

Environmental Impact of COVID-19: Positive and Negative Aspects

Paper Submission: 15/11/2020, Date of Acceptance: 26/11/2020, Date of Publication: 27/11/2020



Shiv Prasad

Research Scholar,
Dept. of Sociology,
S.P.C. Govt. College, Ajmer
Rajasthan, India



Shilaja Nagendra

Designation,
Dept. of Sociology,
S.P.C. Govt. College, Ajmer
Rajasthan, India

Abstract

The earth is facing pandemic of this century, COVID-19. So far, there is no vaccine to cure this ailment. This harmful disease is dispersion day by day or it is believed that the only way to stop the spread is to lock you inside. Although we have achieved success in this work, we are facing serious problems due to lock-in and other reasons. The world economy is in recession and unemployment is rising rapidly. These issues reflect the negative aspects of lock-in, This investigate aims to show positive or negative indirect effects of COVID-19 on the environment, mainly in the most exaggerated kingdom In this article, we will explain these two aspects in detail and they play an important role in the current situation.

Keywords: COVID-19, Economy, Unemployment, Environmental Pollution, Health Impact, Development, Sustainable, Employment.

Introduction

Coronavirus or COVID-19 is an infection caused by an unknown virus. It seems to have originated in China and has spread to roughly every country in world. This epidemic is one of the most common sickness in recent years. However, the flu epidemic occurred in 1918 and the exact cause of death is still unknown. Some estimate that the death toll is between 5 and 100 million. At the time of writing, COVID-19 has reached 5,306,928 people worldwide (this number has increased to 15947,291 when the article was completed and published).

This article aims to analyze positive or negative effects of COVID-19 from a social perspective. Throughout the world of humanity, there are a large number of people facing pandemic diseases and millions of people are dying from every pandemic disease. The history of the pandemic began when there was no industrial revolution like the developed countries today. Compared to the difficulties faced by COVID, every pandemic in the past has suffered the greatest losses in the form of deaths, and other problems such as economic crisis, poverty and other health problems are very small. Now in advance world COVID-19 itself is a major problem but other problem born from this pandemic is more dangerous for us. In past, world face pandemic diseases, Antonin Plague in 165 AD 5 million people were died it was very huge number according to that era, from Plague of Justinian 25 million people were died during period 541 to 542, from The Black Death during 1346 to 1353 in Asia, Europe, and Africa 75 to 200 million people were died, from Flu Pandemic in 1918 20 to 50 million people were died, from Asian Flu 2 million people were died in 1956 to 1958, HIV/AIDS reached at peak from 2005 to 2012 36 million people were died and now world faced pandemic of the century COVID-19(Hays 2005, Ligon 2005, Barry 2010).

In the start of December 2019, world face COVID-19 (coronavirus diseases of 2019) in Wuhan, a city of China. Initially, it was declared as an epidemic diseases only in China but in the end of March 2020 WHO declared pandemic diseases.(Wu and McGoogan 2020) Initially main center of COVID-19 is Wuhan city of China then spread all over the world, now China almost won the fight against COVID-19. New center of COVID-19 is America and Europe. In the end of April 2020, more than 200 countries are affected from this virus, more than 3 million people were reported from COVID-19 and more than 200000 were died from COVID-19. USA, Spain, Italy, France, Germany, Iran, Turkey, China and UK are most precious countries from this, only in USA more than 1 million people were affected from this and more than 55k death from this.(Barrios and

Hochberg 2020, Sohrabi, Alsafi et al. 2020) Here, COVID-19 itself is a big problem for this planet still no proper treatment and vaccine was prepared but other problems created from this is another pressure for the world. Almost all over the world is lockdown from this, factories are closed, no sport activity is running, all functions in the world postponed, no religion activity in the form of group is done, peoples are closed in their hoses, world economies are failed to fight against this. In present condition, even developed countries where all the medical facilities are available fail against this virus but all of this is negative aspect of this virus there is also some positive aspect of this virus we cannot underestimate. Before COVID-19, this modern world have environmental pollution problems day by day our new invention, modern industry, excess use of chemical, traffic problem cause water pollution, noise pollution, depletion of ozone layer and other such kinds of problem. In this article, first we discuss some negative aspect of COVID-19 at this time our planet is in trouble.

All the developed and under developing nation fail to fight against this virus, some review about how world economy affect , unemployment rise and also psychological effect from this virus on people but at this condition we cannot neglect the positive aspect of COVID-19, how it is effective for us. Before COVID-19, our planet faces the problem like environmental pollution crises but COVID-19 lockdown solve this problem. Here, we also discuss effect of COVID-19 lockdown on air pollution, water pollution and on other environmental pollution factors.

Related Work

The new coronavirus (SARS-CoV2) has had an unprecedented impact in most countries / regions around the world. In almost every country on the planet (213 in total) the virus has spread to more than 2 million people, and 13,000 have died (WHO, 2020a). Currently, most countries are trying to fight the spread of the virus by conducting several COVID-19 testing tests and setting public policy on isolation. Of course, his focus is on people's health. Therefore, environmental effects are rarely analyzed. Preliminary research is estimated to have an indirect impact on the environment. On the one hand, meteorologists predict that greenhouse gas emissions (GHG) could fall to unprecedented levels since World War II (Global Carbon Plan, 2020). This election result depends largely on the social isolation policies adopted by the governments from different countries after the plague. For example, in the province of Hubei (China), strict measures were put in place at the end of 2019. These measures had a significant impact on the country's economic activity. the page of "Total Environmental Science" newspaper "Total EnvironmentalScience":

www.elsevier.com/locate/scitotenv.

As a result, power and infrastructure production stopped. In addition, car use is greatly reduced. All of this results in a significant reduction in the amount of nitrogen dioxide (NO₂) and volumes with a diameter lower than 2.5µm (PM 2.5). In other parts of the world, such as Europe, air pollution has

dropped dramatically since the government ordered citizens to stay indoors to control the spread of coronavirus new.

Large industries and other common activities remained. For example, reduced car use, resulting in a decrease in gas emissions. Moreover the social exclusion measures taken by most governments have resulted in many beaches around the world being cleared. This is due to the reduction of waste generated by tourists visiting the coast. Similarly, in most countries, noise is greatly reduced.

The use of public and private transportation and the reduction of commercial activity have led to a reduction in noise. While this has an indirect effect on the environment, the new coronavirus also has an indirect negative impact. For example, in the United States, some cities have suspended recycling programs because they are concerned about the risk of the virus spreading to processing centers. On the other hand, in European countries specifically affected, permanent waste management is restricted. For example, Italy has banned the distribution of waste from infected populations. On the other hand, some industries took the opportunity to lift the ban on waste bags. Companies that have encouraged customers to bring their own goods are turning to disposable packages. For example, a popular coffee company has announced a temporary ban on usable cups. And finally, online food orders have grown. These increases have led to an increase in biological and household waste. This study aims to show the indirect and adverse effects of SARS-CoV2 coronavirus on the environment. After analyzing each indirect influence, conclusions are reached.

Negative Aspect of Covid-19 Lockdown

Their negative impact on families, communities, nations, regions or world motivates them to social or political spheres. A number of factors that can have adverse effects can be recognized in diseases or COVID-19, catastrophic conditions, death, social isolation, inability to move and the entire functioning system of a single community as well as a closed network global complex of production, sales, supply chain, transportation Social networks or political networks.

Therefore, support on condition as of early April 2020, this article examines the effects of COVID-19 on the local, regional and global worlds. Here are their thoughts:

1. The plague has spread around the world. Tragedies cause fear, stress, stigma, declining social networks, etc.
2. Health and wellness coordination, especially biomedical organization, have tried their best, but due to various circumstances in the natural world, the medical system itself has been affected. . So, despite the great efforts of the biomedical system, many deaths have been reported.
3. Higher mortality due to various diseases or complications, especially in the elderly with COVID-19.
4. Impossible activities and challenges to support workers, employees, social workers and health managers at the local, local and / or global levels.

The World Health Organization (WHO) is the main body, followed by other UN agencies responsible for regional and / or global epidemic situations.

5. Some countries, such as Italy, Spain, the United States, or China, as well as other European countries, are experiencing higher levels of growth in all social systems. Therefore, the social system needs full organization or integration to survive.
6. Prohibit family associations and establish close relationships with relatives, neighbors or different communities. These situations can lead to interpersonal conflicts or domestic violence
7. The loss of knowledge, knowledge or services provided by elderly means that future generations will not be able to share their energy.

If we look at the negative effects of COVID-19, frustration is a useful thing for the world. The global economy does not overcome this problem. The unemployment rate is rising every day. More than half of the world is closed and more than 200 countries are affected. According to data from the International Labor Organization, 81% of the world's armed forces are in positions of responsibility. A very shocking case for the world.

Unemployment

Unemployment reached at its peak level, according to International Labor involvement report in the start of April 2020 from COVID-19 probable to wipe out 6.7% of global personnel, comparable to 195 million full-time employees in second quarter of 2020 this is huge number as compared to 2008-2009 financial crises(Lins, Volpin et al. 2013). More than 3.3 billion people precious from limited or full lock down directly. Only in America in last four weeks 26 million people claims for unemployed that is 15% of total workforce in country, economist believe after world war II US economy contracted by highest rate.(Barrios and Hochberg 2020) In India, according to Center for Monitoring Indian Economy in urban areas redundancy reached 8.21% to 30.9% from center of March to the end of month increased almost 23%. Europe not only face health crises this time also face economic or social crises since 1930 the Great-Depression (Temin 2016). Here we have incomplete statistics. According to different European countries / territories, there are more than 11 million unemployed people in Europe, and 470,000 companies with more than 2 million workers in Germany have applied for assistance. for the state. This is the fall of 2008. More than 50% of the latter, 4 million workers in France received state aid, 1.84 million workers in Germany received state aid, and 90,000 workers did not. work. In the UK, 1 million people applied for benefits, and 800,000 people were unemployed in Finland and Norway. The unemployment rate in Austria was 52.5%, the highest rate since World War II.

Economic Crises

World face worst economic crises since last three month. In Asia, 2020 GDP growth according to IMF is expected at 0%, this is worst expected growth performance in the past sixty years, including during 4.7% the Global-Financial Crises and 1.3% the Asian-

Financial Crises shown in Fig 1, In China, GDP growth in 2019 is 6.1% but in 2020 it is at 1.2%. China has key role in world economy, due to this pandemic virus world is effected very badly. In order to control the outbreak of virus China lockdown the country, they control the virus but it poorly affected the world economy because China is manufacturer of intermediate goods such as pharmaceuticals, electronics, transport equipment and computer etc. According to IMF global economy is predictable to contract 3% in 2020. Global growth in April 2020 fall to -3% almost it is reduce 6.3% point as compared to January 2020, this fall is more worse than the Global-Financial crises in 2009. First time in history, developed, emerging or increasing fatherlands are in depression since The Great-Depression. Growth in developed economies is expected to be -6.1%. For emerging and developing countries with normal growth rates above advanced economies, negative growth rates of -1.0% in 2020 and if China excluded than -2.2% . Per capita income is expected to be lower in more than 170 countries.

Manufacturing Demand

Lock down exaggerated world economy, manufacturing or their labor cause redundancy also effect command of developed output in diverse countries, due to lock down command of dissimilar item is decreased, one of biggest example is utilization of oil in all over the world decreased or price of oil reduce, not only oil manufacturing all other developed industry pretentious from this virus. External demand directly affect domestic demand in any country, except China all countries domestic manufacturing demand decreased from last month because they almost gain control against this virus. PMIs purchasing manager survey graph indicate the decline in domestic manufacturing demand of different countries.

Positive Aspects of Covid-19 Lockdown

Therefore, it is imperative to appreciate positive effects. Give the following: 1. People are accustomed to tragic situations or they also understand the appropriate social behavior in similar situations. This may include pest control classification or policies. 2. They understand social dedication and the rules, regulations, and practices. Personal, painful but beneficial in the family and community.

In addition, they were adapted to this condition while still adapting to the differences between normal conditions and infectious diseases. 3. Because of social inclusion, families and communities need higher solidarity or social conscience to face challenges. As a result, everyone is used to living a normal life, sharing or caring for others, in particular elderly. 4. The death of an elderly person or a patient with a chronic illness leads to the reorganization or reunification of the family sector. While it is not easy to bring up psychosocial factors, they will eventually come to a common conclusion. 5. Similarly, on a global scale, governments and regional organizations may work together to respond to epidemics. For example, the SARRC countries have joined forces with COVID-19 and have set up financial allotment to support poor countries. The current SAARC video

discussion on COVID 19 led to the creation of a Indian nation has raised US \$ 10 million, followed by Sri Lanka with US \$ 5 million. The funds can be used to improve local and regional products, and target regular chains in agriculture, industry and services. 6. The medical system in all countries will be improved on a long-term basis in the face of epidemics. They will understand the gaps in these systems. Specifically, many countries in South and East Asia will focus on the indigenous medical system as a "report on economic development" 13 and how it should be integrated into poor biomedical systems. Because the indigenous medical system has the potential to treat COVID-19 patients, their state may challenge indigenous physicians.

If we look positive aspect of COVID-19, in this condition of world very difficult to define but we cannot neglect this aspect of virus. Our planet, before this virus fights against the environmental crises it looks very difficult to control this before COVID-19. One side, virus destroy the economy of world, people have nothing to do, more than half of world population close their houses, super power of world fail to control this virus in such condition one positive aspect of the virus also have.

Before this virus 23% of death every year in world due to environmental pollution according to WHO. Due to the lockdown in the world maximum world industry is closed, maximum flights are not operating, transfer is close, people are closed in their hose all of this is helpful for our environment. No doubt, we all are in problem in one side but in another side all of this is helpful for our environment, our ozone layer once again staring repair, our pollution state started decline, our environment started gain their natural shape all of this is very helpful for us and our environment.

Air Pollution

According to 2016 WHO report 91% of world population lives there where air quality is not good, it means in every 9 out of 10 people have not fresh air available. There are two types of air pollution in-door and out-door air pollution, 3.8 and 4.2 million people death every year due to indoor or outdoor air pollution respectively. Main cause of indoor air effluence cooking, smoking, building materials in vapor form, heating appliances furniture, paints etc. All of this in-door air pollutant produces pollution in the form of CO, mold, lead and asbestos etc. Indoor activities are not effected from this virus but outdoor activities are affected from this virus so in outdoor pollution large decline is observe since December 2019. Major form of outdoor air pollution includes NOX, COX, Particulate matter (PM2.5 and PM10), Ozone (O3), Volatile organic compounds (VOCs) and Sulfur dioxide (SO2). Main sources of these pollutants are industrial emission and automobile exhaust (Kumar, Nagar et al. 2007, Chen, and Brager et al. 2019). CO is order-less, colorless produce by incomplete combustion main sources are burning of fossil-fuel and heavy machinery(Lawin, Fanou et al. 2017), SO2 produce from fuel combustion (oil & coal) main sources are motor vehicles, domestic heating, power generation etc. Toxic for health directly affect the respiratory

regional partnership to fight the epidemic. The major system, lungs, mucus secretion and chronic bronchitis. When SO2 react with H2O cause of acid rain. NO2 order-less and highly reactive, react with air form ozone (O3) and particulate matter (PM) also have main contribution in acid rain, dangerous for plants and animals due to high acidity produce from carbon based fuel(Workneh and Gholap 2018, Ielpo, Mangia et al. 2019)

Particulate matters also dangerous for human health cause cancer because penetrate in lungs tissue. By size these are divided into two categories PM10 and PM2.5, example of PM10 include pollen, mold and dust their size equal or less than 10 μm while PM2.5 are very small equal or less than 2.5 μm . Volatile organic compounds mostly escapes in air in gaseous state cause outdoor and indoor toxin[1].

Another main toxic pollutant which have important role in our pollutant environment Ozone (O3) also called ground level ozone, this is formed in the presence of sunlight react with manmade volatile organic compounds or NOx emitted by vehicle or industry emission, cause serious damage for human health breathing problem, reduce lung-function, trigger asthma and lung diseases (Wallwork, Colicino et al. 2017).All of the above discus pollutant have important role in air pollution and cause serious damage our environment and human. Before COVID-19, these pollutants are serious problem for the world but this virus solves this problem. Due to lock down in world industry is closed and no traffic, traffic and industry are important factor of these air pollution pollutant. From last few months, concentration of this pollutant fell drastically due to lockdown clearly observed from NASA's Global-Modeling and Data-Assimilation team calculation. Data of different populated countries cities show how much concentration of this pollutant decrease from last six year average concentration.

Ozone Layer:For the survival of human on this planet ozone layer have important role, present above the earth surface, protect 98% of harmful emission from sun to earth, 90% of ozone cover at hand in stratosphere in range of 10 to 18 km, while rest of 10% present in troposphere. Depletion of ozone layer allow destructive UV light pass during them that source skin cancer, eye effect, or human protection system effect[1] Chlorofluorocarbon, global warming and nitrogenous compound are main cause of reduction of ozone layer.(Chiodo, Polvani et al. 2018) Main source of global warming is overload amount of CO2 in impression, when we burn oil, natural gas and coal for our different purposes such as electricity production, commerce or automobile running cause global warming.[1]Lockdown, reduce global warming and nitrogenous composite absorption in impression or ultimately helpful for ozone layer. According to NASA report, in these ozone-hole recovering very fast.

Water Pollution :Water is very essential element of life for every living things, two third of our earth surface is covered with water but only 3% water is fresh drinkable, in that 3% only 1% is surface water

rest of water is frozen or underground. Here, COVID-19 also helpful for water resources, they are 2 types of water-pollution direct and in-direct. Direct effluence sources includes plant, waste-treatment plants and refines etc(Chen, Wang et al. 2019). due to lockdown in the world mostly industry is closed or if opened then their manufacturing demand decreased we already discuss above, so lockdown directly save our surface water resources like rivers and lakes, no contamination add in these water resources. Indirect water pollution sources not directly affect water resources. Contaminants such as industrial waste improper disposal and fertilizer-pesticides via a rain water or soil enter the ground water resources or make water pollutant (Tiwari, Bulai et al. 2017). According to UN-Water development report in 2009, in developing countries 70% of industrial waste directly without treated add with drinking water sources cause water pollution due to COVID-19 mostly industry is closed so this is very effective for drinking water resources.(WWAP 2009) In short, lockdown indirectly also fruitful for water resources and reduce the water pollution.

Traffic Injuries

Road traffic injuries, which were one of top ten reason of fatalities worldwide, cause an predictable 1.25 million deaths annually. Preserve non-fatal injuries ranging from 20 to 50 million per year, with long-term health consequences (Hamid and Davoud 2019). In last three months, from January to the end of March traffic association was reduced due to COVID-19 lockdown. In top ten capital of world, usual traffic association reduce roughly 85% in the end of March as compared to mid of January. According to TomTom analysis, in Milan city of Italy, Paris, city of France, Rome, city of Italy, Madrid, city of Spain, Barcelona, city of Spain and Monaco, city of Monaco traffic movement reduce traffic 84.78%, 84.10%, 83.80%, 83.27%, 81.04% and 79.44% respectively. In Fig 8 clearly observed reduce in traffic movement. Here, in this condition when more than half of world inhabitants is lockdown, no traffic on the road. COVID-19 lockdown prove helpful against road traffic damage. In this year like other graph road traffic decrease graph probable to fell drastically.

Noise Pollution

Noise pollution is another environmental pollution problem solved by these crises. According to WHO, in Europe only one out of three people affected from noise pollution. In Europe 40% population live their where road traffic noise level greater than 55Db and 20% live their where level is greater than 65 dB in day time, 30% live their where levels exceeding 55Db at night. Due to noise pollution number disease spread such as blood level raised for long period of time cause hypertension, directly damage hearing sense. Especially, when from traffic or by any other source noise pollution level increase 120 dB for children and 140dB for young, cause sleep disturbance. When you live in that area where constant land or air traffic at night, directly affect the child development, only in America 12.5% children effected from noise pollution in 2001. Not only human but also animal and especially marine life damage

from noise pollution due to oil drills, recreational coastal water-craft, seismic survey-devices and shipping vessel etc(Kunc, McLaughlin et al. 2016, Buxton, McKenna et al. 2017). Road and air traffic also directly linked with noise pollution, already discuss above from lockdown clearly observed reduce in traffic in Fig 8. So, lockdown also prove helpful against this environmental pollution.

Discussion and Conclusion

After examining these positive or negative effects, it is clear that COVID19 has had a positive impact on countries, regions or world, especially South Asian countries. However, some countries such as Italy, Spain, the United States and China or some European countries feel completely defeated. At the time of writing, COVID-19 has reached 5,306,928 people worldwide (this number has increased to 15947,291 when the article was completed and published).

Speaking of relevance, regardless of COVID-19 transmission levels, these positive and negative effects are equally effective in these countries. In this article, comparative studies of some positive and negative feature of COVID-19 due to lockdown perform. Originally, some negative aspect of COVID-19 such as economic crises, demand of manufacturing items, unemployment and psychological effects were discussed then positive aspects of COVID-19 on ecological pollution crises such as air pollution, noise pollution, ozone layer, water pollution and effect on traffic injuries were discussed.

Form COVID-19, whole world is exaggerated virus itself very precarious but side effect of lockdown is more perilous. In America and Europe unemployment reached on its peak level these all are developed countries and under-developing countries are in more dangerous condition. Economic conditions are also not good, oil prices are fell drastically. Industry is closed, if industry is open then demand of their manufacturing item decreased due to lockdown. When people have nothing to do day by day unemployment reached on peak than automatically cause psychological problem. On the positive side of the picture, before COVID-19 one of the major problem of modern world is environmental crises, in past few month after this virus world environmental conditions change dramatically, concentration of different pollutant on environment decrease, solve the problem of air pollution. Before COVID-19 world think about water treatment plants but lockdown automatically solve this problem.

Lockdown also helpful against noise pollution and traffic injuries but all of this temporary. Finally, he concludes that locks have both positive and negative aspects. But this is not a permanent solution to the virus. The world cannot face more obstacles. The side effects of the block are even more dangerous. The positive aspects of the barrier soon fade. After the barriers, the world is once again facing the problem of environmental pollution. We need solutions that pollute the environment.

References

1. Barrios, J. M. and Y. V. Hochberg (2020). "Risk perception through the lens of politics in the time of the COVID-19 pandemic." University of Chicago, Becker Friedman Institute for Economics Working Paper(2020-32).
2. Barry, J. M. (2010). "The next pandemic." *World policy journal* 27(2): 10-12.
3. Brooks, S. K., et al. (2020). "The psychological impact of quarantine and how to reduce it: rapid review of the evidence." *The Lancet*. ** In this article, S. K. Brooks and their team explain COVID-19 directly cause psychological problem, number of diseases spread due to psychological problem.
4. Buxton, R. T., et al. (2017). "Noise pollution is pervasive in US protected areas." *Science* 356(6337): 531-533.
5. Chen, B., et al. (2019). "In search of key: protecting human health and the ecosystem from water pollution in China." *Journal of cleaner production* 228: 101-111.
6. Chen, J., et al. (2019). "Impact of outdoor air quality on the natural ventilation usage of commercial buildings in the US." *Applied Energy* 235: 673-684.
7. Chiodo, G., et al. (2018). "The response of the ozone layer to quadrupled CO2 concentrations." *Journal of Climate* 31(10): 3893-3907.
8. Chipperfield, M. P., et al. (2017). "Detecting recovery of the stratospheric ozone layer." *Nature* 549(7671): 211-218.
9. Ligon, B. L. (2005). Avian influenza virus H5N1: a review of its history and information regarding its potential to cause the next pandemic. *Seminars in Pediatric Infectious Diseases*, Elsevier.
10. Lins, K. V., et al. (2013). "Does family control matter? International evidence from the 2008-2009 financial crisis." *The Review of Financial Studies* 26(10): 2583-2619.
11. Liu, W., et al. (2018). "Water resources conservation and nitrogen pollution reduction under global food trade and agricultural intensification." *Science of The Total Environment* 633: 1591-1601.
12. Mekonnen, M. M. and A. Y. Hoekstra (2018). "Global anthropogenic phosphorus loads to freshwater and associated grey water footprints and water pollution levels: A high-resolution global study." *Water resources research* 54(1): 345-358.
13. Sohrabi, C., et al. (2020). "World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19)." *International Journal of Surgery*.
14. Solomon, S., et al. (2016). "Emergence of healing in the Antarctic ozone layer." *Science* 353(6296): 269-274.
15. Temin, P. (2016). *Great Depression. Banking Crises*, Springer: 144-153.
16. Tiwari, P. K., et al. (2017). "Modeling the direct and indirect effects of pollutants on the survival of fish in water bodies." *Journal of Biological Systems* 25(03): 521-543.
17. Wallwork, R. S., et al. (2017). "Ambient fine particulate matter, outdoor temperature, and risk of metabolic syndrome." *American journal of epidemiology* 185(1): 30-39.
18. Workneh, D. and A. Gholap (2018). "Effect of Gaseous Pollutants (NO2, SO2 and O3) On Cultural Heritage Materials: A Case of MFAs in Brussels, Belgium." *SciFed Journal of Spintronics & Quantum Electronics* 1(2).
19. Duan, L. and G. Zhu (2020). "Psychological interventions for people affected by the COVID-19 epidemic." *The Lancet Psychiatry* 7(4): 300-302.
20. Hamid, S. and K.-Z. Davoud (2019). "Road traffic injuries measures in the Eastern Mediterranean Region: findings from the Global Status Report on Road Safety-2015." *Journal of injury and violence research* 11(2): 149.