirus is responsible for both SARS and COVID-19 diseases.They affect the respiratory tract and cause major disease outbreaks worldwide. There is no particular treatment available to treat SARS and COVID-19. In current search for a COVID-19 cure there is some evidence that point to SARS-CoV-2 being similar to human coronavirus HKU1 and 229E strains even though they are new coronavirus family members. These reports suggest that humans do not have immunity to this virus allowing its easy and rapid spread among human populations through contact with an infected person. SARS-CoV-2 is more transmissible than SARS-CoV. The two possible reasons,(I) the viral load (quantity of virus) tends to be relatively higher in COVID-19-positive patients especially in the nose and throat immediately after they develop symptoms, and (II) the binding affinity of SARS-CoV-2 to host cell receptors is higher than that of SARS-CoV.

Impact of COVID-19 in India and the Global Economy

India is making preparations against the COVID-19 outbreak and avoiding specific crisis actions or not understating its importance will have extremely severe implications. All the neighboring countries of India have reported positive COVID-19 cases. To protection of virus the Indian government has taken necessary and strict measures including establishing health check posts between the national borders to test whether people entering the country have the virus. Different countries had introduced rescue efforts and surveillance measures for citizens wishing to return from China. The lesson learned from the SARS outbreak was first that the lack of clarity and information about SARS weakened China's global standing and hampered its economic growth .The outbreak of SARS in China was catastrophic and has led to changes in health care and medical systems. He Compared with China the ability of India to counter a pandemic seems to be much lower. A recent study reported that affected family members had not visit the Wuhan market in China, suggesting that SARS-CoV-2 may spread without manifesting symptoms .Researchers believe this phenomenon is normal for many viruses. In India a population of more than 1.34 billion—the second largest population in the world—will have difficulty treating severe COVID-19 cases because the country has only 49,000 ventilators. If the number of COVID-19 cases increases in the nation, it would be a catastrophe for India. It would be difficult to identify sources of infection and those who come in contact with them. This would necessitate

multiple strategies to handle the outbreak including computational modelling as well as statistical and quantitative analyses, to rapidly develop new vaccines and drug treatments. In such a vast population in India's medical system is grossly inadequate. A study has shown that owing to inadequate medical care systems nearly 1 million people die every year in India. India was engaged in trading with its nearby countries such as Bangladesh, Bhutan, Pakistan, Myanmar, China and Nepal. During the financial year 2017–18 (FY2017–18), Indian regional trade amounted to nearly \$12 billion accounting for only 1.56% of its total global trade value of \$769 billion. The outbreak of such viruses and their transmission would significantly affect the Indian economy. The outbreak in China could profoundly affect the Indian economy, especially in the sectors of electronics, pharmaceuticals and logistics operations as trade ports with China are currently closed. This was further supported by the statement by Suyash Choudhary, Head—Fixed Income, IDFC AMC, stating that GDP might decrease owing to COVID-19.

Economists assume that the impact of COVID-19 on the economy will be high and negative when compared with the SARS impact during 2003. It has been estimated that the number of tourists arriving in China was much higher than that of tourists who travelled during the season when SARS emerged in 2003. It has been estimated for SARS there was a 57 and 45% decline in yearly rail passenger and road passenger traffic. When compared with the world economy 15 years ago, world economies are currently much more inter-related. It has been estimated that COVID-19 will hurt emerging market currencies and also impact oil prices. From the retail industry's perspective, consumer savings seem to be high. This might have an adverse effect on consumption rates, as all supply chains are likely to be affected, which in turn would have its impact on supply when compared with the demand of various necessary product items. This clearly proves that, based on the estimated losses due to the effect of SARS on tourism retail sales lost around USD 12–18 billion and USD 30–100 billion was lost at a global macroeconomic level we cannot estimate the impact of COVID-19 at this point. This will be possible only when the spread of COVID-19 is fully controlled. The OECD Interim economic assessment has provided briefing reports highlighting the role of China in the global supply chain and commodity markets. Japan, South Korea and Australia are the countries that are most susceptible to adverse effects, as they have close ties with China. It has been estimated that there has been a 20% decline in car sales, which was 10% of the monthly decline in China during January 2020. The shows that industrial productions have been affected by COVID-19. So far, several factors have thus been identified as having a major economic impact, labour mobility, lack of working hours, interruptions in the global supply chain, less consumption, tourism and less demand in the commodity market at a global level which in turn need to be adequately analyzed by industry type. Corporate leaders need to prioritize the supply chain and product line economy trends via demand from the consumer end. Amidst several debates on sustainable economy before the COVID-19 impact it has now been estimated that India's GDP by the International Monetary Fund has been cut down to 1.9% from 5.8% for the FY21. The financial crisis that has emerged owing to the worldwide lockdown reflects its adverse effect on several industries and the global supply chain, which has resulted in the GDP dropping to 4.2% for FY20 which was previously estimated at 4.8%. It has been roughly estimated that India and China will be experiencing considerable positive growth among other major economies.

Preparations and Preventive Measures in India

To decrease SARS-CoV-2 infection rates to avoid virus exposure. People from India should avoid travelling to countries highly affected with the virus, practice proper hygiene, and avoid consuming food that is not home cooked. Necessary preventive measures, such as wearing a mask, regular hand washing, and avoiding direct contact with infected persons, should also be practiced. The Ministry of Health and Family Welfare, India has raised awareness about recent outbreak and taken necessary action to control COVID-19. The Ministry of Health and Family Welfare has created a 24 h/7 days to week disease alert helpline number (+91-11-23978046 and 1800-180-1104) and policy guidelines on surveillance, clinical management, infection prevention and control, sample collection, transportation and discharging suspected or confirmed cases. Those who travelled from China or other countries and exhibited symptoms including fever, difficulty in breathing, sore throat, cough and breathlessness were asked to visit the nearest

hospital for a health check-up. Officials from seven different airports including Chennai, Cochin, New Delhi, Kolkata, Hyderabad and Bangalore, have been ordered to screen and monitor Indian travellers from China and other affected countries. A travel advisory was released to request the cessation of travel to affected countries and anyone with a travel history that has included China since 15th, January 2020. A centralized control room had been setting up by the Delhi government at the Directorate General of Health Services and 11 other districts have done the same. India has implemented COVID-19 travel advisory for intra- passenger and inter-passenger aircraft restrictions.

India is known for its traditional medicines in the form of AYUSH (Ayurvedic, Yoga and Naturopathy, Unani, Siddha, and Homeopathy). The polyherbal powder NilavembuKudineer showed promising effects against dengue and chikungunya fevers in the past. With the outbreak of COVID-19, the ministry of AYUSH has released a press note "Advisory for Coronavirus," mentioning useful medications to improve the immunity of the individuals. Currently, according to the ICMR guidelines, doctors prescribe a combination of Lopinavir and Ritonavir for severe COVID-19 cases and hydroxychloroquine for prophylaxis of SARS-CoV-2 infection. In collaboration with the WHO, ICMR will conduct a therapeutic trial for COVID-19 in India. The ICMR recommends using the US-FDA-approved closed real-time RT-PCR systems, such as GeneXpert and Roche COBAS-6800/8800 which are used to diagnose chronic myeloid leukemia and melanoma respectively. All positive results obtained on this platform need to be confirmed by confirmatory assays for SARS-CoV-2. All negative results do not require further testing. Antibody-based rapid tests were validated at NIV, Pune, and found to be satisfactory; the rapid test kits are as follows: (i) SARS-CoV-2 Antibody test (Lateral flow method): Guangzhou Wondfo Biotech, Mylan Laboratories Limited (CE-IVD); (ii) COVID-19 IgM&IgG Rapid Test: BioMedomics (CE-IVD) (iii) COVID-19 IgM/IgG Antibody Rapid Test: Zhuhai Livzon Diagnostics (CEIVD) (iv) New coronavirus (COVID-19) IgG/IgM Rapid Test: Voxtur Bio Limited India (v) COVID-19 IgM/IgG antibody detection card test: VANGUARD Diagnostics, India (vi) Makesure COVID-19 Rapid test: HLL Lifecare Limited, India and (vii) YHLO SARS-CoV-2 IgM and IgG detection kit (additional equipment required): CPC, Diagnostics. As a step further, on the technological aspect, the Union Health Ministry has launched a mobile application called "AarogyaSetu" that works both on android and iOS mobile phones. This application constructs a user database for establishing an awareness network that can alert people and governments about possible COVID-19 victims.

Future Perspectives

Infections caused by viruses are an enormous global health threat. These are a major cause of death and have adverse socio-economic effects that are continually exacerbated. The potential treatment initiatives and approaches need to be developed. These guidelines could help reduce the severity of the viral infection in elderly patients and increase life expectancy. The recent report is director of ICMR mentioned that India would undergo randomized controlled trials using convalescent plasma of completely recovered COVID-19 patients. Convalescent plasma therapy is highly recommended, as it has provided moderate success with SARS and MERS. This has been rolled out in 20 health centres and will be increased this month May 2020. India has expertise in specialized medical/pharmaceutical industries with production facilities and the government has established fast-tracking research to develop rapid diagnostic test kits and vaccines at low cost. In addition, the Serum Institute of India started developing a vaccine against SARS-CoV-2 infection. Until we obtain an appropriate vaccine it is highly recommended that we screen the red zoned areas to stop further transmission of the virus. Medical college doctors in Kerala, India, implemented the low-cost WISK (Walk-in Sample Kiosk) to collect samples without direct exposure or contact. After Kerala, The Defence Research and Development Organization (DRDO) developed walk-in kiosks to collect COVID-19 samples and named these as COVID-19 Sample Collection Kiosk (COVSACK). After the swab collection the testing of SARS-CoV-2 can be achieved with the existing diagnostic facility in India. This facility can be used for massive screening or at least in the red zoned areas without the need for personal protective equipment kits. India has attempted to broaden its research facilities and shift toward testing the mass population, as recommended by medical experts in India and worldwide.

REFERENCES:

1. Situation report-109 Coronavirus disease 2019 (COVID-19). WHO; (2020). Available online at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports> (accessed May 09, 2020).
2. Wee SL, Jr, McNeil DG, Jr, Hernández JC. W.H.O. Declares Global Emergency as Wuhan Coronavirus Spreads. The New York Times; (2020). Available online at: <https://www.nytimes.com/2020/01/30/health/coronavirus-world-health-organization.html> (accessed February 03, 2020).
3. COVID-19 ICMR COVID-19. Indian Council of Medical Research. Government of India. ICMR (2020). Available online at: <https://main.icmr.nic.in/content/covid-19> (accessed May 09, 2020).
4. COVID-19 update COVID-19 INDIA. Ministry of Health and Family Welfare. MOHFW; (2020). Available online at: <https://www.mohfw.gov.in/> (accessed May 09, 2020).
5. Novel coronavirus-MOHFW Home. Ministry of Health and Family Welfare. GOI; (2020). Available online at: <http://www.mohfw.gov.in/> (accessed May 08, 2020).
6. Bureau O. PM Modi calls for 'Janata curfew' on March 22 from 7 AM-9 PM. @businessline (2020). Available online at: <https://www.thehindubusinessline.com/news/pm-modi-calls-for-janta-curfew-on-march-22-from-7-am-9-pm/article31110155.ece> (accessed April 05, 2020).
7. Sangeeta N. Coronavirus Hotspots in India: Full List of 130 COVID-19 Hotspot Districts, All Metro Cities Marked Red Zones. Jagranjosh.com (2020). Available online at: <https://www.jagranjosh.com/current-affairs/coronavirus-hotspot-areas-in-india-what-are-hotspots-know-all-covid-hotspots-1586411869-1> (accessed May 03, 2020).
8. Marcus, M., & Tomasi, D. (2020). Emotional and Cognitive Responses to Academic Performance and Grade Anxiety. *Journal of Medical Research and Health Sciences*, 3(4), 919-925. <https://doi.org/10.15520/jmrhs.v3i4.172>
9. Smith RD. Responding to global infectious disease outbreaks: lessons from SARS on the role of risk perception, communication and management. *SocSci Med.* (2006) 63:3113–23. 10.1016/j.socscimed.2006.08.004
10. Mackay IM, Arden KE. MERS coronavirus: diagnostics, epidemiology and transmission. *Virol J.* (2015) 12:222. 10.1186/s12985-015-0439-5
11. Broor S, Dawood FS, Pandey BG, Saha S, Gupta V, Krishnan A, et al. . Rates of respiratory virus-associated hospitalization in children aged <5 years in rural northern India. *J Infection.* (2014) 68:281–9. 10.1016/j.jinf.2013.11.005
12. Sonawane AA, Shastri J, Bavdekar SB. Respiratory pathogens in infants diagnosed with acute lower respiratory tract infection in a Tertiary Care Hospital of Western India Using Multiplex Real Time PCR. *Indian J Pediatr.* (2019) 86:433–8. 10.1007/s12098-018-284
13. YuliastiEkaPurnamaningrum, YuniKusmiyati, Herlina Tri Nugraheni, Waryana, (2018) Young age pregnancy and postpartum blues incidences *International Journal Of Scientific Research And Education.*06,02 (Feb-18) 7812-19
14. Makhubele, H. D., & Bhuiyan, M. M. (2020). Primary Non-Hodgkin's Lymphoma of the bilateral Breast and review the literature. *Journal of Medical Research and Health Sciences*, 3(4), 926-930. <https://doi.org/10.15520/jmrhs.v3i4.173>
15. Qayam Coronavirus scare in east UP due to cases in Nepal. The Siasat Daily; (2020). Available online at: <https://www.siasat.com/coronavirus-scare-east-due-cases-nepal-1805965/> (accessed February 03, 2020).
16. Huang Y. The Sars Epidemic And Its Aftermath In China: A Political Perspective. National Academies Press (US) (2004)
17. McCloskey B, Heymann DL. SARS to novel coronavirus—old lessons and new lessons. *Epidemiol Infect.* (2020) 148:e22. 10.1017/S0950268820000254
1. 16. Chan JF-W, Yuan S, Kok K-H, To KK-W, Chu H, Yang J, et al. . A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet.* (2020) 395:514–23. 10.1016/S0140-6736(20)30154-9

18. PIB Mubmai. Press Information Bureau. Press Information Bureau (2020). Available online at: <https://pib.gov.in/indexd.aspx> (accessed May 05, 2020).
19. Samrat S. Coronavirus may hit Sitharaman's 10% growth target; second case surfaces in India. *The Financial Express*; (2020). Available online at: <https://www.financialexpress.com/economy/coronavirus-may-hit-sitharamans-10-gdp-growth-target-second-case-surfaces-in-india/1852146/> (accessed February 03, 2020).
20. Atsmon Y, Child P, Dobbs R, Narasimhan L. Winning the \$30 Trillion Decathlon: Going for Gold in Emerging Markets. *McKinsey*; (2012). Available online at: <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/winning-the-30-trillion-decathlon-going-for-gold-in-emerging-markets> (accessed May 04, 2020)
21. Albulescu C. Coronavirus and oil price crash. *SSRN J.* (2020) 1–13. 10.2139/ssrn.3553452
22. Carlsson-Szlezak P, Reeves M, Swartz P. What Coronavirus Could Mean for the Global Economy. *Harvard Business Review*; (2020). Available online at: <https://hbr.org/2020/03/what-coronavirus-could-mean-for-the-global-economy> (accessed March 11, 2020).
23. Coronavirus: The world economy at risk (2020). *OECD Economic Outlook*. Available online at: <http://www.oecd.org/economic-outlook/> (accessed March 11, 2020).
24. Advisory for Corona virus, Homoeopathy for Prevention of Corona virus Infections, Unani Medicines useful in symptomatic management of Corona Virus infection Press Information Bureau. Available online at: pib.gov.in/Pressreleaseshare.aspx?PRID=1600895 (accessed February 03, 2020).
25. Bhatnagar T, Murhekar MV, Soneja M, Gupta N, Giri S, Wig N, et al. . Lopinavir/ritonavir combination therapy amongst symptomatic coronavirus disease 2019 patients in India: protocol for restricted public health emergency use. *Indian J Med Res.* (2020) 151:184–9. 10.4103/ijmr.IJMR_502_20
26. Rathi S, Ish P, Kalantri A, Kalantri S. Hydroxychloroquine prophylaxis for COVID-19 contacts in India. *Lancet Infectious Dis.* (2020). 10.1016/S1473-3099(20)30313-3. [Epub ahead of print].
27. Health C. for D. and R Nucleic Acid Based Tests. *FDA*; (2020). Available online at: <https://www.fda.gov/medical-devices/vitro-diagnostics/nucleic-acid-based-tests> (accessed May 05, 2020).
28. AarogyaSetu Mobile App . *MyGov.in.* (2020). Available online at: <https://mygov.in/aarogya-setu-app/> (accessed May 04, 2020).
29. Elfiky AA. Anti-HCV, nucleotide inhibitors, repurposing against COVID-19. *Life Sci.* (2020) 248:117477. 10.1016/j.lfs.2020.117477
30. Teixeira da Silva JA. Convalescent plasma: a possible treatment of COVID-19 in India. *Med J Armed Forces India.* (2020).10.1016/j.mjafi.2020.04.006. [Epub ahead of print].
31. Sinha DK. COVID-19: Vaccine Development and Therapeutic Strategies. *IndiaBioscience*; (2020). Available online at: <https://indiabioscience.org/columns/general-science/covid-19-vaccine-development-and-therapeutic-strategies> (accessed May 06, 2020).
32. Varghese MG, Rijal S. How India Must Prepare for a Second Wave of COVID-19. *Nature India* (2020). Available online at: <https://www.natureasia.com/en/nindia/article/10.1038/nindia.2020.80> (accessed May 06, 2020).
33. Koshy SM. Inspired By South Korea, Walk-In COVID-19 Test Kiosks Built In Kerala. *NDTV.com* (2020). Available online at: <https://www.ndtv.com/india-news/coronavirus-inspired-by-south-korea-walk-in-test-kiosks-built-in-keralas-ernakulam-2207119> (accessed May 06, 2020).
34. MK N. Covid-19: Kerala Hospital Installs South Korea-Like Kiosks to Collect Samples. *Livemint*; (2020). Available online at: <https://www.livemint.com/news/india/covid-19-kerala-hospital-installs-south-korea-like-kiosks-to-collect-samples-11586234679849.html> (accessed May 09, 2020).

35. DRDO Covid-19 Sample Collection Kiosk (COVSACK). Defence Research and Development Organisation - DRDO|GoI (2020). Available online at: <https://drdo.gov.in/covid-19-sample-collection-kiosk-covsack> (accessed May 09, 2020).
36. Rahman, E., Akter, M. F., Haque, M. O., &HabiburRahman, M. (2019). Common Sports Injuries among Male Cricket Players in Bangladesh. *Journal of Current Medical Research and Opinion*, 2(11), 331-333. <https://doi.org/10.15520/jcmro.v2i11.229>
37. Vaidyanathan G. People power: how India is attempting to slow the coronavirus.Nature. (2020) 580:442. 10.1038/d41586-020-01058-5