ANALYSIS OF VARIOUS IMPLICATIONS OF COVID-19 AFFECTING DAILY LIVES IN INDIA: AN OVERVIEW

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ABSTRACT

The world is struggling with a virus whose origin has not been clear yet, but it became responsible for the death of millions of people worldwide and has almost touched every person's life in one way or the other. Covid-19 has changed our day-to-day life and pushed us towards following protocols and guidelines to save our lives. In this paper, we discussed how covid had affected our various aspects of life. In this brief review, we aim to discuss the impact of the coronavirus pandemic on various domains such as socio-economic impacts, education, mental health, various industries. We would also like to see how various technologies that can help out the pandemic are not just understanding. A wide range of topics was covered, which can help understand how the covid-19 pandemic has devastated people's lives. In addition, we shed some light on what the world has learnt from the previous pandemic of 2009 and how better we can cope with this time. The psychological effects due to strict lockdowns have also been reviewed. We tried to conclude the findings by suggesting a few ways in which the pandemic can be controlled.

KEY WORDS : Covid-19, Impact, India, Lockdown, Environment, Economy

INTRODUCTION

Coronavirus has disrupted our day to day lives ("Coronavirus," n.d.). Since it was first observed in China at Wuhan in 2019, it has almost affected 222 countries. As many as 15 crore people have been affected worldwide, and deaths of nearly 3.1 million were recorded by May-2021 ("COVID Live Update: 156,751,627 Cases and 3,271,497 Deaths from the Coronavirus - Worldometer," n.d.). This coronavirus pandemic has brought the world to its knees. USA and India were among the worst affected due to the Covid-19 pandemic ("What Places Are Hardest Hit by the Coronavirus? It Depends on the Measure - The New York Times," n.d.). This Coronavirus originated in Asia ("Virus origin / Origins of the SARS-CoV-2 virus," n.d.). We still do not clearly understand how many waves of covid-19 the world has to face, and the long-term effects before the effects become nominal ("What are the long-term effects of coronavirus (COVID-19)?," n.d.). Lockdowns and the pandemic have caused large

scale damage to the economy and livelihood of people (Tandon, 2020).

The first case, Covid-19, which was reported in China, was reported as pneumonia (Johnson, 2020). The date of the first report was 31- December- 2019. It was considered a pandemic later on in March of 2020 ("Archived: WHO Timeline - COVID-19," n.d.). The covid cases have increased exponentially all across the world ever since. When the virus came under a microscope, it resembles a crown, and hence it was named coronavirus ("IMAGES: What New Coronavirus Looks Like Under The Microscope/: NPR," n.d.). There are various tests to detect the virus, butat the same time, there is a possibility of misdetection as well, which leads to the spreading of the Coronavirus ("Potential for False Positive Results with Antigen Tests for Rapid Detection of SARS-CoV-2 - Letter to Clinical Laboratory Staff and Health Care Providers | FDA," n.d.). The cause of death is primarily due to respiratory distress (ARDS). In few cases, it has been due to the failure of multiple organs (Mokhtari *et al.,* 2020). The virus

does not have any medicine for treatment, and the only way to save people is through supportive treatment. However, the situations have changed over time, and we have various vaccines for controlling the pandemic (Mitra *et al.,* 2020). The deaths caused by Covid -19 have crossed the deaths of the biggest massacre of the modern world, World War II("Unwanted virus milestone: UK's civilian dead now tops WWII's - ABC News," n.d.). The lockdowns caused by the pandemic are pointing out towards an economic recession (Nicola *et al.*, 2020).

METHODOLOGY

The literature search has been carried out by searching various journals and published articles. The keywords used to search were 'Covid-19' combined with 'pandemic', 'economy',' education', 'lockdown', 'hospitality industry. The primary source of information was from Science Direct and Google scholar. The searching of papers and published articles were limited from 2019 December to 2021 April. Various other websites such as (www.worldometer.com)were referredto to get exact figures related to Covid.

LITERATURE REVIEW

Lessons from previous pandemics and preparedness

The H1N1 influenza virus was a huge threat before the world dealt with SARS COV-2. SINCE THEN, the UK had started preparing for future pandemics and established the "UK *Influenza Pandemic Preparedness Strategy 2011"*. The objective of it was to deal with pandemics whilst uninterrupted essential services. The strategy to deal with a new pandemic was to contain the virus, delay the spread of the virus, research about the virus and mitigate the virus. It also described the importance of detecting viruses, testing people for the virus, and treating them. Containment has been proven to be the most effective way to control the SARS, the best way to utilise the containment time and lockdowns are by understanding the pandemic and researching (Capuzzi and Gross, 2017). Our world is very interdependent on our commodities and other needs. In such conditions, the possibility of spreading the virus is much easier and more such pandemics can come into existence. The best way to prepare for a pandemic is by assuming the worst-case scenario concerning the people affected by it

(Watkins, 2020).

The Beginning of Covid-19 Pandemic in India and its progression

The first case of the virus was reported in Kerala on 30 January 2020 (Capuzzi and Gross, 2017). Ever since the first case, the country has escalated into a series of lockdowns and adversities. The Coronavirus entered the country along with the people who came back from Wuhan and Italy. To deal with the situation health ministry (MoHFW) has imposed a quarantine. On 22 March2020, a curfew was implemented, and after a day, the lockdown began, which was the first phase(Soni, 2021). On 14 April, 2020 after the Government reviewed the situation and decided to extend the lockdown further. It gotextended up to 31 May 2020. The government ensured social distancing and masks were mandatory in public places.

The rapid testing of people for Covid-19 on trains and airways, and roadways began. In the second half of March, the cases exponentially grew ten times. The initial one lakh cases marked on 18 May. It was found out through research that the most vulnerable population were the elderly. The symptoms included dry cough, shortness of breath, headache, sore throat, loss of smell and taste ("Symptoms of COVID-19 | CDC," n.d.). The virus was suspended and transmission via air, and WHO issued guidelines and precautions for the virus. These precautions included covering our face and nose with a cloth mask or N95 mask, washing with soap and sanitising our hands with alcohol-based sanitiser's as frequently as possible and not touching our eyes, nose and mouth after touching other surfaces in public.

The government has controlled social gatherings with the help of police and paramilitary forces. The Government of India has developed an app," Aarogyasetu", and recommended people to install it, which helped the government identify the hotspots of the virus. The population of 1.3 billion people poses a problem to a country like India. It makes it difficult to follow and implement the precautions and social distancing (Ghosh *et al.,* 2020). India is currently the world's second-most affected country after the USA. India has crossed a lot of grim milestones. India has recorded the highest cases per day globally and the highest number of deaths per day in the world. The pandemic has brought the world to its knees. The world health organisation has warned that the

pandemic is here to stay and is about to worsen. Vaccine nationalism is making it hard for underdeveloped nations to vaccinate their citizens. Around one billion vaccinations have been done worldwide, and around 80% of the doses were given in developed nations. It is making the situation worse. In highly populated countries, it is becoming ever challenging to deal with the pandemic, as vaccination is the light at the end of the tunnel ("India's COVID-19 tragedy tops 400,000 daily cases | CIDRAP," n.d.).

Effect on Education system

Covid-19 has disrupted the education system which we have been building for decades. The system had to go through an overnight transition to an online mode of learning. Assuring the parents and teachers has become a key challenge. The education system is one of the worst affected domains because of the pandemic ("The rise of online learning during the COVID-19 pandemic | World Economic Forum," n.d.). Governments of various countries have ordered to shut down face to face classes until further notice.

The following needs to be done to ensure a smooth transition towards the online mode of learning. Students and teachers have to be prepared, and it has to be ensured that students are taking their books home. We must stop giving discretionary powers to teachers and allow them to graduate students based on their previous performance ("Education and COVID-19 - UNICEF DATA," n.d.). The staff should be trained in the aspects of online learning. The courses with technical and vocational training are getting affected more as physical presence is required in these courses[25]. Parents and students must be informed about the latest updates about examinations and assessments as thee students are facing much anxiety due to the pandemic. This pandemic has snatched away the social life of students, and people who are in the final semester or final year cannot finish school or college in the usual way. There are much more prevalent problems in low-income households as they cannot afford devices to ensure the continuity of education. The schools and colleges should have a helpline number to reduce the anxiety in students. There should be more insistence on an asynchronous learning mode not to need continuous communication (Daniel, 2020).

Effect on Mental Health

The Covid -19 pandemic has caused a lot of psychological issues. People who have been affected by the pandemic experience issues such as anxiety, stress and PTSD("Mental health and COVID-19," n.d.). People are going to be affected by post-traumatic stress disorder due to the loss of near and dear ones. The pandemic could also create resistance in people psychologically. People are going to ignore taking directives as a result of extensive lockdowns and protocols. The pandemic caused by Covid-19 can also make people more prone to substance abuse due to the strict protocols
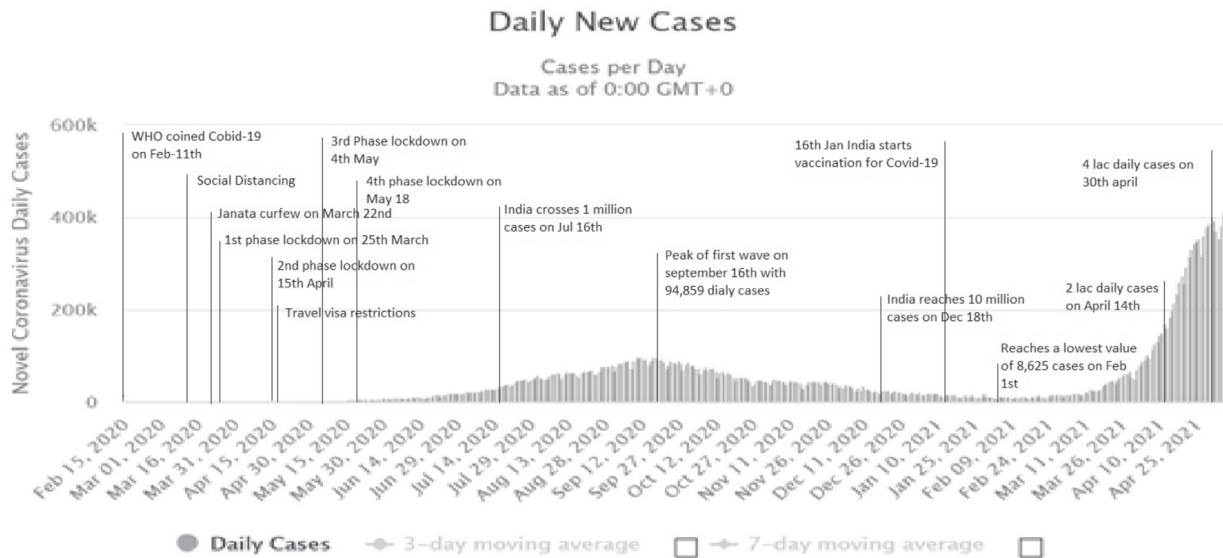

Fig. 1. Timeline of events of Covid-19 in India -Source: ("CoWIN Dashboard," n.d.)("India COVID: 21,886,556 Cases and 238,265 Deaths - Worldometer," n.d.)

and impositions("WHO/Europe | Coronavirus disease (COVID-19) outbreak - Mental health and COVID-19," n.d.). There are many conditions due to which the frontline and healthcare workers are prone to get affected psychologically. They fear infecting their loved ones and are under immense work pressure, which makes them more vulnerable. In developing countries and under developed countries, social stigma and social isolation after being affected by the virus also pile up on psychological stress("Mental Health and Coping During COVID-19 | CDC," n.d.). Many people have lost their livelihoods due to the pandemic, increasing suicidal tendencies in many people. The frontline works must be trained to deal with the stress and managing it (Lurie, 2020).

Effects on Environment

The pandemic has caused apparent damage to the industries. Due to the sudden lockdowns, these industries have been shut down. It has been good news to a country like India, which is in the clutches of pollution. The lockdown had many positive effects on the environment. A study was conducted in one of the most polluted cities in the world (Shakil *et al.*, 2020). It was done to understand how the pandemic has affected the air quality. The study was carried out in Ghaziabad city in the Uttar Pradesh state of India. It had a high level of $PM_{2.5}$. Due to lockdown, human activities were not

present. The pollution caused by traffic and industrial establishments in and around the city has stopped entirely. When the pollution levels were tested, there was a significant drop in the Sulphur dioxide (SO_2) and Nitrogen Dioxide (NO_2) levels in the atmosphere. The drop was known based on the previous reports obtained. There was an approximate drop of around 85% in pollution levels (Rume and Islam, 2020). There has been a significant improvement in river water quality as well due to the pandemic.

The industrial effluents and the pilgrimage places waste like flowers and leaves were not added to the rivers, which improved river water quality. It has shown how the interaction of humans is with nature ("Coronavirus and Climate Change – C-CHANGE | Harvard T.H. Chan School of Public Health," n.d.). The lockdown has recovered the quality of air and water, and most importantly, it gave nature the time to heal and recover from the damage done by humankind. At some places, the water was clear that the aquatic life was visible, and lakes turned pink with flamingoes (Lokhandwala and Gautam, 2020). Fig 2 –Fig. 5("earth/:: a global map of wind, weather, and ocean conditions," n.d.) depict the depreciation of $PM_{2.5}$ and PM_{10} due to lockdown. The location taken for reference in the pics is Ghaziabad, ranked as the most polluted city in the world. The coordinates pinpoint Ghaziabad.
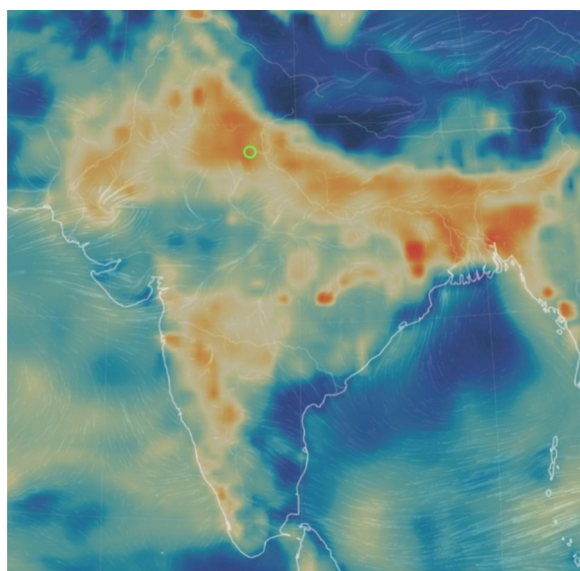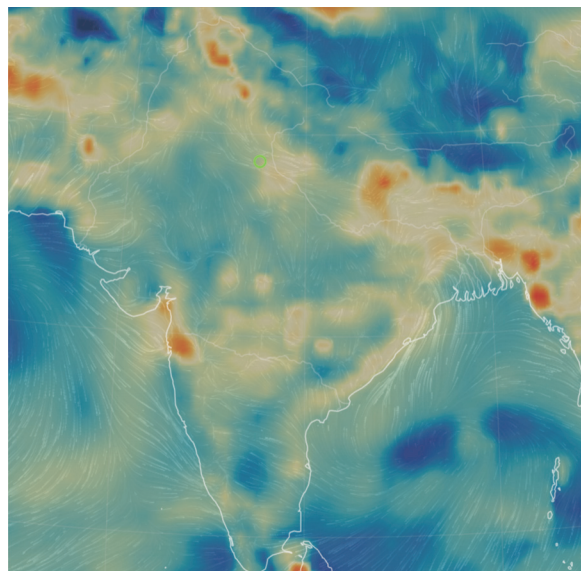

Fig. 2. $PM_{2.5}$ as of 6 May 2021   **Fig. 3.** $PM_{2.5}$ as of 12 April 2020

Corona Virus and wastewater

The Coronavirus is largely temperature-dependent. In experiments, the virus does survive in normal water for up to 10 days, provided that the temperature is 23 °C (Gundy *et al.*, 2009). There have been instances of dumping of dead bodies in the river in the borders of Uttar Pradesh and Bihar, which poses severe threats of transmission("Bodies of COVID-19 victims among those dumped in India's Ganges -govt document | Reuters," n.d.). Transmission of Covid-19 through water is entirely possible, and it has also been proved experimentally that the virus does stay activated in tap water for up to 100 days at 4 °C. The experiments have also proven that the virus lives comparatively less in wastewater and only survive for 2-4 days. Since birds and mammals can also get affected by a coronavirus, it is reckless to put the lives of others at risk by dumping dead bodies affected with covid in the rivers and other water bodies. Covid can survive in wastewater for no longer than 2-4 days, and the reason for this being, the water which contains solids can suspend the virus. Since many people depend on the river for drinking water and other purposes, the transmission can cause a rise in covid cases downstream (Gundy *et al.*, 2009). Even though WHO has mentioned that the transmission of the virus is possible through unfiltered water and not through filtered water, WHO has found one such case in Northern Italy? Covid was also found in the partially treated wastewater. It has also been reported by WHO that the virus is present on plastic for approximately 7 days. It indicates that the plastic in the river can cause transmission as well. To prevent the spread through water, we must treat the water we use with UV and Chlorination. Even after chlorination, the residual chlorine should be more than 0.5 mg/l In this way, we can safely consume drinking water (WHO, 2020).

Fig. 6. Dead bodies of Covid infected people were dumped in river Ganga- Source:("Bodies of Covid-19 victims among those dumped in Ganga river: Govt | Hindustan Times," n.d.)

Effects on industries

Industries that provide basic amenities such as agriculture and petroleum have seen the worst times in the pandemic. The lockdowns and other impositions have made the transport of perishable goods complex, and the cultivator's earnings plummeted. There were bans on travel, social gathering, and restaurants were shut down due to the pandemic, leading to lesser consumption of
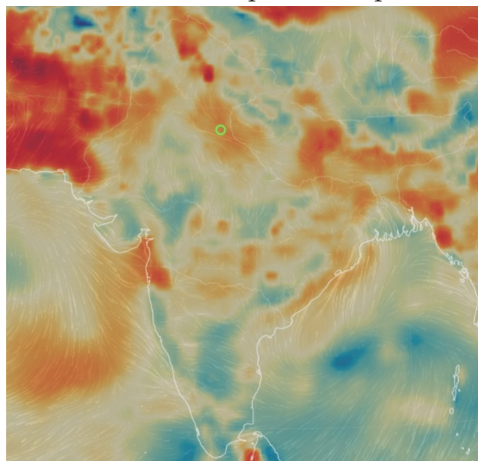

Fig. 4. PM_{10} as of 12 April 2020   **Fig. 5.** PM_{10} as of 6 May 2021
Source: (Lokhandwala and Gautam, 2020)
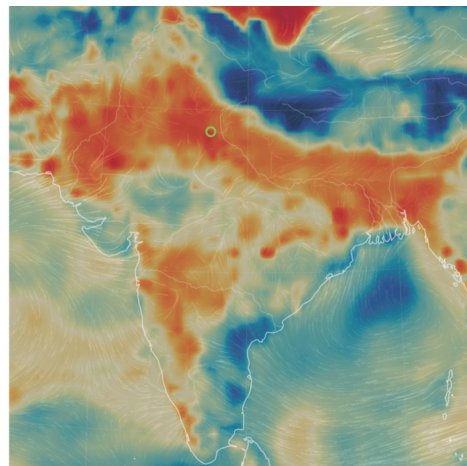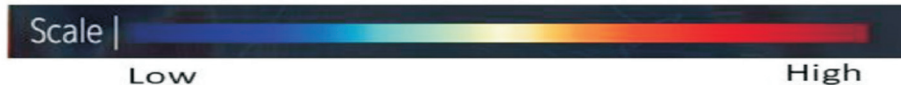
perishable goods. Due to strict lockdowns, transportation was hampered, and goods had to wait at interstate borders for days and weeks together. A 20% drop was observed in terms of the price of commodities ("Prices of agricultural commodities drop 20% post COVID-19 outbreak - The Economic Times," n.d.). The fuel and crude oil prices have plummeted by up to 24%. The lockdowns have abruptly stopped road transport, air transport and railways as well. It has led to a sudden demand and supply gap leading to dropping in the price of crude. The issue has raised as a result of instability between Saudi Arabia and Russia. According to a survey, many people were cynical about the industries performance during the lockdown (The Economist Intelligence Unit, 2020).

Furthermore, many believed it could have a massive impact on business operations. The manufacturing industries were worst affected by the pandemic, as work from home as possible. The chemical industry was hampered, and many expansion projects were halted (Nicola *et al.,* 2020).

Economic Implications

The lockdown imposed in India in 2020 was very stringent. The economy was hit hard, which led to a domino effect of collapsing one system after the other. Before the pandemic, the country witnessed a growth of 6.8% in terms of GDP (Nicola *et al.*, 2020). According to an international monetary fund report, the economy was damaged severely, that the growth has dropped to approximately 4.8%. The small companies and medium enterprises were affected severely compared to the rest of the industries due to lockdown("Coronavirus: How the pandemic has changed the world economy - BBC News," n.d.). The healthcare industry also took a big hit as there was a slump in international cases and other surgeries. People from the lower and middle-income groups in developing countries like India were victims of the pandemic as millions of workers and people have lost their livelihood. The lockdown has forced the interstate immigrant workers to walk back to their states as there was no transportation available ("The COVID-19 effect on economic conditions | McKinsey," n.d.). They walked back on the railway tracks. Many workers got stuck in other countries, and these lockdowns have forced them to take up a lesser paying job, which resulted in more impoverished living conditions and making them more vulnerable to Covid-19. This pandemic has made the poor much more impoverished, and the

lack of proper precautions is causing a surge in covid cases. Even though there are lockdowns and curfews, India is still observing religious gatherings and political rallies degrading the situation ("The Global Economic Outlook During the COVID-19 Pandemic: A Changed World," n.d.). The pandemic and the lockdowns have made proper access to food difficult, and the malnutrition levels in the country rose. Various government schemes came up, and tons of food were distributed, which was 12.96 metric tons (Gopalan and Misra, 2020).

Controlling COVID 19 pandemic by adopting modern technologies

The pandemic caused by the Coronavirus can be brought under control by trying to implement modern technologies both in medical and day-to-day life. It is widely believed that artificial intelligence can help fight the covid-19 pandemic("5 COVID-technology advancements show the power of innovation | World Economic Forum," n.d.). Importance has been given to artificial intelligence and its implementation to fight the Coronavirus. Machine learning is a type of artificial intelligence. The other types are computer vision applications and NLP. Artificial intelligence majorly works on the images obtained medically, such as x-rays and scans, to predict the condition of the patient ("COVID-19 digital transformation and technology | McKinsey," n.d.). Artificial intelligence can be used to predict the presence of a virus in the patient and be treated better. It is used to identify the contaminations much faster. CT scan used the AI to dragonise and predict the virus faster than conventional methods. The images generated by X-rays can be used by AI to predict faster and analyse the symptoms ("Covid-19: 8 ways in which technology helps pandemic management, IT News, ET CIO," n.d.). It can be used to determine the containment zones. Various apps use other technologies such as GPS to know the hotspots for

Table 1.

S.No.	Application
1.	Diagnosis using radiology images
2.	Disease tracking
3.	Prediction outcome of patient's health condition
4.	Computational biology and medicines perspective
5.	Protein structure predictions
6.	Drug discovery
7.	Awaremess and social control through internet

the virus to take appropriate actions. Few other applications are drug discovery and awareness and social control through the internet (Kumar *et al.*, 2020).

Most people get treated in the early stages due to testing, and very few people progress to severe stages. People's respiratory system is affected, and they find it difficult to breathe. The faster the virus is identified in an individual, the faster the person can be treated and rescued. There is an immediate need to upgrade our facilities in the health sector. A ramping up of tests and large-scale vaccination drives should be done to curb the pandemic. Humankind has not seen such large-scale loss of lives and damage to the economy after World War II. There is an urgent need for solidarity between the countries (Mitra *et al.*, 2020).

CONCLUSION

There is an immediate need to ramp up the vaccination, protecting people on a large scale. Individual domains and sectors should have their covid problems addressed in covidpolicies. Quick and effective changes in policy according to the situation can benefit the masses. Students are going to face many challenges in getting opportunities straight out of school or college. The infrastructure needs of the healthcare sector should be revisited.The surge in cases that India is witnessing is due to a lack of strict control measures.Such as lockdowns and quarantine, and these should be implemented. Approval of other vaccines should be considered immediately.International aid should have an equitable distribution. Strict legal action must be taken against the dumping of dead bodies in the river. Proper measures and implementation of guidelines must be ensured.

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