TECHNOLOGY AND COVID - 19

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Abstract - *The crisis faced by the world lately is because of the arrival of COVID-19. Its outbreak has been treated as a Public Health Emergency of International Concern by the World Health Organization. The current need of the hour is to take this pandemic disease seriously and study its key aspects. This paper provides information regarding its cause, symptoms and preventive measures. Various consequences that it caused in the world economy, sports and cultural events, education and service sectors are also to be considered. Undoubtedly, Artificial Intelligence and Information Communication Technology can be used. So the applications of these by various agencies that have already been implemented are discussed. Also, some ideas are proposed to handle the situation.*

***Key Words*: Symptoms, Precautions, Effects, Information Communication Technology (ICT), Artificial Intelligence (AI).**

1.INTRODUCTION

1.1. What is coronavirus and COVID-19?

Coronaviruses are a family of related viruses, first discovered in the late 1960s, causing illness in mammals and birds. Some members of this family identified since their discovery include SARS-CoV in 2003, HcoV NL63 in 2004, HKU1 in 2005, MERS-CoV in 2012 and SARS-CoV-2 in 2019. The virus first breaks into cells inside their host and uses them to reproduce themselves and disrupt the body's normal functions. Symptoms of the virus infection vary in different species. In humans, coronaviruses cause respiratory tract infections which can be as mild as common cold or others can even be lethal such as Severe Acute Respiratory Syndrome(SARS) , Middle East Respiratory Syndrome(MERS) and COVID-19.

Coronavirus disease 2019 or COVID-19 or novel coronavirus is a transmissible disease effectuated by the pathogen named SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2). Cases of the disease first emerged in November 2019 in the Wuhan region of China, when a mysterious illness was reported. It all began when Dr Li Wenliang in Hubei province of Wuhan discovered it and tried to warn colleagues about a new Sars-like virus. But sadly the Chinese government didn't pay notice to his yells as he was reprimanded and the situation worsened. For about one month after that date there were one to fi ve new cases reported each day and by 20 December there were 60 confirmed cases. The Chinese govt initially locked down Wuhan - the epicenter of the COVID-19 outbreak but to no avail. On February 26, 2020, WHO reported that new cases professedly dropped in China but rose in Italy, Iran and South Korea. Later the number of new cases outside China exceeded the number of new cases in China for the 1st time.

Soon it spread like wildfire and reached other continents (except Antarctica) affecting more than 150 countries across the world. The outbreak was recognized as a pandemic by the World Health Organization (WHO) on 11 March 2020. A pandemic is the 'worldwide spread of a new disease' as defined by the WHO. Further, on 13 March they announced that Europe had become the epicenter of the pandemic. The continent moved deeper into lockdown with 100 million people retreating to their homes. More than 254,798 cases of COVID-19 were been reported. More than 10,448 people died, while thankfully over 88,483 recovered[6].

1.2. Cause, Symptoms and Preventive measures

The virus is primarily spread between people within about 6 feet via respiratory droplets from coughing and sneezing. It is considered most transmissible when people are symptomatic, though the infection may be possible even before the symptoms appear. Common symptoms include cough, fever, and difficulty in breathing. Complications may also include severities as pneumonia and acute respiratory distress syndrome. Some of those affected may be asymptomatic, while the test results are positive which confirms infection but show no clinical symptoms. The usual incubation period ranges from 1 to 14 days, and most commonly 5 days. However, one case had an incubation period of 27 days.

A study published in the Journal of Hospital Infection looked at the lifespans of COVID-19 on various surfaces. At a temperature of 20 degrees Celsius (68 degrees Fahrenheit) it lasts for 2 days on steel, 4 days on wood and glass, and 5 days on metal, plastic and ceramics. It survives between 2 and 8 hours on aluminum, and less than 8 hours on latex. According to Graham, smooth and porous surfaces like doorknobs and tabletops are better at carrying the viruses in general. Porous surfaces like money, fabric and hair do not allow viruses to survive as long. Even smartphones can virus for almost 2 days.

As mentioned till 17th March 2020 there is no confirm vaccine to prevent coronavirus disease 2019. Foregone

research on SARS-COV is utilized because SARS-CoV-2 and SARS-CoV both employ ACE2 enzyme to capture human cells. On 16 March 2020, the 1st clinical trial of a vaccine started with 4 volunteers in Seattle. The vaccine contains a sample of harmless genetic code copied from the virus that causes COVID-19.

Recommended preventive measures include:

- Frequent hand washing with each hand wash of duration 20 seconds

- Avoiding touch of eyes, nose, and mouth

- Covering the mouth when coughing, sneezing with a tissue

- Maintaining distance from people (particularly those who are unwell)

- Self-isolation for 14 days for people who suspect they are infected

- Refraining oneself from going to crowded places

- Mopping and disinfecting dirty or frequently touched surfaces with the available disinfectants

- Following are some of the CDC's recommendations for using face masks-

    o Not to use it if healthy and staying indoors.

    o Strictly to be used if COVID-19 like symptoms are noticed.

To prevent the spread of the pandemic travel restrictions, quarantines, curfews, event postponements or cancellations, and facility closures are implemented. These include the closure of schools and universities either on a nationwide or local basis in at least 115 countries, affecting more than 950 million students.

2. EFFECTS

Effects of the pandemic include social and economic instability, xenophobia (foreigner fear) and hate against Chinese, East and Southeast Asia people, the suspension of in-person religious services, postponement or nix of Olympics and other sports or cultural events, and the online spread of misinformation and conspiracy theories about the virus.

The extended quarantines, supply chain disruptions and a sharp reduction in tourism and business travel resulted in the weakening of the global economy or even recession. The preventive measures imposed are a far greater threat to the world economy than the virus itself. [2]Oxford Economics, one of the leading institutes for economic

forecasting, has warned that this pandemic could lead to a reduction of 1.3% in global economic annual growth, equivalent to 1.1 trillion dollars in lost revenues. Asian and European stock markets continue to fall, while the three key US indexes have recorded a slight increase as of 1 March, 2020.

In a short research note on the issue, Gabriel Mathy, a macro economist at American University, says that the COVID-19 recession will be the 1st "services recession" driven to a huge extent by the depressing activity in the service sector.

The origins of the virus have become part of US-China diplomatic conflict, fueled by US officials calling the disease "Chinese coronavirus" or "Wuhan virus".In return to which China started blaming the US as the "real culprit" behind the virus as Zhao Lijian, a foreign ministry spokesman suggested without evidence that the US army may have brought it into China.

3. AI AND ICT

3.1. Implemented Ideas

In February 2020, China launched a mobile application to deal with the disease outbreak. Users are asked to enter their name and ID number and the app can detect 'close contact' using inspected data and therefore a potential risk of affliction. Every user can also check the status of 3 other users. If an expected risk is detected, the app not only recommends self-quarantine but also alerts local health officials.

Alessandro Vespignani [1], a computer scientist at Northeastern University in Boston has developed predictive models of the epidemic with his team. The model called EpiRisk calculates the probability that infected individuals will spread the disease to other areas of the world via travel. The tool also tracks the effectiveness of travel bans and lets the user explore the effects of potential restrictions applied to airline traffic and commuting flows.
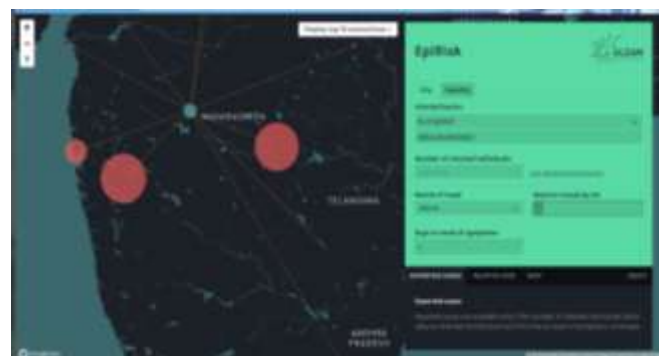

Fig -1 : The EpiRisk tool

Microsoft's search engine Bing launched a COVID-19-tracker (Fig.1) on 16th March 2020. The map provides real-time updates on the spread of COVID-19. The platform, supported by the considerable technical expertise of Microsoft, one of the world's largest technology companies, pools data from various legitimate sources. Figures on fatal cases, totally confirmed cases and the number of recovered cases are shown on a global scale as well as by individual country. It also breaks down the data by nation and keeps up to date with the latest figures and pools them. The tool itself doesn't say how frequently its numbers are being updated, but at the time of publication some researchers found the data to have been updated with each passing hour.

Fig –2 : Live Report of COVID-19 Tracker

The tracker is accessible on desktop and smartphones. Users can navigate the map to find the required information. Specifying a particular city will bring up the most up-to-date figures as well as news articles from reliable sources.

Google launched COVID-19 information and resources website that provides detailed information regarding COVID-19. It has 6 sections of information namely health information, safety and prevention tips, data and insights, resources to help, support global relief efforts and latest from blog.

Fig -3 : COVID-19 Information and Resources

First two sections give general details about novel coronavirus. Data and insights give the figures relating to the cases affected by COVID-19. Resources to suggest various activities for people to do during this phase of quarantines with video links of cooking, exercise, learning, work from home, etc.

3.2. Proposed Ideas

The use of ICT in such a situation can be done for not just social awareness but also for checking the stocks of medicinal drugs, masks, sanitizers, tissues, etc. The areas where the patients are at huge will be noted and significant updates in the same will lead to the awareness of others. Also the use of AI bots in delivering medicines instead of humans leads to significantly lowering the contamination risks. Drones serving civilians with food, other necessities in lockdown conditions.

Initially social media groups can be created of the entire city. Considering size limitations, the groups can be made different for different areas and creating an official group for heads of all such areas to assure unity and track the other groups. The messages regarding the stocks can be sent on such groups. The number of beds available in hospitals, the count of medicinal requirements, food management and various other problems will be solved using a single platform. Also the actual situation of any particular area of that city will be monitored thoroughly, thus assuring that there is neither carelessness of citizens nor any kind of havoc is being created. It is important to convey the message of staying in the gray zone of no extreme panic or overconfidence in such situations.

AI bots made up of cardboard only for the reason of delivery of medicine, food packets or other initials to patients in hospitals will be of great help. Thus there is not even a need for human caretakers. Hence solving the problem of shortage of staff at hospitals in highly affected areas.

Unmanned aerial vehicles, or drones, have to be most innovative considering to be applied in emergencies. The only care should be taken that these drones are made of porous substances since they don't allow the virus to rest on them. They can be utilized in -

- Surveillance of citizens in highly affected areas.

- Delivery of food or medicinal packages without contamination or human touch.

- Delivery of masks, gloves or other such essentials to those in need.

- Conveying official messages through microphones easily to a large number of people without mass gathering.
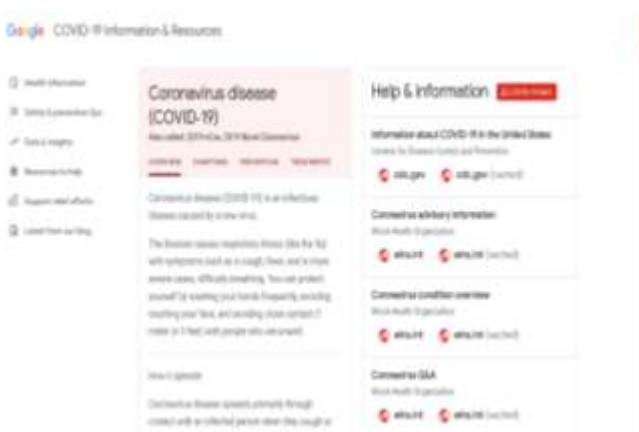
4. CONCLUSION

The world has experienced such epidemics several times even before but detailed study reports reveal that COVID-19 has tremendously affected not just the health of humans but also the other sectors. Although the WHO is working to circumvent the issue, the time duration till which people will suffer is indefinite. Neglecting the situation and transgressing orders may worsen the situation. The use of developed applications and developing new applications will help officials as well as commoners to overcome the stress. Technology has always lent a helping hand to humans and will continue to do so.

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BIOGRAPHIES

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