Covid-19 Cases in the Gulf Region and Some of the Developed-Industrialized-Wealthy Countries Worldwide

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Introduction

Various countries with powerful economies around the world are affected severely by Covid-19. These countries count intensively on attracting foreign business ideas and skills which creates an ideal environment for communicable disease transfer. An endeavor to reduce the direct connection between people leads to control the case trends in such nations. On the other hand, it causes a sharp decrease in the commercial exchange and the strength of the economy. Health and governmental organizations pursue the number of cases and present the trends and the hot spots in some common pattern which are generally dashboards available on websites. Visualization tools such as Tableau and Microsoft Power BI are widely used in this area. Dashboards and reports can be developed and shared easily and effectively even by individuals. The focus of this work was to utilize Microsoft Power BI Desktop to accomplish an exploratory and comparative dashboard for the Covid-19 cases in the Gulf Region and some developed countries around the globe.

Data Source and Methodology

The data for this current project were extracted from www.worldometers.info/coronavirus/ on 05-Nov-2020 [1]. Worldometers is a reference website for various statistics on a real-time base. Connection to the website could start simply by Get Data Option in the Power BI Desktop and then selecting the Web Option where the Uniform Resource Locator (URL) of the website was provided. The website link mentioned above contains a large table with different features including countries/regions and diverse types of cases.

In order to proceed with the main purpose, the total cases, recovered cases, deaths, population, total tests and total cases, deaths and tests each per million population were extracted in the Power Query Editor of the Power BI Desktop for the Gulf Countries and some developed counties as shown in Table 1. In addition, the total test values were calculated using simple DAX formula as following:

Total Test = (('Extracted Table'[Population])/1000000) * ('Extracted Table'[Tests/ 1M pop])

Table 1: Covid-19 Cases in the Gulf Countries and Some of the Developed/Industrialized/Wealthy Countries Worldwide.

Country	Total Cases	Total Test	Recovered	Deaths	Total Cases/ 1M pop	Deaths/ 1M pop	Tests/ 1M pop	Population
China	86115	159999549	81081	4634	60	3	111163	1439323776
USA	9802374	152052540	6293132	239842	29554	723	458439	331674530
Russia	1712858	62999976	1279169	29509	11735	202	431636	145956259
UK	1099059	34920927		47742	16160	702	513471	68009540
Germany	598001	23393286	391600	11031	7130	132	278900	83876966
France	1543321	16819355	122662	38674	23626	592	257477	65323720
UAE	138599	13712879	136118	508	13956	51	1380752	9931457
Canada	247703	9753147	205647	10331	6543	273	257636	37856306
Saudi Arabia	349386	8333271	336068	5489	9983	157	238098	34999331
Japan	102900	2764090	94295	1786	814	14	21878	126341070
Bahrain	82624	1791602	79929	328	48001	191	1040845	1721296
Qatar	133370	995460	130414	232	47500	83	354533	2807805
Kuwait	129638	947923	120564	799	30203	186	220848	4292196
Oman	117167	376701	107368	1286	22749	250	73139	5150485
Total	**16143115**	**488860705**	**9378047**	**392191**	**268014**	**3559**	**5638815**	**2357264737**

In addition, the Gulf Cooperation Council Countries (Saudi Arabia, Oman, United Arab Emirates, Qatar, Kuwait and Bahrain) were all grouped together under the name of Gulf Countries in order for their results to be compared with the results from the selected developed countries such as the United States, Canada, China, Japan, Russia, the United Kingdom, Germany and France.

Clustered Bar and Stacked Column Charts were developed to show and compare the total cases, recovered, deaths, population and total tests between the GCC Countries and also between the mentioned developed countries. Moreover, the population of the different nations were presented using a Treemap as it provides a prominent picture of the differences. Furthermore, the total cases, tests, and deaths per million population by countries and regions were displayed by Donut Charts for comparison purposes. Bookmarks from the View Section were also implemented for the entire report to facilitate the viewing process. Finally, the complete report was published to Power BI Services and from there published to web as in reference [2].

Results and Discussion

The following four charts in Figures 1 and 2 reveal the total cases, recovered, deaths, population and total tests for the six GCC Countries and the eight Developed/Industrialized Countries. As an overall trend, the total number of the recovered cases is very close to the total number of affected cases in each of the studied countries except for USA and France. Meanwhile, the total tests conducted in these nations, surprisingly, surpasses their populations. Numerous individuals, including tourists, could be tested multiple times upon conducting different activities such as travelling, changing careers, general medical examination for checking health issues, etc.

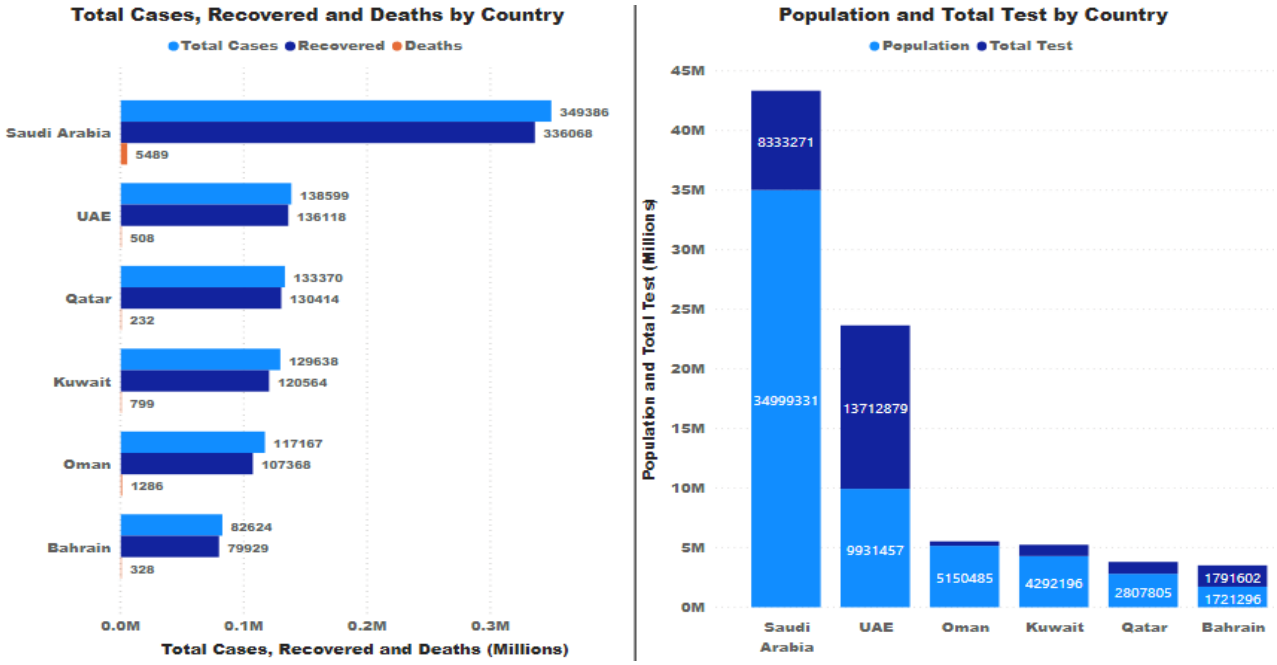

Figure 1: Clustered Bar and Stacked Column Charts showing the total cases, recovered, deaths, population and total tests for the six GCC Countries.

Saudi Arabia has the highest number of cases among the GCC Countries (around 0.35 million) and Bahrain has the lowest (almost 0.083 million). This can be justified by the numbers of their population as Saudi Arabia has approximately 35 million inhabitants while Bahrain has just above 1.7 million. The rest of the GCC Countries UAE, Kuwait, Qatar, and Oman has relatively close number of cases and lie within a range of between 0.11 and 0.14 million. However, the deaths numbers are extremely small compared to the total cases and the population in each of the Gulf Countries.

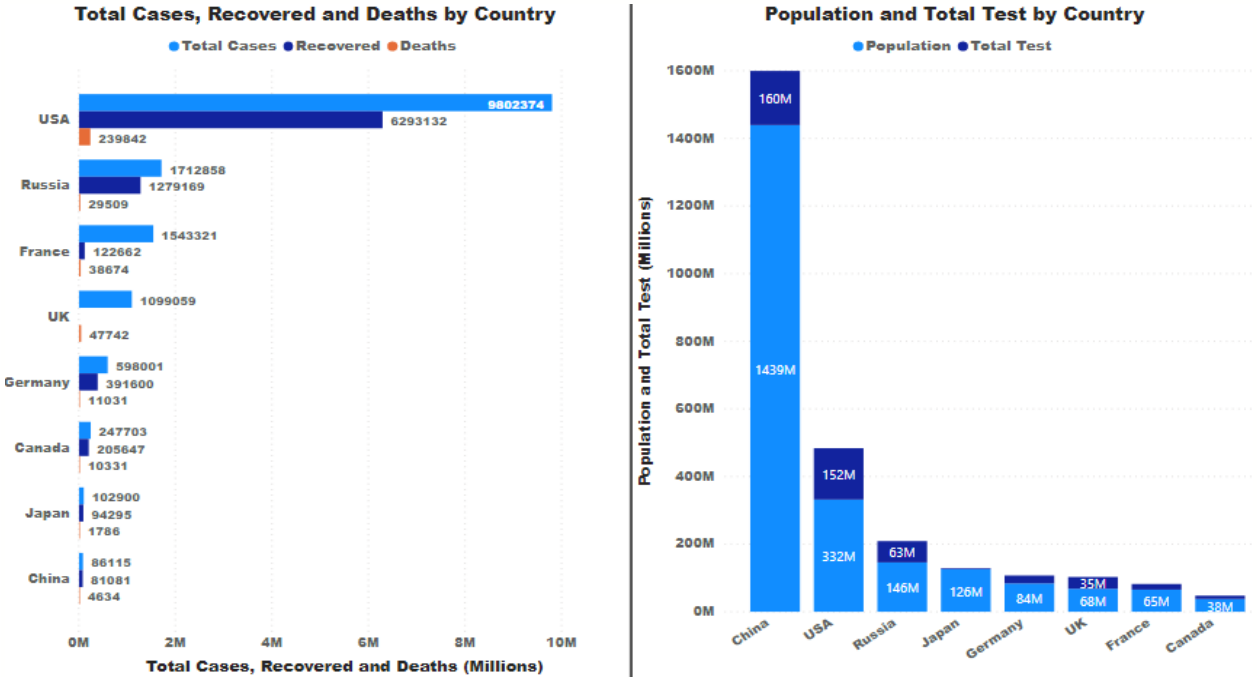

Figure 2: Clustered Bar and Stacked Column Charts showing the total cases, recovered, deaths, population and total tests for the eight Developed/Industrialized Countries.

On the other hand, in the case of the eight Industrialized Countries, the maximum number of cases is in USA (nearly 10 million), whereas the minimum number of cases is in China (lesser than 0.1 million). This is a shocking fact that even though, the population of China is almost 1.5 billion and the virus started there, they could control its spread more efficiently than the rest of the countries in the list which have populations less than half a billion as illustrated in the Treemap in Figure 3. However, there could be several reasons behind the high number of cases in the USA including measurements followed and late awareness.

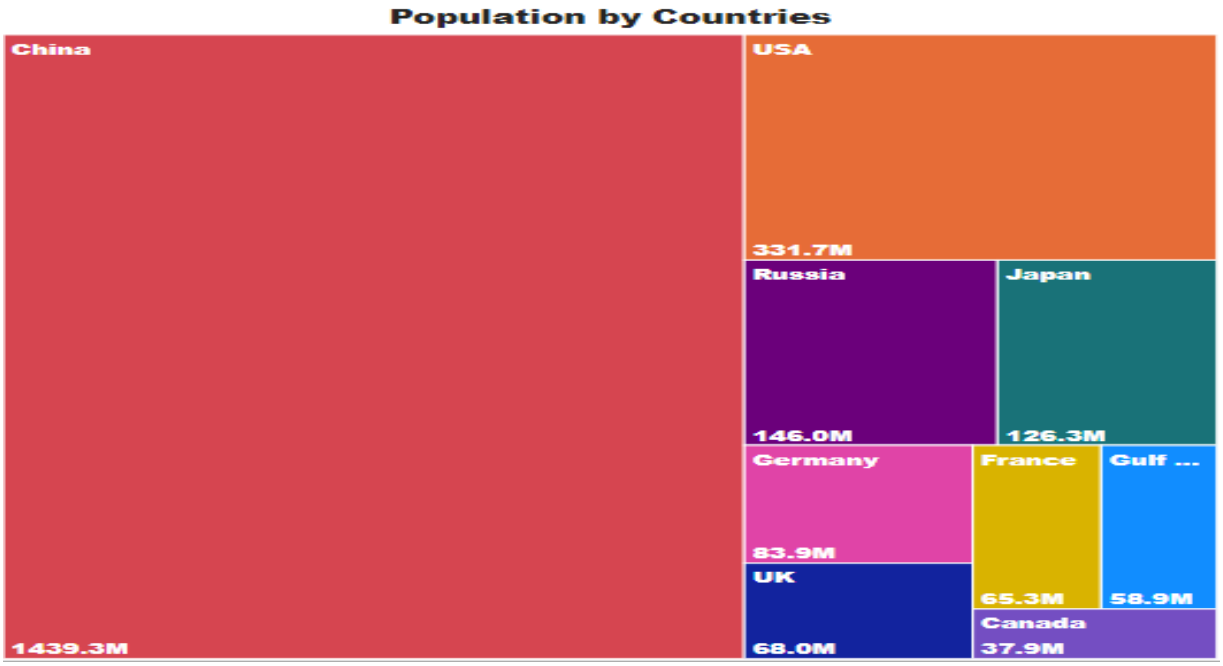

Figure 3: Treemap Showing the population by country and region.

The three donut charts below in Figure 4 demonstrate the total cases, tests, and deaths per million population by countries and region. The first two charts indicate that the total cases and tests per million population in the GCC Countries dramatically exceed those in the Developed Countries. Despite the substantial number of cases per million population in the GCC Countries, the number of deaths per million population in the Gulf Region is not considerably high compared to USA, UK and France.

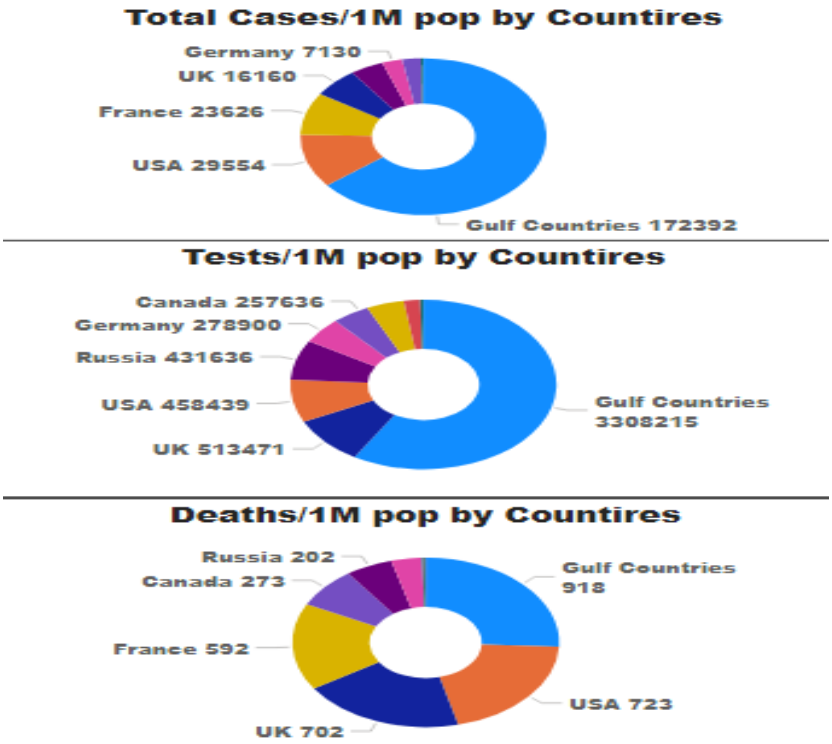

Figure 4: Donut charts demonstrate the total cases, tests, and deaths per million population by countries and region.

Conclusion

Most countries suffer from the consequences of the new Corona Virus and their attempt to handle it with a variety of measures. Different live dashboards have been developed by authorized organizations by using a variety of visualization tools to track Covid-19 trends. The major concentration of this work was to develop a dashboard using Microsoft Power BI Desktop comparing the Covid-19 cases, recovered and deaths caused between the GCC Countries and some Developed/Industrialized/Wealthy Countries around the world. The required data was collected from worldometers.info/ website and processed in order to draw graphs to analyze and compare the outcomes of the different countries. A general trend was observed as the number of tests was greater than the population in each country. Aside from that, Saudi Arabia and USA had the highest number of cases among the six GCC Countries and the eight Developed Counties, respectively. Additionally, the total cases and conducted tests per million population in the GCC Countries are much greater than in the Developed Countries. Further researches and studies can be conducted in order to obtain a deeper insight regarding the trends of the Corona Virus cases specifically based on time series analysis.

References

[1] "Coronavirus Update (Live): 75,484,848 Cases and 1,672,258 Deaths from COVID-19 Virus Pandemic - Worldometer." https://www.worldometers.info/coronavirus/ (accessed Nov. 05, 2020).

[2] "Microsoft Power BI." https://app.powerbi.com/view?r=eyJrIjoiNmI5Y2UwNGItNDZjNS00NzY2LTlmZTgtOTI4ZWQ3NmM5ZDYyIiwidCI6ImRlMmVhZmI0LTkxOGEtNGE5MC04NTEwLWVhZDA3Yjc0YWQ2OCJ9&pageName=ReportSection (accessed Nov. 05, 2020).