

COVID-19 CASES AND ITS IMPACT ON ENVIRONMENT IN MAHARASHTRA: A GEOGRAPHICAL PERSPECTIVE

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Abstract:

The coronavirus disease 2019 (COVID-19) is an illness caused by a novel coronavirus now called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, formerly called 2019-nCoV), which was first identified amid an outbreak of respiratory illness in Wuhan City, Hubei Province, China. It was identified as the cause of a disease outbreak that originated in China. This study attempts to understand the pandemic COVID-19 situation in terms levels, trends and change of active cases, cured cases and deaths among Maharashtra from May, 2020 to April, 2021 in Maharashtra. The results reveal that in Maharashtra there were found 67646 COVID-19 total confirmed cases in May, 2020 and 3837689 cases by 18th April, 2021. The highest active cases (670388) in April, 2021 and highest deaths (12263) reported in the month of September 2020. In the Month of May, Mumbai has a higher number of total cases (39680), Parbhani (93.65%) high active cases, Nashik (78.68%) high cured cases, and Jalgaon (11.69%), Dhule (11.43%) have high death rate in May 2020. Pune has a recorded maximum of total cases (725819), Parbhani has (45.92%) active cases, Buldhana (96.02%) has a maximum cured case. Kolhapur (3.06%) has more cases of death followed by Sangali (2.97%) in the month of April 2021. There are many positive and negative impacts of COVID-19 pandemic on environment in Maharashtra.

Key words: *COVID-19 Actual Cases, Cured, Death and Impact etc.*

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Introduction

Health is an important and major factor of development. The governments of the world countries and World Health Organization have an obligation to provide healthcare to the people. Article 21 of the Indian Constitution guarantees protection of life (Mathikaran, 2003).

The WHO's Constitution envisages that the highest attainable standard of health as a fundamental right of every human being. But whole world suffers from COVID-19 pandemic. The COVID-19 pandemic can catch by other people who have the virus. The disease can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales.

The COVID-19 outburst was first found in China on 17 November 2019. The first case was reported in India

on 13 January 2020 in Kerala and in USA on 21 January 2020. The first case was reported in Maharashtra on 09th March 2020 in Pune. The World Health Organization started having a formal database on COVID-19 since 1 January 2020, the first situation report, recording and disseminating on daily basis. At present on 18th April 2021 there are 670388 active cases, 3106828 totals cured cases and 60473 deaths recorded in Maharashtra. The First death was reported in Maharashtra on 17th March 2020 in Mumbai. The vaccination programme was started on 16th January 2021 and 1,33,60,594 people are vaccinated till 30th April 2021 in Maharashtra. This paper intends to understand COVID-19 situation in terms of actual cases, cured or discharged persons and deaths and its impact on education in Maharashtra.

Literature Review

The coronaviruses can be explained in terms of their families and size. Coronaviruses (CoV) are the largest known RNA viruses. Their size varies from 65 to 125 nm in diameter and their nucleic acid genome is single-stranded RNA, size ranging from 26 to 32 kb in length (Shereen, et. al., 2020). They were found to cause diseases in the human beings with different symptoms. Since 1960, six coronaviruses had been found to cause diseases in humans; SARS-CoV-2 is the seventh one, after SARS-CoV and MERS-CoV (Zhu, et. al., 2020). Their nature and association with other kinds of viruses were identified. Some studies found various symptoms related to coronaviruses. Fever, dry cough, difficulty breathing and fatigue usually accompany this pneumonia (Chang, 2020; Huang, 2020).

It is important to understand the beginning, trends and change of COVID-19 confirmed cases, Cured cases and deaths. The Chinese authorities identified a new type of coronavirus, which was isolated on 7 January 2020. On 12 January 2020, China shared the genetic sequence of the novel coronavirus for countries to use in developing specific diagnostic kits. On 13 January 2020, the Ministry of Public Health, Thailand reported the first imported case of lab-confirmed novel coronavirus (2019-nCoV) from Wuhan, Hubei Province, China. On 15 January 2020 (WHO, 2020).

Objectives

The following are the specific objectives of this study:

1. To understand the trend of COVID-19 confirmed cases in Maharashtra.
2. To Study the situation of actual cases, cured and deaths in Maharashtra.
3. To examination the impact of COVID-19 on environment in Maharashtra.

Data and Method

This paper uses the data from MoHFW.gov.in, Ministry of Health and Family Welfare Government of India., Web.archive.org, Arogya.maharashtra.gov.in, World Health Organization's. Various research papers are also used for the study.

The variables used in this study are:

1. Calculate the total cases by mathematical technique.

- Percentage of COVID-19 actual cases, cured and deaths in Maharashtra, by Districts from May, 2020 to April, 2021.
- The result explained with various charts and diagrams.

Results and Discussion

The results of the paper are discussed under the following sub-heads such as COVID-19 Total cases, Actual cases, Cured cases and Death trend and Impact on education:

a) COVID-19 Total Cases: Levels:

In Maharashtra there were 67646 total cases in May 2020, but it reaches up to 3837689 by 18h April 2021. There were the highest active cases (670388) reported in the month of April 2021 and highest deaths (12263) reported in the month of September 2020. There are low (36031) active cases reported in the month of May 2020 and deaths (1154) in the month of February 2020. There is decrease of the active cases from the month of September 2020 to January 2021 and deaths from the September 2020 to February 2021. There is again rapidly increase of active cases from February to April 2021 and deaths from March to April 2021. (Table No.1 and Figure No.1)

Table No.1: Growth of COVID-19 Cases, Cured and Deaths in India, May, 2020 to April, 2021

Sr. No.	Month	Active Cases	Cured/ Discharged	Death	Total Cases	Cured (Month wise)	Deaths (Month wise)
1	May	36031	29329	2286	67646	27556	1827
2	June	75979	90911	7855	174745	61582	5569
3	July	150662	256158	14994	421814	165247	7139
4	August	193548	562401	24399	780348	306246	9405
5	September	259033	1088322	36662	1384017	525921	12263
6	October	123585	1510353	43911	1677849	422031	7249
7	November	90557	1685122	47151	1822830	174769	3240
8	December	52902	1828546	49521	1930969	143424	2370
9	January	43147	1925800	51000	2019947	97254	1479
10	February	77008	2024704	52154	2153866	98904	1154
11	March	356243	2400727	54649	2811619	376023	2495
12	April	670388	3106828	60473	3837689	706101	5824

Source: Arogya.maharashtra.gov.in

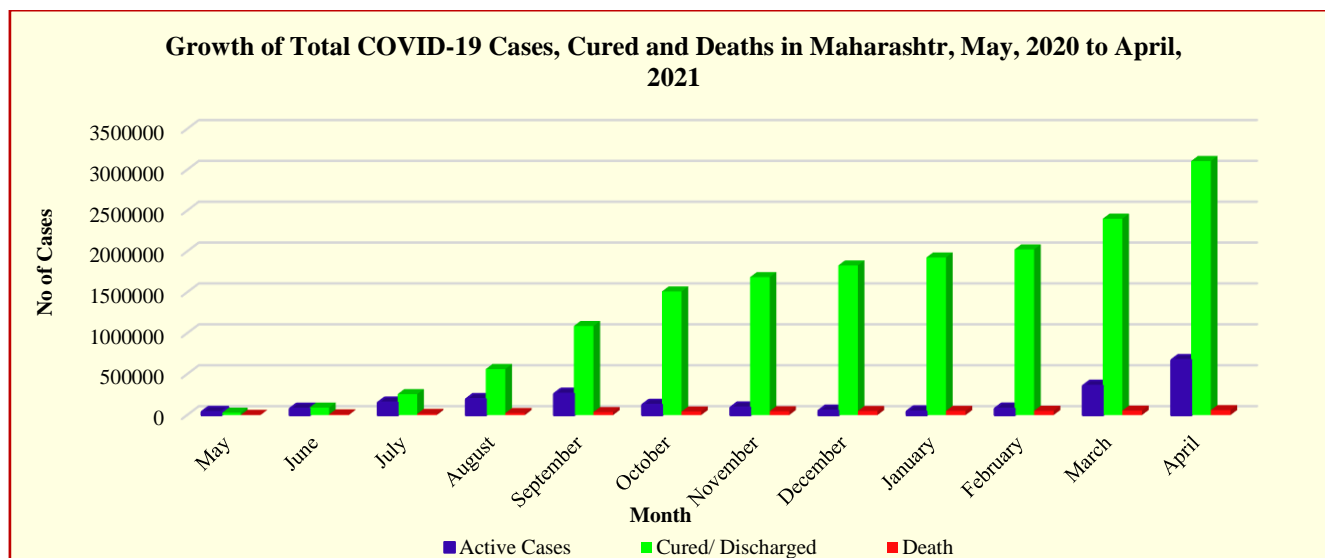


Figure No.1: Growth of COVID-19 Cases, Cured Cases and Deaths in India from May, 2020 to April, 2021

b) COVID-19 Actual Cases, Cured and Deaths by states and Union Territories:

Table No.02 shows that there is a change of active cases, cured, and deaths by districts from May 2020 to April 2021. In the Month of May, Mumbai has a higher number of total cases (39680), Parbhani (93.65%) high active cases, Nashik (78.68%) high cured cases, and Jalgaon (11.69%), Dhule (11.43%) have high death rate. In the month of April 2021 Pune has a recorded maximum of total cases (**725819**), Parbhani has (45.92%) active cases, Buldhana (96.02%) has a maximum cured case. Kolhapur (3.06%) has more cases of death followed by Sangli (2.97%). Pune has a recorded maximum of total cases (725819) followed by Mumbai (579486) and Thane (451039).

Table No. 2: COVI-19 Total Cases and Percentage of Active, Cured and Death in Maharashtra, May, 2020 to April, 2021

S. N.	State & UT	May, 2020				October, 2020				April, 2021			
		Total Cases	Active %	Cured%	Deaths%	Total Cases	Active %	Cured%	Deaths%	Total Cases	Active%	Cured%	Deaths%
1	Mumbai	39680	54.46	42.32	3.22	257497	7.37	88.42	4.00	579486	14.96	82.70	2.13
2	Thane	9585	62.44	35.47	2.09	223197	8.04	89.57	2.39	451039	19.23	77.12	1.42
3	Palghar	1018	59.92	37.13	2.95	42974	7.09	90.70	2.21	70986	16.63	81.76	1.60
4	Raigad	1108	44.58	51.71	3.52	59569	6.76	90.89	2.35	102507	11.89	86.38	1.73
5	Nashik	1135	15.51	78.68	5.81	94474	5.41	92.96	1.63	248741	17.11	81.85	1.04
6	Ahmednagar	120	47.50	47.50	5.00	56116	9.75	88.73	1.52	133812	13.57	85.26	1.16
7	Dhule	140	27.14	61.43	11.43	14204	1.94	95.66	2.39	34028	23.47	75.33	1.19
8	Jalgaon	616	43.34	44.97	11.69	53560	3.99	93.49	2.51	106476	12.02	86.31	1.65
9	Nandurbar	35	34.29	57.14	8.57	6393	7.62	90.18	2.21	28215	25.98	72.60	1.42
10	Pune	7919	49.13	46.71	4.15	333962	7.40	90.60	2.00	725819	16.88	81.90	1.21
11	Solapur	897	50.84	41.36	7.80	44013	7.48	89.25	3.27	85769	14.48	83.04	2.41
12	Satara	523	68.64	28.30	3.06	47532	9.23	87.81	2.96	81658	15.53	82.00	2.46
13	Kolhapur	457	66.30	32.82	0.88	47228	2.41	94.19	3.40	56326	7.06	89.88	3.06
14	Sangli	112	47.32	51.79	0.89	46828	6.07	90.66	3.27	64384	11.33	85.69	2.97
15	Sindhudurg	33	75.76	24.24	0.00	5023	12.42	84.93	2.65	10061	23.88	73.93	2.19
16	Ratnagiri	264	60.98	37.12	1.89	10003	13.42	82.83	3.76	16141	19.96	77.27	2.76

17	Aurangabad	1501	29.98	65.69	4.33	41805	2.66	95.00	2.34	108457	13.23	85.36	1.40
18	Jalna	125	56.80	43.20	0.00	10438	5.19	92.09	2.72	34927	25.94	72.49	1.56
19	Hingoli	149	34.23	65.77	0.00	3641	14.14	83.82	2.03	10738	19.40	79.42	1.18
20	Parbhani	63	93.65	4.76	1.59	6647	9.90	86.52	3.58	25897	45.92	48.38	1.80
21	Latur	125	49.60	48.00	2.40	20739	9.80	87.26	2.94	55796	30.38	68.04	1.57
22	Osmanabad	73	72.60	26.03	1.37	15334	7.64	89.12	3.23	30317	20.00	77.63	2.32
23	Beed	47	72.34	27.66	0.00	13888	7.81	89.21	2.99	40109	24.44	73.71	1.82
24	Nanded	111	17.12	77.48	5.41	19214	10.12	87.16	2.72	69168	18.18	80.06	1.75
25	Akola	584	40.41	54.62	4.79	8581	7.20	89.52	3.26	34664	10.38	88.05	1.56
26	Amravati	226	38.05	54.87	7.08	17010	4.74	93.21	2.05	56385	10.22	88.47	1.31
27	Yavatmal	130	23.08	76.15	0.77	10895	5.72	91.38	2.90	34970	15.91	82.29	1.79
28	Buldhana	62	41.94	53.23	4.84	10527	19.39	79.02	1.60	37280	3.06	96.02	0.91
29	Vashim	8	25.00	75.00	0.00	5754	3.58	94.04	2.36	22320	17.40	81.60	0.99
30	Nagpur	574	35.89	62.37	1.74	102176	5.01	92.30	2.67	331873	22.14	76.49	1.36
31	Vardha	12	91.67	0.00	8.33	6607	8.04	88.86	3.09	31186	15.45	82.96	1.35
32	Bhandara	32	71.88	28.13	0.00	6911	13.34	84.49	2.17	37788	39.07	60.03	0.89
33	Gondia	66	51.52	48.48	0.00	9872	8.03	90.83	1.13	25384	34.22	64.80	0.95
34	Chandrapur	25	40.00	60.00	0.00	16309	26.13	72.38	1.49	42590	29.90	68.89	1.21
35	Gadchiroli	35	77.14	22.86	0.00	5327	17.85	81.47	0.68	13895	17.36	81.70	0.89
36	Other	59	74.58	0.00	25.42	2158	73.35	19.83	6.81	146	21.92	76.71	1.37
	Total	67655	53.26	43.35	3.38	1678406	7.36	89.99	2.62	3839338	17.46	80.92	1.58

Source: Arogya.maharashtra.gov.in

c) Impact of COVID-19 on Environment:

The effect of the COVID-19 pandemic is spread in almost every area of the world. This has affected the environment of India and Maharashtra. It has brought several positive and negative impacts on the environment. These are as follows.

1) Positive impacts of COVID-19 on Environment

The COVID-19 pandemic out broke in December 2019 and lockdown initiated in India since March 2020. During this period several human and industrial activities were suspended to minimize human and human interaction in India as well Maharashtra. So, it has positive effects on the environment.

1. The social and economic activities slow down due to the pandemic, the industries and transportation have closed down, therefore there is a reduction in the level of air pollution. So that there was an improvement in air quality in the cities and villages in Maharashtra.
2. During the lockdown period major industrial source of water pollution withered or completely stopped. Which reduced a load of water pollution in the rivers of Godavari, Krishna, Mula, Mutha etc in Maharashtra.
3. There is a reduction in noise pollution due to the stay of people at home and a reduction in economic activities and communication, which eventually reduce the noise level in many cities like Mumbai, Pune, Nashik, Kolhapur, Aurangabad etc. in Maharashtra.
4. Due to the outbreak and local restrictions, the number of tourists has reduced in the tourist spots. So, there is control of the crowd and has ecological restoration and adaptation of tourist spots in Maharashtra.

2) Negative impacts of COVID-19 on environment

The following are some negative impacts of COVID-19 on the environment.

1. During the period of outbreak medical waste generation is increased. The collection of suspected COVID-19 patients, diagnosis, treatment of a huge number of patients, and disinfection purposes lots of infectious and biomedical waste like needles, syringes masks, gloves, used tissues, etc. are generated from the hospitals. which is a major threat to public health and environment.
2. Due to absence of the knowledge about infectious waste management, most people throw their used face masks, hand gloves, etc. in open places. Such unorganized thrown waste material creates blockage in water ways and creates environmental pollution.
3. Due to pandemics, quarantine policies are established in many countries. Therefore, increase the demand for online shopping for home delivery. It increases household waste from shipped package material in many cities and also decreases the recycling activity of waste material.
4. The COVID-19 patient's faces and also from municipal water in many regions in Maharashtra. The municipal water discharged in to the nearby waterbodies and rivers without treatment.

Conclusions

The explosion of coronavirus (COVID-19) is a life-threat to the whole humanity spread over more or less all the countries of the world, India and Maharashtra. When we study the COVID-19 situation in Maharashtra. It is found that There were 67646 COVID-19 total confirmed cases in May, 2020 and 3837689 cases by 18th April, 2021. The highest active cases (670388) in April, 2021 and highest deaths (12263) reported in the month of September 2020. In the Month of May, Mumbai has a higher number of total cases (39680), Parbhani (93.65%) high active cases, Nashik (78.68%) high cured cases, and Jalgaon (11.69%), Dhule (11.43%) have high death rate in May 2020. Pune has a recorded maximum of total cases (725819), Parbhani has (45.92%) active cases, Buldhana (96.02%) has a maximum cured case. Kolhapur (3.06%) has more cases of death followed by Sangali (2.97%) in the month of April 2021. There are many positive and negative impacts of COVID-19 pandemic on environment in Maharashtra.

The vaccination programme was started on 16th January 2021 and 1,33,60,594 people are vaccinated till 30th April 2021 in Maharashtra. Though technological advancement is developed, there are also many negative impacts of COVID-19 pandemic in Maharashtra.

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