https://doi.org/10.33472/AFJBS.6.13.2024.1514-1521

African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

Examining COVID-19 Pandemic Safety Measures in India, Africa, Eastern Mediterranean, and Western Pacific Regions: A Review

Jaya Ganesan,[1*] G. Ramana Murthy,[2] Hima Bindu Katikala[3]

[1*]Alliance School of Business, Alliance University, Bangalore, India-562106
[2]Alliance College of Engineering and Design, Alliance University, Bangalore, India- 562106
[3]Department of Biomedical Engineering, VFSTR (Deemed to be University), Vadlamudi, India-522202

Article Info

Volume 6, Issue 13, 2024

Received: 02 June 2024

Accepted: 24 June 2024

doi: 10.33472/AFJBS.6.13.2024.1514-1521

ABSTRACT:
This paper aims to examine the global repercussions of the Coronavirus, or COVID-19, originating from an undisclosed region in Wuhan, China. The pandemic has inflicted widespread damage on economies and health systems, resulting in a significant number of global fatalities. Common symptoms include fever, cold, cough, sore throat, difficulty breathing, diarrhea, body rashes, and loss of taste or smell. While there is no specific treatment for the virus, preventive measures play a crucial role in controlling its spread. This study concentrates on the preventive safety measures implemented by India and three additional regions, with a particular emphasis on reducing the death rate. The findings reveal that the adoption of four strategic factors has contributed to a decrease in the death rate in Africa, while successful vaccination programs have played a key role in lowering mortality rates in other regions. To curb the virus's transmission, the paper underscores the importance of adhering to measurable steps such as mask-wearing, maintaining social distance and hygiene, enhancing immunity, isolating individuals in contact with COVID-19 positive patients, and advocating self-quarantine."

Keywords: Africa, Eastern Mediterranean Region, Indian Council of Medical Research, Institute for Health Metrics and Evaluation, Western Pacific, World Health Organization.

1. INTRODUCTION

The Coronavirus, also known as Covid-19, experienced a rapid increase in many countries from December 2020 to 2021. The most significant growth was observed in South-East Asia and America, resulting in 93,000 deaths and 5.7 million new cases in April 2021. However, the death rate decreased in the Western Pacific (WP), Africa, and Eastern Mediterranean regions due to the implementation of measurable steps. This article mainly focuses on the measurable steps taken by the regions with a declining deathrate, including the authorized vaccination process in Africa, Eastern Mediterranean Region, Western Pacific, and India. Additionally, the article discusses conversations with vaccine manufacturing companies and collaborative agencies, particularly in India.
Lastly, the article examines a 53- year-old patient's experience with Post-Covid Black fungus and its impact on the retina.

2. MATERIALS AND METHODS

Four Applicable Factors used to Condense Death Rate Especially in Africa Region.
The decline in COVID-19 cases in Africa can be attributed to four key factors that have been successfully implemented by the collective citizens. [2]

1. To effectively prevent the spread of disease, it is imperative to implement strict rules such as avoiding handshakes, washing hands frequently, practicing social distancing, and wearing face masks when necessary. Take quick action and adhere to these measures without exception.
2. Public support: Abide by the laws framed by the government in transportation made people safer.
3. Young-population and low-old age home: According to World Health Organization (WHO) Africa head above 65 aged citizens are in 3% care taken by family or by-old age homes, wherewith youngest citizens the laws and rules are perfectly followed. With a low population density in rural areas, social distance maintenance becomes easier.
4. Good quality community health systems: Because of Ebola (2013-16) outbreak the medical system is standardized, to decline the covid-19 crisis the government decides to isolate the patient, by tracing contacts, placing them in quarantine. Vaccinating citizens with evident statics from February-2021 to May-2021[3] as in Figure 1.

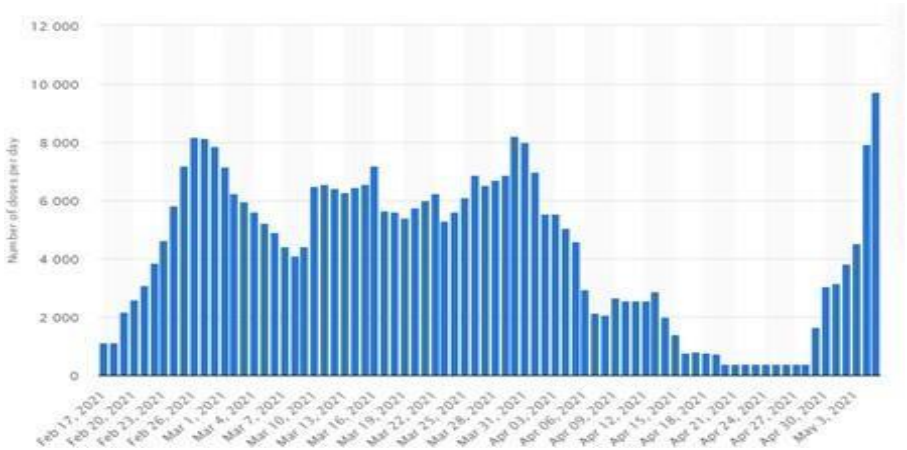


Figure 1: Vaccination report on the number of doses per day in South Africa [3].

2.1. Divide and vaccinate all the citizens in the Eastern Mediterranean Region.

Eastern Mediterranean Region (EMR) with 22 countries had nearly 700 million populations

and marked the first case in Nov 2020 having death cases as 91,738 because of SARS-CoV-2 (syndrome coronavirus-2). In early Covid season, there is abrupt mounting cases because of mass gathering at mosques in Ramadan month, minute relaxation in lockdown at Jordan and Tunisia-churches. Finally, new measurements are taken by the whole government akin to closing church prayer and deferment of mosques in Friday, complete lockdown in all regions; limit on international airlines, enlightening the citizens about the crisis, incessantly providing necessary health services, and contravention the chain of community congregation. Execution of proper health facilities to control COVID-19 cases with supportive treatment protocols by placing health works of 7-10% throughout the pandemic period. By following the WHO recommendation, all EMR states formulate additional deliberation on monitoring, training, and precondition of personal protective equipment to suppress the outbreak [4].

In diverse, the overall population is read to receive vaccination after successive clinical trials of 273 candidates in Phase III on 4 December 2020. Global successive vaccination program initialized, by categorizing entire citizens into 3 groups majorly in Africa, EMR, WP, etc., as upper section, middle section, and lower section [5]. Upper section is filled with government administrative workers like health care, police-military and, other necessary workers, whereas the middle section is people with age limit of ≥80, 79-60, =60, <60 and mainly pregnant women are considered to reduce disease severity, lastly the lower section for healthy-adults of 20-59 years, adolescent including school- children's of 5-19 years along with preschoolers of 0-4 years neatly projected in Figure

First delivery of vaccine is received from the COVAX Facility, (with partnership of Gavi Epidemic Preparedness, WHO, The Vaccine Alliance and UNICEF) to Moldova in EMR with the definitive slogan of "Leave no-one behind" and through vaccination one can attain immunity by protecting against severity like disease and death, ultimately gives fortification from disease community tran

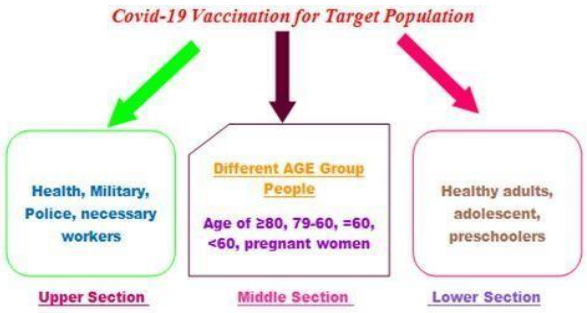


Figure 2: Initiating a vaccination program by separating the population into three special sections [5].

2.2. Statistics of Covid-19 in Western Pacific.

Western Pacific (WP) contains 37 countries having more than one-fourth of the world's total population. The recent document realized by the Institute for Health Metrics and Evaluation (IHME) in April 2021 has pointed the statistics of covid-19 including death rate, active cases, and various socio-development activities. By the estimate analysis of IHME, 64% of citizens are wearing a mask when they step outside, provide with 107 good diagnostic centers per 1 lakh people. And a socio-development program is conducted through 'Face book' in January 2021-April 2021 to inquire about vaccination among different regions of Africa, South-East Asia, EMR, America, European, and WP: the people who are willing /accepting to have the vaccine are off about 66% in WP region and by August 2021 it is estimated over 930 million can be vaccinated [7].

2.3. Pandemic disaster in India

As WHO coined the first out-break in the month of February 2020 as covid-19 its wings are spreading wider and reached the peak stage with no helpless prudence. The scenario of INDIA on Covid-19 in earlier year (March 2020) is in uncontrolled situation because of imposing safety measures and adhering the rules like complete lockdown, making people to aware of the pandemic through social media support, unremitting monitoring of the people's health and also supplying essential commodities or packed food materials to the below poverty people in rural & urban regions across the country by the socio-welfare associations, government sector organizations [8]. The first case was reported on January 30, the subsequent confirmed cases were 107 before March 15, and the number is incalculable. The Indian Council of Medical Research (ICMR) said an executable plan like maintaining social distance and intervening with quarantine can reduce invisible virus cases to 62% [9]. To fight against invisible virus Indian government actively allocated properly work plan and placed the NGO's, Doctors, Nurses, Police forces and Media associations to control the pandemic situation. In first wave the earliest efforts of the frontline workers (including medical department, sanitation employees, and volunteers) by scarifying their lives and family extendable work hard to control the infection [10]. Despite of all the conditions the human power was majorly used to control the infection, however, but in the 2nd week of July-2020 there is an extreme rise in the cases in various states of India as tabulated in the Table 1 [11,12].

Table 1: Covid-19 highest cases in India (July-2020).

States	Active cases	Discharged	Fatality
Maharashtra	75995	90911	7855
Tamil Nadu	38892	50074	1201
Delhi	26270	58348	2742
Telangana	8785	7294	260
Andhra Pradesh	7897	6511	187

Lowest population states have zero death rate like Manipur, Mizoram, Nagaland, Sikkim and the top tourist state 'Goa' counts only 3 demises out of 716 active cases because of international travel restriction. However, the present situation (April 2021 Second wave) made the country situation more worsen because of discarding the safety measures, whereas people do not effectively understand the situation, this negligence has occurred due to their economic poverty. Since the country has highest population rate, the union government has never discussed about their livelihoods, fewer states like Kerala, Madhya Pradesh, and Andhra Pradesh knocked the doors of people under some monetary schemes for their source of revenue. There is a major economic loss to the central revenue department, especially lessening a profit by commercial industries. As India is developing country utmost the population's livelihood is based on the daily wages and after first phase lockdown joblessness rate was increased to 26% because of crisis impact on medium, small and large industries it trims to downstream of economic growth [13]. However, the employee rate in an unexpected domestic purpose, so called as an online food delivery platform through 'Zomato & Swiggy' was lagging off their profits and can't fill pupil's empty stomach [14]. Another partial crisis effect is on the education system where the schools and education institutes were shut down, especially primary and secondary education system lagged for 2 years in terms of student grade wise. Anyhow the online running schools via advanced cloud meeting technology somewhat get connected to children's education in urban regions, coming to rural division the system is in progress because 4G and android mobile accessibility [15-20]. The tourism

industry has not yet increased, expecting more unemployment of 70% for servers, street vendors, trail vendors, hotel helpers such as laundry, sweepers, hotel boys and maintainers [21-24].

2.4. Vaccination drive in India

This pandemic situation can be controlled by vaccination. Indian pharmaceutical companies with foreign collaboration agreement started its vaccination trail and developed new vaccination listed in Table 2. The first clinical trial of COVAXIN which is manufactured and developed by Bharat Biotech International Limited, in collaboration with the National Institute of Virology of ICMR started in on November 16, 2020, with 26,000 volunteers across 25 centers in India proven a successful, can be able to produce with700 million doses by the end of 2021. The firm is also preparing a protocol to expand the testing of its vaccine in children [25-28].

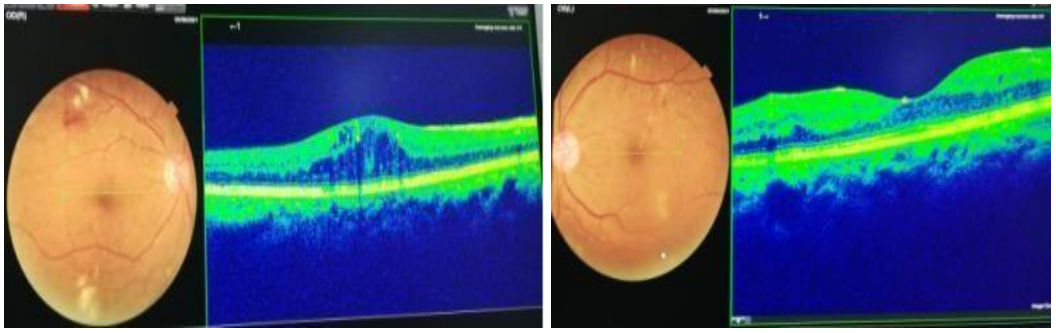
Table 2: Vaccine manufacturing companies with collaboration agency in India.

Manufacturer with Collaborating Agency	**Vaccine Name**	**CTRI Number**	**Age Range**
Serum Institute of India (SII) with University of Oxford, UK, and pharma giant AstraZeneca	Covishield	CTRI/2020/08/027170	18–99
Bharat Biotech Ltd, Hyderabad, India with the National Institute of Virology of ICMR	Covaxin	CTRI/2020/07/026300	≥12 to ≤65 Both gender
Cadila Healthcare, /Zydus Cadila with Department of Biotechnology, Government of India	Zycov-D	CTRI/2020/07/026352	18–55; both gender
Biological E. Limited, Hyderabad, India with Dynavax Technologies Corporation and Baylor College of Medicine, USA	RBD219-N1	CTRI/2020/11/029032	18–65. both gender
Dr. Reddy's Laboratories with Gamaleya National Research Institute of Epidemiology and Microbiology, Moscow, Russia	Sputnik V	CTRI/2020/11/029234	18–99. both gender

Gennova Biopharmaceuticals Ltd with HDT Biotech Corporation, USA	HDT-301	--	Under trail

3. DISCUSSION

Although these precautions have been taken, in some patients because of their unhealthy immune system Post covid-19 outbreak causes a rare serious fungal infection called mucormycosis (Black fungus). Mucormycosis have different warning signs as sinusitis, cheek bone & swelling, blurred or double vision eye, etc., A 53 year male patient encountered with the mucormycosis (Post Covid) has blur vision in right eye due to Diabetic Macular Edema (DME) Despite the implementation of various precautions, certain individuals with compromised immune systems may experience a rare and severe fungal infection known as mucormycosis, commonly referred to as Black Fungus, following a post-COVID-19 outbreak. This condition presents distinct warning signs, including sinusitis, swelling of the cheekbones, and blurred or double vision in the eyes. In a case study involving a 53-year-old male patient, post-COVID-19 contraction of mucormycosis resulted in blurred vision in the right eye attributed to Diabetic Macular Edema (DME). This underscores the complex interplay between post-COVID-19 complications, compromised immunity, and additional medical conditions, necessitating a comprehensive understanding of the associated health risks and potential squeal as in Figure 3.



(a) **(b)**

Figure 3: DME Optical Coherence Tomography Test (**a).** Right Eye **(b).** Left Eye

4. CONCLUSION

In this paper, India & three different regions, Africa, the Eastern Mediterranean and the Western Pacific effectiveness of covid-19 scenarios are discussed, including the vaccination process. By following the measurable steps like wearing a mask, maintaining social distance and hygiene, strengthening the immunity levels, primary isolation if contacted with the covid-19 positive patient, and self-quarantine progressively diminish the virus occurrence from one to other. Moreover, having vaccination can reduce the risk of disease, able to build up natural immunity, and reduce the spread of the virus. "This paper extensively explores the effectiveness of COVID-19 response strategies in India and three distinct regions: Africa, the Eastern Mediterranean, and the Western Pacific. The discussion encompasses various scenarios, with a particular focus on the vaccination process. Implementation of measurable steps, including mask-wearing, practicing social distancing

and hygiene, enhancing immunity levels, initiating primary isolation when in contact with a COVID-19 positive patient, and promoting self-quarantine, has been found to progressively decrease the occurrence of the virus from one region to another. Furthermore, the study underscores the significance of vaccination in reducing the risk of disease, fostering natural immunity, and curbing the spread of the virus. The collective adoption of preventive measures and vaccination strategies emerges as a comprehensive approach to managing and mitigating the impact of the COVID-19 pandemic across diversegeographical regions.

REFERENCES

1. World Health Organization. Coronavirus disease (COVID-19) COVID-19 Weekly Epidemiological: Update 2021. Available from https://www.who.int/publications/m/item/weekly-epidemiological-update-on- covid-19 4-may-2021
2. British Broadcasting Corporation. Main Bulletin news: October 8, 2020, Available fromhttps://www.bbc.com/news/world-africa-54418613
3. Statista Research expert: May 3, 2021, Available from https://www.statista.com/statistics/1231031/daily-number-of-covid-19-vaccination-doses-in-south-Africa/
4. Al-Mandhari, A. S, Brennan, R. J, Abubakar, A, & Hajjeh R, Tackling COVID-19 in the Eastern Mediterranean Region. The Lancet 2020; 396:1786-1788.
5. Wang, Wei, Qianhui Wu, Juan Yang, Kaige Dong, Xinghui Chen, Xufang Bai, Xinhua Chen. (2020) Global, regional, and national estimates of target population sizes for covid-19 vaccination: descriptive study. BMJ :371.
6. Kluge, H., & McKee, M. COVID-19 vaccines for the European region: an unprecedented challenge. The Lancet 2021.
7. Institute for Health Metrics and Evaluation (IHME) Report on COVID-19 in Western Pacific Region: March 18 2021 Available from http://www.healthdata.org/sites/default/files/files/Projects/COVID/2021/44568_briefing_Western_Pacific_Region_6pdf
8. Krishnakumar B, & Rana S. COVID 19 in INDIA (2020): Strategies to combat from combination threat of life and livelihood. Journal of Microbiology Immunology and Infection 53(3):389-391.
9. W. Channel, As projections warn of 13 lakh COVID-19 cases in India, ICMR says social distancing can reduce spread by 62%, the weather channel.https://weather.com/enIN/india/coronavirus/news/2020-03-30-projections-warn-13-lakh-covid-cases-india-icmr-social-distancing 2020.
10. Ghosh A, Nundy S, Mallick TK (2020). How India is dealing with COVID-19 pandemic. Sensors International 1:100021. World meter coronavirus cases India, https://www.worldometers.info/coronavirus/country/india/.
11. Ministry of Health and Family Welfare- Government of India, COVID-19 INDIA, 2020. https://www.mohfw.gov.in/.
12. G.D. Sharma, Mahendru. Lives or livelihood: insights from locked-down India due to COVID19. Soc. Sci. Humanities. Open 2020; 2:100036
13. After Zomato, Swiggy Sacks 1,100 Workers, The Siasat Daily 2020. https://www siasat.com/after-zomato-swiggy-sacks-1100-workers-1890707/.
14. Kapasia N, Paul P, Roy A, Saha J, Zaveri A, Mallick R, Barman B, Das P, Chouhan P. Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. Children and youth service. Review. 2020.

116:105194. \
15. Dhawan S. Online learning: A panacea in the time of COVID-19 crises. Journal of Educational Technology 2020;49(1):5–22.
16. Sintema EJ. Effect of COVID-19 on the performance of grade 12 students: Implications for STEM education. EURASIA Journal of Mathematics, Science and Technology Education 2020;16(7).
17. Pokhrel, S, Chhetri, R. A literature review on the impact of COVID-19 pandemic on teaching and learning. Higher Education for the Future 2021; 8(1):133-141.
18. Das P. K Impact of Pandemic Covid-19 on Higher Education-Indian Context. Universal Journal of Business and Management 2021;1(1):13-21.
19. Sahoo, Kalyan Kumar, Kamala Kanta Muduli, Ashish Kr Luhach, Ramesh Chandra Poonia. Pandemic COVID-19: An empirical analysis of impact on Indian higher education system. Journal of Statistics and Management Systems 2021; 24(2):341- 355.
20. COVID-19 Post-pandemic, India's Tourism Sector Stares at 70% Job Loss, The Hindu, 2020. https://www.thehindu.com/news/national/kerala/coronavirus-tourism- sector-stares-at-70-job loss/article31310234.ec
21. Jaipuria S, Parida R, Ray P, (2021). The impact of COVID-19 on tourism sector in India. Tourism Recreation Research 2021; 46(2):245-260.
22. Singh, Abha Lakshmi, Saleha Jamal, Wani Suhail Ahmad. Impact assessment of Lockdown amid covid-19 pandemic on tourism industry of Kashmir Valley India. Research in Globalization 2021: 100053.
23. Khan M. Covid 19 Effects on Hospitality and Tourism in India: Literature Based Review. Journal of Hospitality and Tourism Management. 2021; 4(1):52-55.
24. Arshad, Md Ozair, Shahbaz Khan, Abid Haleem, Hannan Mansoor, Md Osaid Arshad, Md Ekrama Arshad. Understanding the impact of Covid-19 on Indian tourism sector through time series modelling. Journal of Tourism Futures 2021.
25. Kumar, Velayudhan Mohan, Seithikurippu R. Pandi-Perumal, Ilya Trakht, Sadras Panchatcharam Thyagarajan. Strategy for COVID-19 vaccination in India: the country with the second highest population and number of cases. npj Vaccines 2021;6(1):1-7.
26. Vaccine information, ICMR New Delhi COVID-19 vaccine. https://vaccine.icmr. org.in/covid-19-vaccine 2021.
27. Ella, Raches, Krishna Mohan Vadrevu, Harsh Jogdand, Sai Prasad, Siddharth Reddy, Vamshi Sarangi, Brunda Ganneru A phase 1: safety and immunogenicity trial of an inactivated SARS-CoV-2 vaccine-BBV152. MedRxiv 2020
28. Liu, Yi, Kai Wang, Tarik F. Massoud, Ramasamy Paulmurugan. SARS-CoV-2 vaccine development: an overview and perspectives. ACS pharmacology & translational science 2020;3(5): 844-858.