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Review Article

Corona: Impact of Non-Living Virus to Living World

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Abstract

It is said that when humans have realized their paramount nature, nature has broken this pride, something has been said in our scriptures also. Something similar happened in years 2020, when a virus imprisoned the human race of the whole world. People were afraid to meet, talk, touch among themselves. We have exploited nature in the name of development. I believe that this epidemic is the result of all this reasons. It is said that every evil and disaster brings some good with it. Something similar has been seen in the world in the last 2 years. Now say we or you, the whole world has completely entered a new digital age. Everything from school to business has reached in this era of digital technology.In this article, we have tried to include all those aspects which led to this epidemic and how the thinking of human life changed after that.

Keywords: Covid-19, Virus, Impact, Pandemic, Vaccine.

INTRODUCTION

Until recently, hardly anyone would have heard the name that such a virus would come which would prove to be fatal for the entire human species by becoming an incomprehensible puzzle. COVID-19 the highly contagious viral disease caused by a virus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has had a catastrophic effect on the world's demographics resulting in more than 50 lakh human being deaths worldwide, emerging as the most consequential global health crisis since the era of the influenza pandemic of 1918 [1, 2]. Wuhan, Hubei Province, China now no one forget the name of this city and even country where in Late December 2019 first case of this deadly respiratory virus disease were reported and rapidly disseminated across the world in a short span of time, in view of its horrors the World Health Organization (WHO) to declare it as a global pandemic disease on March 11, 2020. Since being declared a global pandemic, COVID-19 has ravaged many countries worldwide and ruined the healthcare systems of almost every country [3, 4].

Since the pandemic began in China in December 2019, so many variants of SARS-CoV-2 have been reported [5-7]. A variant with increased transmissibility, virulence, and decreased response to available diagnostics, medicine, vaccines, and therapeutics is called variant of concern (VOC) as WHO defined for covid-19 virus. In United Kingdom (UK) September 2020 the first major variant of was reported. Mutations of asparagine to tyrosine in the receptor-binding domain (RBD) of the spike protein this variant reported as 1st variant of Concern 202012/01 (VOC 202012/01). This mutation became a growing concern due to the virus being able to adhere to the ACE2 receptor more strongly. Currently, the N501Y variant has been detected in over 40 countries over the world [8-10].

COVID 19 VARIANTS AND EFFICACY OF AVAILABLE COVID-19 VACCINES:

As we knows viruses are always changing their form due to mutation, and cause a new variant, or strain, of a virus to form. A variation in genetic code of virus usually doesn't affect how the virus works but sometimes it makes to act in different mode. Generally when virus infects anyone they attached to the cell and get inside into it, and start making copies of their RNA which is responsible them for spread. If due to any error copying mistake then RNA gets changes. Scientist and

Researcher called these change as mutation. These changes happen randomly and by accident. It's a normal process of what happens to viruses as they multiplied and spread.

Researcher around the world are tracking and tracing mutation on covid-19 virus. It will helps expert to understand whether certain variant of Covid-19 spread faster than other variants and also how they might affect our health and it is also very useful for checking effectiveness of vaccine against them. Some variants seem to spread more easily and faster than other variants, which may affect more human being byCovid-19. An increase in the number of cases will put more strain on our healthcare system, increase more hospitalizations of people, and potentially more deaths also.

a. Alpha - B.1.1.7:

Experts found gene mutation in Covid-19 cases in people of United Kingdom in late 2020. This variant is also found in some other countries of world including U.S. Scientists were surprised that this type of mutation could make the virus up to 70% more transmissible, meaning it could spread more easily. Some other scientist and expert linked this type of variant is one of the causes of higher risk of death but the evidence isn't strong.

- **First identified:** United Kingdom
- **Severe illness and death:** Severe illness and leading to death are expected.
- **Vaccine:** Vaccines approved by regulatory authorities work effectively against this variant. Some reinfection generally called breakthrough infections is also expected in fully vaccinated people are but remain rare. All available vaccines are protected against severe illness, hospitalization, and death.
- **Treatments:** Combination of monoclonal antibodies and some antibiotics are effective against this variant.

b. Beta - B.1.351:

Another Variant of Covid-19 which is known as Beta B.1.351 spread more easily than the original virus but doesn't seem to cause worse illness. This variants of the virus have been found in countries, including South Africa, Nigeria.

- **First identified:** South Africa
- **Severe illness and death:** As per available data this variant doesn't cause more severe illness or death compare to other variants.
- **Vaccine:** Vaccines granted approval by regulatory bodies are very effective against this strains. Rare reinfections are expected even after fully vaccination. All available vaccines are particularly effective to prevent severe illness, hospitalization and death.
- **Treatments:** Certain monoclonal antibody amd antibiotics treatments are less effective against this variant.

c. Gamma - P.1:

It is also one more infectious and contagious strains of covid virus and it may be able to infect people who've already had Covid-19 infection. First case of Gamma P.1 re-infection is reported in Brazil where a 29 years old lady came down with this variant while she was infected with coronavirus few months before.

- **First identified:** Japan/Brazil
- **Spread:** Spreads faster than other variants
- **Severe illness and death:** No severe illness or death reported as per current available data.
- **Vaccine:** Approved vaccines are effective against this strain of Covid-19 virus.Some breakthrough infections are expected, but it remains very rare. A laboratory report indicates that the Pfizer-BioNTech vaccine can neutralize the fast-spreading Brazilian strain. But more research is needed for confirmation. Vaccine developed by Pfizer-BioNTech which is mRNA-based vaccine candidate, BNT162b2, against SARS-CoV-2 has demonstrated evidence of efficacy against COVID-19 in participants without prior evidence of SARS-CoV-2 infection, it develop antibodies against every parts of the spike protein, which makes vaccine less effective for single new mutation in the alpha variant as expert expects.
- **Treatments:** Antibody treatments and Plasma Therapy are less effective against this variant.

d. Delta - B.1.617.2

This variant was reported in India in October 2020. This was a virus mutation that caused havoc in the procession and other countries in mid-2021.This was the most dangerous and spreading variation of the Covid-19 virus. Delta - B.1.617.2 has spread to more than 100 countries of the world. Changes in spike protein in Covid-19 caused more transmissible and dangerous as per from US scientists suggested.

- **First identified:** India
- **Spread:** More transmissible compare to all available variants
- **Severe illness and death:** This variant cause more death especially in India, highly contagious strains.
- **Vaccine:** Reinfectionsreported in very small proportion of people who are fully vaccinated, even with the Delta variant. Very rare breakthrough infections are expected. A study of the COVID-19 vaccine's effectiveness against this variant found that second doses of the Pfizer-BioNTech vaccine were 88% effective two weeks after the second dose. Second doses of the AstraZeneca vaccine available in the U.K. were 60% effective. In clinical trial study it found that both vaccines are only 33% effective three weeks after the first dose.

Given the difference in protection between doses, experts recommend getting the booster dose as soon as possible. Experts have concerns about how the mutated delta variant affects immune response, many scientist

focus on their study continue till valuable outcome not achieved.

- **Treatments:** Antibody combination and Antibiotics treatments are less effective against this variant.
- **What to Expect:** As Scientists predict virus that causes Covid-19 will probably keep changing in time being. How virus makes new variation and how its impacted on human being is generally impossible to predict for researcher and experts. But change is just what virus's do [11, 12].

VACCINES EFFICACY

The five novel vaccines, BNT162b2 vaccine, mRNA-1273 vaccine, Ad26.COV2.S vaccine, ChAdOx1 nCoV-19 and Zycov- D were developed to target the corona virus spike protein main site where these variants have developed mutations, raising concerns regarding the effectiveness of these vaccines against the new variants.

- **BNT162b2 vaccine:** The efficacy of the BNT162b2 vaccine against the Alpha (B.1.1.7) variant was 87 % (95% CI 81.8 to 90.7) and 75.0% (95% CI, 70.5 to 78.9) against the Beta (B.1.351) variant. In vitro analysis of 30 serum samples obtained from 20 participants from the BNT162b2 clinical efficacy trial efficiently neutralized all SARS-CoV-2 variants. Neutralization of B.1.1.7 variant and P.1 was likely equivalent. Efficacy based on the random study in the population of Qatar The neutralization of B.1.351 was vigorous but lower than the ancestral SARS-CoV-2 strain. Clinical trials of the BNT162b2 vaccine against these four SARS-CoV-2 VOCs are ongoing and are awaited [13, 14].
- **mRNA-1273 vaccine:** The efficacy of the mRNA-1273 vaccine against the SARS-CoV-2 variants is unknown. In vitro analysis of serum samples obtained from volunteers of the mRNA-1273 vaccine during clinical trial study, clinical efficacy trial demonstrated that the mutations affecting the RBD of the B.1.1.7 variant had no significant effect on neutralization by serum obtained from volunteers who received the mRNA-1273 vaccine during clinical trial study. Conversely, the analysis also showed a decrease in titers of neutralizing antibodies against the B.1.1.7+E484K variant, B.1.351 variant, P.1 variant, and the B.1.427/B.1.429 variants. The reduction in neutralizing titers was significantly lower in the B.1.351 variant [15].
- **Ad26.COV2.S vaccine**: A single dose of this vaccine offers protection against COVID-19 consistently across many countries, including Brazil with a predominant percentage of strains from the P.2 lineage and across South Africa with a predominant percentage of strains from the B.1.135 lineage. It is important to note that the vaccine's efficacy in the US was higher by a factor of 1.3 compared to South Africa (72% versus 57%) [16].
- **ChAdOx1 nCoV-19 vaccine:** A two-dose regimen of the ChAdOx1 nCoV-19 vaccine did not confer protection against mild to moderate COVID-19 SARS-CoV-2 B.1.351 variant based on results from a multicenter, double-blind, randomized control trial 33725432. Another randomized control trial study regarding the ChAdOx1 nCoV-19 vaccine showed that in vitro neutralization activity against the B.1.1.7 variant was reduced compared with a non-B.1.1.7 variant and the clinical efficacy of the vaccine was 70.4 % for B.1.1.7 showed compared to 81.5 % efficacy noted in non-B.1.1.7 variants [17, 18].
- **ZyCoV-D:** The ZyCoV-D vaccine heralds a wave of DNA vaccines for various diseases that are undergoing clinical trials around the world. ZyCoV-D his vaccine has been manufactured by the Indian company Zydus Cadila, whose headquarters is in Ahmedabad, Gujarat. The Central Drugs Standard Control Organisation (CDSCO) Indian drug regulatory agencyis authorized trail of the vaccine for people aged 12 and older. ZyCoV-D effectiveness was reported 67% came from trials involving more than 28,000 participants, which saw 21 symptomatic cases of COVID-19 in the vaccinated group and 60 among people who received a placebo. ZyCoV-D is based onplasmid which is basically circular strands of DNA, plasmid encode the spike protein of SARS-Covid, together with a promoter sequence for turning the gene on. Plasmid converted into mRNA once after enter into nuclei of cells and travels main body of cell, the cytoplasm, and is translated into the spike protein itself. The body's immune system then give response against the protein, and produces tailored immune cells that can clear any future infections caused by virus. Plasmids usually degrade within weeks to months, but the immunity remains.

IMPACT OF COVID-19 ON MENTAL HEALTH OF CHILDREN

The voices of children resonate in a great word of the world. According to an estimate it is around 28%. Due to Covid 19 all the human beings in the world like children are also facing the brunt of this deadly epidemic. Social distancing and isolation is the only way to avoid this in the whole world. To avoid this deadly virus, the whole world started setting up containment zones and lockdown at the regional and national level. In this background one of the principal measures taken during lockdown has been closure of schools, colleges and others educational institutes and activity areas. These unavoidable circumstances which are beyond normal experience, lead to stress, anxiety and a feeling of helplessness in all. There is a clear indication that this epidemic has been more dangerous for new-borns and children than adults [20]. The nature and extent of impact on this age group depend on many

weakness factors such as the developmental age, current educational status, having special needs, pre-existing mental health condition, being economically under privileged and child/ parent being home quarantined or isolated due to infection or fear of infection. The below few sections discuss about impact of Covid on mental-health aspects of children and adolescents.

IMPACT ON YOUNG CHILDREN

Stress starts showing its effect before birth on a child even before he or she is born. During stress, parents' particularly pregnant mothers are in a psychologically prone state to experience anxiety and depression which is biologically as well as emotionally linked to the wellbeing of the foetus [21]. There is no doubt that this pandemic was so terrible that people were horrified. In the Corona era, if there is any trouble, then they were children, the children imprisoned in the houses could not understand what happened to us. Restrictions in walking, playing and having fun. For children 0-5 years old who could not speak properly, covid-19 virus was not less than any devil. But they say that every bad time gives some new learning. Parents also gave full time to children and family in Covid era. In such a situation, parents started giving a lot of time to their children, tried to learn their mind, health food, exercise, reading books and he also taught everything that was left far behind in this part.

IMPACT ON SCHOOL AND COLLEGE GOING STUDENTS

A study found that college going students and youth are more anxious about his/her future due to this Covid pandemic, cancellation of examinations, exchange programs and academic events are the major factor which increase their anxiety. Recent studies related to Covid-19 demonstrate that school shut downs in isolation prevent about 2-4% extra causality which is quite less if compared to usage of other measures of social distancing. Moreover, every governments and regulatory bodies suggest to the policy makers that other less disrupting social distancing strategies should be followed by schools if social distancing is recommended for a long duration. However, in current circumstances, it is controversial whether complete closure of school and colleges is warranted for a prolonged period of time or should be open with less capacity [22-24].

IMPACT OF COVID 19 IN OLDER ADULTS MENTAL HEALTH

According to the study of a survey, the mental state of elderly people did not have such a negative effect as compared to adults, this could also be one of the reasons, That old age person gets used to isolation and staying at home, he is not a working professional like a young person. In the last week of June, the Centers for Disease Control and Prevention (SAD) conducted a survey, the report of which was published in August 20.This survey was conducted among 5412 people, in which it was found that 933 who 65 years of age and were above had less than 7% of anxiety disorder, depressive disorder (approximately 6%), or trauma- or stress-related disorder (TSRD) (around 9%) than participants in younger age groups. According to the report, of the 731 participants with young aged between 18 to 24 years, 49.1% reported anxiety disorder; 52.3%, depressive disorder; and 46%, TSRD of the 1900 participants aged 25 through 44 years, 35.3% reported anxiety disorder; 33%, depression disorder and 36% for trauma and stress related disorder.

Among the 985 participants whose age was between 45 and 64 years, about 16% people had anxiety-related illness, 15% people had depression and trauma and stress related disease was found in 17% of the people. Suicidal tendencies and drug use habits have increased in adults compared to people in other age groups. In a 30-day study of an agency, it was found that this rate had increased by about 3 to 5% during Lockdown [25].

Many other adults could not cope with the stress of Covid-19 even due to lack of facilities. Using smart technology in these facilities, spending time with friends and family, doing physical exercises, listening to songs and so many resources were not able to use. Doctors, Physicians, governments and caregivers must estimate resource availability and consider how the absence of resources can be mitigated for a given individual and family. Governments should consider how electronic and digital technology can be better used in the field of health, education and entertainment [26].

IMPACT OF COVID IN WOMEN HEALTH

As we all know: that Covid-19 has badly affected our economy and social life, in the midst of all these misadventures, gender-based violence is also there. There has been an increase in this corona period cases of abuse were registered against many women. Women who have been worshiped and always respected in Indian society In Lockdown, they have faced a double whammy, the responsibility and security of a family from above. The responsibility of running was also on the women. For working women, this period was nothing less than a nightmare. All this had a direct impact on his health, due to which conditions like mental stress, domestic violence, and suicide were created in him. Due to the impact of Covid-19, there will be many insignificant changes in the economic and productive life of women, compared to men, it is also being predicted. Women earn less than men, save less and do not have the same safe jobs as men. They also have less social security than men and many women are

also part of nuclear family in which the whole family is dependent on him. Her capacity to absorb economic shocks is therefore less when compare to the men. The situation is worse in developing economic countries where the vast majority of women's employment approximately 70% is in the informal economy with limited protections against termination or for paid sick leave and limited access to social protection also. To earn a living these working women usually depend on public place and social interactions, which are now being restricted to contain the spread of the pandemic [27].

IMPACT OF COVID IN INDUSTRIES

There is no argument that the local economic and social spheres as well as global spheres have been challenged and some sectors have been drastically dismantled [28]. Whereas our industrial sector was badly affected due to this corona epidemic. Apparel, textile, tourism, hotel industries have been ruined in the same way in industries and how much time it will take to rise, it is hidden in the pit of the future, since the pandemic has severely affected giant countries such as the USA and European countries. If we talk about the positive effects, then in this global pandemic it makes one to think that what would have been positive in it. Sociologically, there is a theoretical perspective and a method called functionalism or functional perspective and this method could be utilised in analysing the impact of social action [29, 30]. The death rate was very high in Italy which was 13%. In Sri Lanka, it was 3.7% and it is a higher figure when compared to India, which was approximately 3% [31].

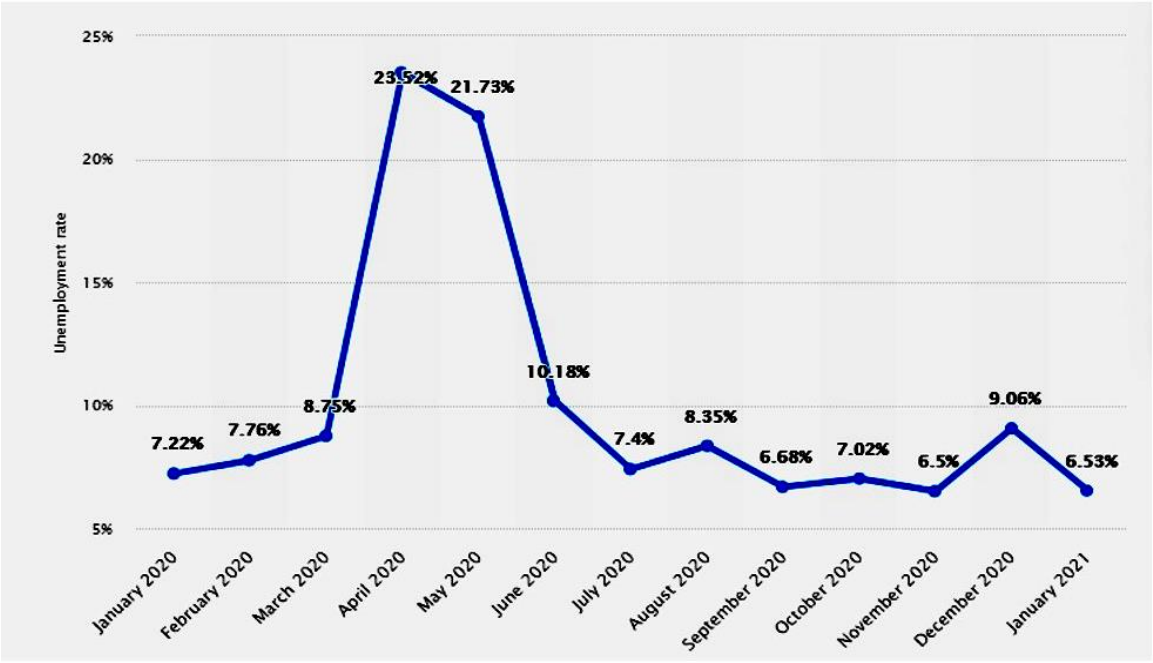

Figure 1: Impact on unemployment rate due to the coronavirus (COVID-19) lockdown in India from Jan 2020 to Jan 2021

Positive Impacts of Covid

Seeing the magnitude of this epidemic, people have also become very aware, they have also started understanding the ideal social behaviour.Social distancing. Its rules and conditions and how to follow them and save yourself and family from this disease people have taken it very seriously in their lives. This global pandemic has taught people how to live in a normal and a pandemic situation. It is because of social integration that the family and society stay together and are mentally strong to face any future calamities. This could be considering as major positive impacts of Covid-19. The effect of which was that people started changing their habits, taking special care of elders and also being careful in sharing their things. The new developed countries use their power may extend its supporting hands to the developing nations and poorer countries this might be also a good positive impact of this pandemic, Because of which there can be a competition in countries like China, America and India to help and advance their allies in South East Asia.

As per conflict theory of sociology (Conflict theory focuses on the competition between groups within society over limited resources). People adopt novel environment to the countries and their people. If it costumes the supply chain system in these countries then the people may accept the new order. Various important Fields like such as medicine, economics, political science, sociology, psychology, robotic

sciences, religious and humanistic sciences will create new innovation and ideological how to deal pandemic situation in near future.Therefore, research and development activities will expand in almost every countries.

Negative Impacts of COVID-19

If we talk in the context of April 2020, then this global pandemic has created a sense of fear, anxiety, tension, insecurity, there is no doubt about it: Social activities were also curbed to a great extent by this epidemic. Health and medicine, especially the biomedical system, had devoted almost all its power to fighting this global epidemic. It is affected due to various conditions in nature.Due to which many deaths have been recorded in the pages of history. Many diseases, weak immunity, lack of medicines were also the reason for more deaths due to corona. It was impossible for the medical staff, supporting staff, social workers and health administrators to manage them all at local, domestic and global level once. The World Health Organization (HU) and the United Nations (UN) agencies came forward to fight this global pandemic. Some countries like Italy, Spain, US and China and many European countries are facing much higher disintegration in all subsystems of society. Some countries like Italy, Spain, US and China and many European countries are facing much higher disintegration in all subsystems of society [32, 33].

IMPACT OF COVID IN WORKING PROFESSIONAL

Corona virus has brought huge changes in the lives of working professionals as well, his lifestyle working culture everything suddenly changed due to corona virus. The culture of work from home has also changed the mental state of working within the given time frame which has a direct impact on their health, constantly sitting in front of laptop / computer screen, constantly talking on mobile phone.According to a survey, about 60% of the time of working professional in mobile and computer has increased in working from home. Due to which diseases like depression, anxiety, sleeplessness, and indigestion have also increased. Work from home culture has also disturbed the work life balance to a great extent: of working professionals.The study findings indicate that these challenges are basically stemming from challenges surrounding infrastructure readiness, digital readiness, changing nature of deliverables, workforce demand versus supply problems and challenges surrounding job losses [34].

IMPACT OF COVID IN ECONOMY/GDP

The pandemic has affected almost everyone. In which sector, how much damage will be caused by the epidemic, it is for the economists to estimate. But all the economists completely agree that the economy has suffered a lot due to this pandemic. The economy of all countries has been pushed back by almost 50 years. Many countries have been badly devastated and it will take a long time to recover. According to an estimate, due to the Covid-19 Pandemic, the GDP (Gross Domestic products) of the people of the big economic country has been lost in 2020 by 2.9. This prediction was already restated to a GDP loss approximately 4.5 percent. If we put this number in perspective of global GDP was estimated at around 87.55 trillion U.S. dollars in 2019 – its clear indication of 4.5 percent drop in economic growth results in almost 3.94 trillion U.S. dollars of lost economic output worldwide.

Impact of Covid-19 on Indian Employment 2020-2021

The falling economy had a direct impact on employment. In the year 2020, the unemployment rate in India had reached around 26%, which gradually improved. And in January 2021, it came down to close to 6%. A huge contribution to the rising unemployment was made by lockdown. Many industries were completely closed, due to which the unemployment rate increased exponentially. Due to lockdown, the demand decreased, the production also decreased, which directly affected the turnover of the companies. Unemployment went up to about 24 percent in April 2020. Furthermore, this caused a Gross value added loss about to nine percent for the Indian economy that month.

The trickle-down effect& Government Schemes

According to a survey, which was done between February 20 and April 20, there was a decline in the household needs of about 46% people. Inflation rates in household items, fuel, food products are very less likely to come down in the near future. Activities like Social Distancing, Lockdown, Isolation, and Quarantine have given life to mankind on one hand. But on the other hand a very large group has been pushed towards poverty. Many families end up with home support services – essentially a disorganized monthly-paying job. Almost every Indians families spent a large amount of time engaging in household chores themselves, making it the most widely practiced lockdown activity.The worst and worst effect of the virus was on the people of the lower strata who did not have better health facilities. Keeping this category in mind, the government launched many schemes. So that their life style can be improved and a better life can be given. Prime Minister Garib Kalyan Yojana was one of them. Under this scheme, 312 billion Indian rupees were accrued and provided to around 331 million beneficiaries that included women, construction workers, farmers, and senior citizens. More schemes was announced in mid-May by government, to mainly support small businesses through the crisis. The study

of how the unemployment rate increased in India from Jan 20 to Jan 21 is given through a graph below [35].

CONCLUSION

The only purpose of making this paper was to study what changes came due to this nonliving virus in the lives of people. Corona virus will be remembered as the worst tragedy of the 21st century. It may take a long time to forget how people were quarantined in their homes due to this virus and how the entire world economy was destroyed. The health and medical system of all the countries around the world including India had collapsed due to this sudden pandemic situation. Talking in simple words, people of all age groups have been affected due to corona virus. Most of the children and old age persons have gone through stress, worry, emotion and mental trouble. Talking about women, domestic violence, fear of job loss and keeping family safe used to be a big choice for them. In this paper, all those aspects have been highlighted which have caused damage due to corona virus. Whether it is health and medicine, economy, employment, social class, school, college, business, etc., all have been affected: due to this virus. In the midst of all these negative influences, if there is anything positive, then it is that the world has entered a new digitalization era.

Work from home has started anew, the payment of digital payment has increased, and online classes are accepted. The utility of electronic gadgets increased among the people, Overall, in this period we faced a terrible tragedy, in the midst of many negative aspects, we can say that there was some positive as well.

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