



Review Article

Current scenario of COVID-19 pandemics in the top ten worst-affected countries based on total cases, recovery, and death cases

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Abstract: Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and first detected in Wuhan, Hubei Province, China in December 2019 and spread across China and abroad. On 11th March 2020, WHO officially declared pandemic on for COVID-19. This review presents transmission mode of the COVID-19 in terms of case, death, and analysis of active cases in top ten worst affected countries. The data presented in the paper is taken from Worldometer which collects its statistical data from various reliable sources including United Nations (UN), World Health Organization (WHO) and others. Furthermore, the review presents the data analysis of recovery cases in the top 10 worst affected countries as of 24th May 2020. Such simple analysis of recovery case from COVID-19 will be helpful for the government to make its plan and policy.

Keywords: COVID-19, respiratory syndrome, transmission, outbreak, SARS-CoV-2; COVID-19, Coronavirus, pandemic

सारांश: रोग लागे पछि मानिसको श्वासप्रश्वास प्रकृत्यामा ज्यादै कठिनाई पैदा गरेर कष्ट पुराउने कोभिड-१९ भनिने कोरोना भाइरस रोग २ (SARS-CoV-2) नामक विषाणुको कारणले लाग्दछ। गत साल पहिलो पटक डिसेम्बर महिनामा चीनको हुबेई प्रान्तको वुहान भन्ने स्थानमा फेला परेको यो रोग पछि संसार भरी नै फैलियो र ११ मार्च २०२० मा डब्ल्यूएचओले यो रोगलाई आधिकारिक रूपमा महामारी घोषित गर्‍यो। यो समीक्षात्मक आलेखमा विश्वका १० वटा कोभिड(१९) द्वारा अत्यन्त प्रभावित देशहरूमा भाइरसको संक्रमण तथा प्रसारणको प्रवृत्ति, संक्रमित विरामीहरूको अवस्थाको साथै निको भएर घर फर्केका र मृत्युवरण गर्नेहरूको वारेमा विश्लेषण प्रस्तुत गरिएको छ। यस आलेखमा प्रस्तुत गरिएका तथ्यांकहरू Worldometer बाट साभार गरिएका हुन्, जसले संयुक्त राष्ट्रसंघ (युएन), विश्वस्वास्थ्यसंगठन (डब्ल्यूएचओ) लगायत अन्य विश्वसनीय स्रोतहरूबाट सुचनाहरू संग्रह गरी प्रस्तुत गर्ने गरेको छ। यसमा गत २४ मे २०२० सम्मको तथ्यहरूको विप्लेषण प्रस्तुत गरिएको छ। यसबाट नेपाल सरकारको संबन्धित निकायलाई यस महाव्याधीलाई परास्त गर्ने नीति तथा योजना बनाउन सहयोग पुऱ्याउनेछ भन्ने अपेक्षा गरिएको छ।

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1. Introduction

The COVID-19 pandemic, widely known as coronavirus pandemic, was first reported in Wuhan, China in December 2019 (Kim et al., 2020). This pandemic situation caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been still spread until 24th May 2020 and is uncertain how long this would further go (Luo, 2020). This novel virus is of first kind and the scientists around the world get puzzled to recognize its exact nature. Therefore, it took almost 3 months (on 11th March 2020) for World Health Organization (WHO) to declare the outbreak as a pandemic (Ebrahim, Ahmed, Gozzer, Schlagenhaut, & Memish, 2020). More than 5.4 million cases of COVID-19 were reported by 24th of May 2020 in more than 180 countries, with 344,235 deaths. Around 2.2 million people have recovered so far from this deadly pandemic disease (<https://www.worldometers.info/coronavirus/#countries>).

2. Transmission mode of the COVID-19 virus

This COVID-19 is mainly transmitted through the direct contact of the droplets that is created by sneezing, coughing as well as speaking of the infected persons (Asadi, Bouvier, Wexler, & Ristenpart, 2020; Hu et al., 2020). Such kind of respiratory diseases is transmitted through droplets of different sizes from COVID-19 positive patients or infected surface, air etc. to healthy persons. Usually the droplets of COVID-19 positive patients fall on the surface or on the ground rather than transmitted through air medium at certain distance. The healthy person has a chance to be transmitted from the same surface and touch their mouth and face (Montero-Odasso et al., 2020). The mode of transmission is shown in figure 1.

The droplet transmission occurs if a person is in a range of 1 meter who has such symptoms of coughing and sneezing. Thus, the transmission occurs either through the direct contact with COVID-19 positive patients or indirectly through the surface of contact of the infected persons like stethoscope or thermometer. In addition to such droplet transmission, there is airborne transmission which indicates the presence of microbes in the air for a longer time and can be transmitted at a distance greater than 1 meter. However, in case of China with 75,465 cases, the airborne transmission was not recorded so far (Organization, 2020). This airborne transmission needs further careful research. In addition to above transmission mode, there are some proofs that COVID-19 virus can cause the infection in intestine and can be present in stool. But there is no report so far from stool-oral transmission of COVID-19 virus (Zhang et al., 2020).

3. Top ten countries affected by COVID-19

The top ten countries affected by COVID-19 are USA, Brazil, Russia, Spain, UK, Italy, France, Germany, Turkey, and Iran. The United States had 1,666,828 coronavirus cases with 98,683 deaths till 24th May 2020 according to the worldometer's COVID-19 data. The first case of COVID-19 was reported in the US on January 23 (Ghinai et al., 2020). The case of this virus skyrocketed in the US and overtook China on March 26th making it to the worst affected country. The health official has warned that the number of coronavirus death can cross 0.1 million by the end of May 2020 regardless of the new infection flattening in New York which is the epicenter of coronavirus outbreak in the US. The US is only practicing the social distancing against the battle of coronavirus pandemic.

In Brazil, the COVID-19 pandemic was first confirmed on 25th February 2020 where a man from Sao Paulo was tested positive for coronavirus. Around 349,113 cases have been confirmed with a death of 22,165. Brazil has the second number of cases after US making it the second worst affected country.

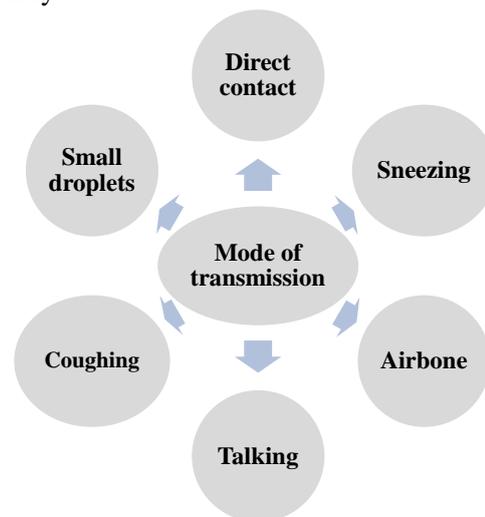


Figure 1. Mode of transmission of COVID-19.

Russia is the third worst affected countries by coronavirus with 344,481 cases till 24th May 2020. With these cases, there were around 3,541 deaths in Russia. The number of cases in Russia is 62,111 more than Spain.

Spain is the fourth worst affected countries with 282,370 infected and 28,678 deaths by COVID-19. The first cases of COVID-19 in Spain were recorded on 1st February. Moreover, Spain recorded the first royal death with the loss of Princess Maria Teresa as well as infection seen in a minster. Spain crossed the number over China at the end of March and experienced the drastic increase in coronavirus cases making the country to declare a nationwide lockdown.

Similarly, the coronavirus cases in the United

Kingdom is 257,154 and there have been 36,675 COVID-19 deaths. The number of cases rose significantly at the 3rd and 4th week of March making it the fifth worst hit countries by this virus. The prime minister of UK himself was tested positive for coronavirus on 27th March and admitted to London's St. Thomas Hospital after he developed the persistent symptoms of COVID-19 of high temperature for a week.

The Italy was first affected country in Europe as well as outside China at that time. In the beginning, the coronavirus cases were confirmed in northern Italy which quickly spread in the entire country with pandemic situation making the government to declare a nation-wide lockdown. The Italy reported

229,327 cases with 32,735 COVID-19 deaths.

In France, the first cases of COVID-19 pandemic were confirmed on 24th January 2020 who arrived from China (Bernard Stoecklin et al., 2020). The Chinese tourist was hospitalized on 28th January and died on 14th February making the first COVID-19 death in France. On 4th May, one of the French hospitals shows from a retroactive testing of sample that the patients have already infected with coronavirus on 27th December, almost a month before the official recognition of the coronavirus (Deslandes et al., 2020). France has confirmed 182,469 cases with 28,332 COVID-19 deaths.

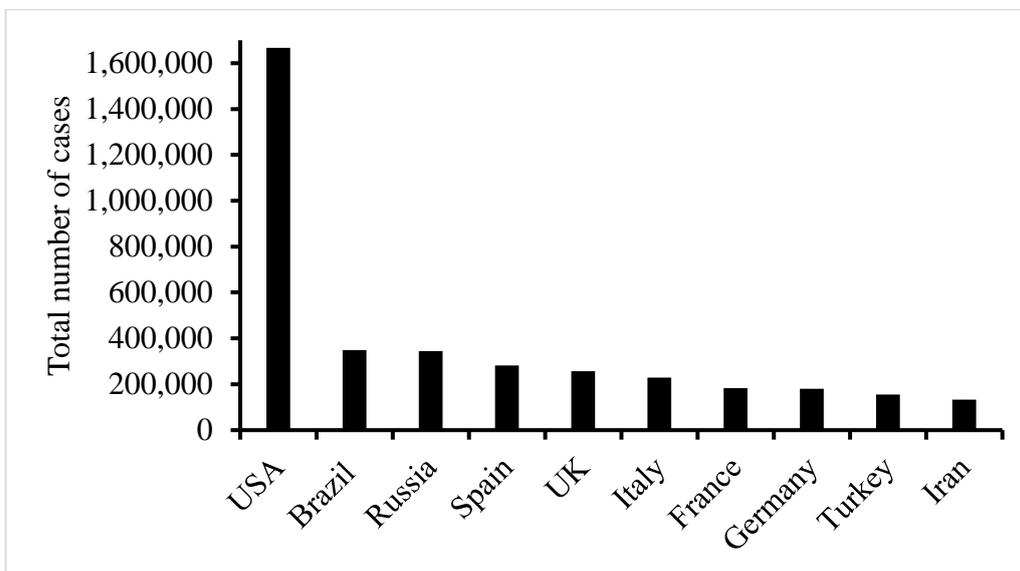


Figure 2. Top ten countries worst affected by COVID-19 virus. The data was taken from Worldometer statistics.

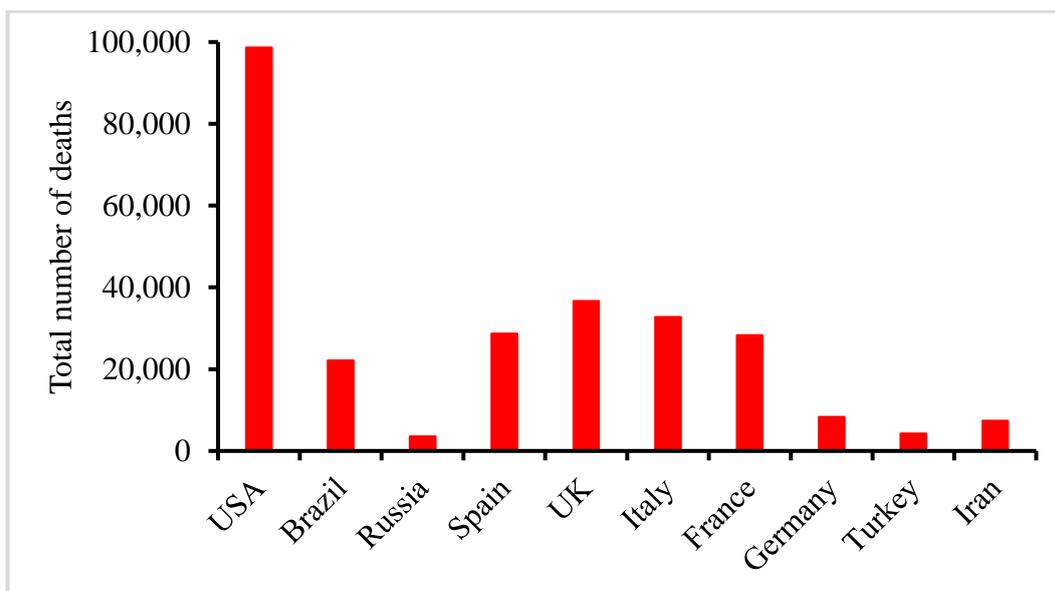


Figure 3. The COVID-19 death from top ten countries worst affected in terms of cases as of 24th May 2020. The data was taken from Worldometer statistics.

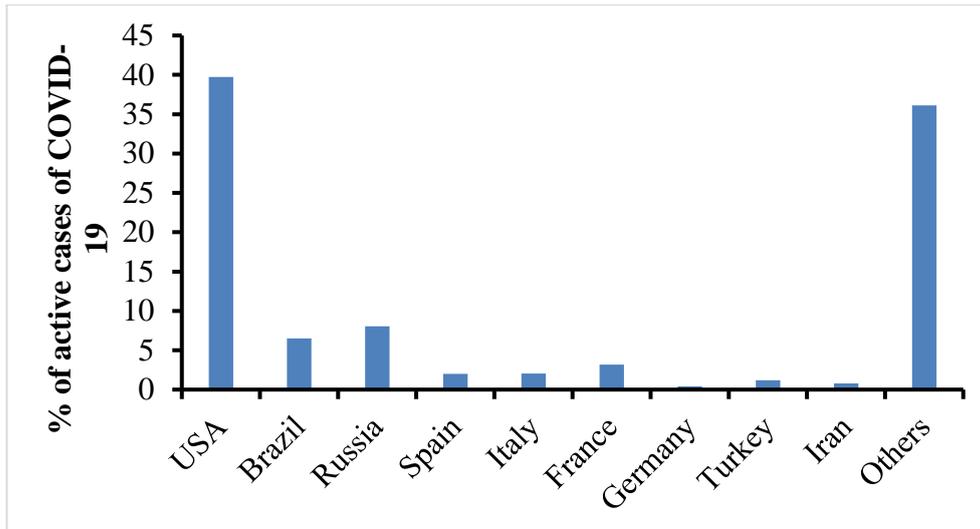


Figure 4. The percentage of active case of COVID-19 around the globe.

The COVID-19 pandemic in Germany started with the first case confirmed near Munich in 27th January. Germany has around 179,986 corona viruses' cases and recorded 8,366 deaths. The German government has banned the public gathering to stop the transmission of coronavirus effectively. Germany lost its finance minister Thomas Schafer with suicide due to stress over the worse economic situation of the country caused by COVID-19.

The COVID-19 in Turkey was first recorded on 11th March 2020 from a man who came from Europe. The first COVID-19 death was recorded in Turkey on 15th March 2020. It spread out all over the country by 1st April 2020 and by 14th April, it reached peak as announced by the Turkish Ministry of Health Fahrettin Koca. As of 24th May 2020, the total number of confirmed cases is 155,686 of which 117,602 have recovered whereas 4308 have died. On 18th April 2020, the total COVID-19 positive cases surpassed Iran making it the highest COVID-19 case in the Middle East countries. The number of cases in Turkey surpassed China on 20th April 2020 making it a flexible country with COVID-19 (<https://www.worldometers.info/coronavirus/#countries>).

Nevertheless, Iran is the worst hit countries with COVID-19 in Asia with 133,521 cases and 7,359 deaths as of 24th May 2020 even though around 104,072 people have recovered. The first death of COVID-19 in Iran was recorded on Feb 19, 2020. The economy of Iran has been the worse hit in its history due to COVID-19.

4. Number of active cases in top ten countries affected by COVID-19

The global death of COVID-19 associated with COVID-19 passed 344,235 on 24th May 2020, while the total cases of the virus approaching 5.4 million. About half of the active cases occurred in United states, Brazil, and Russia as of 24th May 2020. The first death of COVID-19 was reported on January 10 in Wuhan, China. It took almost 91 days to pass 1,00,000 and in 16 days to reach 2,00,000 and another 19 days to reach 3,00,000 COVID-19 deaths. But the united states have the highest active cases followed by Russia, Brazil, Spain, Italy, France, Germany, Turkey, and Iran till 24th May 2020.

5. Analysis of recovery cases in top ten countries affected by COVID-19 virus

The analysis of percentage of recovery case is very helpful for the government to monitor and control the lockdown situation. Germany has recorded the highest percentage of recovery (89.06%) in the worst hit country followed by Iran (77.94%) and Turkey (75.53%). We believe that the number of cases detected depends on the efficacy of effective testing. We recommend that the country with around 50% population tested with a recovery rate higher than 75% are relatively safe to open. However, there is always an uncertainty that a person who is tested negative today can be tested positive tomorrow.

The road to recovery is important to find out which countries can reopen their economic activities in near future. The COVID-19 has made the globe to stop and after months of lockdown it is still uncertain for the full reopening of economic activities. The table 1 shows the total cases, total recovered, percentage of recovery and total number

of cases by total number of tests expressed in percentage for top-10 worst affected countries. The percentage of recovered cases for a given country is measured by number of recovered cases divided by total cases. COVID-19 recovery rates in this paper rely on the values obtained from Worldometers databases. In general, the higher the recovery rate suggests the opening of economic activities. However, it further requires having lower percentage of cases taken from considerable number of tests done in a country.

6. Discussion

It is a mystery that the death of COVID-19 is higher in U.S and Europe compared to Asia. The different testing policy, counting methods, full disclosure of cases and control measures may create the differences in death rate across the globe. The previous experience of Severe Acute Respiratory Syndrome (SARS) and Middle East respiratory

syndrome (MERS) epidemic enabled Asian countries to quickly react to COVID-19 and adopted the social distancing measures whereas the U.S and Europe reacted slowly to an epidemic. For instance, Taiwan conducted an early screening of people coming from Wuhan where South Korea adopted the principle of testing, tracing, and isolating patients. However, there might be the differences in genetic factor, immunity power or mutation of the virus around the region (Pachetti et al., 2020). We need to investigate regional difference and other issues like the obesity and general health of people in any given country. There is a different pattern of other disease like chronic lung diseases, high blood pressure among the countries. The hot and humid weather may slow the spread of virus (O'Reilly et al., 2020). For example, Singapore, Vietnam, and Cambodia have relative lower cases and death whereas Ecuador and Brazil have many cases and death associated with COVID-19.

Table 1. The percentage of recovery and percentage of case per test in top ten countries affected by COVID-19

S. No.	Top 10 worst affected countries	Total cases	Total recovered	Percentage of recovery	Total cases/Total number of tests*100%
1	USA	1,666,828	446,914	26.81%	11.61%
2	Brazil	349,113	142,587	40.84%	47.48%
3	Russia	344,481	113,299	32.88%	4.00%
4	Spain	282,370	196,958	69.75%	7.94%
5	UK	257,154	N/A	N/A	7.68%
6	Italy	229,327	138,840	60.54%	6.76%
7	France	182,469	64,547	35.37%	13.18%
8	Germany	179,986	160,300	89.06%	5.00%
9	Turkey	155,686	117,602	75.53%	8.61%
10	Iran	133,521	104,072	77.94%	17.09%

The older community of northern Italy has been less resistant than younger population of Africa's. But in Japan, which also has the older community, have a good hygiene of wearing masks and avoiding handshakes making the slow spread of the virus.

7. Conclusion

This research highlights the data of total cases, active cases, recovery cases and death cases that

could be considered understanding the COVID-19. The main variable considered in this research review is from the top ten worst affected countries. The COVID-19 is the focus of the health care institution around the globe for the last two months. Its outbreak from the Wuhan, China to other geographical locations is of concerns to everyone. Here we report an observation of a total number of cases, recovery, and death with COVID-19 in the top 10 worst affected countries. Further we have

highlighted the identification of first COVID-19 case in all the top 10 worst affected countries. The identification of the first infected case is of great epidemiological interest as it provides the knowledge of spread in the country. Interestingly, there is no link with China and any other foreign travel, even then the disease spread out among the French population before the end of 2019. These findings suggest that the actual number of coronavirus case is more than the detected case so far and underestimate the actual burden of COVID-19. After discussing the obtained results for the recovery cases, it is found that to make this disease less severe in top 10 worst countries several procedures should be considered into direct action. These considerations involve the prevention of personal contact with COVID-19 patients and discouraging the social events in public concern places like meeting parents, gathering in hotels and restaurants, shopping at glossary, marts, stores, sports activities etc. Along with these considerations, high risk population of certain region should get access against test of COVID-19 and the procedure should be fast to keep the control on the pandemic.

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