

**JUDGING THE RIGHT TIME FOR IMPOSING LOCKDOWN TO COMBAT
COVID-19 PANDEMIC: CASE STUDY OF DELHI AND MAHARASTRA DURING
THE SECOND WAVE OF THE PANDEMIC**

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Abstract:

Covid-19 pandemic has devastated the entire world in all perspectives. India is now passing through the second wave of the pandemic from April 2021. From the beginning of first wave of covid-19 pandemic, India had undertaken the strategy of nationwide lockdown to prevent the spread of the disease. During the second wave of the pandemic, Indian Government leaves it to the States and UTs to decide the time of lockdown and unlock to mitigate covid-19 pandemic. It is very important to impose lockdown in the right time to prevent the spread of the disease and unlock it gradually. Prolonged lockdown also affects the common people as they lost their job and it also become very difficult to sustain. Present paper focused on the lockdown and unlocking time in Delhi and Maharashtra to combat covid-19 pandemic during the second wave.

Key words: Pandemic, Second wave, Lockdown, Unlock

Introduction:

India is facing the second wave of covid-19 pandemic from April 2021. Different states and UTs have imposed lockdown to combat covid-19 during the second wave. The main purpose of the lockdown is to restrict the spread of the disease. As lockdown has several negative effects on social, economic and psychological wellbeing of people, thus lockdown can't be imposed throughout the covid wave. Therefore it is very much essential to judge the right time and duration of lockdown for a nation or state. Lockdown is most beneficial when the infection graph is accelerating. But prolonged lockdown even after the acceleration peak is harmful as it affects the economy adversely.

Objectives:

The main objectives of the paper are-

- i) To judge the right time for imposing lockdown and unlock during second wave of covid-19 pandemic.
- ii) To judge the efficacy of lockdown as a measure to combat covid-19 pandemic.

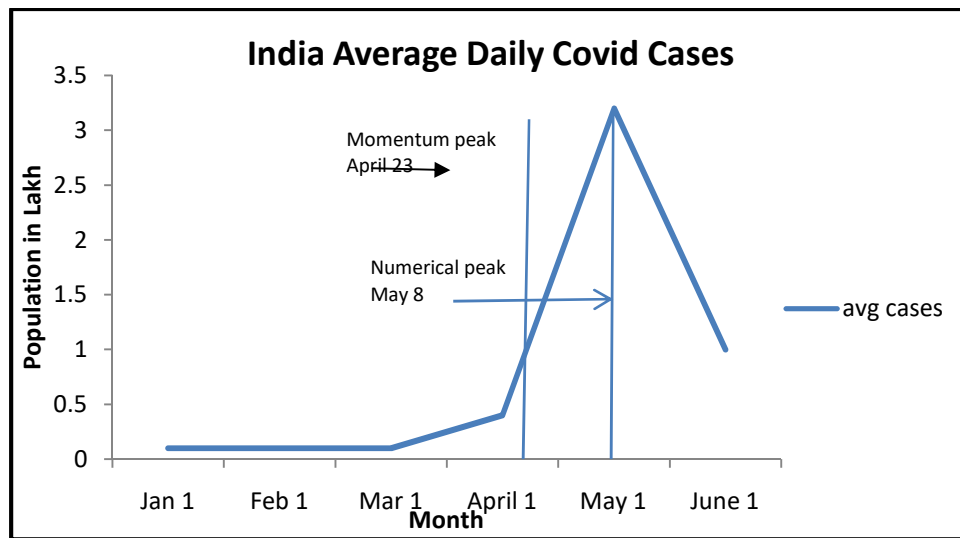
Materials and Methods:

The study mainly followed quantitative approach. Data related to active cases, average daily death cases, and average daily new cases have been collected from dashboard of co-win portal from January 2021 to June 2021. Based on the data collected analysis has been done to find out monumental peak and the numerical peak, mortality acceleration peak and numerical mortality peak. Based on the peak on the graph, the right time for lockdown and unlock has been determined.

India during the second wave of covid-19 pandemic:

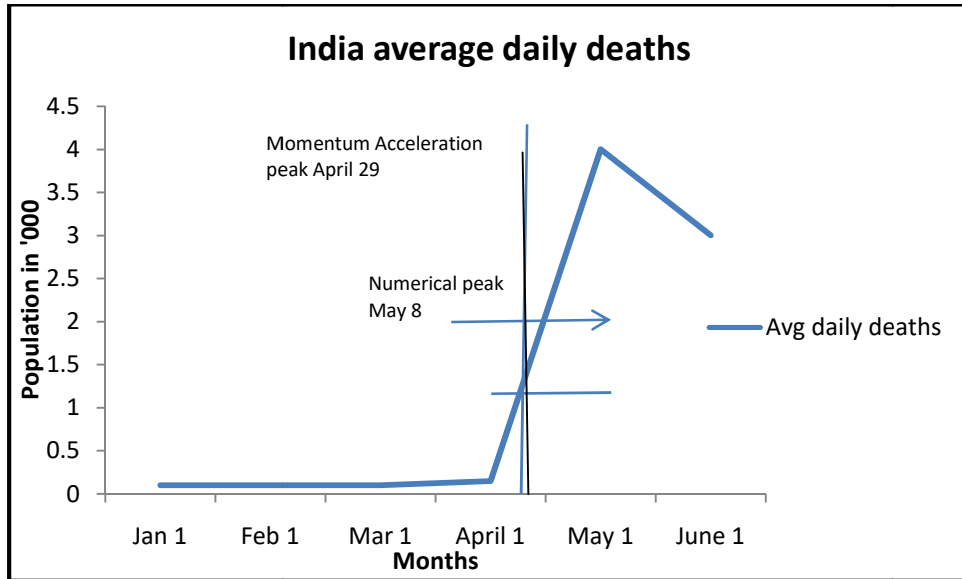
Most of the states and UTs in India are facing the second wave of covid-19 from late march to early April in 2021. India reached the momentum peak in April 23 of 2021 and reached the numerical peak by May 8, 2021. Momentum peak is the highest peak of average daily new cases beyond which the new case acceleration is slower (Fig-1).

Fig-1: India average daily covid cases (Jan 1-June 1, 2021)



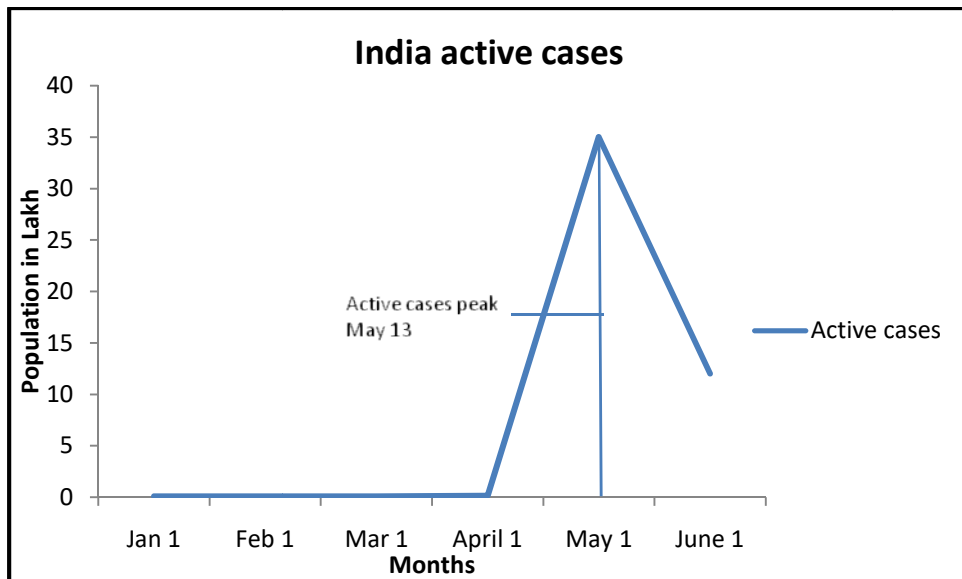
India reached its mortality acceleration death peak in April 29 when it touches almost 3000 death per day and reached its numerical mortality peak in May 23 by 4000 per day death cases (Fig-2).

Fig-2: India average daily death cases (Jan 1-June 1, 2021)



India reached its active cases peak in May 13 with almost 35 lakh active covid cases (Fig-3).

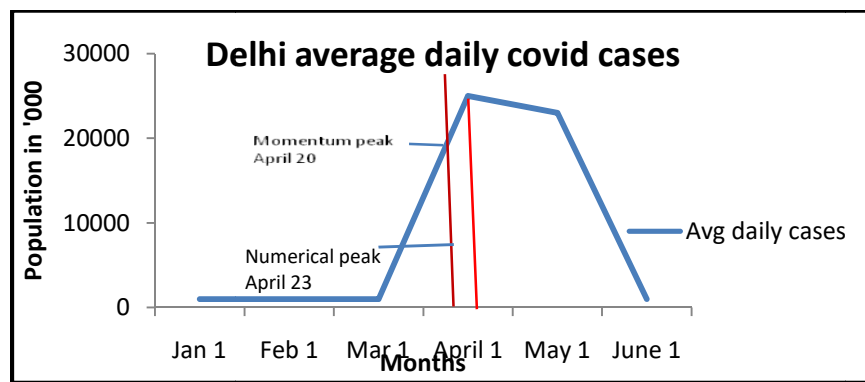
Fig-3: India active covid cases (Jan 1-June 1, 2021)



Case study of Delhi:

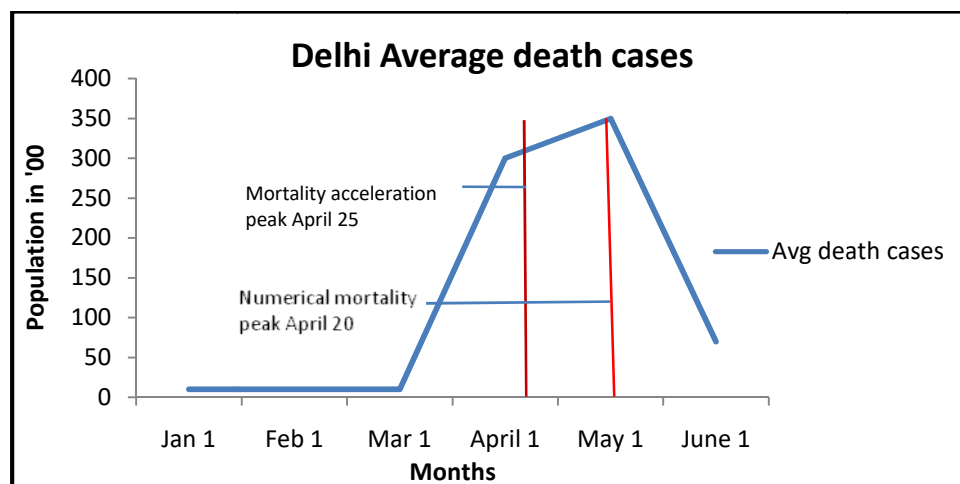
The second wave started in different times and reached its peak in different times. The five graph pattern of momentum peak, numerical peak, mortality acceleration peak, active cases peak and numerical mortality peaks are good indicator for the right time to imposed lockdown and gradual unlocking. Delhi reached its momentum peak in April 20 with average 25000 daily new cases and reached its numerical peak on April 23 (Fig-4). Delhi Government also announced lockdown immediately with the onset of momentum peak.

Fig-4: Delhi Average daily covid cases (Jan 1-June 1, 2021)



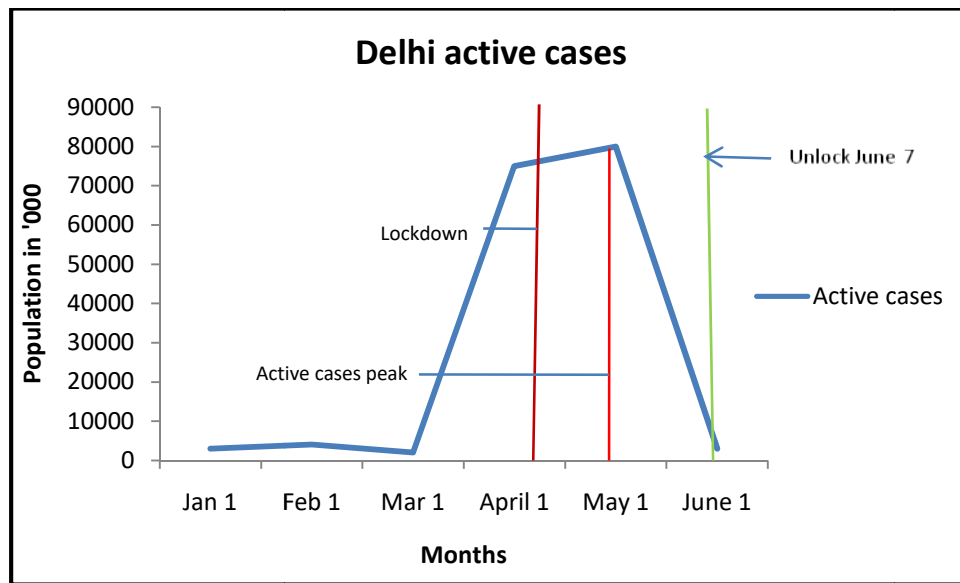
Delhi reached its mortality acceleration peak on April 25 with 250 daily death cases and reached its numerical mortality peak on May 3 with 350 daily death cases (Fig-5).

Fig-5: Delhi average death cases (Jan1-June1, 2021)



Delhi reached its active cases peak in the second wave on May 1 with 85000 active cases (Fig-6).

Fig-6: Delhi active covid cases (Jan1-June1, 2021)

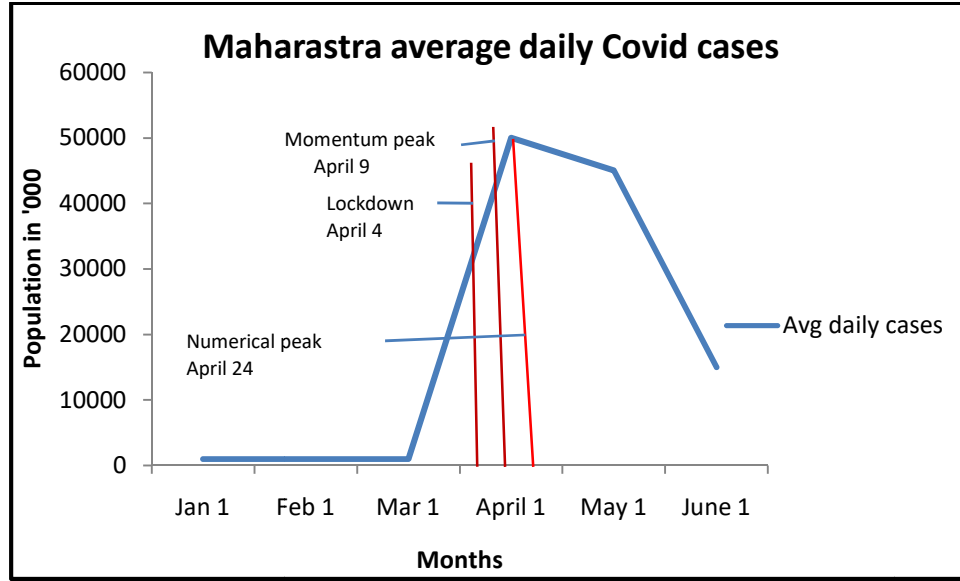


Delhi Government has eventually announced unlocked on June 7 when the graph showing a decelerating trend.

Case study of Maharashtra:

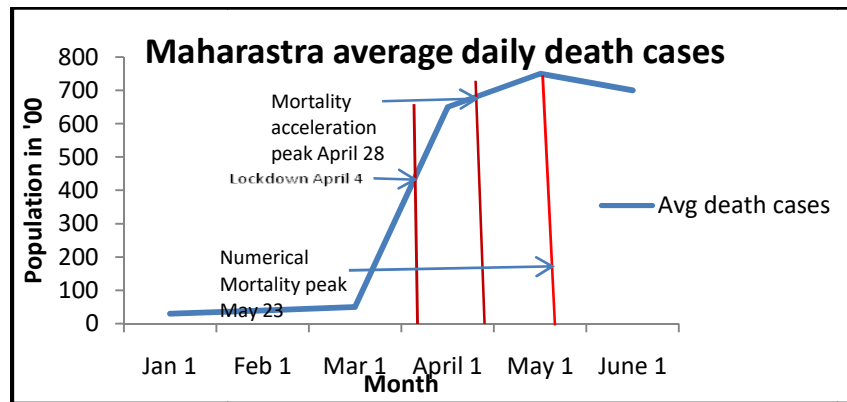
Maharashtra has reached its momentum peak on April 9 with 45000 average daily cases and reached its numerical peak on April 24 with 60000 average daily cases. Maharashtra Government had imposed lockdown on April 4 just before the graph touches the momentum peak which is the right time (Fig-7).

Fig-7: Maharashtra average daily covid cases (Jan1-June1, 2021)



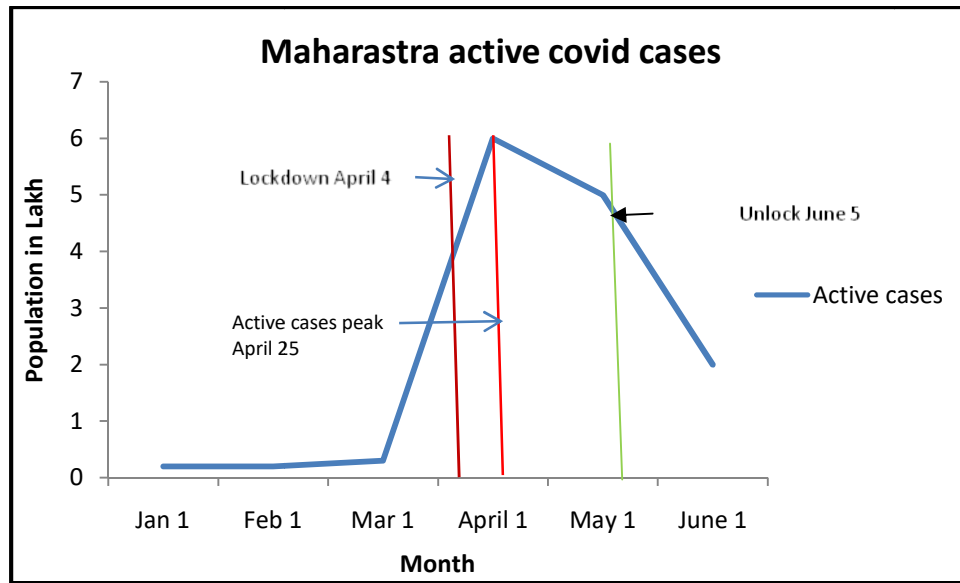
Maharashtra reached its mortality acceleration peak on April 28 with 700 daily death cases and reached its numerical mortality peak on May 23 with 900 daily death cases (Fig-8).

Fig-8: Maharashtra average death cases (Jan1-June1, 2021)



Maharashtra reached its active cases peak on April 25 with 6 lakh active cases (Fig-9).

Fig-9: Maharashtra active covid cases (Jan1-June1,2021)



Maharashtra Government had announced unlocked on June 5 when the graph shows a decelerating trend.

Any State or UTs when reached the five peak can take the decision of unlocking as prolonged unnecessary lockdown is harmful from economic, social and psychological perspectives for the common people. Gradual district wise unlocking can be considered if a state has reached its momentum peak and numerical keeping a close view on the other peaks to reach. At present majority of the Indian States has reached the momentum and numerical peak and average new cases have started to slow down (Table-1).

Table-1: State wise covid cases dip down from May 19-June 14,2021

States/ UTs	May 19-June 1	June 1-14
Tamil Nadu	423804	243464
Kerala	312871	189619
Maharashtra	293478	156106

Karnataka	312080	153234
Andhra Pradesh	205856	110005
Odisha	129331	82389
West Bengal	194394	78975
Assam	68897	47227
Telangana	40241	24036
Punjab	51802	18769
J&k	36472	15651
Chattisgarh	42138	14214

Data source: covid 19 India.org

Even many states registered a declining trend in daily average new cases but the high mortality rate is still a much concern for the administration. The pace of vaccination is still very slow and need a speedup vaccination drive to cover the all age group. The vaccination drive for age group 10-18 is yet to be initiated as there is potential third wave threat and unvaccinated people are supposed to be the worst victim of that (Table-2).

Table-2: Covid 19 vaccination of India up to June 14, 2021

Age Group	No of People (In cr)	Required doses (In cr)	Completed doses (in cr)	Total needed to cover Unvaccinated (In cr)	% of total doses covered
10-18	20.2	40.36	0	40.36	0
18-44	59.6	119.24	6.24	112.99	5.23
45-60	20.8	41.51	8.33	33.19	20.06
Above 60	14.0	27.92	6.40	21.53	22.91

Total	114.51	229.03	20.96	208.06	9.15
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Source: Times of India

Conclusion:

Lockdown is obviously the best measures to prevent the spread of the novel corona virus as many states used this strategy effectively to restrict the average new covid cases. The timing of the lockdown is very important as wrong implantation could do harm than good. The onset of momentum peak is the right time to impose lockdown. The states which have reached the five peaks should unlock immediately. Many people lose their job in the lockdown it posed a large impact to their economy. So a lockdown though the best effective method to control the disease, can't be continued throughout the entire covid wave.

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