COVID-19 MOST AFFECTED COUNTRIES – A DIVERSE APPROACH

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ABSTRACT

The second wave of COVID-19 is spreading in many countries badly. There are various initiatives by the WHO and medical authorities of respective countries to control the spread including vaccination. Countries with a mass population and also, countries with less population are affected with no partiality. Impact calculation is a critical factor in the pandemic. Currently, the USA, India and Brazil are the most affected countries based on the cumulative cases. It is imperative to do the proportion-based analysis to know the actual situation of the COVID-19 for the affected countries. In this paper, we discuss the confirmed cases and death cases analysis based on various proportional based ranking and explore the countries that are impacted with more cases and death count.

KEYWORDS: *COVID-19, Impact, Deaths, Population, Proportion.*

INTRODUCTION

Coronaviruses (CoV) are a large family of viruses that cause various health issues ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome and Severe Acute Respiratory Syndrome. Coronavirus was discovered in December 2019 and hence it is named as COVID-19. The major symptoms of COVID-19 include fever, cough, headache, and difficulties in breathing. In worst cases, the virus can cause pneumonia, severe acute respiratory syndrome, kidney failure and even death. Regular handwashing, covering the mouth and nose when coughing and sneezing are the best ways to protect ourselves from the affected people. It is advisable to maintain social distancing to avoid the spread of the virus. As of 11 May 2021, there are 158.65 million confirmed cases and 3.29 million deaths across the world[1]. As of 9 May 2021, a total of 1206 million vaccine doses have been administered. The USA (32.4 million cases), India (23 million cases) and Brazil(15 million cases) are the topmost affected countries in the world. Most of the states were affected in India and currently, Maharashtra, Karnataka, Tamilnadu, Delhi and Kerala are the most affected states[2].
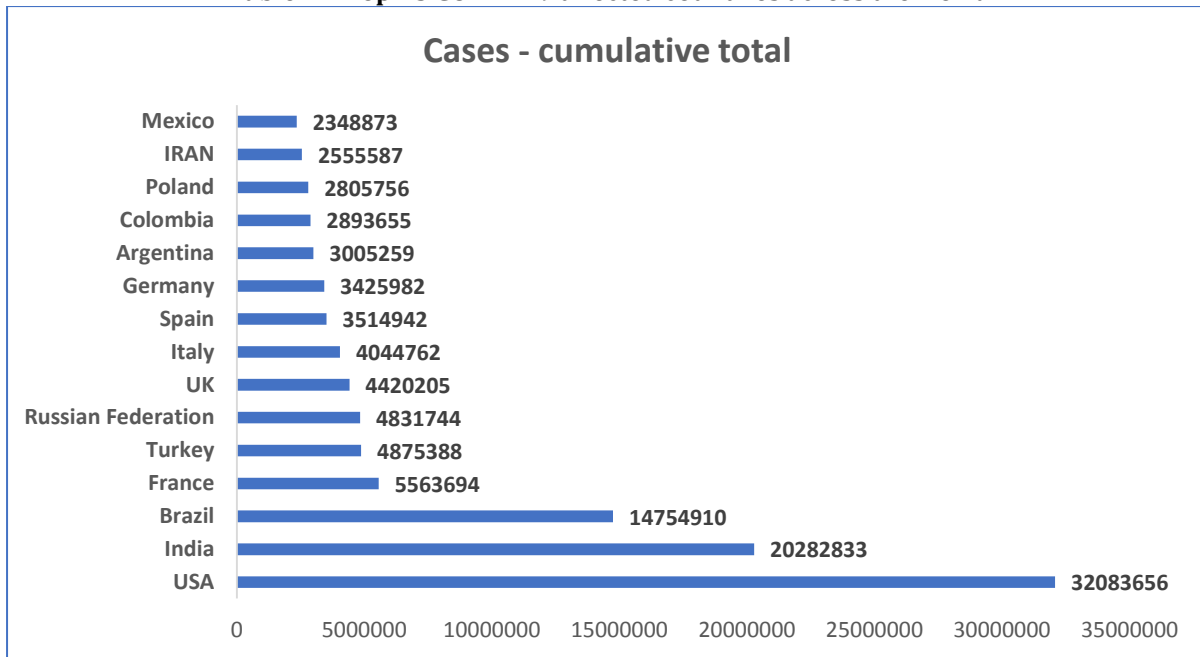
CONCEPTUAL APPROACH

As per WHO and other health authorities, the USA and India are the most affected countries. It is true, in terms of the number of COVID-19 cases. It is a usual approach of looking at the highest number of COVID-19 affected countries for ranking purpose. But when we look in detail, the actual statistics are different. Conceptually, losing 10, out of 100 and losing 10 out of 1000 is not the same. There is a huge proportional difference. To understand and estimate the actual impact, we need to go ahead with the proportion-based calculation and based on that we need to see the current impact on various areas. We consider Top-30 affected countries as per the list by WHO and listed Top-15 countries in each category. This discussion happens based on the data from the World health organization, as of 5th May 2021.

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Rank	Country	Cases - a cumulative total
1	USA	32083656
2	India	20282833
3	Brazil	14754910
4	France	5563694
5	Turkey	4875388
6	Russian Federation	4831744
7	UK	4420205
8	Italy	4044762
9	Spain	3514942
10	Germany	3425982
11	Argentina	3005259
12	Colombia	2893655
13	Poland	2805756
14	IRAN	2555587
15	Mexico	2348873

Table 1 – Top 15 COVID-19 affected countries across the world

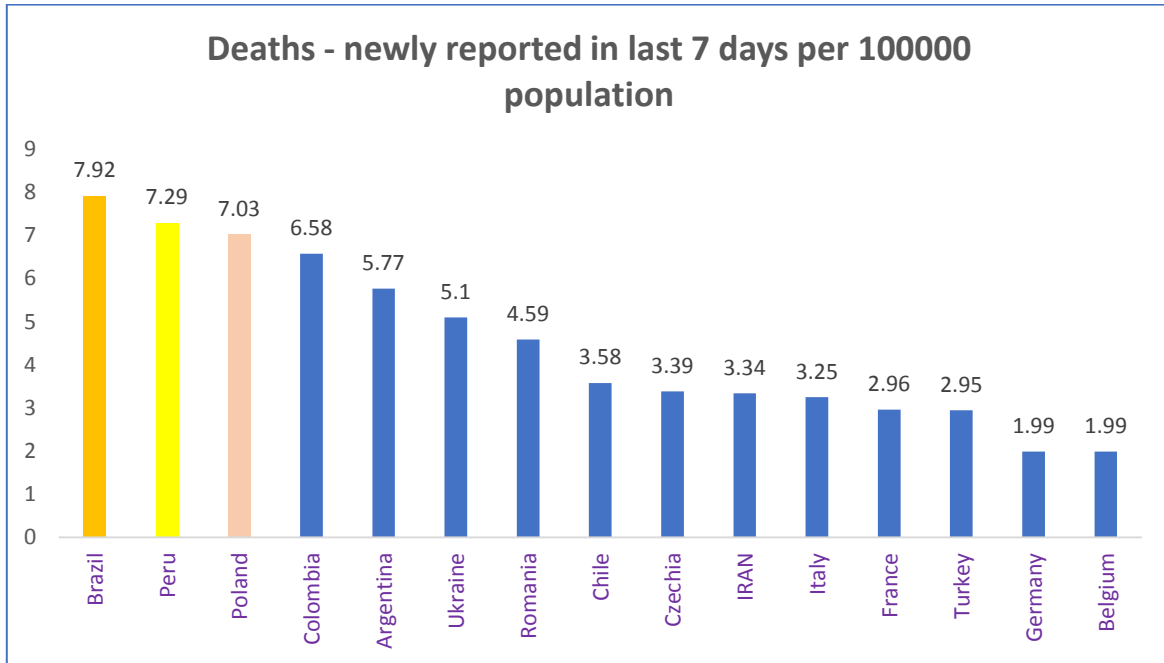**Figure 1 - Top 15 COVID-19 affected countries across the world**

1. Death rate- newly reported in last 7 days per 100000 population

Brazil, Peru, and Poland are the countries that are reported a high number of deaths, in terms of deaths in the last 7 days per 100000 population. Countries that are ranked as the most affected countries based on cumulative cases are not on this list. Turkey, Germany, and Belgium are the least affected countries in terms of mortality rate reported in the last 7 days, among the 15 topmost affected countries as per WHO. We do not see the USA and India, anywhere on this list.
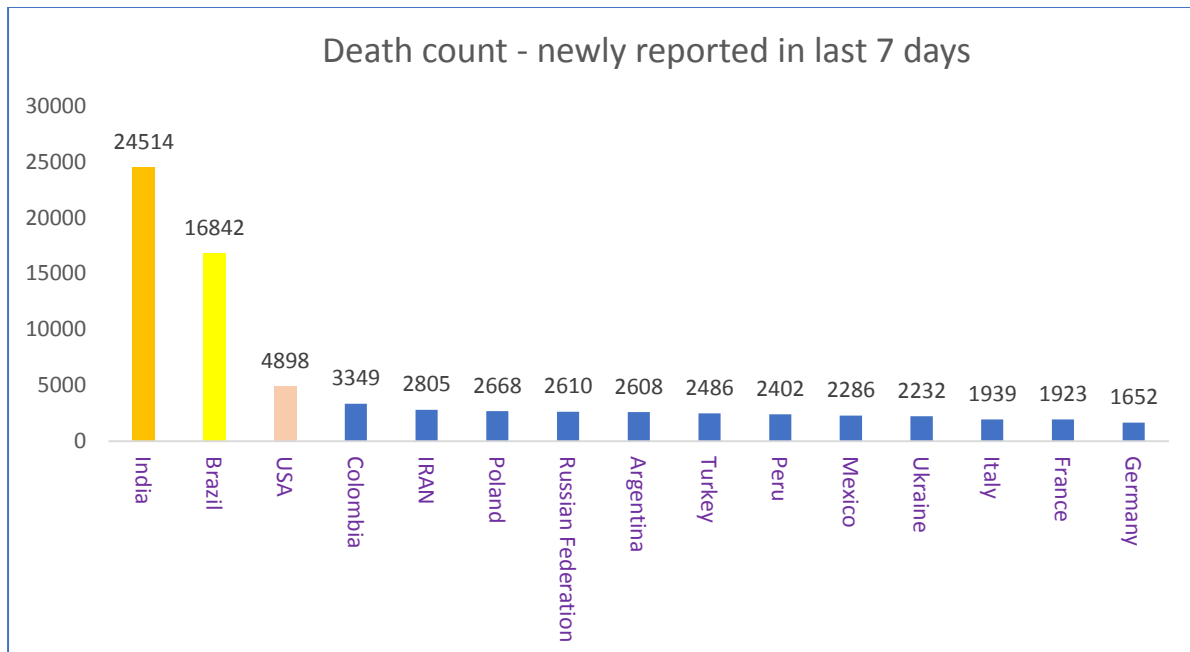
Figure 2 – Top 15 COVID-19 affected countries, ranking based on Death rate- newly reported in last 7 days per 100000 population

2. Death counts - newly reported in last 7 days

In terms of the highest number of death count in the last 7 days, India, Brazil, and the USA are the top three affected countries. The difference between Brazil (16842) and India(24514) is huge. Similarly, there is a considerable amount of difference between the USA (4898) and Brazil (16842).
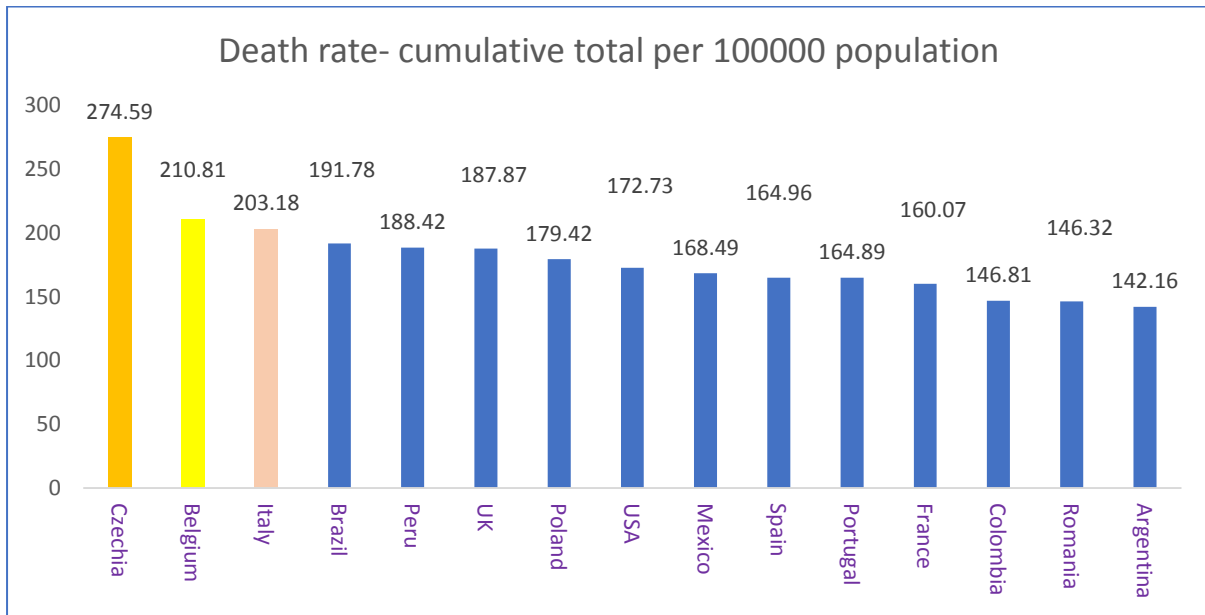

Figure 3 – Top 15 COVID-19 affected countries, ranking based on Death count - newly reported in last 7 days

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3. Death rate - cumulative total per 100000 population

In terms of cumulative death per 100000 population, the USA is in 7th place. Czechia, Belgium, and Italy are in the top 3 affected countries. Colombia, Romania, and Argentina are the least affected countries from the top 15 affected countries. Initially, Italy was one of the highly affected countries and that impact is still keeping Italy in the top 3 countries. Actually, this is one of the considerable methods of calculating the actual death impact. Proportion based on the population can reveal the truth.
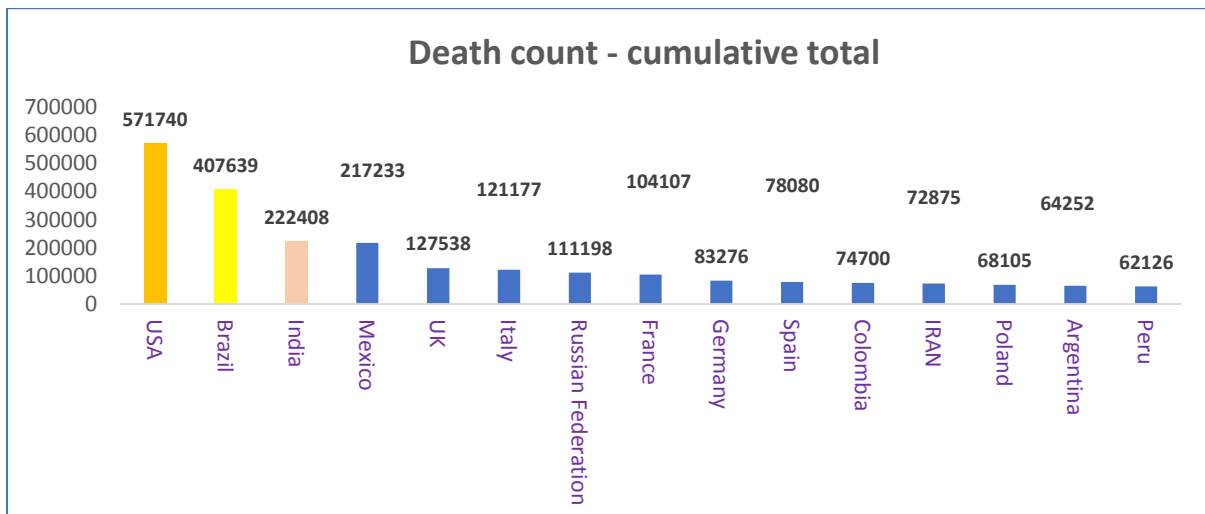

Figure 4 – Top 15 COVID-19 affected countries, ranking based on Death rate - cumulative total per 100000 population

4. Death count - a cumulative total

The USA, Brazil and India are standing in the top 3 positions in this category. The death count of the USA is almost three times that of India (571740). Though the population of Brazil is less the death count is 407639. Peru, Argentina, and Poland are the least affected countries in terms of death count (cumulative total) among the 15 countries that are in the scope of this study.
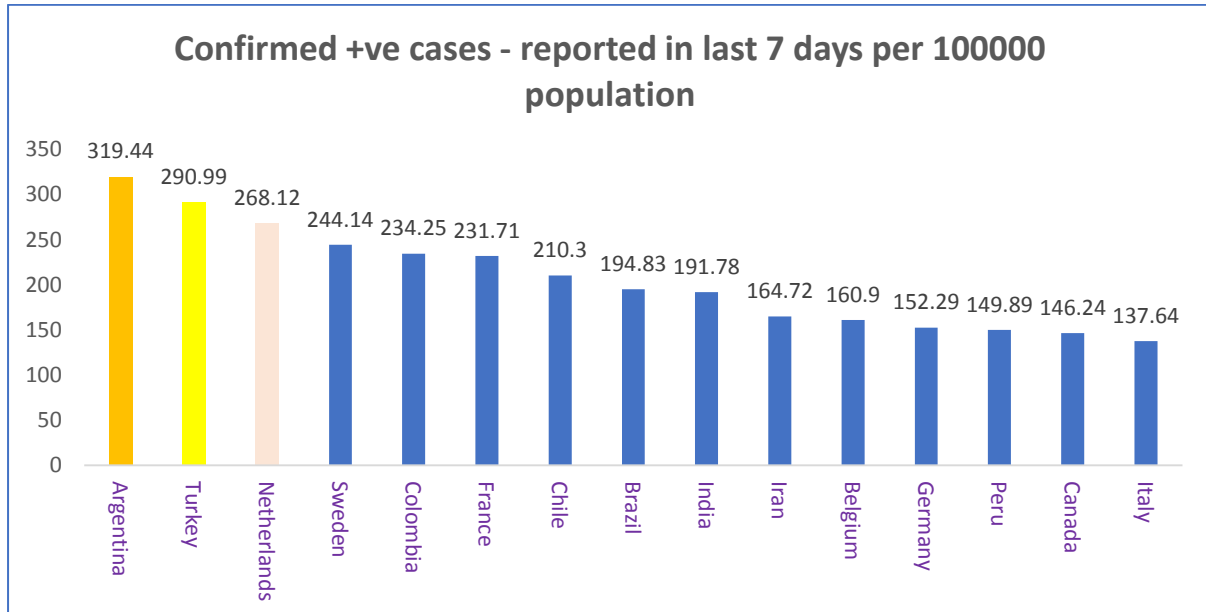

Figure 5 – Top 15 COVID-19 affected countries, ranking based on Death count - a cumulative total

5. Confirmed positive cases - Reported in last 7 days per 100000 population

When we look at the confirmed cases globally, based on the population, Argentina, Turkey, and the Netherlands are the most affected countries. As per WHO, the USA is the highly affected country, in terms of the number of confirmed cases but when this is calculated based on the proportion to population, the USA is not listed in the top 15 affected counties and India is ranked at 9th level, whereas India is ranked at 2nd place as per WHO. This proportional ranking is important to reveal the actual impact.
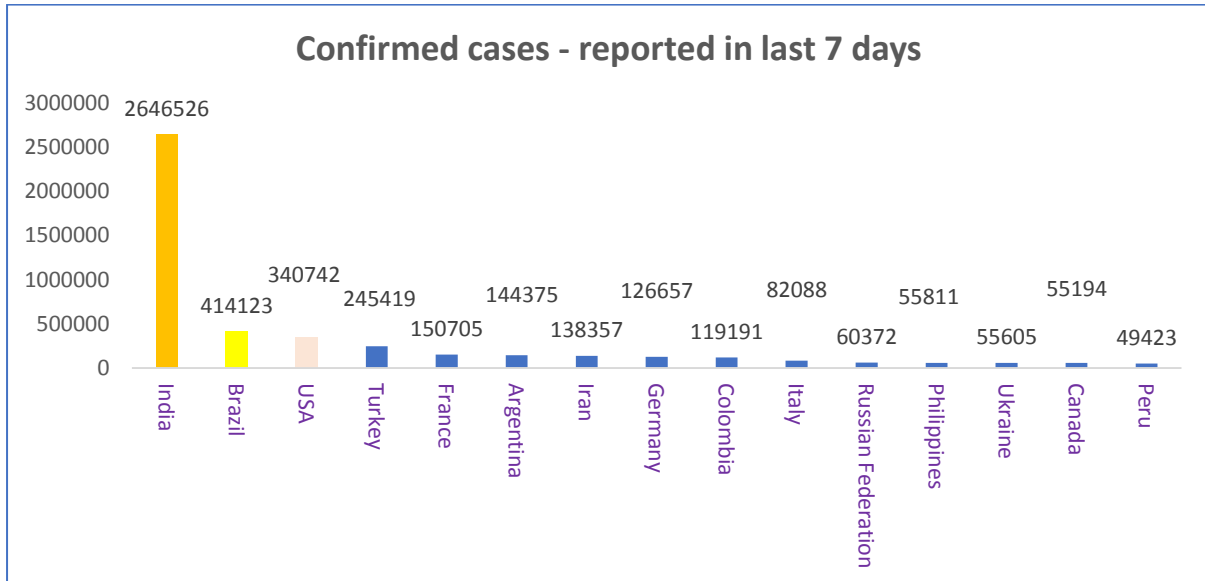

Confirmed +ve cases - reported in last 7 days per 100000 population

Figure 6 – Top 15 COVID-19 affected countries, ranking based on confirmed cases - reported in last 7 days per 100000 population

6. Confirmed positive cases - reported in last 7 days

The numbers in this category indicate that India is the most affected country in the last 7 days. 26.4 million cases reported in the past 7 days (as of 4 May 2021). Brazil is in second place with 4 million cases and the USA is in 3rd place with 3 million cases. The number of cases in India is 6 times higher than in Brazil and 9 times higher than in the USA, in terms of the number of cases reported in the last 7 days. Since the second wave is spreading badly in India, because of its high population, population density and violating the advisories are boosting the number of confirmed cases.
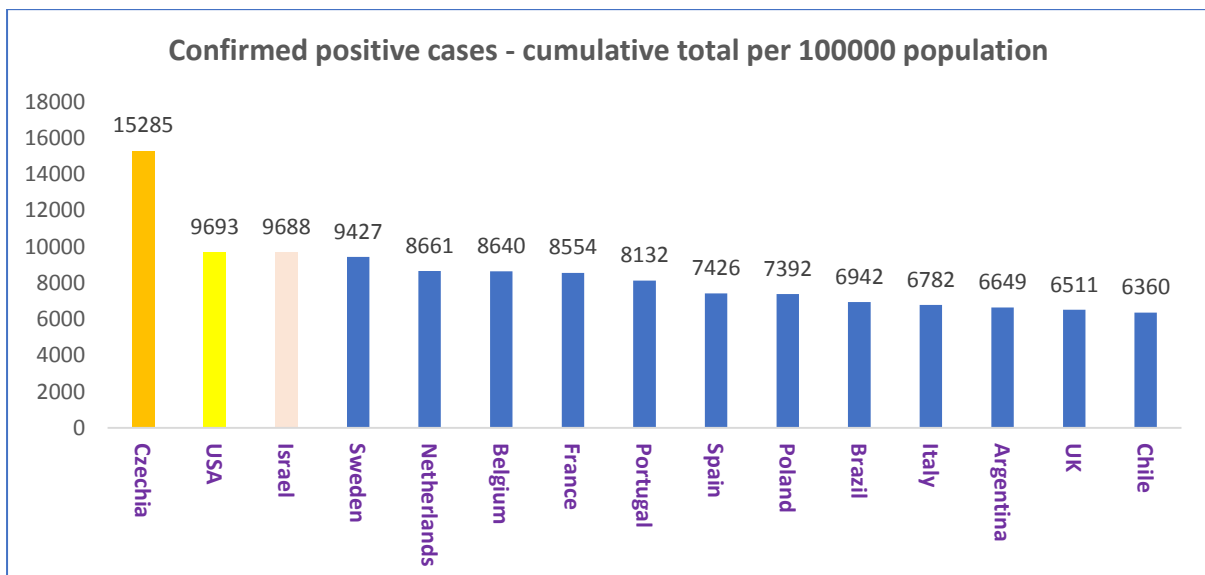
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Figure 7 – Top 15 COVID-19 affected countries, ranking based on confirmed cases - reported in last 7 days.

7. Confirmed positive cases - cumulative total per 100000 population

When we calculate the rank of total cumulative cases per 100000 population, Czechia, USA, Israel are in the top 3 places. Though India is listed as the second most affected country based on the number of confirmed cases, India is not in the top 15 most affected country in this category. Indeed, the number of cases is high in India, medical authorities are struggling to control the spread and count, however, proportionally the impact is less in India in terms of the overall population vs the cumulative confirmed cases. At this point, India may not be on the list, but if the spread goes at the current speed, no need to surprise that India can be part of even this list.

Figure 8 – Top 15 COVID-19 affected countries, ranking based on confirmed positive cases - cumulative total per 100000 population

CONCLUSION

There are various ways to calculate the impact due to COVID-19. Currently, WHO lists the countries based on the cumulative confirmed cases. WHO and other medical authorities can opt for the proportionally based calculation to know the actual

COVID-19 situation of any country. By using the proportionally based calculation, the impacted countries (regional pandemic management) can plan for mitigating COVID-19, however, the conventional method of ranking the countries can help for global pandemic management by knowing the countries that are impacted with the high number of cases. It is not easy to conclude which is the best way to calculate, however, both the methods are needed for better prediction and the enhanced pandemic management control can be in place to reduce the impact. Taking vaccination as quick as possible and following precautionary measures are the best ways to prevent or control the pandemic.

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