

Impact of COVID 19 and Its Relevance With Respect to Environmental Functioning

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ABSTRACT

The world has faced a huge pandemic in the form of Coronavirus 2019 (COVID 19) started the infection from Wuhan city of China to all over the world. COVID 19 is an infectious disease induced by the presence of coronavirus-2 causing severe acute respiratory syndrome (SARS-CoV-2). This infectious disease has changed the entire life of human beings and has started to shut down all the cities in the world. The COVID 19 has shown both positive and negative shades which has impacted on human life. Many publications have been discussed on COVID 19 disease, human health and specifically on human diseases. Only limited studies have been discussed on environmental assessment with reference to different countries. In this review, the main objective is to discuss about the global impact of environment effect with the relation towards COVID 19. The objective of this review is to define the impact of COVID 19 in terms of the role of environmental effects. In spite of the financial impact of the COVID 19 epidemic on the global economy, there was a positive influence for the environment. Though as a result of global warming, the greenhouse gases CO₂, and NO₂ are increasing in concentration. Ozone layer depletion and changes in the climate have been reported despite low levels of air pollution, water pollution, noise pollution, etc. The findings of the present review provide significant information that COVID 19 had a favorable influence on the environment by enhancing air and water quality.

KEY WORDS: COVID 19, SARS-COV2, ENVIRONMENT, AIR QUALITY, WATER QUALITY.

INTRODUCTION

A novel coronavirus has been identified as the cause of severe acute respiratory syndrome. In December 2019, the coronavirus-2 (SARS-CoV-2) produced a series of acute atypical respiratory infections in Wuhan, Hubei Province, China. The virus-caused disease was termed coronavirus disease 19 (COVID-19). The virus is transmissible to humans and has caused a worldwide pandemic (Yuki et al., 2020). Pandemics, in general, are not only a serious public health issue; they often cause devastating socioeconomic and political crises in the countries that are infected. COVID-19, in addition to becoming the greatest threat to global public health of the century, is viewed as an indicator of inequity and a lack of social advancement (Chakraborty and Maity, 2020). COVID-19 is a type of pneumonia that first occurred on December 31, 2019, in Wuhan, China, and then spread

throughout the world. The spread of the virus, strict isolation measures, and delays in the start of schools, colleges, and institutions across the country are all expected to have an impact on students' mental health. The epidemic has had a psychological impact on the general public, patients, medical personnel, children, and the elderly (Pragholapati, 2020).

Globally, the number of people infected with SARS-CoV2 has increased dramatically (the etiological agent of COVID-19). COVID-19 patients can develop Acute Respiratory Distress Syndrome (ARDS), pneumonia, and organ failure. There is mounting evidence that the immunological patterns of individuals infected with viruses are closely connected with the progression of their disease. A reduction in peripheral T-cell subsets is a distinct feature of SARS patients (Yang et al., 2020).

COVID-19 is not likely to be any different from other pandemics, which have had devastating economic consequences. Worldwide, countries have implemented many public health measures to prevent COVID-19 from

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spreading further, including social distancing. Since the Spanish flu epidemic of 1918 and a flu outbreak in Mexico City in 2009. Mandavilli, (2020) claims that this method saved thousands of lives. Lockdown measures were enforced in many nations as part of the social distancing measures, which included the closure of businesses and schools as well as the prohibition of mass gatherings. Only essential travel was permitted in several countries. For this reason, these initiatives aim to limit the number of new COVID-19 cases each day in order to slow their exponential increase and alleviate the strain on health care providers (Brodeur et al., 2021).

Among the public care techniques are hand washing, face masks, physical distance, and avoiding large crowds and assemblies. Lockdowns and enforced quarantines have been implemented to slow the spread of the disease and prevent it from spreading further (Pokhrel and Chhetri, 2021). The incubation period is the time interval from the moment a virus is ingested and the onset of symptoms. It can take anything from 1-14 days for COVID-19, but it's most normal for it to take about five days. Fever, dry cough, and lethargy are all common clinical signs of COVID-19 infection. Headaches, dizziness, stomach pain, nausea, and vomiting are among the less common side effects.

The five early signs of the disease include loss of smell and taste; nausea and diarrhea; and anorexia and diarrhea, which can occur many days before the fever sets in. However, even while a fever is a crucial indicator, it may not be present in all cases. The spread of the virus has been encouraged not just by the predominance of asymptomatic infections, but also by a global lack of universal testing and personal protective equipment (PPE) for healthcare workers. The enormous surge of COVID-19-infected patients at many institutions warrants an in-depth examination of the clinical, radiographic, and laboratory findings associated with higher disease severity and mortality (Gallo Marin et al., 2021).

Numerous corona viruses are known to cause respiratory infections in humans, ranging from the common cold to more severe diseases such as the Middle East Respiratory Syndrome (MERS) and SARS. To give the virus a crown-like look, the SARS-CoV-2 particle has mushroom-shaped protein spikes projecting from its surface. The virus is able to enter the body because of the spikes' ability to connect to human cells. There is 98% sequence identity between the spike protein of the novel corona virus and the spike protein of bat coronavirus. A CoV-2 SARS-spike protein interacts to angiotensin converting enzyme 2 (ACE2), a cellular receptor that serves as an entry point into human cells. It has a binding affinity 10 to 20 times greater than SARS. Human-to-human transmission is facilitated by a higher binding affinity (Verma and Prakash, 2020).

Prevalence of COVID-19: As of April 6, 2022, the total number of infected COVID 19 cases worldwide had surpassed 494 million, with 6.1 million (1.25%) global deaths recorded. With 429 Million, the recovery rate was recorded to be 86.7%. The United States is the most contaminated country, with 81.9 million people infected, followed by India with 43.3 million, Brazil with 30

million, France and Germany with 26.2 and 21.9 million, respectively. Saudi Arabia is ranked 73rd, with 0.75 million cases, 1.08 mortality, and a 98% of successful recovery rate.

Environmental issues with COVID-19: Humans have been gradually altering nature from the dawn of civilization for their own gain. Increasing population necessitated industrialization and urbanization, which had a negative impact on the world climate. For their own selfish reasons, human-humans began to harm the natural world in countless ways through human-induced activities without regard for long-term sustainability. As a result, environmental contamination has grown to be a major problem in our time. Infectious diseases that are transmitted by vectors, such as bacterial and viral diseases, will be affected by environmental pollution. For a period spanning from a few weeks to a few months, practically every city and town in the afflicted countries is on partial or entire lockdown owing to the extraordinary outbreak of COVID-19. To prevent the spread of the disease within the community, all local and central government agencies were told to shut down educational institutions and prohibited their inhabitants from traveling outside of their homes or conducting non-essential activities (Verma, 2019).

Many religious, cultural, social, scientific, sporting, and political mass gatherings, such as Hajj and the Olympics, have been canceled. Various enterprises are shut down, and all sorts of travel are canceled. Temporarily, measures to inhibit transmission of the SARS-CoV-2, by reducing the movement have had an amazing environmental effect. Due to the failure of businesses, industrial waste creation has decreased significantly. Vehicles are rarely seen on the roads, resulting in nearly no emissions of greenhouse gases and dangerous tiny suspended particles into the environment. Because of the decreased demand for power in industry, consumption of fossil fuels or conventional energy sources has decreased considerably. Ecosystems are regenerating rapidly.

Many people in major cities are experiencing clear skies for the first time in their lives. The degree of pollution in tourism places such as woodlands, sea beaches, and hill areas is also decreasing significantly. Reviving the ozone layer has been discovered to some degree. Furthermore, environmental issues include air pollution, water pollution, climate change, ozone layer depletion, global warming, ground water depletion, biodiversity and ecosystem change, arsenic contamination, and many others. Global warming is caused by rising levels of greenhouse gases such as CO₂, CH₄, N₂O, and others. Humans began damaging nature in many ways as a result of their desire to drive nature according to their own whims and desires. As a result, pollution in the environment has become a major issue in the modern era (Chakraborty and Maity, 2020).

Poor air quality is a leading cause of respiratory disease and a significant number of deaths around the world. Every year, 4.6 million people die from diseases associated to poor air quality. Emphysema, bronchitis, allergic rhinitis, and other respiratory and cardiovascular disorders all

contribute to the death toll from air pollution. The number of deaths caused by poor air quality outnumbers those caused by car accidents every year. Large amounts of NO₂ and CO₂ are emitted into the atmosphere by numerous manufacturing businesses and automobiles in particular. Pandemic COVID-19 has dramatically improved air quality, particularly in countries and communities that rigidly adhere to lockdown and quarantine restrictions. Near Wuhan, China, large reductions in NO₂ levels were first seen, and their beneficial effects were then studied in other parts of the world, where air quality improved significantly. According to NASA, NO₂ and CO₂ emissions have been lowered by 30% and 25%, respectively, in 2020 (NASA, 2020).

The lockdown has resulted in a number of positive outcomes, including less pollution and lower carbon emissions. An unavoidable positive environmental impact can be seen as industries, institutions, and economic activity come to a halt. The shutdown has improved the air and water quality in the city. In India's biggest cities, air pollution levels dropped significantly. According to the Environment Ministry's Central Pollution Control Board, NO₂ levels had dropped by 71%. Lockdown has had a tremendous impact on water sources like the Yamuna and Ganga rivers, as well. Ganga's water quality has improved and now stands at 27 points, making it safe for swimming and promoting wildlife and fisheries, says the Central Pollution Control Board. It is safe to say that COVID-19 has had a positive impact on the environment. However, the pandemic has resulted in an increase of bio-medical and hazardous waste on the other side of things. Furthermore, as plastics have become more widely used, so has the amount of waste that can be recycled, a trend that may cause problems in the future.

Aside from that, the government has shifted its attention away from economics and the environment and toward people. As a result, money have been allocated to areas such as healthcare and the distribution of basic necessities to the public. If government attention shifts to lowering unemployment and promoting economic activity when the pandemic is ended, the focus on the go green idea, climate change, and environmental development may be overlooked in the near future. Therefore, all countries of the governments or countries documented with high pollutions must devise an adequate plan to ensure that the interests of the people, the economy, and the environment are all properly aligned (Debata et al., 2020).

The COVID-19 epidemic demonstrates that environmental change can be achieved despite the negative impacts of social distancing. The drop in industrial activity and refineries, as well as the reduction in automobile and transportation system use, are all contributing to a decrease in greenhouse gas emissions. A number of cities in Asia, Europe, and the United States have reported lower levels of air pollution, particularly with NO₂, particulate matter, and black carbon. As a result, there was a decrease in PM10 (-28 to -31.0%) and an increase in O₃ (50%) concentrations. There has been a dramatic reduction in air pollution in major cities throughout the world reported by NASA satellites and the Copernicus Atmosphere Monitoring Service of the European Space Agency. A two-month improvement

in air quality in China alone is expected to save the lives of tens of thousands of children and the elderly. Pollution reductions in the world's most populous cities could have a big impact on health.

The positive environmental effects of COVID 19 were magical and illusory, but there was a counterweight. For large cities, the Covid-19 epidemic will have a long-term detrimental impact on the economy, restricting pollution and the release of greenhouse gasses and particles linked to respiratory sickness (SanJuan-Reyes et al., 2021).

There is a strong association between the number of cases of COVID-19 in Turkey and daily temperature. In other words, the larger the proportion of COVID-19 cases on a given day, the lower the temperature. Temperature average (°C) in DKI Jakarta was also strongly associated with COVID-19. Salé City in Morocco, COVID-19 has resulted in lower levels of PM10, SO₂, and NO₂. The economic consequences of the lockdown policy will be significant. The economic impact of the COVID-19 epidemic must be assessed by policymakers in order to make informed decisions. Because of overpopulation, public health issues, and interactions with wild animals in poor countries, diseases like COVID-19 can kill people of any socioeconomic status in any civilization (Caraka et al., 2020). The fact that SARS-CoV-2 appears to exhibit tropism for a variety of organs, including the respiratory system, brain, endothelium, heart, kidney, and liver, highlights the difficulty in forecasting the severity of COVID-19 disease. COVID-19 complication risk factors must be identified in order to improve patient outcomes and allocate precious resources. (Gallo Marin et al., 2021).

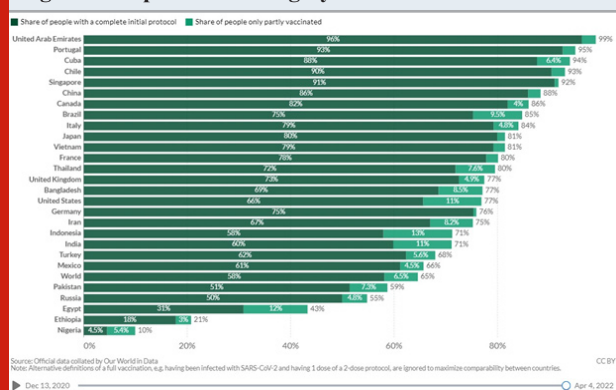
Stay-at-home and preventive measures have had an unsettling influence on waste management, despite the fact that the COVID-19 epidemic has been claimed to reduce air pollution and environmental-related noise and increase biodiversity and tourist sites. Gloves, gowns, masks and other PPE have piled up due to the unusually high amount of garbage being generated by both households and health care facilities. Secondary transmission of COVID-19 might occur if health facilities and households do not properly dispose of their trash. Air quality and health effects could be negatively impacted by the possible rampant dumping, open burning, or incineration (Sarkodie and Owusu, 2021).

Vaccination: Vaccination is a key component in the combat against the COVID-19 pandemic. Vaccine candidates with promising findings were quickly authorized by drug authorities to be used in an emergency. Vaccine reluctance has been a hindrance despite the rapid and coordinated vaccination initiatives launched by governments around the world. The World Health Organization (WHO) has ranked vaccine hesitancy as one of the top 10 concerns to world health for 2019. "Delay or refusal to accept or refuse vaccination despite the availability of vaccination services," as defined by the strategic advisory group on immunization, is the result of an intricate interplay between factors such as time of day and location as well as vaccine specificity. To put it another way, vaccines were broadly accepted in non-high-income countries (defined by the World Bank as countries with a 2019 Gross National Income per capita of

US\$12,536 or more) according to the 2018 Welcome Global Monitor poll. When it comes to the COVID-19 vaccination, individuals in low- and middle-income nations and regions like Nepal (97%) are more likely to accept it than those in high-income countries and regions like the United States (6%) (Aw et al., 2021).

Globally, 11.33 billion people were vaccinated, with Asia accounting for 7.77 billion. A total of 4.99 billion people was vaccinated from upper middle-income countries, and 3.82 billion from lower middle-income countries. The United Arab Emirates leads the way with 99% of vaccinations completed successfully, followed by Portugal (95%), Cuba (94%), Chile (93%), and Singapore (92%) (Figure-1). According to the Saudi Health Commission, as of April 4, 2022, 74 percent of vaccines had been completed in Saudi Arabia.

Figure 1: Top 5 listed as highly vaccinated countries



CONCLUSION

Based on this review, the conclusion drafted is that there is a huge loss reported with COVID 19 in the form of financial crisis, increase in garbage disposal, biomedical and hazardous waste, but there is a gain in the point of environmental quality such as improved air quality, water quality, lowered noise and water pollution, climate amendments, and ozone layer depletion. Majorly and most importantly, the identification and confirmation of variables that predict COVID-19 disease development is critical to improving health outcomes. Age, comorbidities, immunological response, imaging findings, laboratory markers, and signs of organ failure all have the potential to predict worse outcomes when taken separately or in combination. The fact that SARS-CoV-2 appears to exhibit tropism for a variety of organs, including the respiratory system, brain, endothelium, heart, kidney, and liver, highlights the difficulty in forecasting the severity of COVID-19 disease. COVID-19 complication risk factors must be identified in order to improve patient outcomes and allocate precious resources.

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