An Impact Analysis on COVID 19 as State Wise in India Using R

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Abstract:- **This is based on COVID 19 patients data on accessible big-data systems that include a set of tools and technique to load, extract, and improve dissimilar data while leveraging the immensely parallel processing power to perform complex transformations and analysis. In this paper, we have mainly focused on the R programming along with the logistic and the exponential models at each state (restricting to only those states with enough data for prediction). The R programming takes into account the possibility that an infected individual can return to the susceptible class on recovery because the disease confers no long-standing immunity against reinfection.**

Keywords: - DA, PA, PrA, CoVs, COVID, Ebola, Zika, Nipah.

1   INTRODUCTION

In this paper, we first discuss the importance of statewise consideration, contemplating all the states together. Second, we will focus on the infected people in each state (considering only those states with enough data for prediction) and build growth models to predict infected people for that state in the next 30 days.[7]

Fundamentally, data mining is about processing statistics and identifying styles and traits in that data so that you can determine or choose. Facts mining standards have been round for many years, but, with the arrival of large records, it is even extra prevalent [66].

Data analytics is the process of using analysis algorithms running on powerful supporting platforms to uncover potentials concealed in Data, such as hidden patterns or unknown correlations. Considering the growth and intricacy of "Data" science systems, previous descriptions are based on a one-sided view point, such as chronology or milepost technologies.

Corona viruses are enveloped positive sense RNA viruses ranging from 60 nm to 140 nm in diameter with spike like projections on its surface giving it a crown like appearance under the electron microscope; hence the name corona virus [3].

A BRIEF HISTORY OF COVID19

The human body is exposed to a variety of infectious microorganisms, such as viruses, bacteria, fungi, protozoa, and helianthus, which cause tissue damage through different mechanisms. Viruses are unique among these five types of infectious organisms in that they can manipulate the host-cell machinery in a unique way and continuously evolve to survive and prosper in all species.[23]

WHO first learned of this new virus on 31 December 2019, following a report of a cluster of cases of 'viral pneumonia' in Wuhan, People's Republic of China[1]. The COVID-19 pandemic has had a significant impact on the delivery of healthcare around the world, including accessibility to ophthalmic surgery.[3]

SYMPTOMS

The most common symptoms of COVID-19 are fever, cough, myalgia, or fatigue and atypical symptoms include sputum, headache, haemoptysis, vomiting, and diarrhoea. Some patients may present with sore throat, rhinorrhoea, headache, and confusion a few days before the onset of fever, indicating that fever is a critical symptom, but not the initial manifestation of infection. Furthermore, some patients experience loss of smell (hyposmia) or taste (hypogeusia), which are now being considered early warning signs and indications for self-isolation [6].

PROBLEM AND CHALLENGES

All ages are at risk of getting the illness. This is because the ailment is transmitted through large droplets that result from coughing and sneezing by symptomatic individuals. In some instances, the infection can happen from asymptomatic individuals and before the beginning of symptoms.[16]

As of March 2020, the WHO announced that there are about 87,317 cases of COVID- 19 globally as well as confirmed cases of deaths is 2,977. This implies that the disease symptoms are mild as only 3.42 per cent of patients with it have died because of the virus.

At the same time, the high number of incidences and deaths have been identified in China. It is that 92 per cent of the total number of occurrences have been reported in Asia, mainly China.[5]

TRANSMISSION

Zoonotic transmission initially appeared to be a plausible cause as majority of early cases had a history of exposure to wet markets [60]. However, by the end of January 2020, the number of people who developed the disease without exposure to the market or another person with respiratory symptoms increased.

The spread of the disease among persons who did not visit Wuhan and among healthcare workers suggested a person-to-person spread of the virus [51,52].

PERIOD OF INFECTIVITY

The duration for which a patient with COVID-19 remains infective is unclear. Viral load in the oropharyngeal secretions is highest during the early symptomatic stage of the disease [53,54]. The patient can continue to shed the virus even after symptom resolution [53].

In a study from China, the median duration of virus shedding was 20 days (interquartile range [IQR] 17.0–24.0) amongst the survivors [55].

WHO

The WHO is aware of these reports of patients who were first tested negative for COVID-19 using polymerase chain reaction testing and then after some days, tested positive again [4]. In a scientific brief, dated April 24, 2020, the WHO said, "there is currently no evidence that people who have recovered from COVID-19 and have antibodies are protected from a second

infection" [8]. Several research papers have reported that, even though being infected by the virus may build immunity against the disease in the short-term, it is not a guaranteed fact, and it may not be long-lasting protection [4].

The WHO declared the coronavirus disease (COVID-19) as a global pandemic on March 11, 2020 [4]. The disease has spread across 212 countries and territories around the world, with a total of more than 3 million confirmed cases [5,6]. In India, the disease was first detected on January 30, 2020, in Kerala in a student who returned from Wuhan [7,8]. The total (cumulative) number of confirmed infected people is more than 37,000 to date (May 3, 2020) across India.

2   R PROGRAMING

R is statistical software, and an object-oriented high-level programming language used for data analysis, which includes a large number of statistical procedures such as t-test, chi-square test, standard linear models, instrumental variables estimation, local regression polynomials, etc. Besides, R provides high-level graphics capabilities.

R is an object-oriented programming language. This means that everything what is done with R can be saved as an object. Every object has a class.

3   RESULT AND ANALYSIS COVID 19

A comparative study method was used to evaluate and explain the experiences of COVID-19 disease management in selected states of the India. The study population includes Delhi, MP, HP, HR, CH, and MH, ect. which are not only among the leading states in the management of COVID-19 disease but also have been affected mainly by this disease.

In selecting these states, we attempted to study at least one state from each continent. Initially, Then, the outcome of the indicators was done to extract the differences and similarities between health systems strategies in different states. Thus, the differences and similarities between different states were compared and applied in the next step.

summary(Covid19)

```
Total Confirmed cases              Death
            Cured/Discharged/Migrated
Min.  :   1                Min.  :  0.0
1st Qu.:  39               1st Qu.:  0.0
Median :  619      Median :  5.0
            Median :  197.5
Mean  : 11394      Mean  :  291.3
            Mean  :  6908.1
3rd Qu.: 5233      3rd Qu.:  68.5
            3rd Qu.:  2736.0
Max.  :468265       Max.  :16476.0
            Max.  :305521.0
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Table 3.1 Confirmed cases,   Death,   Cured

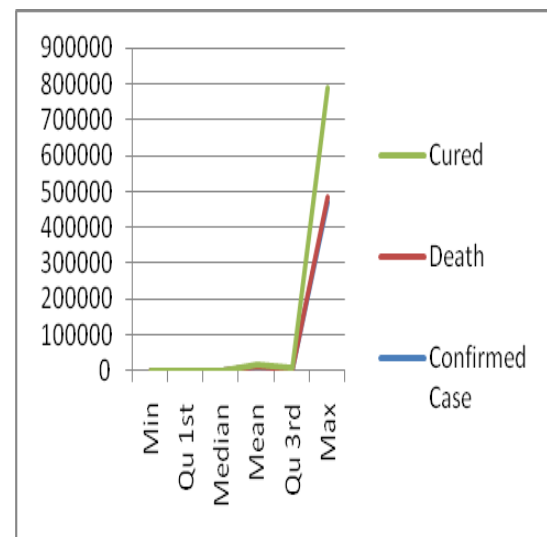|	Confirmed Case	Death	Cured
Min	1	0	0
Qu 1st	39	0	0
Median	619	5	197
Mean	11394	291	6908
Qu 3rd	5233	68	2736
Max	468265	16476	305521

Fig. 3.1 Line Chart of cured, death and confirmed case

Table 3.2 New cases, new deaths, new recovered

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Min. :  0.0
1st Qu. :  9.0
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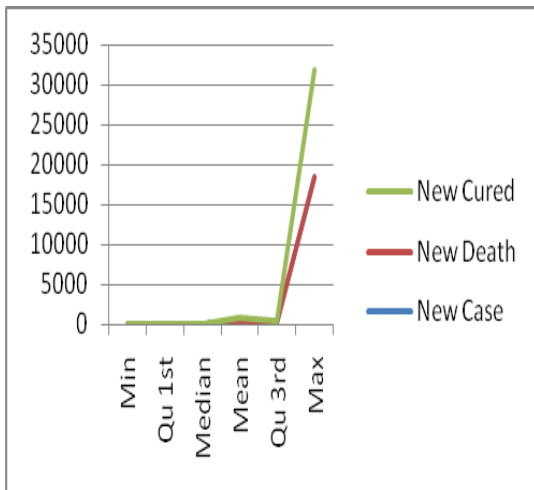|	New Case	New Death	New Cured
Min	0	0	1
Qu 1st	1	0	0
Median	26	0	8
Mean	418	0	283
Qu 3rd	210	0	119
Max	18366	0	13401

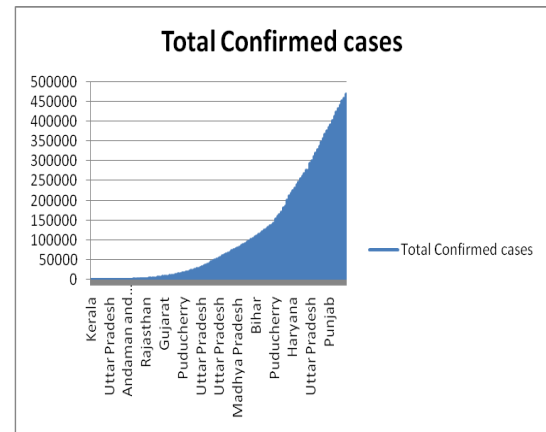Fig. 3.2 Frequency of Line Chart new death, cured and case

Fig. 3.4 state wise confirmed case

barplot(Covid19)

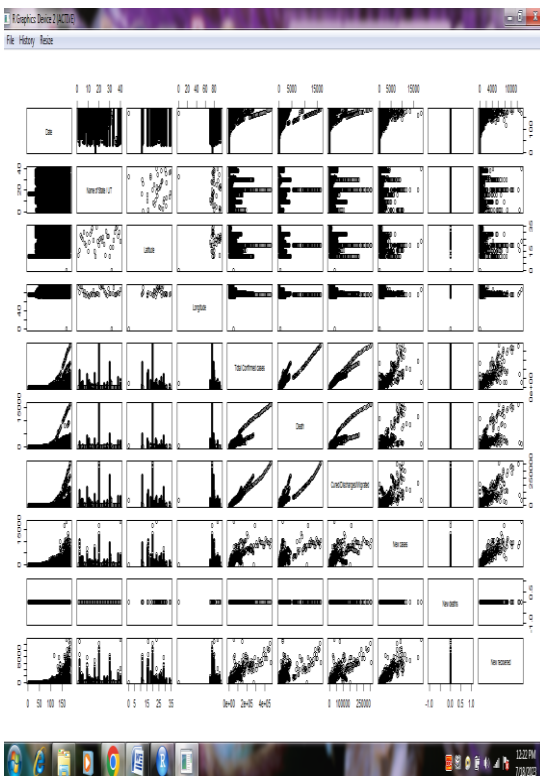A matrix of scatter plots can be produced with function
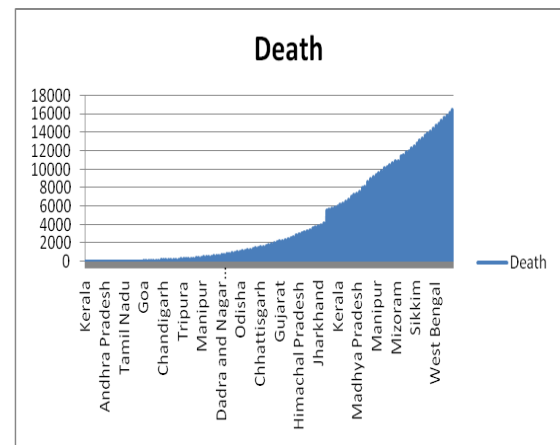

Fig 3.3 Matrix of scatter plots
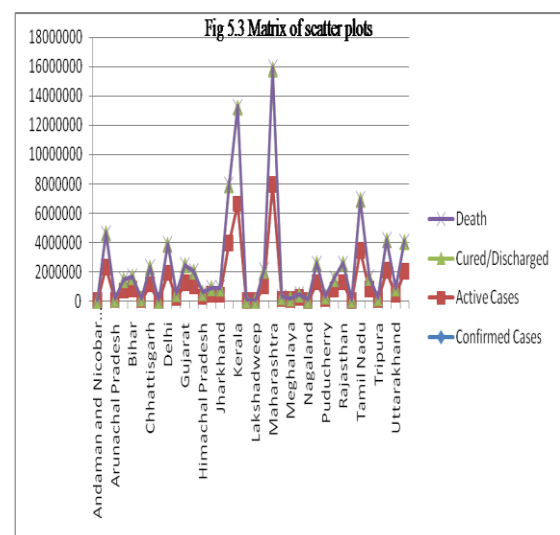

Fig. 3.5 State wise death from covid19

Fig. 5.8 State wise death, cured, active,confirmed from covid19

5   Conclusion

We found that states, namely, Maharashtra, Delhi, Gujarat, Madhya Pradesh, Andhra Pradesh, Uttar Pradesh, and West Bengal are in the severe category. Among the remaining states, Tamil Nadu, Rajasthan, Punjab, and Bihar are in the moderate category, whereas Kerala, Haryana, Jammu and Kashmir, Karnataka, and Telangana are in the controlled category. We also tabulated actual predicted numbers from various models for each state.

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