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The Impact of Covid-19 In India

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Abstract: The breakout of covid-19 in various parts of the world is a major source of concern for all level of government in the affected countries. India, too, is dealing with a difficult problem in containing the virus spread, and it has been able to keep its growth rate under controlthanks to certain stringent measures. The research examines the current state of corona virus spread in India, as well as the consequences. Various measures have been taken to combat it. Using data sources (till the 7th and 8th of April) India's many state entitles, as well as the Ministry of Health and Family Welfare of the Indian government. This research shows a variety of trends and patterns. The study provides detailed solution to six separate research questions. The rate of infected cases has been claimed to be controlled thanks to National Lockdownalthough there are still some uncontrolled mass levels. The infected instances had suffered a setback as a result of the events with the use of exponential and polynometric function. By the end of the yearmail regression modelling has predicted up to 74500 instances April of the following year. There are also several notes worthy clusters and patients nodes in the data. COVID-19 is a disseminated by a network of patients who are strong influencers. Death is also a factor. With an accuracy of 94%, rate case predictions were made using two class classification models. 61% of the finally, tactics for keeping the lockdown in place were addressed

Only vital services appear to be available to Indian resident and lockdown in the whole nation is maintained for 15 to 30 days. This research will be very important to the Indian government and number of the states and also for Indian administrative and lower level workers. This news also beneficial to other nation for consider many issues to take steps on control of COVID-19

Keywords: New Corona Virus, New Corona Patients Analysis, Predictions, Trend Analysis, Forecasting, Cluster Analysis, Lockdown, Social Distancing,

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INTRODUCTION

The COVID19 virus is also termed as Noval Corona Virus is linked to a respiratory ailment an in humans and has been labelled a global epidemic and pandemic by the WHO (World Health Organisation) in the march 2020. According to the most recent data by research university and other tracking websites. More than 13 lakh population have been infected by Corona Virus in the whole world. Nearly 76000 deaths have been reported around the world. The top ten Nation affected by corona virus is given below.

TABLE 1: NATION AFFECTED BY CORONA VIRUS

1.	The United State of America
2.	The United Kingdom
3.	Spain
4.	Italy
5.	Germany
6.	Turkey
7.	France
8.	China
9.	Iran
10.	Switzerland

Various countries now regards India as a whole leader and even the World Health Organisation has stated that the world is looking to the methods of India to contain the outbreak of this pandemic in case of population India is the most populated country in the globe. India makes an important contribution to global GDP. As a result, the world is closely watching and monitoring the COVID-19 epidemic in India and there is a need for extensive analytical research based on various measured used by the Indian government. Since the beginning of the year India has been under a curfew.

Table 2 COVID-19 Lockdown in India

Janta Curfew	The Janta Curfew (People's curfew) was a 14 Hour curfew on 22 March (from 7 a.m. to 9 p.m.)
Term 1	25th March to 14th April
Term 2	15th April to 03th May
Term 3	4th to 17th May
Term 4	18th to 31th May

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2. REVIEW OF LITERATURE

Joe *et al.*(2020) used crowd sourced data to undertake a rigorous statistical research of parameters related with COVID-19 pandemic morality in India providing estimates for the age sex specific COVID-19 case fatality rate and the ratio of confirmed fatalities in total confirmed cases. The author conducted that male have overall a large burden of COVID-19 infection in India but female have a large relative risk of COVID-19 morality and elderly males and female have both a significant morality risk and require a particular care when infected there is a need to cover a more recent period because the period ends on 20 May 2020 well before the massive surge in COVID-19 cases.

Das *et al.*(2021) recent investigation on the correlates of COVID-19 as reviewed by Das primarily focus on climate variable with few studies focusing on socioeconomic correlates. Das discovered that living environment deprivation in terms of housing condition, assets possession, and water access/population and household density was an important correlate of spatial clustering of COVID-19 hotspots in Kolkata megacity the capital of West Bengal after controlling for temperature and moisture indices. While we are unable to incorporate such precise data at the national level for our analysis, we do control for weekly temperature and rainfall as well as urbanisation ratio at state level.

Olsen *et al.*(2020) although it is clear that socio economic factors influence the COVID-19 pandemic and infection few research in India, particularly at the national level have taken this into account. Olsen has an interesting exception having calculated a formal and multilevel model to predict the correlates of the risk of death due to COVID-19 in 11 Indian states taking into account characteristics at both the individual and district levels. The authors combined data from the National Family Health Survey (NFHO) in 2015-2016 census data from 2012 and COVI-19 death predictions from how India lives for the period up to July 2020. Olsen discovered that people living in urban areas belonging to the schedule cast being smokers being males with more exposure to the activities outside the home and above 60 year have more risk of COVID-19 oriented death.

Acharya and Porwal (2020) Based on National Family Health Survey (NFHS) data from 2015-2016 created the aggregate vulnerability index at state and district levels with a focus on the **5** Dimensions such as Demographic composition, Housing and hygiene condition, Availability of heath care facilities, COVID-19 related epidemiological factors. The overall vulnerability index was influenced by socioeconomic condition, housing and sanitary conditions and availability of health care facilities in the ten most susceptible states. The authors discovered that as of 16 July 2020 5 of the 8 states that had contributed to over 78% of the confirmed COVID-19 cases in India.

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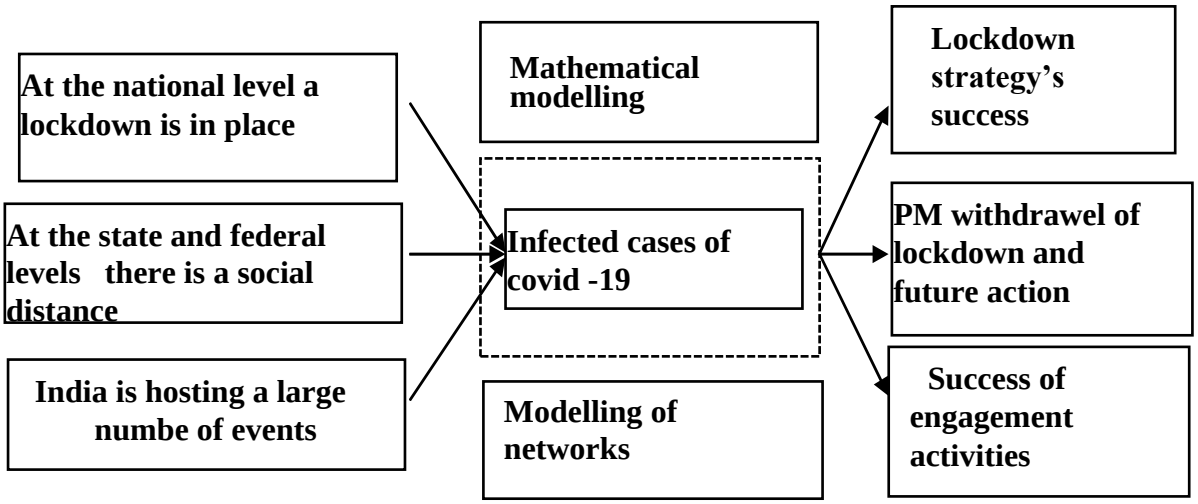
3. RESEARCH METHODOLOGY

Figure1: Shows the current study research model which includes a variety of factors and outcome indicators.



Specific strategies have been employed to answer the many research topics which encompasses a variety of data sets, data source, modelling techniques and outcome factors.

Figure: 1 Depicts the overall variable investigation in the study

The time series data for the first study topic was taken from the Indian database COVID-19 and spanned the period from 15-jan-2020 to 06-april-2020. The data was separated into 3 parts:-

1) 15-jan-2020 to 31-jan-2020
2) 01-feb-2020 to 05-march-2020
3) 06-march-2020 to 06-april-2020

Analysis of trends and number of persons visits at both the national and international levels infected cases were compared. The second examination was performed on the same data set at the first. To anticipate the short term the search question was answered using exponential modelling for the next three weeks look for the following pattern. Equation can be used to predict exponential growth.

$X=X_0\exp(k)$

As X_0 & X arethe all cases at time k_0 & k and at the growth rate

$X= 2X_0$ according to the definition requires double time, which is represented by $\ln(2)/k$ by using formula $.\ln(X/X_0)=\ln(2)=k$

If depending in the effective rate, the growth rate changes over time, if you use preventive techniques, the doubling the time will vary with time. As a result the time dependent doubling time is caused by the growth rate.

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4. ANALYSIS AND INTERPRETATION

The results of various source of data analysis performed on various type of database are presented.

a) Lockdown's effect on infected cases

The central government of India ordered a one day national lockdown on 22th march 2020, after the majority of schools, colleges, markets, cinema hall and public facilities head already was shut down by state government. It was only two days following that one day. The central govt. has imposed the 21 day curfew prohibiting any moment. Govt as well as requiring the Indians to remain at home. Only in exceptional circumstances were individual permitted to leave their home in emergency situation and only with the authorization of local govt. All these directions were given in the hope of contraction of the curve of the infected cases and re-establishing a healthy environment. Indian patient populations are growing at an exponential rate.

FIGURE 1: THE NO OF COVID CASES IN INDIA TILL 4TH APRIL

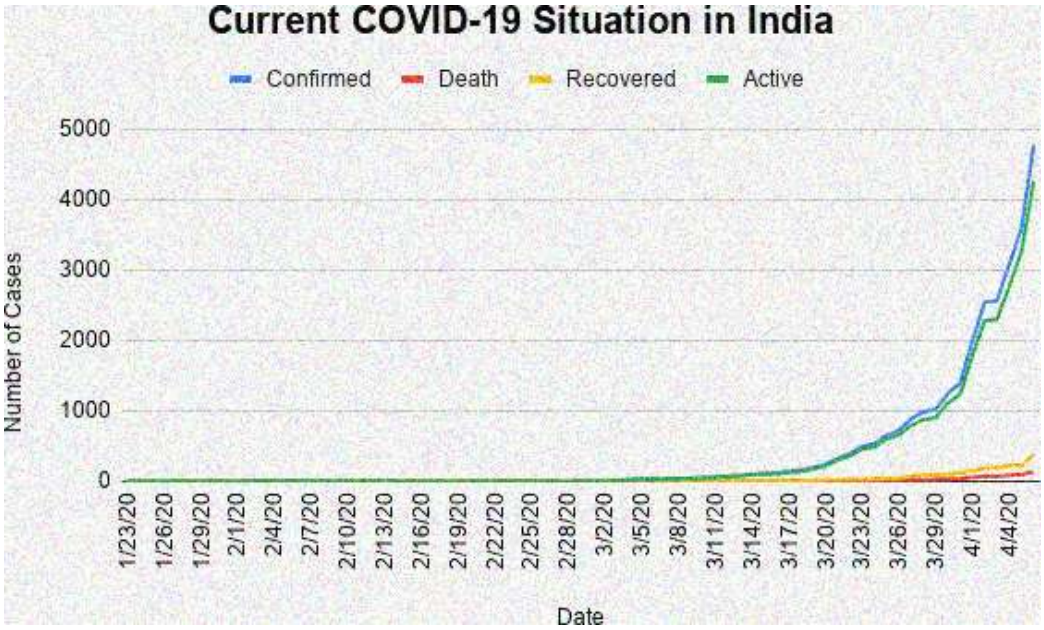

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FIGURE 2: GROWTH RATE OF COVID-19 IN INDIA FROM 15 JAN- 31 JAN

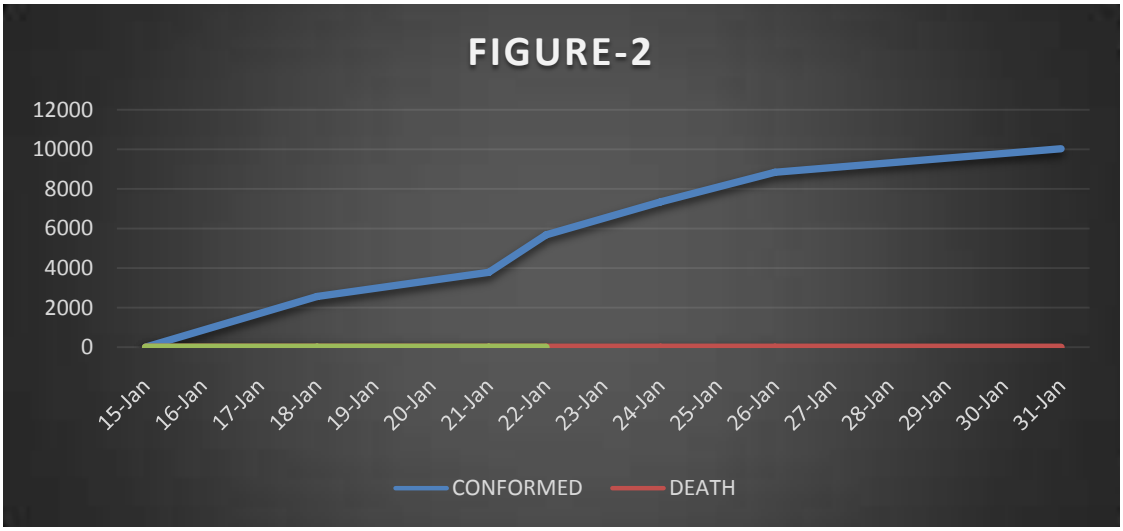

FIGURE 3: GROWTH RATE OF COVID-19 IN INDIA FROM FEBRUARY

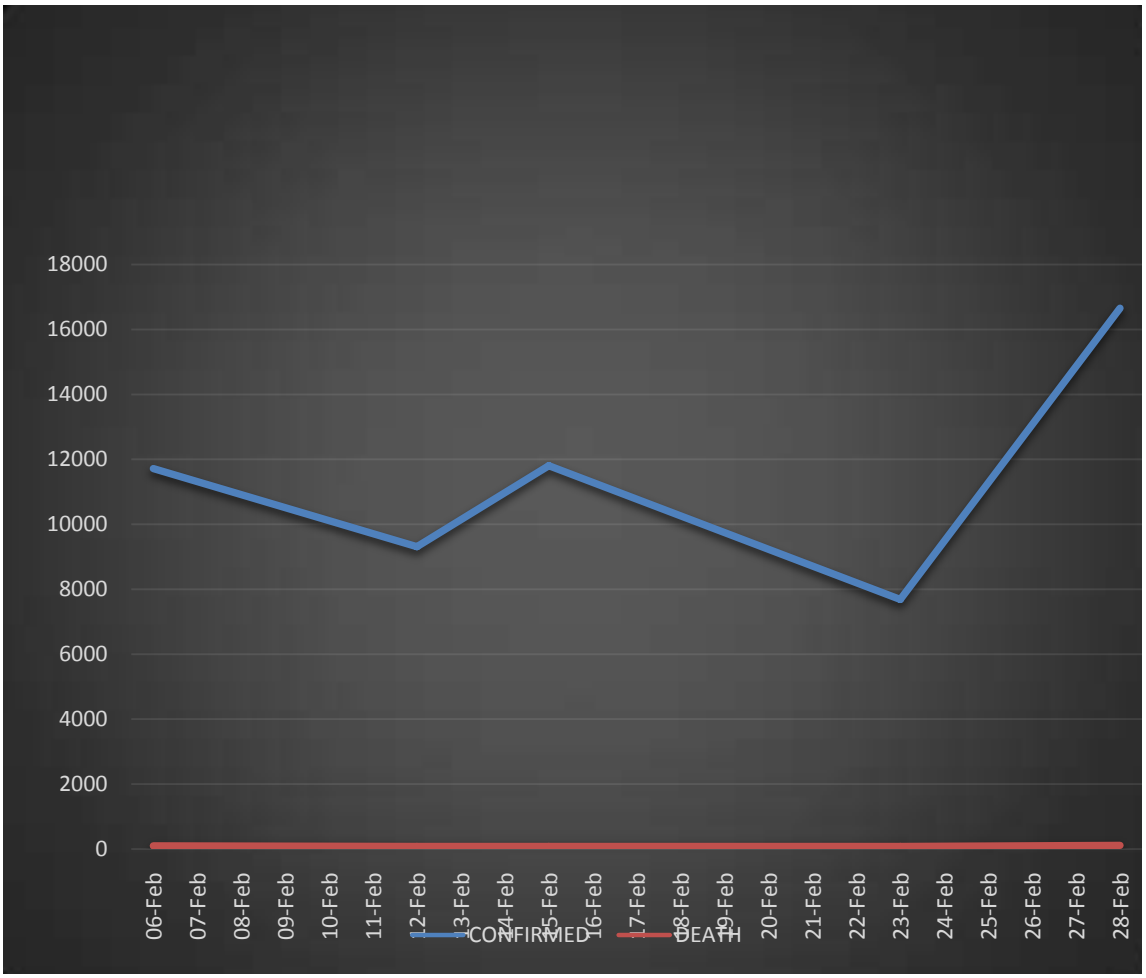

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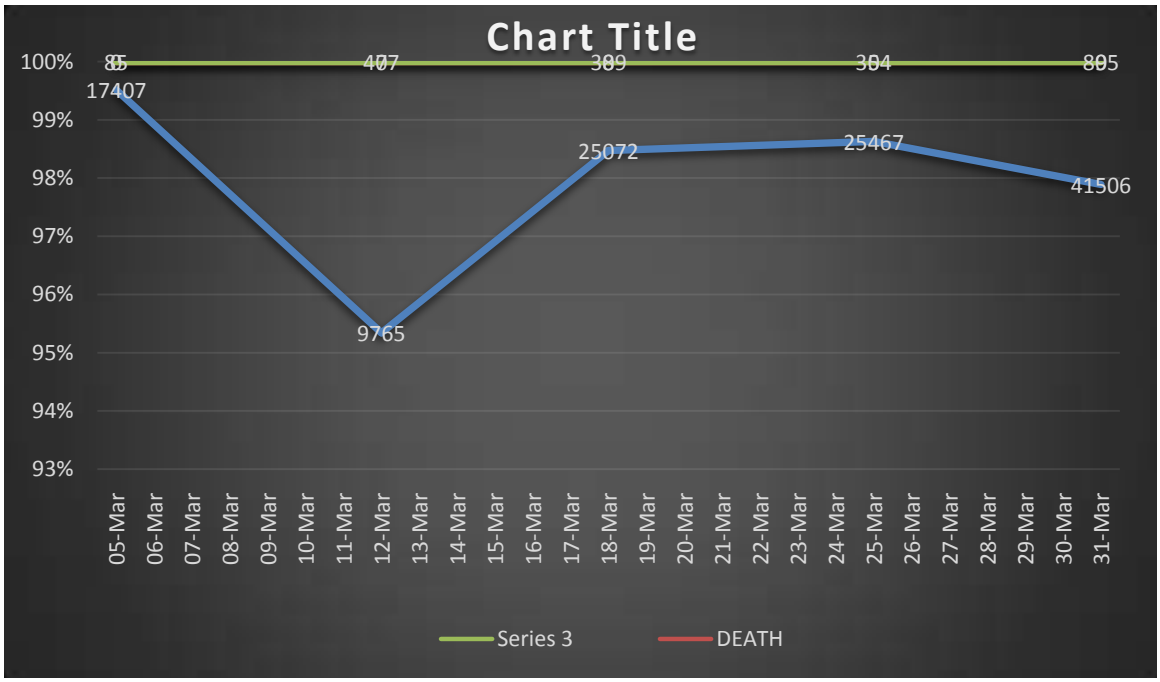
FIGURE 4: GROWTH RATE OF COVID-19 IN INDIA IN MONTH OF MARCH



The daily growth rate of infected cases (blue line) shows the growth rate was fairly high in the early days of infection due to the low number of cases. The growth rate was estimated by multiplying the differences in the number of cases between two days under consideration. Since the early count was in single digit so the growth rate was quite rapid. As result in the second phase of March from 1 march to 21 march just before to lockdown the growth rate increasing at increasing rate.

B) Prediction for Infected Instances in the Short- Term

At the national level exponential modelling has been used to anticipate short-term prediction. 1st the growth of doubling days as an example the number of days needed to double the number was computed. The number of infected cases has been determined. The image reveals that prior to lockdown it took to double the cases was significantly higher. After lockdown the average periods drops to around to three. According to the prediction the average number of day is continue decreasing with the number of cases increasing in India.

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Table 3. Based on exponential modelling the number of infected cases in India is expected to rise in the next few years.

Date	Predicted Number of Infected Cases
4/01/2020	5250
4/02/2020	6113
4/03/2020	7085
4/04/2020	8178
4/05/2020	9427
4/06/2020	10816
4/07/2020	12315
4/08/2020	13997
4/09/2020	15884
4/10/2020	17873
4/11/2020	20193
4/12/2020	22517
4/13/2020	25275
4/14/2020	28115
4/15/2020	31394
4/16/2020	34754
4/17/2020	38482
4/18/2020	42458
4/19/2020	46767
4/20/2020	51328
4/21/2020	56393
4/22/2020	61656
4/23/2020	67339
4/30/2020	73428
5/01/2020	79969
5/02/2020	86854

C) Strategy and Future Plans for Lockdown:

Based on the data presented in the preceding sections, there are five primary reasons why the national lockdown will be difficult to lift. To begin with, the infected rate of growth. The number of instances is steadily increasing. Second, the time it takes for the number of infected cases to double in India's economy is rapidly deteriorating, giving it a dynamic spread. Third, the vast majority of Indian's are with mobility rates for public locations in decline, the social distance is being followed rather successfully in India. This is owing to the administrative authorities coordinated efforts as well as engagement activities. Link between the prime minister office and citizen refusal to attend social events. Now a days the Indian authorities attempts are being thwarted by spontaneous mass events.

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In extreme circumstances the state-by-state pace of illness spread must be examined before deciding whether or not to remove the lockdown table 2 depict the current number of infected patients in various Indian states as well as the accompanying growth rate for the last 7 days in each state individually. It is clear that the majority of states have experience more. More than two hundred percent growth in the last week which is a worrying conditions for the entire state authority. Infect national growth has been approaching 180%, which is extremely high in the previous 7 days. Administrators in location with less than 50 afflicted cases have the ability to convene. Consider the easy of lockdown prohibition in their area.

Table 4.NumberofInfected Cases and last1-weekgrowth rates for different states of India

States	Number of Infected Casesason8thApril2020	1-Week Growth Rate(1stApril–7thApril'20)
MAHARASHTRA	1145	239.81
TAMILNADU	732	21238
DELHI	567	274.95
TELANGANA	465	259.69
RAJASTHAN	393	212.50
UTTARPRADESH	365	208.55
ANDHRAPRADESH	347	215.51
KERALA	349	37.19
MADHYAPRADESH	295	189.92
GUJARAT	189	126.83
KARNATAKA	185	65.55
HARYANA	163	287.37
JAMMUANDKASHMIR	159	156.84
PUNJAB	103	143.91
WESTBENGAL	98	268.67
ODISHA	47	956.00
BIHAR	33	66.22
UTTARAKHAND	36	375.43
ASSAM	26	78.00
HIMACHALPRADESH	27	579.00
CHANDIGARH	18	39.46
LADAKH	14	7.89
ANDAMANANDNICOBARISLANDS	11	10.00
CHHATTISGARH	10	-44.67
GOA	7	16.44
PUDUCHERRY	5	66.67
JHARKHAND	4	332.00
MANIPUR	2	98.00
ARUNACHALPRADESH	1	12
DADRAANDNAGARHAVELI	1	8.34
MIZORAM	1	NA
TRIPURA	1	NA
TOTAL	5749	180.85

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In terms of transportation only intra state level may be permitted in states may be permitted in states with a low population density and a low number of documented cases. For the time being, no interstate domestic level should be permitted because it may result in transfer of the vehicle. COVID-19 is a virus that spread from one place to another. International plans must not be activated because the number of instances in the majority of the world's are extremely high. The majority of turbulence is already occurring in the Asia Pacific area and the United States while other parts of the world are experiencing it as well. The number of affected people is rapidly increasing. Inbound foreign flight to India have begun in India, the COVID-19 action plan may be disrupted so only necessary should be available.

5. Conclusion

The COVID-19 outbreak status in India was examined in depth in this study. The number of cases is rapidly increasing, necessitating vigorous control measures from India's administrative body. This research covers six separate topics and six re-examinations. All of your search queries have been fully addressed. They have something to do with the way you convey the information. Infected case growth rates in India, and projections for the number of infected cases in the coming years. Influence of social estrangement on Indian residents in recent days.

Currently, a number of different studies were implemented various technique to present the interpretation and results are sync with few limited studies. The study will be beneficial for Indian govt. and various state and Indian administrative units, India's frontline health staff, researchers, and scientists are all included. This research will also be useful for administrative units in other nations to consider various aspects of COVID-19.

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