Crimson Publishers
Wings to the Research

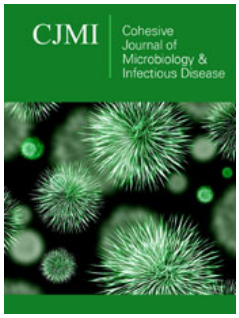
Research Article

# The Novel Coronavirus Outbreak, A risk of Pandemic and A Challenge to the World

**Nazish Huma Khan*, Tooba Saeed, Abdul Naeem, Mohammad Nafees and Ruidar Ali Shah**

Assistant Professor, Pakistan

**ISSN: 2578-0190**




***Corresponding author:** Nazish Huma Khan, Assistant Professor, Pakistan

**Submission:** July 28, 2020
**Published:** August 12, 2020

Volume 4 - Issue 1

**How to cite this article:** Nazish Huma Khan, Tooba Saeed, Abdul Naeem, Mohammad Nafees, Ruidar Ali Shah. The Novel Coronavirus Outbreak, A risk of Pandemic and A Challenge to the World. Cohesive J Microbiol Infect Dis. 4(1). CJMI. 000579. 2020. DOI: 10.31031/CJMI.2020.04.000579



## Abstract

Recently the outbreak of novel coronavirus-19 in China has caused a worldwide panic. The center of viral attack was the people in Wuhan city of China and then spread rapidly all over the world. This review aims to highlight the current issue of novel Coronavirus-19 (COVID-19) to evaluate the present knowledge about human causalities its economic effects, and treatment. In this regard, a detailed layout of viral infections is discussed in the light of literature. The results of this review stated that the novel Coronavirus-19 infected humans with severe loss in days. This pandemic caused world recession by significantly hitting the world economy. Due to lacking any specific vaccine or antiviral therapies against this virus, it has affected 213 countries of the world. Currently, the severity of this viral disease is observed in the US and Europe. While in developing countries, a higher infection rate was reported in Iran, India, and Pakistan. This virus infected 16 million people around the world with 645,627 deaths. The quick discovery of drug treatment has become a global challenge for the response of the COVID-19 outbreak. Therefore, it is important to develop an effective vaccine against nCoV-19 to control the spread of disease furthermore.

**Keywords:** Coronavirus; COVID-19; Infection; Mortality; Economy

## Introduction

Respiratory viruses are emerging threats to global health security. They have led to a worldwide epidemic with considerable mortality, morbidity, and economic effects. Coronaviruses are the respiratory viruses and got importance in both medical and veterinary fields [1]. The name coronavirus is given to the virus due to crown like projection on its outer surface. These viruses belong to the family Coronaviridae, and order Nidovirale. The family Coronaviridae has been further classified into 4 genera as alpha-coronavirus, beta-coronavirus, gamma-coronavirus, and delta-coronavirus. The alpha and beta-coronaviruses are found in mammals and humans while gamma and delta type viruses are found in birds [2,3]. The family of coronaviruses was recognized as a separate virus family in the 1960s. The most unique characteristic of this family is the largest genome size among all RNA viruses. This family got attention at the global level as a causative agent of acute respiratory problems [4]. The first avian coronavirus i.e. infection bronchitis virus (IBV) was discovered in the 1930s caused bronchitis infection in birds. While human Mouse Hepatitis virus (MHV) was found for the first time in the 1960s, Severe Acute Respiratory Syndrome (SARS) in 2003 and Middle East Respiratory Syndrome (MERS) in 2012. These viruses caused severe infections in the world history [5-7] (Figure 1). The SARS-CoV and MERS-CoV are contiguous viruses lead to life-threatening pneumonia. The severity of SARS outbreak was 8,098 infections with 774 deaths and MERS was 909 infections with 331 deaths. Soon, these viruses were controlled with the introduction of vaccines the Lopinavir (LPV) and Lopinavir-Ritonavir (LPV/r [8]. In late 2019, a Novel Coronavirus attacked the people of Wuhan in China. The virus has been spread to other countries through person-to-person transmission. The virus was first appeared on 7th January and was named tentatively as 2019-nCoV by 17th January 2020. The virus was officially named as corona virus disease 2019 (COVID-19) by the World Health

Organization (WHO) on February 11. The International Committee of Taxonomy of viruses declared this virus as SARS-CoV-2. While the Chinese prime Minister, Xi Ping called it a Devil [9]. It is one of the most dangerous types of viruses which is the primary source of human loss affecting the performance of a country with economic losses. The China incident drawn the world attention and became a global concern. The COVID-19 is spherical in shape with a diameter between 80-120nm. It has a dominant fringe of about 20nm long surface projections. The internal core is composed of nucleoside protein (N-protein), membrane protein (M-protein) and RNA where M is the major core-shell component. The surface projections or spikes are composed of heavily glycoprotein called spike-protein (S-protein) [10,11]. This is the outermost part of the virus which helps in attachment with its host cell. After getting attached to the host cell, the virus starts to neutralize antibodies of the host cells (Figure 1). After the COVID-19 outbreak, Chines scientists started their work to identify the origin and point source of the virus. The presence of COVID-19 in pneumonia patient virus was first recognized by a Chines virologist Zheng-Li at the Wuhan Institute of Virology. Later on 31st December, Dr. Li Wenliang stated about the new virus is similar to SARS and MERS-CoV. Soon, the Chinese government media announced the critical situation and human losses due to the COVID-19 by mid of January 2020 [12]. The incubation period for COVID-19 is 14 days and the symptoms appear within 2-4 days. The early symptoms for COVID-19 are cough, fever, headache, weakness, production of mucus, hemoptysis, diarrhea, and dyspnea. Table 1 shows the percentage of these symptoms to appear [13]. In case of severity, pneumonia, kidney failure, severe acute respiratory syndrome, septic shock and even death can occur [9].

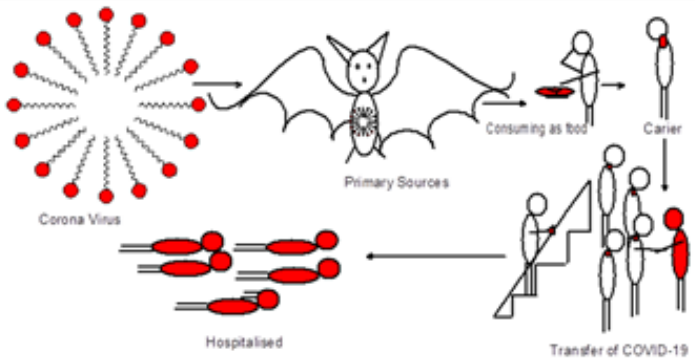



**Figure 1a:**

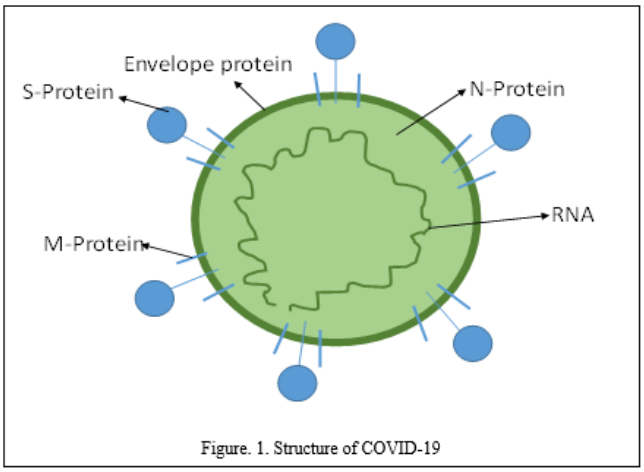



Figure. 1. Structure of COVID-19

**Figure 1b:**

## Method and Approach

It is desktop study as much of the information were collected from news, relevant reports, and local and international level published articles.

### COVID-19 across the World

COVID-19 is spreading rapidly all over the world. The speed of the novel virus is amazingly fast as compared to SARS and MERS-CoV Figure 2. The WHO declared the coronavirus as an epidemic and a public health emergency at international level on January 30, 2020. During the first two weeks, more than 10,000 confirmed cases were reported which has frightened and alerted the whole world. The issue got global concern in February 2020 and the virus spread quickly to other 33 countries with 2549 confirmed cases and 34 deaths. In the mid of February, the number of confirmed cases increased to 71,429 including 70,635 in China and the rest for

the other countries. By the end of February, the number exceeded to 80,239 confirmed cases and 2700 deaths. After China, the next target of this dead virus was Iran and then it spread to Italy and the USA and made new world records with thousands of human losses. Viral attacks were reported from European Countries, Western Pacific countries, South East Asia, United States of America, and Eastern Mediterranean countries with a fatality rate of 2-3%. Nearly a hundred infected patients had traveled from China to other countries [14-16]. The situation is getting worse and the risk of a worldwide pandemic is increasing. Presently more than 200 countries are infected with reported cases of 9,699,575 and 490,933 deaths around the world. The WHO reported that the European countries are on the top of infected cases and deaths followed by States of America, Western Pacific Region, South Asia, and African Region (Figure 2). The world economy has been badly affected by this viral attack especially the economy of China dropped to the lowest level. During this emergency, many countries faced the shortage of medicines, test kit s, supplies and even hospitals. It will be difficult for developing countries such as Pakistan, India, and Bangladesh to reform after this virus hazard. These countries should implement a complete lockdown for several weeks. They must spend their resources on the primary stage of prevention. When a viral outbreak happens, it hits the lives and the world is placed at risk of pandemic spread. Stock marketing shut down and trade of countries affected badly. The emergency lead to hoarding and price gouging by suppliers [17]. To control this Pandemic, all countries of the world have implemented or in the process of preventive measures. These preventive measures include social distancing, self-isolation and complete or partial lockdown of all gatherings and traveling. The strict movement instructions, case-isolation and quarantine in China started from January 23. These measures achieved a downward trend in new cases by February and zero confirmed cases [18]. The rate of COVID-19 infection is less in Singapore, South Korea due to early implementations of adopting preventive measures. Although, there is a risk of increasing hazard of COVID-19 Pandemic [19].

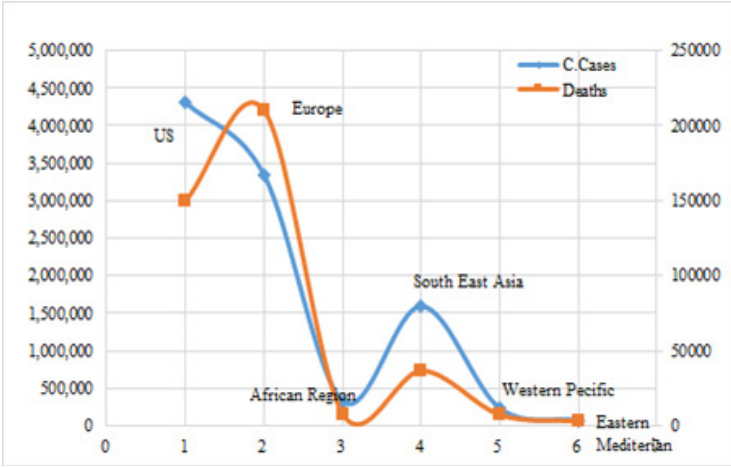



**Figure 2:** Countries reported outside China for COVID-19.
Source: WHO report, 30 May 2020.

**Table 1:** Percentage of Symptoms for COVID-19.

| Symptoms | Percentage (%) |
|---|---|
| Fever | 98 |
| Cough | 76 |
| Dyspnea | 75 |
| Weakness | 44 |
| Production of Mucus | 28 |
| Headache | 8 |
| Hemo-Ptysis | 5 |
| Diarrhea | 3 |

## COVID-19 in developed countries

Coronavirus disease-2019 (COVID-19) is a contagious that can feast from person-to-person. This disease was first recognized during an inquiry into an epidemic in Wuhan city of China. China is the epicenter of this disease. The 41 patients were confirmed to the COVID-19 disease during first week of January 2020 and from them 13 were sent to the intensive care unit (ICU). The history of these cases was related directly or indirectly to the Huanan seafood wholesale market [13-15]. The first case of COVID-19 was diagnosed in a lady of 49 years old during December 2020 with unknown etiology in Wuhan, Hubei, China. Then it was increased to 27 cases with no death case till 31 December but after one month (30th January) 9700 cases were confirmed with 171 deaths. Whereas, it was 79300 confirmed cases and 2835 deaths reported till 29 February and 80200 confirmed cases were reported with 2945 deaths on 3 March. The government observed for a complete lockdown in Wuhan for more than 2 months and succeded to get control over COVID-19 as the confirmed cases were decreased to 81093 (3270 deaths) on 22 March (Figure 3). The number of infections was reported as 82,719 with 4,632 in April. The reported as 83,000 with 4634 deaths and 78,302 recoveries by May 30 [20]. In June, the confirmed cases are 83449 with 4634 deaths. Currently, the cases are 85,921 with 4,653 deaths (July 25).

The Chinese government too quick action against this dilemma. Identified and confirmed case-patients were immediately sent to the isolated wards in present hospitals [14-21]. Two new hospitals were quickly built for COVID-19 patients specially to isolate, care, and quarantine the increasing number of patients. The suspected people were also advised to quarantine themselves at home or wherever they could get the facility of quarantine to monitor for the onset of symptoms of the virus. These approaches in China were found effective and now they almost controlled COVID-19 and the ratio of newly reported cases aberrantly decreased as compared to February and January 2020 [13-21].

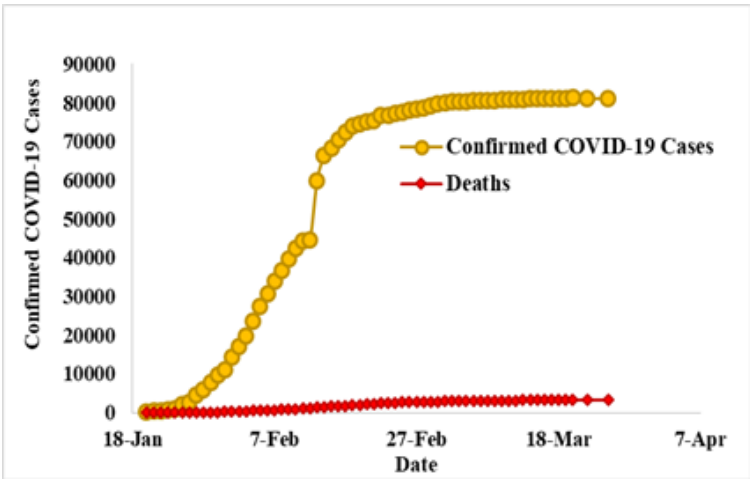



**Figure 3:** shows the age distribution of patients with COVID-19 infection in China.

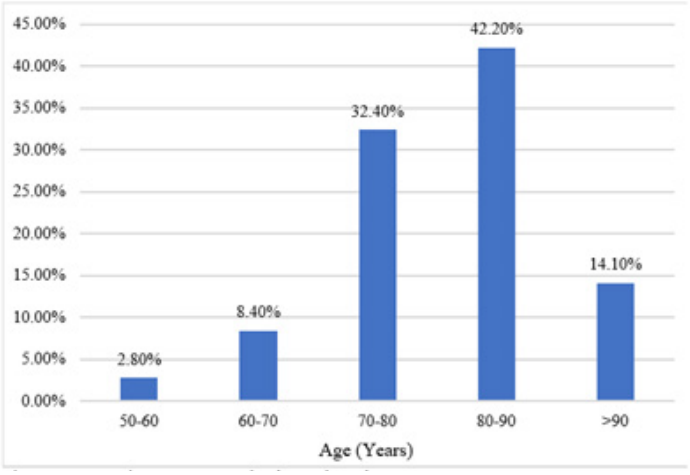



**Figure 4:** Age wise COVID-19 death rate in Italy.

The next target of COVID-19 in developed countries was Italy. The first confirmed cases of COVID-19 in Italy reported on 31 January 2020 were the tourists from Wuhan China who had journeyed to the northern areas of Italy. Before going to Rome, they also visited Milan, Parma, and Verona. After 20 days (21st February) to the first case, the reported cases were increased to an enormous number which follows an exponential trend. This trend continued and an uncontrolled situation created in Italy with a record of 42.30% death rate by mid of March [18]. This number is boosted to 69,176 with 6820 deaths the end of March (25th March) Figure 4. Italy reported 368 deaths in every 24 hours. It was reported that the age of people who died in Italy was 70+ years and above and most of them were patients of diabetes, heart, cancer. A small proportion of them were also of former smokers [18-24]. It is correct that these patients had already health issues, but it is also factual that they also had severe respiratory distress syndrome which was caused due to the attack of the novel coronavirus (COVID-19). It was estimated that 14.1% of patients died due to COVID-19 in Italy were aged >90 yeas, 42.2 % were 80-90 years, 32.4% were 70-80 years old, 8.4% were 60-70 and 2.8% were 50-60. From 8 March 2020, the government of Italy applied extraordinary measures to control the transmission of the virus from infected persons to healthy people. These measures are important and dauntless but still they are not enough to control the situation caused by COVID-19 [23,24]. Recently [25] reported that the capacity of the Italian nation health system to fulfill the needs of already infected people and ICUs for actively affected people is a matter of great concern. The percentage of actively infected people admitted to ICUs daily is

>11%. They also reported the exponential curve which shows the abrupt projections in COVID-19 patients for the coming days. By the 23 April, the reported cases reached to 187,327 with 24,648 deaths. The cases increased to 231139 with 33027 deaths by end of May. In June, the number of cases confirmed as 240296 with 34678 deaths. Recently, the new record is 245864with 35102 deaths (July 25). The United states is called as the world superpower. The COVID-19 pandemic did not leave this world power and attacked the US inhabitants by the end of February 2020. In the start the viral attack was limited to few cases only. The first twelve COVID-19 confirmed cases were identified on 26 February. These twelve cases had traveled history [26]. On March 10, both the confirmed and death cases were increased @2.9 and 2.5 times, respectively. Now the situation is getting worse and the confirmed cases and the situation became critical. By 29 March 2020, total of 142,537 total cases have been reported in the USA with 2,510 losses. Currently, the USA has been recognized as the worst-hit infected state around the world [18]. The highly infected states of the USA are listed in Table 2. The total infections of COVID-19 are 852,703 with a record death of 47,750 in April [20]. This number reached to 1,785,803 with 104107 deaths by end of May and 2,504,588 with 126780 deaths by June 2020. Currently, the infection record is 4,315,709 with 149398 deaths (July 25). The people of every age are getting infected by this virus but the people of older age and people who are already underlying medical conditions are at a greater risk [27]. World health organization (WHO) highlighted that people should follow the precautions to save themselves from COVID-19 so that others may be protected from them. The government of the USA took extraordinary measures to fight and control the spread of the virus. The US president called an emergency against the COVID-19 outbreak at the national level. The government announced 50 US billion dollars to combat this deadly virus. They increased the progress of diagnostic labs for their quick response to know the situation and try to tackle the disease. The virus has been spread to all 50 states of the USA [11-19]. The data regarding COVID-19 infections is stated that the US has the highest number of infections among developed countries. The statistics is reported in Table 2.

**Table 2:** Sates of USA highly affected by COVID-19.

| USA State | Total COVID-19 Cases | New Cases | Total Deaths | New Deaths | Active Cases |
|---|---|---|---|---|---|
| New York | 374,672 | - | 40563 | 74 | 279,913 |
| New Jersey | 157,818 | | 18341 | | 131657 |
| Massachusetts | 107611 | | 8547 | | 55124 |
| Pennsylvania | 83770 | | 7322 | | 26728 |
| California | 190222 | 98 | 5955 | 38 | 75676 |
| Michigan | 68555 | | 6334 | | 17106 |
| Illinois | 139540 | | 6083 | | 105608 |
| Florida | 106743 | | 3320 | | 42652 |
| Louisiana | 52477 | | 2826 | | 7078 |
| Texas | 125921 | | 1902 | | 19579 |
| Georgia | 44638 | 352 | 2246 | 12 | 42008 |
| Connecticut | 45913 | | 4023 | | 30663 |
| Maryland | 48423 | | 2692 | | 42630 |
| Washington | 20794 | | 1834 | | 15578 |
| Ohio | 46759 | | 2453 | | 25430 |
| Indiana | 43140 | | 2330 | | 27629 |
| Colorado | 31155 | | 1592 | | 21653 |
| Virginia | 43246 | | 1481 | | 33601 |

The government of UK also affected with the pandemic of COVID-19 where the cases were reported at the end of January 2020. The first confirmed cases had a travelling history as they did come from China [28]. An enormous increase in COVID-19 cases were observed in March 2020 with 422 deaths [29] Figure 5. Later-on the number increased to 18,100 with 133,495 confirmed cases by April 23, 2020. Other countries such as Turkey, Spain and France and Germany have been reported as the most affected countries due to COVID-19 disease. Like to Italy and USA, the situation is critical with a record number of deaths. Currently, Brazil and Russia are badly infected with COVID-19 with a record of 20,12,151 and 806,720, respectively. The total infected cases are reported as US>Brazil>Russia>UK>Spain>Italy>Germany>Turkey>France (Figure 5). Currently, the number of deaths is recorded as 5596 in Turkey, 28432 in Spain, 30192 in France and 9202 in Germany by end of July. Switzerland (31428/1682), Scotland (18,500/2491), Netherland (49914/6100), South Korea (14159/298) are also fighting against COVID-19. All the gatherings, dinners, parties, educational institutions, trips, and traffic in almost all the developed countries are restricted and closely checked. Before knowing the exact situation, the COVID-19 infection started to spread very quickly, and the ratio of infection found increased enormously for 4

months [30]. As no vaccine or drug for the COVID-19 is yet available so all the developed countries have focused on public isolation, social distancing, community containment, and quarantine. As education and awareness play an important role in prevention against COVID-19. Sometimes, ignorance is blessing, but it kills sometimes. The successful control of COVID-19 pandemic in China can be attributed to timely awareness and fully cooperation of the public to the government [31].

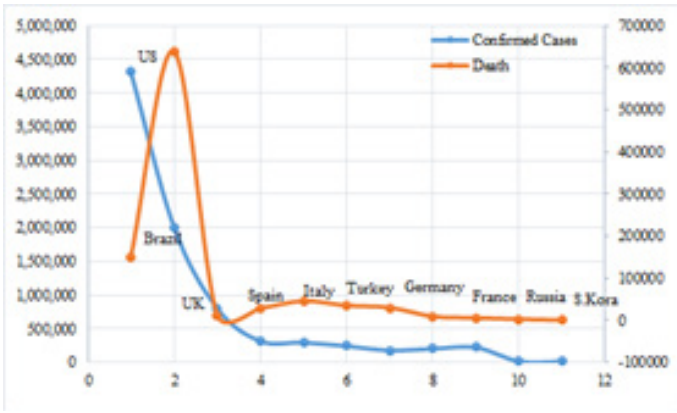



**Figure 5:** Severity of COVID-19 in developed Countries.
Source: World-meter

## COVID-19 in developing countries

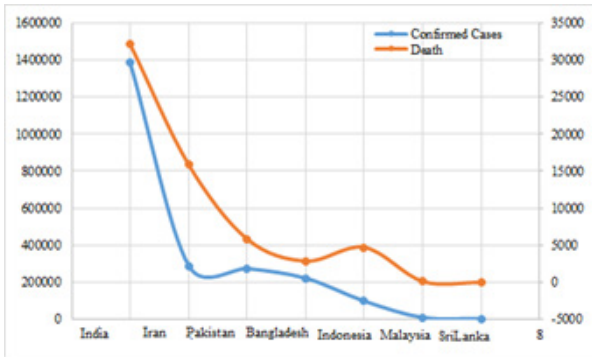



**Figure 6:** COVID-19 infection in developing countries.
Source: world meter

The epidemic of COVID-19 originated from Wuhan China and continues to spread all over the world. The developing countries were also affected with record of human deaths. Figure 6 represents the whole picture of the COVID-19 infection in developing countries figure 6. Among the developing countries, The Islamic Republic of Iran is ranked on the top list. The first 43 confirmed cases of COVID-19 were reported in Iran on 19 February 20 20, with 2 deaths [24-32]. On 25 March, the number of confirmed and death cases reached to 24,811, and 1,934 respectively. It can be noted that the cases of COVID-19 in Iran were only 43, on 23 February, which has been abruptly increased from 43 to 32,332 by the end of March [18]. In April, the infections of COVID-19 are reported as 79,494 with 4,958 deaths. The infection reached to 1,46,668 confirmed cases with 7677 deaths by end of May. The infection rate reached to 2,18,262 with 10,239 deaths (June-25). The new record is 2,88,839 infections with 15,848 deaths by July 25. This is an alarming increment. Therefore, proper measures should be taken to curb the spread of this virus. The COVID-19 infection spread in Pakistan after the entry of Pilgrims from Iran and students from China. The first two cases in Pakistan were reported on 24 January 2020. Both the cases were traveled to Iran for pilgrimage and returned to their home. Pakistan is a developing country and has been considered as the most affected country, which has experienced many disasters and disease outbreaks. Like other developmental countries, Pakistan is also fighting against growing pandemic of COVID-19 for four months. As the death rate in Pakistan is very low but this panic hazard is on the way to increase day by day figure 7. Pakistan is in the stage of its developmental progress with 207.8 million populations and has limited resources to fight against such hazard of COVID-19 [31]. China has a great role in many developmental projects of Pakistan as well as providing opportunities for Pakistanis to work, study and business in China. Due to viral attack in China in 2020, the majority of Pakistanis rush towards Pakistan but they all were properly treated on airports and directly sent to the quarantine centers for 14 days. The Government took necessary measures to control the spread of diseases so till 29 February the cases remained two in number [33]. It was becoming alarming to the government of Pakistan so, the government ordered to close all schools, colleges, universities and other institutes and wedding halls, public gatherings, meetings, and conclaves. The cases increased to 187 on 16 March 2020. Being a poor country, it was not possible for Pakistan to order for complete lockdown. However, due to panic situation, the government imposed a partial lockdown on March 22 which further extended to 14 April. A progressive increase was observed by the end of March with 1525 confirmed cases and 14 deaths. In April, the number increased to Recently the active cases exceeded to 25,837 with 594 deaths. In May, the record was 66457 confirmed cases and 1395 deaths (May,30). By end of June, an enormous increase was observed in the infection with total reported cases of 195745 and 3962 deaths. Currently, the infection has spread throughout the country with total reported cases of 273148 with 5822 deaths. The number

is still increasing showing an alarming situation in the future (Figure 7) [34]. Pakistan has limited health facilities and other resources and facing a risk of pandemic spreading of disease. The national health institute has warned that if the new corona cases would not be diagnosed and treated on time, it may result in the crisis by increasing the number of deaths in the country [30]. The government has established quarantine centers in major cities of the country. Different government universities played their part to provide space for quarantine. Now the migrants from Iran are kept in quarantine centers for the incubation period and are under observation. In the start, the testing kits were not available in the country and the government struggled a lot to acquire the required resources and communicated the awareness to the public on time against COVID-19 disease. In this case, the role of WHO is very important and the testing ability in Pakistan reached to 58000 by the end of March [35]. The government announced financial assistance of 12000 cash per 3 months under Ehsas program for 12 million families. As this assistance is not enough for 3 months but at least will help the people to stay at homes for a successful one-month lockdown [36].

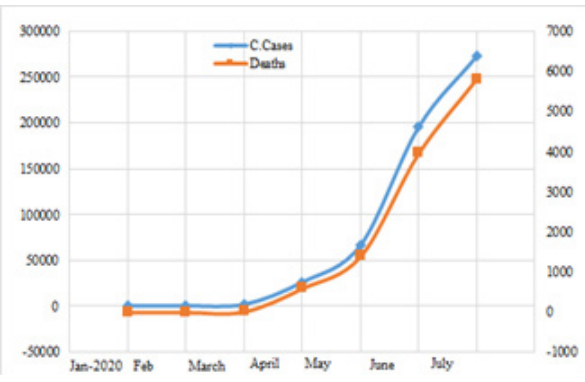



**Figure 7:** COVID-19 in Pakistan.
Source: World meter

The Government of India reported the first case of COVID-19 on January 30 when students from China returned to the country. In February, the number of infections reached to 3 with no significant rise. The infection spread quickly in March and the number of patients reached to 1,000. In April, the total confirmed cases reported as 21,403 with 681 deaths. Moreover, 3 doctors and 26 nurses were also infected with COVID-19 disease during treatment of patients. In May, the cases reported as 160,000 while in June the number exceeds to 473,169 with 14,894 deaths. Recently, the record has been reported as 1385494 with 32096 losses (July 25). The government did efforts to control the disease, but the situation is in alarming state [37]. Other countries have reported the infection of COVID-19 for confirmed and death cases as Indonesia,97286/4714, Malaysia 8884/123, Bangladesh 221034/2874, and Sri Lanka 2770/11 (July 25). All national and international flights have been suspended. Still it is alarming and challenging to control this speedy rate of COVID-19 [38]. In this regard, awareness and availability of resources is an important factor helpful in adopting preventive measures.

## Impact of COVID-19 on World Economy

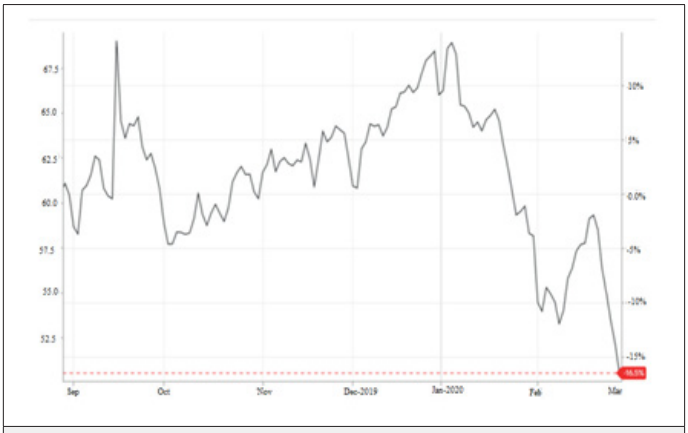


**Figure 8a:** World Brent oil price.

Primarily, the COVID-19 pandemic was considered confined to China. But later, the pandemic spread through movement of people across the world. Besides, human infection, this dead virus also hit the world economy. Therefore, the virus is truly contiguous both medically and economically. The economic pain was severe as the people were asked to stay at home with travel ban, cancellation of sports and closing of mass gathering events and entertainment sector [39]. The IMF predicated moderate global growth of 3.4% but the pandemic of COVID-19 changed the outlook unexpectedly. The most noticeable result of the COVID-19 is the global stock market with $6 trillion loss over six days. Similarly, the US, S&P 500 index crashed over $5 trillion in the same week. Majority of the companies stopped work and crashed a loss of $1.4 trillion (10 companies of S&P 500) [40]. The tourism industry was badly affected due to cancellation of flights, hotels, local and international events worth over $200 billion. This caused a global recession in developed countries (Figure 8a). The recession of 2020 is novel and different from the past trigger's recession in the history [41]. The European Commission reported that the economic condition of the Europe in at risk of slipping into recession and the it seems like direr possibilities for the global economy [30]. Economically, the effect of COVID-19 is 8-9 times greater than SARS-CoV on the world economy. Currently, the hardest hit nations include China and the G7 countries. The virus hit about 60% of the GDP of China. Majority of industries shutdown their work due to extreme shortage of workers [42]. The world market has significantly down. The literature reported a worse performance of the UK and German stock markets around the world (Figure 8b). The US, Japan, China, France, Germany, UK, Spain, Korea, and Italy are the top listed countries whose economy has been crashed by COVID-19 pandemic. These countries are the hub of world workshop. They are counted for 60% world supply and demand, 65% of world manufacturing and 41% of world manufacturing exports [39]. During last 03 months of this pandemic, the supply and demand of

these countries has been weakened with decline rate of production. Due to interruption of goods from China, Korea and Japan, the supply-chain shock will be felt strongly in Asian countries [43]. Since the COVID-19 disease has hit the East Asia (the world's manufacturing heartland) and spread to crash the marketing of Europe, US, and UK with great collapse. As the service sector such as restaurants and movie theaters are empty with targeting shocks of manufacturing in all these countries. The pandemic affected the international trade which is one of the leading mechanisms among countries. This attack made the trade flows susceptible to demand and supply shock. The pandemic also crashed the oil marketing by lowering the price of oil from $69 to $50 /barrel which is a big shock for oil producing countries the Middle East. The global demand of oil has fallen by 365,000 barrels/day [44]. Economically, the COVID-19 pandemic seen as a China shock in the start and now the whole world is facing it as a common shock. The whole world economy is at risk and is facing severe downfall with passage of time. This economic shock cannot be controlled until an effective vaccine is prepared [45].

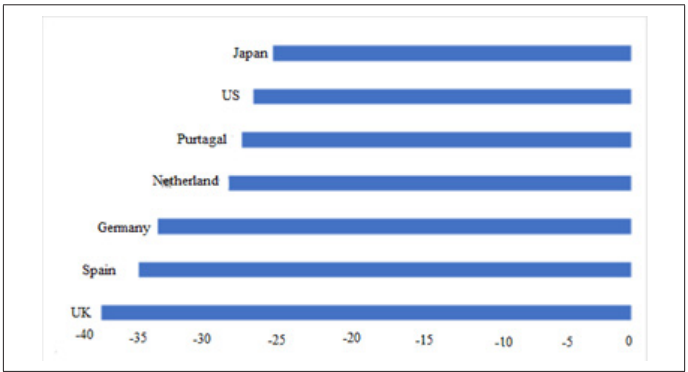



**Figure 8b:** Performance of global Stock market in 2020.

### Is there any of vaccine of COVID-19.?

Efforts are in progress to develop effective vaccines and therapies for COVID-19 around the world. Various groups of scientists in China and US are already planning to test vaccines on healthy humans voluntarily. Still there is no special antiviral therapy or vaccine developed against this virus. Only preventive measures such as social distancing, washing hands with soap or sanitizer, wearing masks and gloves, covering body are effective against viral attack. It is the requirement of this panic situation to work hard and fast to develop vaccines easily available across the world [46]. All countries around the world are trying to control the pandemic of COVID-19 by adopting the preventive measures but combating this pandemic demands a safe and potent vaccine. Because the transmission rate of this hazard is so fast that majority of the people in critical conditions need an effective vaccine. The COVID-19 exists 79.5% resemblance to SARS therefore, due to the identical nature of these viruses, treatment of LPV and LPV/r for SARS and MERS may be helpful against COVID-19. Lopinavir is a proteinase inhibitor that inhibits SARS and blocks a post-entry step in the replication cycle of MERS. Ritonavir is another inhibitor which is effective as an antiviral activity. For the time being, these treatments could be helpful against this disease [15]. Nigella seeds could also be helpful to curb the disease. Literature revealed that the experimental studies suggested treatment with chloroquine and Hydroxychloroquine against COVID-19. The chloroquine is an antimalarial drug having the capability of inhibiting the replication of various intracellular microorganisms including coronavirus in vitro. Hydrocchloroquine has the same mechanism as Chloroquine. They increase the endosomal pH and are effective against coronaviruses. In the present context of COVID-19 pandemic, treatment with chloroquine and Hydroxychloroquine should be considered as useful [47].

## Conclusion

The fear of coronavirus has spread all over the world. China has the epicenter of this disease with a record of human loss of 3,304 in the start. The majority are fighting for their lives. Huanan Seafood Wholesale market was the hub of the Centre of this novel coronavirus. After China, the virus jumped to other countries of the world and made record infections particularly in Europe, US and Asian countries. Both the developed and under developing countries of the world are trying to get control over this panic attack but number of infections seemed increasing with time. There is no antiviral treatment or vaccine is available only preventive measures can help to control it yet. To stop the further spread of infection, quarantine, hospitalization social distancing are the key factors. The COVID-19 is contagious, therefore people traveling from China and other infected countries must be placed in quarantine.

## Acknowledgment

The authors would like to convey their gratefulness to the University of Peshawar for providing us the necessary support and facilities to carry out this study.

## References

1. Hoek lV, Pyrc K, Jebbink MF, Vermeulen O, Berkhout RJM, et al. (2004) Identification of a new human coronavirus. Nature Medicine 10(1): 368-373.
2. Paul SM (2006) The molecular biology of coronaviruses. Advances in Virus Research 66(2): 192-292.
3. Basiri MR (2020) Theory about treatments and morbidity prevention of corona virus disease (Covid-19). Journal of Pharmacy and Pharmacology 8(1): 89-90.
4. Narayanan K, Ramirez SI, Lokugamage KG, Makino S (2015) Coronavirus nonstructural protein 1: common and distinct functions in the regulation of host and viral gene expression. Virus Research 202(1): 89-100.
5. Ksiazek TG (2003) A novel coronavirus associated with severe acute respiratory syndrome. N Engl J Med 348(2): 1953-1966.
6. Almeida JD, Tyrrell DA (1967) The morphology of three previously uncharacterized human respiratory viruses that grow in organ culture. J Gen Virology 1(1): 175-178.
7. Peiris JS (2003) Clinical progression and viral load in a community outbreak of coronavirus- associated sars pneumonia: a prospective study. Lancet 361(3): 1767-1772.

8. Zhang N, Tang J Lu L, Jianga S, Du L (2015) Receptor binding domain based subunit vaccines against mers-CoV. Virus Research 202(1): 151-159.

9. Mukhtar F, Mukhtar N (2020) Coronavirus (COVID-19): let us prevent not panic. Ayub Med Coll Abbottabad 32(1): 141-144.

10. Boulos MNK, Geraghty EM (2020) Geographical tracking and mapping of coronavirus disease covid-19/severe acute respiratory syndrome coronavirus-2 (sars-cov-2) epidemic and associated event around the world: how 21st century gis technologies are supporting the global fight against outbreaks and epidemics. International Journal of Health Geographics pp. 2-12.

11. Cavanagh D (2007) Coronavirus avian infectious bronchitis virus. Vet Research 38: 281-297.

12. Khan S, Siddique R, Ali A, Xue M, Nabi G (2020) Novel coronavirus, poor quarantine, and the risk of pandemic. Journal of Hospital Infection 23: 1-10.

13. Jiang F, Deng L, Zhang L, Cai Y, Cheung CW (2020) Review of the clinical characteristics of coronavirus disease 2019 (COVID-19). J Gen Intern Med 19(2): 1-5.

14. Huang C, Wang Y, Li X, Ren L, Zhao J, et al. (2020) Clinical features of patients infected with 2019 novel coronavirus in wuhan, China. Lancet 395(2): 497-506.

15. Yao TT, Qian J, Zhu W, Wang Y, Wang G (2020) A systematic review of lopinavir therapy for sars coronavirus and mers coronavirus–a possible reference for coronavirus disease-19 treatment option. Journal of Medical Virology 92: 556-563.

16. Khan N, Naushad M (2020) Effects of corona virus on the world community. SSRN Electronic Journal pp: 1-35.

17. Ullah E (2020) The novel coronavirus outbreak: a challenge beyond borders. Pakistan Journal of Surgery & Medicine 1(1): 8-9.

18. Flaxman S, Mishra S, Gandy A, Juliette H, Unwin T, et al. (2020) Estimating the number of infections and the impact of non-pharmaceutical interventions on COVID-19 in 11 European countries. Imperial College COVID-19 Response Team pp. 1-35.

19. https://www.statista.com/topics/6084/coronavirus-covid-19-in-the-us/

20. Zhu N, Zhang D, Wang W, Li X, Yang B, et al. (2020) A novel coronavirus from patients with pneumonia in China. N Engl J Med 382: 727-733.

21. Pang J, Wang MX, Ang IYH, Tan SHX, Lewis RF, et al. (2020) Potential rapid diagnostics, vaccine and therapeutics for 2019 novel coronavirus (2019-ncov): a systematic review. J Clin Med 9(1): 1-30.

22. Porcheddu R, Serra C, Kelvin D, Kelvin N, Rubino S (2020) Similarity in case fatality rates ( CFR ) of COVID-19 / SARS-COV-2 in Italy and China. J Infect Dev Ctries 14(2): 125-128.

23. Dehkordi AH, Alizadeh M, Science C, Derakhshan P, Babazadeh P, et al. (2020) Understanding epidemic data and statistics: a case study of COVID-19. Medical Virology 92(7): 868-882.

24. Remuzzi A, Remuzzi G (2020) Health policy COVID-19 and Italy: what next ? Lancet 2(1): 10-13.

25. Burke RM, Midgley CM, Dratch A, Fenstershei M, Haupt T, et al. (2020) Active monitoring of persons exposed to patients with confirmed COVID-19 - United States, January-February 2020, MMWR 69(2): 245-246.

26. Hageman JR (2020) The coronavirus disease 2019 (COVID-19). Pediatr Ann 49: 99-100.

27. Moss P, Barlow G, Easom N, Lillie P, Samson A (2020) Lessons for managing high-consequence infections from first COVID-19 cases in the UK. 395: 46

28. Rodrigues JCL, Hare SS, Edey A, Devaraj A, Jacob J, et al. (2020) An update on COVID-19 for the radiologist-A British society of thoracic imaging statement. Clinical Radiology 75: 323-325.

29. Boone L (2020) Tackling the fallout from COVID. Pp: 19-37.

30. Nafees M, Khan F (2020) Pakistan's response to covid-19 pandemic and efficacy of quarantine and partial lockdown. Electronic Journal of General Medicine 17(2): 2516-3507.

31. Ahmad T, Khan M, Khan FM, Hui J (2020) Are we ready for the new fatal coronavirus: scenario of Pakistan? Human Vaccines & Immuno Therapeutics 16(3): 736-738.

32. Dawn (2020) Low number of Covid-19 deaths in Pakistan does not mean we stop being careful: Zafar Mirza. USA.

33. https://nayadaur.tv/2020/03/young-people-most-affected-by-coronavirus-in-pakistan/

34. Rukh L, Nafees M, Khan F (2020) Review of Covid-19 related deaths and recoveries for identification of suitable measures as alternative of partial lockdown. USA.

35. Raza S, Rasheed MA, Rashid MK (2020) Transmission potential and severity of COVID-19 in Pakistan. Electronic Journal of General Medicine.

36. https://www.brecorder.com/2020/04/06/586697/

37. https://en.wikipedia.org/wiki/2020_coronavirus_pandemic_in_India.

38. McKibbin W, Fernando R (2020) The global macroeconomic impacts of COVID-19: Seven Scenarios.

39. Ozili P, Arun T (2020) Spillover of COVID-19: impact on the global economy.

40. Fernandes N (2020) Economic effects of coronavirus outbreak (COVID-19) on the World Economy.

41. Maital S, Barzani E (2020) Global Economic Impact of COVID-19. pp: 1-10.

42. Voth J (2020) Trade and travel in the time of epidemics. pp: 93-97.

43. McKibbin W, Fernando R (2020) The economic impact of COVID-19. Book. pp: 45-65.

44. Baldwin R, Tomiura E (2020) Thinking ahead about the trade impact of COVID-19. Pp: 71-75.

45. Mann CL (2020) Real and financial lenses to assess the economic consequences of COVID-19. pp: 80-84.

46. Jiang S (2020) Don't rush to deploy COVID-19 vaccines and drugs a personal take on science and society. Nature 579: 321-334.

47. Singh AK, Singh A, Shaikh A, Singh R, Misra A (2020) Chloroquine and hydroxychloroquine in the treatment of covid-19 with or without diabetes: a systematic search and a narrative review with a special reference to India and other developing countries. diabetes & metabolic syndrome. Clinical Research & Reviews 14(1): 241-246.