



Counting the cost of COVID-19

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Abstract Coronavirus disease 2019 (COVID-19) is the name given by the World Health Organization (WHO) to the highly contagious and infectious disease caused by the Novel Corona Virus or SARS-CoV-2, which was first reported on 31 December 2019 in Wuhan city of the capital of China's Hubei province. Due to the rapid increase in the number of infections worldwide, the WHO in March 2020, declared COVID-19 as a pandemic. Historically, first coronavirus had surfaced in 1965 with symptoms of common cold. Since then five different strands of this virus have emerged, most lethal of them was the Severe Acute Respiratory Syndrome (SARS), which infected about eight thousand people, killing ten percent of them. The COVID-19 is not the most deadly pandemic world has ever witnessed as the Spanish influenza pandemic, during 1918–19, killed more than fifty million people. Indeed COVID-19 has turned out to be the most lethal of all coronaviruses as it has infected at least three million people killing more than two hundred thousands of them in the first 4 months of its spread. Many politicians and social scientists have dubbed the depression, being caused by COVID-19, worse than that caused by the Second World War. In this article, we shall analyze economic, social, cultural, educational and political impact of the COVID-19.

Keywords Novel corona virus · COVID-19 · Contagious · Health · Safety · Economy · Social · Religious · Winners

1 Introduction

We are witnessing the spread of the most deadly and devastating virus attack of the last one hundred years. This virus is known as the Novel Corona Virus or SARS-CoV-2 and the disease resulting from this virus has been named by as COVID-19 by [1], where a historical background of the corona virus can also be found. Figure 1 shows a visual of a virus.

COVID-19 was first detected in December 2019 in Wuhan city of the Peoples Republic of China. As the virus spread, the World Health Organization (WHO) [1] declared it to be a Pandemic on 12th March 2020 [2], signaling the significance of its global spread. During the first 4 months of spread, this deadly disease has infected about three million people resulting in about two hundred thousand deaths in more than 209 countries. These figures are mostly of the hospital admissions of a handful countries as reported by the media. Real numbers would never be known. The United States of America has the maximum number of casualties as well as infections, followed by Italy, Spain, France and the United Kingdom. These figures are largely reported by a handful of developed countries. However, there is limited information of fatalities reported from developing countries, many of which do not have adequate testing facilities and/or hospital beds to treat all the patients. Therefore, the extent of actual damage by COVID-19 would be limited in its accuracy.

Undoubtedly COVID-19 is causing the most severe economic crisis after the great depression of 1930s. As the virus continues to cause havoc, the extent of the global damage resulting from it cannot be counted until it subsides. In this article we shall discuss damage which it has already caused to different walks of life and speculate further damage it could inflict.

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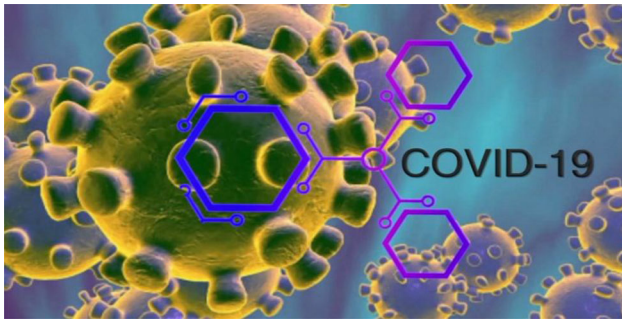


Fig. 1 Virus

In recent years we have witnessed an increased growth and spread of communicable and highly contagious viruses and diseases like EBOLA [3], HIV Aids [4], Swine Influenza (H1N1, H1N2) [5], various strands of Flu [6], Severe Acute Respiratory Syndrome (SARS) [7] and Middle Eastern Respiratory Syndrome (MERS) [8] in Africa, the Middle East and several other parts of the world. Wiping, cleaning and treatment of some of these viruses is a very challenging job [9], and so it is very difficult to assess the spread of some of these viruses (e.g. Ebola) which could create havoc in the society.

In this article we shall analyze issues associated with and impact of COVID-19 in different walks of life. In particular we shall describe the devastation and damage it has caused to economic, social, cultural, and political fabric of the society globally, particularly in different regions. Indeed some industries have benefited from the crisis caused by COVID-19, which we shall also analyze.

2 History of pandemics and contagious diseases

The coronavirus disease COVID-19 is a highly transmissible and pathogenic viral infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Fig. 1), which is resulting in a heavy toll on people's lives and colossal economic damage. Some reports (e.g. [10].) suggest that COVID-19 would "cause the worst recession since the great depression (of 1930s). It is said the pandemic had plunged the world into a "crisis like no other". Although COVID-19 is being dubbed to be very destructive to the human lives and economies, it is currently not as lethal as many other pandemics have been. There have been more destructive epidemics in the past. The most deadly of all pandemics occurred in 1918–19, which is known as the "Spanish" influenza pandemic causing acute illness in about thirty percent of the world's population and claiming the lives of at least 40 million people [11]. According to [12], it caused up to one hundred million deaths. But the best estimates seem to be fifty million [13].

Let us glance at some of the earlier pandemics and diseases. The archaeological sites called "Hamin Mangha" and Miaozigou, in north-eastern China suggest that it was an epidemic which devastated the entire region. Around 430 B.C., an epidemic in Athens went on for about 5 years killing an estimated one hundred thousand people [12]. During 165–180 A.D., the Antonine Plague, is thought have killed more than five million people in the Roman Empire. During 541–542 the bubonic plague, named as Justinian (after the name of the Emperor) killed up to one tenth of the world's population [12]. The Black Death during 1346–53 killed more than half of the population of Europe [12]. During 1545–48, the Cocoliztli epidemic took the lives of fifteen million people of Mexico and Central America. The Great Plague of London during 1665–66 killed about one hundred thousand people, and the Great Plague of Marseille during 1720–1723 wiped out thirty percent of the population of the area [12]. The Russian plague during 1770–1772 took the lives of about one hundred thousand people in and around Moscow, and Flu pandemic during 1889–1890 took the lives of about one million people globally [12].

The 2009 swine flu pandemic was caused by a new strain of H1N1 that originated in Mexico in the spring of 2009 before spreading to the rest of the world. In one year, the virus infected as many as 1.4 billion people across the globe and killed between 151,700 and 575,400 people, according to the Centre for Disease Control and Prevention (CDC). A vaccine for the H1N1 virus that caused the swine flu is now included in the annual flu vaccine. Ebola ravaged West Africa between 2014 and 2016, with 28,600 reported cases and 11,325 deaths. There are other pandemics and diseases including the Philadelphia yellow fever of 1793, American polio epidemic of 1916, for which a vaccine was developed in 1954, and the Middle East respiratory syndrome coronavirus (MERS-CoV) of 2012 which has accounted for thousands of lives.

3 COVID-19: treatment, prevention and myths

COVID-19 appears to cause dry cough, high fever and ultimately chest congestion and pain resulting in breathlessness if not controlled. The source and causes of SARS-CoV-2 are not known as a certainty. However [14] asserts that the virus is found in bats but what causes its transfer to humans is not known. Another study [15] claims that the virus has jumped from snakes to humans.

3.1 Treatment

To date there is no vaccine or medicine to prevent or treat COVID-19. However, many health centres are treating

patients with some antibiotics (Erythromycin), and Chloroquine or Hydroxychloroquine. These drugs neither provide a definitive treatment nor are approved by WHO or any credible organization. Nevertheless [16] claims, based on clinical trials in China, Chloroquine phosphate is apparently shown to be effective with acceptable safety level to cure pneumonia in COVID-19 patients. According to [17], combination of the Chinese medicine, interferon, Lopinavir, Ritonavir and corticosteroids was helpful in the recovery of 50 out of 51 patients. According to [18], administration of moxifloxacin, Lopinavir, interferon, and methylprednisolone to non-ICU patients was successful in treating ICU patients—26 patients were discharged from the intensive care unit (ICU) and sixteen were relieved from the hospital.

There are some unconfirmed success stories of treatment of COVID-19 with herbal ingredients like black seeds, ginger, and honey, etc. These ingredients are indeed recognised as good for health in general. Pain relieving medicines like Panadol are of course used to bring down the body temperature caused by virus. In severe cases, when patients cannot breathe by themselves, ventilators have to be used. There are many myths surrounding the treatment of COVID-19, which we shall look at next.

3.2 Prevention

The World Health Organization has framed some guidelines and measures to check or slow the spread of COVID-19 to the community. Some of these measures are also summed up in [19]. Here we provide a summary of these measures.

First and foremost, it is highly recommended to wash hands properly and regularly. Whenever the hands are exposed to any surface, the hands should be washed with soap for at least 20 s. Use of hand gloves is helpful in preventing exposure of hands to contaminated surfaces and places. Protective gears for medicos are a necessity but the case of medical and medical workers will be dealt elsewhere. Frequent and regular use of sanitizers (creams, gels, sprays) is also recommended. There seems to be some controversy about the effectiveness of face masks. Various outlets have frequently reported the shortage of medical grade masks (N95) due to high demand for medical professionals and general public globally. The Centers for Diseases and Prevention (CDC) has also advised people to use face masks, and even use cloth masks if proper ones are not available. Studies have revealed that even the best face masks cannot prevent some unfiltered air getting through. In order to make them highly effective, social distancing is recommended to reduce the risk of contaminated droplets being spread from an infected person to other people through coughing or sneezing. Self-isolation is also a very useful technique to prevent the spread of COVID-19.

3.3 Myths about COVID-19

Unfortunately, there are many myths about curing COVID-19 patients, some of them are astonishing. The World Health Organization [20] has refuted many of them. We provide a summary.

The following acts or practices DO NOT prevent COVID-19.

- 5G mobile network
- Exposure to temperatures more than 25 degrees Celsius
- Hot and humid climates
- Consumption of alcohol
- Cold weather and snow
- Hot bath
- Hand dryers
- Spraying alcohol or chlorine all over the body
- Vaccines used for Pneumonia
- Regularly rinsing your nose with saline
- Antibiotics
- Specific medicines

The following are also clarified in [20]. If one is exposed to Coronavirus, the virus would not stay in the body for the rest of life. Holding the breath for 10 s or more without coughing or feeling discomfort does not mean that the body is free from COVID-19. Mosquito bites cannot transmit coronavirus. There is no evidence that eating garlic prevents coronavirus although garlic is considered very healthy for the body. People of all ages can be infected by the new coronavirus (2019-nCoV). But those at greatest risk of infection include the elderly, people with compromised immune systems and people with chronic health conditions (e.g. asthma, diabetes and heart disease).

Thermal scanners are only effective in detecting people with fever but cannot detect people with coronavirus. One should not use UV lamps to sterilize hands or other areas of skin because UV radiation can cause skin irritation. Some people have claimed that cow urine can prevent coronavirus. There is no evidence to support their claim. On the contrary [21] and [22] have categorically stated that the cow urine doesn't help prevent the virus. In [22] it is stated that "Experts have repeatedly asserted that cow urine does not cure illnesses like cancer and there is no evidence that it can prevent coronavirus".

4 Damage caused by COVID-19

The COVID-19 pandemic is although a health crisis but it is damaging the world economy. If the pandemic was prolonged, it could even threaten the monetary systems of some countries. Civil aviation industry is one of the hardest hit and many airlines have slashed their staff by up to 90%.

Hospitality and Tourism is another sector which is facing the brunt of COVID-19. Revenue generating historical monuments and places have shut their doors due to social distancing measures such as mandatory lockdown, impacting the economy of several nations. These and other setbacks have soared unemployment in most of the countries threatening even the governance of some of the countries. The pandemic is in its full fury even after the first 4 months of its emergence. The full scale damage can only be assessed when the pandemic subsides. Let us look at some of the damage to various aspects of the society so far.

4.1 Economic cost

The COVID-19 is causing the most severe losses to the economies of many nations. Recently we have witnessed the oil prices to hit the subzero territory for the first time during the history of the mankind. We are already witnessing some very serious impact in China, where the virus first emerged in December 2019, seems to be coming out of the pandemic. According to [23], China has suffered loss of 13.5% in its industrial production, 21% in retail sales, 92% in car sales, and 95% in restaurants. According to [24], world's working class, estimated to be more than three and a quarter billion strong is being severely impacted by the sudden and unimaginable slowdown in the world economy causing unprecedented loss in employment in all countries. One of the reasons cited for the heavy toll lies in the fact that more than four-fifth of the workforce lives in countries which are under severe restrictions of distancing and lockdown due to curfews and other mandatory closures. According to [26], decline in working hours by 1st April 2020 is estimated to be equivalent to two hundred million fulltime job loss. Many developed countries are facing a two digit unemployment rate forcing people to seek unemployment benefits, severely impacting the economies of those countries. If the pandemic is prolonged, the loss of jobs could be many folds. Goldman Sachs has predicted that the US economy in the April-June quarter of 2020 could shrink to about three fourth, more than twice worse of any previous setbacks [23]. The pandemic has the potential to cause the worst recession ever.

Politicians in many countries have responded to salvage their economies. The US has come up with a stimulus package of more than US \$2 trillion.

4.2 Cost of COVID-19 to civil aviation and oil industry

One of the hardest hit economic sectors is Civil Aviation. Most of the air travel has been suspended for weeks now, forcing many airlines to slash their staff by up to 90% and

asking their government to salvage the industry. Preliminary estimates according to [25] for the period of January to June of 2020 suggest the loss of over five hundred million passengers, amounting to about fifty percent of the seats available, causing loss of revenue of more than one hundred billion dollars. If the pandemic was prolonged, we should expect even more severe economic losses to the economy in general and civil aviation in particular.

The oil producers are reeling on the face of the current pandemic. Due to lockdowns and severe restrictions on all modes of transportations, the demand for oil has drastically depleted. Despite the reduction in oil production, the price of crude oil has gone to under twenty dollars a barrel. This will severely impact the economies of the oil exporting countries like Saudi Arabia and other countries of the Arabian Peninsula and Africa, as well other oil producers like Russia, Brazil, Venezuela, Mexico, and Kazakhstan.

4.3 Impact on education

On the face of COVID-19, many countries had debated whether closing down educational institution was in their interest. Many countries like Australia delayed their action plan but in eventually they had rightly decided to close down or limit attendance to all educational institutions to prevent the spread of COVID-19. Due to these closures, millions of children and adults in many countries have suffered not only the loss of education but also the mental health. Educational institutions, mostly in the developed countries, with the help of online tools have managed to impart education in this situation but mostly in the higher education sector. Some developing countries like Saudi Arabia have also done a remarkable job to provide education through learning management systems or open access internet tools like Teams, Skype etc. But in many other developing countries there has been a virtual wash out of educational activities at all level since March 2020. The pandemic has forced many countries to invest more in the online teaching delivery. However the online teaching would not be very helpful at the school level. Many other activities like conferences, symposia have adopted online mode. Due to uncertainties surrounding the pandemic and the disrupted educational sector, the admissions to the academic year in the northern hemisphere face a difficult task to manage. Authors in [26] and [27] have assessed the impact, which COVID-19 has caused so during the first 3 months of its spread.

4.4 Social and religious setbacks due to COVID-19

Sadly, social and religious setbacks arising from COVID-19 have been heart-breaking. Most death have occurred to the elderly, disabled and indigenous people. The highly

contagious virus has not only killed tens of thousands people but have also prevented their loved ones to be with them in their last moments. An account of social carnage is presented by the UN [28]. The daily loss of lives in some cities have caused severe difficulties in in their last rites. Mass graves, like one in New York (Fig. 2), are very sad realities of our lives.

The pandemic has caused severe setback to religious practices, which has no parallels in the history. Many religious institutions, including mosques were closed in March 2020 in efforts to limit the spread of virus. This closure also included the grand mosque in Makkah which houses Kaaba (Fig. 3), the most sacred site for Muslims. Kaaba is center of Hajj and Umrah pilgrimages [29, 30], which attracts millions of pilgrims. Its closure, especially during the upcoming fasting month of Ramadan, is very unfortunate. The grand mosque closure causes losses of billions of dollars to the government of Saudi Arabia. If the pandemic caused the cancellation of the annual pilgrimages of Hajj in late July 2020, the Saudi economy would incur the loss of several billion dollars. There have also been setbacks to other religious communities of the world. The Pope John Paul had to address an empty hall at Vatican on the occasion of Easter. Also the devotees were denied the entry to Bethlehem, the birth place of Jesus the son of Marry. The pandemic also severely impacted the religious observation of Passover.

4.5 Political wrangling associated with COVID-19

While more than half of the world population locked down to contain the spread of COVID-19, accusations and counter accusations have surfaced in different parts of the world. Some of these accusations are aimed against certain ethnicities and religious minorities, which are divisive in a time when unified approach is required. Many of the accusations are centered on the action plans of different countries and the origins of the virus itself. It is a general belief that many governments did not take the threat of COVID-19 serious enough. Reported by The Guardian, Leader of the Democratic Party in the US, where more than



Fig. 2 An unimaginable mass grave in New York

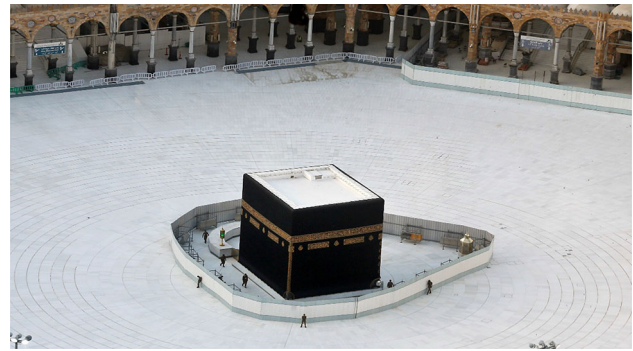


Fig. 3 A rare spectacle of Kaaba in Makkah

50,000 people have died in the first 4 months, Nancy Pelosi on 29th March accused the President of the USA, Mr. Donald Trump, of denials and delays in action plane to limit the spread of COVID-19 to save costing human lives. On the other hand, Mr. Trump claims to have saved hundreds of thousands of American lives. As reported by the international media, he also called SARS-CoV-2 to be a Chinese virus. Many accusations have also surfaced in Australia, England and other developed countries. In some countries, hateful behavior and even physical assaults have also been witnessed against certain communities. Many doctors and nurses have been attacked by the patients or public mobs.

4.6 Other sectors impacted by COVID-19

There are many economic and social sectors which are indirectly affected by the COVID-19. Full extent of the damage to these sectors will be known after sometime. Some of the business sectors, which have severely been impacted by the pandemic, include general transport, investment banking, traditional retail, professional sports and entertainment, cinemas, general (home and car) insurance, manufacturing, some form of healthcare.

5 The winners

Although the losses from COVID-19 are staggering, there are some winners as well. Environment is the greatest winner from the COVID-19. Pollution levels globally are so low that none of us expected them to go down so much, especially in China, India and other developing countries. Businesswise, super markets and grocery stores have witnessed increase in sales without relying on any discounts and promotions. Initially, the supermarkets in Australia and elsewhere were unable to meet the demand of essential food and other items. The online businesses in general and digital content providers in particular have also witnessed

bumper sales. Indeed price of many items have doubled and tripled. There have been complains of some stores charging excessive prices for the sought after items like face masks and hand sanitizers. The Pharmaceutical companies have also benefited from the pandemic. Demand for certain drugs (antibiotics, chloroquine, and sedatives) have created shortage. Face masks, gloves, sanitization gels and creams have also disappeared from the shelves of the pharmaceuticals. Other sectors which have benefited from the pandemics are logistics/delivery, entertainment streaming and gaming, and video conferencing.

6 Conclusion

COVID-19 is causing human, economic, social, and cultural setbacks of our lives. We already witnessed colossal economic losses in the first 4 months of the emergence of coronavirus in China. During the first 4 months of the battle with COVID-19, 200 people, including many health workers, have lost their lives. We know that many countries lack resources for testing and treating the epidemic, therefore the real loss of lives caused by it will never be known. Indeed the pandemic is causing severe depression across the board. With no cure or vaccine in sight, we cannot the end of this crises caused by this pandemic. Evidence based warning of the medical experts on the reoccurrence of COVID-19 attacks on already treated people, are heartbreaking. One wonders if the worst is yet to come. When we come out this crisis, only then we shall be able to assess the actual damage it caused. Many of us would be left without our loved ones. A sizable section of the society would have lost their jobs. All these add to the ingredients of a depression of a magnitude unimaginable to many of us. Unfortunately, some politicians are perusing their political agenda in disregard to the suffering of the society reeling under COVID-19. Although the end of this pandemic is currently unknown, historically mankind has managed to recover from similar events in the past. This suggests that we will eventually be able to recover from this crisis.

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