

# COVID-19 Pandemic: A Positive Influence on Lifestyle, Economy, Administration & Environment; An Overview

**Kunal Dwari**

*Medical Intern, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi (Meghe), Wardha, Maharashtra, India, Pin Code-442001*

## Abstract

**Summary:** On the December 31<sup>st</sup> 2019, World Health Organization (WHO) was alerted about a bunch of newly arrived pneumonia cases in city of Wuhan, China. The Severe Acute Respiratory Syndrome (SARS) later became well known as COVID-19. The causative virus was isolated on 7<sup>th</sup> January, which was the novel coronavirus 'SARS-CoV-2. Initial evidences suggested it is a zoonotic disease originating from bats which was then transmitted to humans. As of June 27 2020, the number of Identified COVID-19 cases globally were **9,815,826** of which active number of cases were **4,018,892** and total number of deaths were **494,118**. To contain the spread of this disease many nations around the world introduced partial/complete lockdown. India declared nationwide lockdown on 25 march 2020, which is considered as the world's largest lockdown. This led to too much distress in the society and nation. But every coin has 2 sides, today let's flip the coin and have a look at the unnoticed head of the coin. This article is the review of numerous articles available online highlighting the disguised positive impacts under the following domain:

- Lifestyle and health related positive impact includes hygiene practices, attitude of good health and immunity.
- Positive Impact on Administration & Health sector indicating the lacunas of poor health infrastructure.
- Social & Personal impact leading to better personality development.
- Impact related to Lockdown which includes good environmental changes, trade and work-related positivity

**Keywords:** *COVID-19, Positive impact, Improved hygiene, lock down, Reduced Pollution, Self-sufficient Economy.*

## Introduction

On December 31 2019, in the City of Wuhan (China) a cluster of new pneumonia cases were reported

to 'World Health Organisation (WHO)' . This later became well-known as COVID-19. It was caused by a New RNA Virus of the Corona Viridae Family, SARS CO-V 2 (NOVEL CORONAVIRUS.) WHO declared COVID-19 as pandemic on March 11, 2020<sup>[1][2]</sup>

It is spread via Air in the form of droplets and via contact routes. The incubation period of COVID-19 is 5-14 days with the median of 5.2 days. Sometypical symptoms include fatigue, dry cough, fever whereas sore throat, diarrhoea, headache, loss of taste or smell are the atypical ones, serious ones include difficulty in breathing and chest pain.<sup>[3][4][5]</sup>

---

### Corresponding Author:

**Kunal Dwari**

Medical Intern, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi (Meghe), Wardha, Maharashtra, India, Pin Code-442001

e-mail: kunal.dwari1297@live.com

The  $R_0$  (Reproductive Number) is between 2.2–3.6 to 4.1–6.5 depending on the country of study.  $R_0 \rightarrow$  measures secondary transmission potential. To break the chain of transmission lockdowns were imposed in many parts.<sup>[6]</sup>

WHO says mild or asymptomatic cases account 80%, severe infections are 15%, 5% cases are critical (COVID-19 Situation Report 46.) The death rate of COVID 19 as of June 30 2020 was 8% (data of worldometers.info June 30 2020 @17:11:30 IST). Among the dead were mainly elderly, immuno compromised patients with cardiac co-morbidities, diabetics etc.<sup>[7][8]</sup>

Due to non-availability of vaccine and any definitive treatment, supportive care remained the mainstay which includes oxygenation, ventilators and other symptomatic care for fever and cough.<sup>[2][9]</sup>

### Methodology

The Article was prepared using various journal articles, news articles and guidelines outlined by various institutes highlighting the positives of COVID 19 pandemic (all the reference articles are mentioned in the end). This was an effort to bring together most of the available literature available at the time of preparing this article. A comparison of before impact and post impact scenario of COVID-19 in attitude, administration, healthcare sector is included. A comparative illustration of positive changes in environment, crime rates and road traffic accidents are also shown using news articles about pre-lockdown and lockdown.

#### Positive Influence of Covid-19 on Public Lifestyle & Health:

- **Hygiene Practices:** COVID-19 led to increased awareness about personal hygiene amongst people which includes proper hand hygiene practices like washing hand with soap for 40 sec to 50 sec following all appropriate steps of hand washing, hand rubbing with alcohol-based (60%) sanitizer after returning to their homes, before having meals. These dropped the fomite-based pathogen propagation.<sup>[10][11][12][18]</sup>

Respiratory hygiene like covering face while coughing or sneezing use of shoulder or elbow to cover face while sneezing or coughing. Wearing a cloth mask or surgical mask to avoid infection and its spread. Avoidance of contacting the face with contaminated hands. Following no touch practices to avoid contacting

contaminated surfaces has led to decreased risk of communicable infection manifold.<sup>[11]</sup>

Regular Hygiene practices can reduce common infection rate by 50 % and decrease antibiotic need by 30% (American Journal of Infection Control) which also reduces the risk of Multi Drug Resistant (MDR) Infection which causes ~2000 deaths/day worldwide.

Avoidance of unnecessary overcrowding and following social distancing norms in public places along pre-sanitisation before entering shops has become new normal.

- **Health & Immunity:** With rising awareness of Basic Health, immunity, knowledge of complication of co-morbidities humans became more vigilant about their diet, health and lifestyle. Humans started following ways and method to increase immunity with natural immunity boosters, yoga and exercise strengthening primary prevention.

Mass media and social media also helped a lot in spreading awareness about identification of common signs and symptoms and seeking medical assistance whenever alarming symptoms are experienced.

- **Idea of Isolation and self-quarantine:** Isolation of infected people & self-quarantine on occasion of outbreak of communicable diseases have gained an importance to cut the chain of transmission. For e.g. people of a far-off village in East Siang of Arunachal Pradesh independently constructed huts using bamboo plants for quarantine of the migrant workers returning back to village. This shows positive impact on people's sense of responsibility for their friends and society.

#### Impact on Administration & Health sector:

- **Administration:** The introduction of nationwide lockdown was a very prompt monumental step which indicates the idea that life is more important than economy. An impressive score of '100' was given by "Oxford COVID-19 Government Response Tracker (OxCGRT)" which compares the government's response to the novel coronavirus outbreak. Honourable Prime Minister Shri Narendra Modi said that "Every crisis is an opportunity."

India realised that it has enough resources to protect the country from external war but not enough resources to fight an outbreak of disease. India ranks 145 of 195

nations in terms of quality and accessibility of health care services. The pandemic of COVID-19 has shed light on the poor Health Sector of the country due to which the government is aspiring to increase the spending on health care services from 1.4%-2.5% of GDP in the next 2-3.

There were stimulus packages introduced around the globe to fulfil the deficiencies of the health-care sector and to fight the pandemic-led economic slowdown. A similar stimulus package was introduced by Government of India (GOI) as well, to boost the micro, small and medium enterprises (MSME) to tackle the dying economy. GOI also gave loan security to banks for funding the MSME which paved a way for the birth of various start-ups

Steps were taken to become self-reliant for manufacturing of indigenous goods so as to not depend on other nations for its availability. An important e.g. that can be given is that India was not manufacturing a single PPE kit leading to shortage of PPE kits for health care workers but by 2<sup>nd</sup> may 2020 India started manufacturing 2.06 lakh PPE kit/day.

Govt. encouraged several non-medical based companies and home-based establishments to manufacture medical equipment and supplies, as a result several companies transiently converted themselves for manufacture of medical supplies and equipment using their available resources, this shows flexibility and efficiency of countrymen. Several households started making masks just by using 4 cloth strips, scissors and sewing machines to fulfil the increasing demands of masks. Several liquor manufacturers started making sanitizers using available resources.

Steps were taken for regular cleanliness and sanitation of public places by the government as well as at local level, cleanliness has become a priority which is a good sign.

Among every ten infectious diseases in people six are zoonotic in origin and 70% new viruses originate from animals mostly wild. Evidence suggests that the ground zero for COVID-19 was Hunan Wet Market, Wuhan. Initial evidence suggests SARS CO-V 2 originated from abat with pangolins being the intermediate, due to this ban was imposed on many wet markets around the world to reduce animal and human contact. Many of the wildlife species have come to verge of extinction due to illegal wildlife trade, this ban may cause significant

decrease in illegal poaching.

- **Health Sector:** There has been heavy investment in the healthcare sector since the advent of COVID-19.

There were a smaller number of beds and doctors available for the rising number of patients, there were 7,13,986 total government beds in India i.e. 0.55 beds per 1000 people. Govt. has taken appropriate steps to increase the number of beds and doctors to tackle not only this pandemic but also to fight against similar outbreak in future.<sup>[24]</sup>

The Union health ministry's data suggests that the number of ventilators were 8,432 ventilators in the public sector in India in February 2020 whereas there were in all 40,000 ventilators in the country of which 75% are imported ventilators. The need of ventilators was far more which led to increase in demand and thus, medical device manufacturers increased their manufacturing capability, eventually we shall overcome the pandemic but these devices shall stay.<sup>[25]</sup>

The death of several medical professionals and security personnel has thrown light on the importance of safety of Medical professionals and paramedic staff and also the importance of PPE kit and its availability.

Health care professionals including doctors and paramedical staff are trained to identify, diagnose and isolate infected patients efficiently and also trained regarding the use of PPE Kit effectively.

Use of telemedicine and increased use of technology has gained importance. Ministry of Health and Welfare (MoHW) along with Niti Aayog issued Tele-Medicine Practice Guidelines enabling Registered medical practitioners around the nation to provide healthcare services in remote settings, which is not only a faster accessible method but also affordable. Tele-medicine also enabled online training sessions for paramedical staff and PHC staff educating them about the recent updates related to healthcare.

Pharmaceutical companies of India are amongst the major producers of generic medicines, which are gaining popularity and respect around the globe. Indian Pharma industry has a 20% share in global supply of generic medicine and 50% of total vaccine demand around the globe.

Various institutes around the globe are raising their standards and using advanced tools and trying to create

an efficient COVID-19 vaccine. They are also preparing for the mass production of vaccines once invented, to prevent delay in supply of vaccines.

### Social & Personal Impact:

- The risk of complications of COVID-19 skyrockets with increasing age due to associated comorbid conditions which are prevalent amongst elderly. People beyond the age of 65 are at very high risk and it is highest beyond 85 years of age. This generates a sense of responsibility for Elderly, their health has become a priority.
- The Pandemic has also generated the sense of respect for the health care workers, police personnel, blue-collar workers and everyone who are risking their lives and working round the clock in this period of crises. This helps them stay enthusiastic and work efficiently.
- The attitude of financial, personal and social preparedness for the period of crisis has taken root in people's mind. Loss of jobs was the immediate direct effect of the lockdown; India's Unemployment rate rose to 24% by 19 April 2020 compared to 6%-7% in 2019 i.e. 100-120 million people lost their jobs the worst hit was amongst the migrant labourer. Preparedness will help all of us to sail the tides of future crisis with minimal distress.
- The sense of responsibility and gratitude towards society's healthcare has risen due to the pandemic and we have seen people helping the ones in need, this has created an air of positive energy.

### Lockdown related positive Impact:

- **Impact on Environment:** The colossal positive impact was seen on the environment with reduction in our ecological footprints.

o Air Quality-In November 2019, the quality of air in Delhi was so bad that a public health emergency was declared, when the AQI (Air Quality Index) was coded Red. With the shutdown of factories, travel ban and empty roads the air pollution level dropped drastically. The AQI was in Code Green in most parts. As per a news article Dauladhar mountain range (Himalaya) could be seen from Jalandhar which is 250 km away for the first time in three decades.

Drastic drop in levels of PM<sub>2.5</sub>, PM<sub>10</sub> and NO<sub>2</sub> was observed.

- **PM 2.5** – Particulate Matter 2.5 is particulate matter having size less than 2.5 µm. Combustion of fossil fuel is the major contributor in PM 2.5. With cessation of mining activities, lockdown of factories and restricted motor vehicle activity, lowest daily average dropped to 20 µg/m<sup>3</sup> (2017-2019 → 100-140 µg/m<sup>3</sup>.) As per 'Central Pollution Control Board (CPCB)' there was 46% reduction in PM 2.5 compared to pre-lockdown period.
- **PM 10** – Resuspended dust on road and construction dust is the major contributor in this category. With cessation of traffic flow and construction activity, lowest day wise average dropped to 35 µg/m<sup>3</sup> (2017-2019 → 200 µg/m<sup>3</sup>.) as per CPCB there was 50% reduction in PM 10 compared to pre-lockdown period.
- **NO<sub>2</sub>** – The fall in Nitrogen Dioxide was dramatic. Its main source is vehicular emission. With the travel ban the level fell by 56%.<sup>[28][29]</sup>
- The adjacent graph shows spatial pattern of National Air Quality Index (NAQI) in Delhi NCT comparing pre-lockdown and lockdown period between 3 March 2020 and 14 April 2020. The PM 2.5 being small can enter lungs and bloodstream the cut off of these particulate matters has been beneficial for human health.
- Data Collected by Moderate Resolution Imaging Spectroradiometer (MODIS) aboard NASA's Terra and Aqua satellites between 31 Mar 2020 and 5 April 2020 that measures optical depth & size distribution of ambient aerosol over the globe on an hourly basis. Aerosol Optical Depth concentration was estimated within a week of lockdown. [Brown Colour Denotes High AOD]
- o **Water Quality** – With shutting down of factories, shutting of fishing practices, shipping industries shut down imprints were seen in water quality as well.

As per the study in Thoothukudi in southern Tamil Nadu in India in the initial phase of lockdown (19 April 2020 – 20 April 2020) for ground water quality compared to pre-lockdown period, changes were seen in chemical as well as biological parameters.

- Physico-chemical parameters have shown significant reduction in TDS (Total Dissolved Solids.) A 50% reduction in lead, 60 % drop in iron values, 51%

dip in arsenic and 42% reduction in selenium was observed.

- Reduction was also seen in NO<sub>3</sub>, in the water sample about 56% reduction in NO<sub>3</sub> was seen compared to pre-lockdown water sample.
- Total coliforms and faecal coliforms have shown steep drop of 52% and 48% respectively compared to 10 February 2020, which is mainly due to lockdown on fisheries leading to transient reduction in exploitation of ocean's living resources.
- As per the study of Delhi Pollution Control Committee (DPCC) on Yamuna River there is 18% to 33% reduction in Biological Oxygen Demand (BOD) and 2.3 mg/l–4.8 mg/l increase in Dissolved Oxygen (DO) compared to April 2019. BOD is the oxygen requirement of microbes to decompose organic matter. Increase in BOD corresponds to increased pollution.
- **Global Warming** – lockdown was triggered in numerous parts of the world and in others there were economic slowdown which caused steep 17% dip in global Carbon emission and 26% dip in India in April 2020 compared to April 2019. As per National Climate Change Journal (United Kingdom) study annual carbon emission could fall by 4.4% to 8% by the end of 2020, which would be the “largest drop in average annual carbon emission since second world war” as per some researchers.
- **Wildlife** – With restricted human mobility and most of the people staying inside their houses, wildlife started recuperating their forgotten territory. E.g. Leopards were spotted on several occasions on the streets of suburban Maharashtra, Navi Mumbai saw flocks of flamingos after a long time. Migratory birds started revisiting their once abandoned water bodies, due to transient reduction in pollution the water bodies were habitable again. Because of the lockdown and economic slowdown poaching of wild animals also reduced.<sup>[19]</sup>
- **Impact on Personal and Family Life** – In this race of survival, humans have somewhere forgotten to enjoy their lives with their loved ones. With the trigger of lockdown, fast running lives of people in the cities suddenly lost speed enabling them to spend time and enjoy with their family and friends. Slow pace lives have drawn their attention from the distraction of stressful lives towards their personality development and rejuvenation of their relationships.

Many people rediscovered their deeply buried hobbies like singing, painting, cooking. No stress of pending files and workload also improved the mental health, lockdown triggered the sleeping innovations of many. Humans started paying attention to small things which they earlier ignored like the importance of decreasing pollution and global warming for healthy living.

Many of us learned new things this lockdown period. Internet literacy increased as we could spend more time without distraction for e.g. earlier people would read news and agree to whatever they read without anticipating due to lack of time, now people became aware about fake news and the need to verify the news before blindly sharing it.

The closure of alcohol factories, liquor shops and unavailability of cigarettes may have helped people trying to quit smoking and drinking.

- **Impact on Work and Economy:** Due to the dip in the economy many citizens lost their sources of income, which forced them to think about alternatives for income and use this opportunity innovatively.

Due to social distancing and lockdown there was an increasing demand of virtual communication services giving importance to Indian Blue-Chip companies.

The idea of work from home had a deep impact. Working from your own residence was a win – win situation for both the employee and the employer. This not only reduced the need for fancy work places which require a huge investment but also increased the ease of working. ‘Work from Home’ also overcame the problem of physical distance barrier empowering many employees to work from their own city/state/nation and need not migrate.

A big impact was on migrant workers. Total number of migrants in India is 45.36 crore (37%) (according to the 2011 census). Due to migration of workers, their respective states understood the need for creating jobs in their own states so that people don't have to migrate to another state in search of jobs. Creating local jobs would not only reduce the hassle of migration but also reduce overcrowding of cities (as most of the migrant workers migrate from villages who migrate to cities) thereby reducing communicable diseases.

- **Self-sustained Nation**– Before pandemic more attention was given on internationalisation of trade but as the pandemic took a bad picture importance shifted towards localisation. With cessation of trade & supply chain cut-off we realised our dependence on other countries. This gave birth to the need of being self-sustained. E.g. India is a leading country in the pharma world, but still we are dependent on China for API (Active Pharmaceutical Ingredients), shortage of API was a limiting factor in medicine output efficiency giving rise to needs of finding alternatives. As a result, govt. has announced a \$394 million scheme for development of 3 bulk drug parks for manufacture of API and Bulk drugs in the next 5 years.

Dependence on China for COVID-19 testing kit delayed the detection of cases in India during the initial period, now India Manufactures 75% COVID-19 test kits domestically. TransAsia Bio Medicals (Mumbai Based) has set up the largest Asian factory for manufacture of COVID 19 diagnostic test kit in Visakhapatnam capable of manufacturing 10 lakh COVID 19 diagnostic test kit per day as claimed

- **Decrease in Road Traffic Accidents(RTA) and Crime Rates** – As the restriction of free movement were imposed, there was a steep drop of 68% in the number of Road Traffic Accidents between 21 March 2020 – 31 May 2020 compared to 21 March 2019 – 31 May 2020

During the lockdown, decreased crime rates were observed. Delhi Police registered ~2000 cases only between 15 March 2020 and 12 May 2020 i.e. a drop of 42% in crime rates, this was mainly attributed to strict enforcement of police personnel around the city.

### Conclusion

The COVID-19 pandemic has claimed lives worldwide and has caused havoc. It is yet very important that we shed some light on the positive influences it has had and acknowledge the wisdom that it has imparted. Not only has it resulted in brighter skies and cleaner lives it has made individuals mentally strong and changed their personality for the better.

**Ethical Clearance:** Taken from institutional ethics committee.

**Source of Funding:** Self.

**Conflict of Interest:** Nil.

### References

1. Chaplin, S, COVID -19: a brief history and treatments in development. *Prescriber*, 2020; 31: 23-28.
2. Walls A et al. Function and Antigenicity of the SARS-CoV-2 Spike Glycoprotein, *Cell*, 2020; 181(2), 281-292.e6
3. Hussin A et al. Byrareddy, The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak, *Journal of Autoimmunity*, 2020; 109(102433),
4. Azor-Martinez, E et al. Effectiveness of a Hand Hygiene Program at Child Care Centers: A Cluster Randomized Trial. *Pediatrics*, 2018; 142(5).
5. Maillard J et al., Reducing antibiotic prescribing and addressing the global problem of antibiotic resistance by targeted hygiene in the home and everyday life settings: A position paper, *American Journal of Infection Control*, 2020.
6. Sahni H, Sharma H. Role of social media during the COVID-19 pandemic: Beneficial, destructive, or reconstructive?, *International Journal of Academic Medicine*, 2020; 6, 70-5.
7. Mahato S et al. Effect of lockdown amid COVID-19 pandemic on air quality of the megacity Delhi, India, *Science of The Total Environment*, 2020; 730:139086
8. Gautam S. The Influence of COVID-19 on Air Quality in India: A Boon or Inutile. *Bull Environ Contam Toxicol*. 2020; 104(6):724-726.
9. Selvam S et al, Imprints of pandemic lockdown on subsurface water quality in the coastal industrial city of Tuticorin, South India: A revival perspective, *Science of The Total Environment*, 2020; 738:139848.
10. Arif M et al. Reduction in Water Pollution in Yamuna River Due to Lockdown Under COVID-19 Pandemic. *ChemRxiv*. 2020;
11. Le Quéré, C et al Temporary reduction in daily global CO<sub>2</sub> emissions during the COVID-19 forced confinement. *Nature Climate Change*. 2020; 10, 647-653.