

Covid-19 Pandemic

Exploratory data visualization:

Generally it occurs during and after the data wrangling process, and is the main method that you will use to understand the patterns and relationships present in your data. This understanding will help you approach any statistical analyses and will help you build conclusions and findings. This process might also illuminate additional data cleaning tasks to be performed.

Note: Data wrangling process and data exploration are embedded in the project notebooks with each steps.

In this project I have 6 questions I wanted to know and I explored the data to answer them as follow.

What Are The Total Cases For Each Continent?

In a first try I used the total cases to compare between continents, but soon I have realized, the different countries do not have the same population!! So, I had to take that into consideration in order to calculate the infection ratio for each continent.

As example of this Asia that has the highest total cases number, while in fact it's the 4th continent in infection rates and that's because of its high number of population, almost 60% of total population in the world. So, we have to take ratios into consideration.

What are The Top 10 Infected Countries?

There are many countries had done a large number of tests, e.g. Qatar, and that might result in being these country on the top of infection rates list (total cases / total population), but that's because either it had done a large number of tests (Qatar had done tests as total of 25% of its population till now) or it has a low population (Qatar also has low population almost 2.9 million) or both. While Peru is the most infected country so far in terms of `infection rates`.

Does Smoking Habit Affect Corona Infection Rates and Corona Death Rates?

In the COVID-19 pandemic, this question have been asked about clinical outcomes for smokers, and whether they are equally susceptible to infection, and if nicotine has any biological effect on the SAR-CoV-2 virus.

I have found that generally, there is a weak positive correlation between smoke habit and both infection rate and death rate, 0.3 and 0.8 respectively.

This finding is supported with [article](#) from World Health Organization (WHO). That this has not been confirmed yet, so, population-based studies are needed to address this question.

Does Government Stringency Policies Reduced Infection Rates?

I decided to search for an answer for this question using the top 6 countries with total cases United States, Russia, Peru, India, Colombia and Brazil.

And I have found generally, we can say that government stringency reached at its heights around March to May, but although these restricted policies, governments have failed to control Coronavirus, and on contrast, they started to reduce their stringency or keep it at the same level starting from September, under the noticeable increase in Covid-19 cases.

So, we can say that government stringency policies have failed to control Covid-19 pandemic.

What's the Monthly State for Corona Cases and Deaths?

Using total cases and deaths for each month we can say clearly that there is a second wave is coming, after the first wave that was between April and May where Covid-19 deaths were increased, and the deaths are increasing again since August till now.

What's The World Situation Now?

After creating and examining the world map for Covid-19 infection rates, I can see that USA, Russia, Peru and Brazil are the top infected countries.