Plummeting of New Cases of COVID-19 Detected on Weekends in the United States

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Abstract

When COVID-19 first appeared, there were restrictions imposed by the governments around the world. The total number of cases at any given point of time in the first wave of spread of the disease was sub-exponential. In the second wave, the spread pattern was seen to be hyper- exponential. Currently, the COVID protocols have been loosened. Thereafter the number of new cases has been observed to plummet on weekends in certain regions that include the United States.

Keywords: Infectious Disease; Pandemic

Introduction

When COVID-19 first appeared, it was observed that the spread pattern of the virus was highly non-linear that could be called sub-exponential. We found that in India [1] from June 23 to August 22, 2020, the spread pattern was sub-exponential. We found that in the USA in the first week of May, 2020, it was sub-exponential [2]. However as the virus had spread because people travelled from one region to another, there appeared a second wave of the pandemic at different times in different countries. The second wave was far more serious than the first wave in the sense that we found the spread pattern in Russia [3] in October, 2020, to be actually hyper- exponential.

Waves followed thereafter to arrive at different times in different regions. The corona virus disease protocols controlled by the governments have meanwhile been loosened around the world, and now the numbers of people tested for COVID positivity in certain regions have become weekend dependent. Thus in forecasting using the raw data, the classical epidemiological mathematical models now may lead to faulty conclusions.

We are now going to refer to the current weekend dependent plummeting of the daily data in the United States of America. In this kind of a situation, it is certain that standard mathematical models of spread of an epidemic would not work. Weekend dependent plummeting of the number of new cases in some regions due to loosening of the COVID protocols might lead to worse situations again. It may be noted that in Germany and Italy for example, a new wave of the pandemic has right now, in October, 2022, been going on.

The Current Situation in the United States

In the United States of America, the current pattern of the number of new cases every day is of the following type: from Monday to Friday, the numbers are observably high and on Saturday and Sunday, every week, the numbers become observably small. In (Table 1) we have shown the data from August 1 to September 4, 2022, found after searching on the web for COVID in USA. It can be said that the data show

weekend dependent plummeting. The reason behind this kind of sharp plummeting of the new cases may be that people do not come out for testing for corona positivity on weekends. It also may be that on weekends people test unofficially, and positivity in such cases may not be officially reported. However, currently in the United States, the weekend dependence of the number of new cases detected is clearly observable. On the other days of every week, the numbers are quite high, in fact much higher than the peak value observed, around 70000, in the second wave when the COVID-19 protocols were strongly followed.

Days	Number of New Cases Daily From August 1 To August 7	Number of New Cases Daily From August 8 To August 14	Number of New Cases Daily From August 15 To August 21	Number of New Cases Daily From August 22 To August 28	Number of New Cases Daily From August 29 To September 4
Monday	176726	135412	129460	120643	112006
Tuesday	108210	128676	119903	105203	117036
Wednesday	217844	175162	160103	174362	154590
Thursday	164117	137589	126366	111303	108660
Friday	131914	121768	108491	100346	88353
Saturday	10568	6854	7927	8823	7437
Sunday	10081	10704	8522	8539	5823

Table 1: Number of New Cases in the USA, August 1 to September 4, 2022.

Conclusions

It does not require any hardcore statistical analysis to conclude that loosening of COVID protocols has made the number of new cases plummet observably on weekends in the United States of America. The observations on weekends are not really outliers; they have been occurring periodically. Before analyzing the current COVID-19 spread pattern the world over, one would need to keep it in mind that weekend dependent plummeting has meanwhile entered into the picture. Forecasting using such data might actually lead to wrong conclusions.

References

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