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Make-over in the sustainable working platform during COVID-19 pandemic

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A B S T R A C T

Civilizations have witnessed a long list of diseases that have made a devastating impact on humankind’s working in almost all aspects of life. At the start, COVID-19 bought the world to a standstill. Today lakhs have lost their lives, many are still struggling on the death bed, and large numbers have lost their jobs. The world’s conventional education system seems to come to a halt with the physical closure of all schools and institutions. Understanding the losses that occurred due to several diseases, the present world has to prepare a backup strategy to reduce the economic and human losses. The paper aims to identify the measures required for minimizing the losses caused by COVID-19 to human evolution. Further, this study proposes a working mechanism for several affected sectors during the disease. The paper also discusses the current challenges from the COVID-19 pandemic crisis and possible make-over in the working platform. With the help of this sustainable working platform, the affected sectors from COVID-19 can be helped. Further, we can reset specific sectors and sustainably reshape the world.

1. Introduction

The outbreak of the novel Coronavirus disease (COVID-19) has posed a severe threat to people across the globe. As per the United Nations Sustainable Development Goals (SDGs), to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. The world is profoundly impacted by the COVID-19 pandemic, whereby raising fundamental questions about sustainable development. Several research types have suggested that lockdown/standstill situations during pandemics/epidemics reduce these diseases’ transmission [16,20]. Today’s, most countries use this mechanism, along with other measures to slow down the transmission rate of COVID-19 [9,10,38]. Whereas during this situation of lockdown, many other problems have surfaced in different sectors such as delayed classwork and examination in School/Colleges/Universities, with low/no office work, there is increased unemployability, as the main hurdles faced by policymakers across the globe [1,9,19,44].

In this research work, we have proposed to change the routine platforms used for working in various sectors/departments to enable them to run their office work in a lockdown situation, and the wherein flow of work does not get disrupted. Suggestions have been made to upgrade the existing departments (where possibilities persist) with provisions to work from anywhere/anytime [9,12,22,25,31,37]. As a result, any ill fate that surfaces due to pandemics/epidemics can be touched with the best possible ways to reduce the death rate of valuable lives, risk of unemployment, etc. [8,14,30]. Authors discussed the various issues that emerged due to COVID-19 and have divided this research study into three sections: literature review, proposed strategies, and conclusion.

2. Literature review

Pandemics are the public outbursts of communicable diseases that can critically raise illness and associated death rates over a broader range of geographical extent and bring substantial social, political, and economic disturbance throughout the world [9,17,45]. Researchers across the globe have suggested that the greater exploitation of the natural environment, global travel burden, changes in land use, and urbanization has increased the possibility of pandemics over the past century [41,42,49]. Substantial policy-driven strategies have intensified the pre-

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requisite of categorizing and limiting the emerging outbursts that may lead to contagions pandemic and the need for expansion and sustainability to build preparedness and health centres [11,27,36] and all other sectors affected by these pandemics/epidemics. Table 1 lists the various pandemics/epidemics faced by the world for the last 2600 years. The table has not covered all the pandemic/epidemics, but the short description would help readers understand the timeline and effect of various diseases on human civilization.

3. Need for the study

The state of quarantine has surfaced many problems in various sectors of the economy & human being like education, industry, government, trade, transport, import-export, paramedical industry, information technology, security surveillance, tourism & aviation and resulted in huge losses economically and socially (including psychologically) in all the sectors. We need to learn from pandemics that occurred in the last 2600 years and accordingly evolve corrective actions. Medication, isolation, and quarantine have been observed during these pandemics. However, the latest pandemic has a much greater magnitude and has occurred when human beings are technologically advanced. During this period, we see the best use of available technology to propose new platforms for work to cater to the problems caused by COVID-19 [34,46]. Whereas it is required to manage unforeseen situations during pandemics/epidemics, the losses caused by these deadly diseases can be reduced to the maximum shortly.

4. Current challenges during the COVID-19 pandemic

COVID-19 has forced countries into lockdown while imposing inconvenience in the corporate and medical sectors, the tourism sector, and almost all industries. With an increase in social distancing and self-quarantining across various companies globally, the culture of work from home*, popularly known as WFH, has sprung up into the mainstream [2,23,29]. Table 2 shows some of the significant challenges caused by COVID-19.

5. Learning from the previous pandemics

As historians remind, this is neither our first nor our most deadly war with an infectious disease. Previous pandemics taught the needful measures to curb these diseases. The historical evidence of various diseases offers us considerable advice, but it is limited, only if people know the history and respond with wisdom. Further, pandemics highlight underlying weaknesses in the various sectors that might not have been in evidence before the outbreak.

5.1. The virus does not spare a particular age group

The 1918 epidemic of influenza affected the young and healthy, ranging from 15 to 45 with immediate lethality. Every individual had to protect themselves and their dear ones irrespective of their age groups [13,39].

| S no. | Name of the disease          | Timeline | Place of occurrence | Death enrolled | Source |
|-------|------------------------------|----------|---------------------|----------------|--------|
| 1     | Plague of Justinian          | 541–750  | Pelusium            | (2.0–2.5) Million | [43]   |
| 2     | Black Death                  | 1347–1351| East-Central Asia   | (1.0–1.3) Million | [6]    |
| 3     | Great Plague of Marseille    | 1720–1722| France              | 0.1 Million     | [5]    |
| 4     | The Great Plague of London   | 17th century | Great Britain       | 0.2 Million     | [33]   |
| 5     | Influenza                    | 1918–1919| USA                 | 0.65 Million    | [24]   |
| 6     | Spanish Flu                  | 1918–1920| Geneva, Switzerland | 0.125 Million   | [4]    |
| 7     | Cholera                      | 19th century | Asia               | 0.12–0.14 Million | [21] |
| 8     | Ebola Virus Disease          | 1976     | Guinea              | 0.02296 Million | [50]   |
| 9     | HIV/AIDS                     | 1990–2012| Republic of Congo   | (1.5–2.2) Million | [18] |
| 10    | COVID-19                     | 21st century | Wuhan, China       | 0.062784 Million | [51]   |

| S no. | Challenges                  | Description                                                                 |
|-------|-----------------------------|-----------------------------------------------------------------------------|
| 1     | Availability of safe health facilities | During the lockdown period getting medical assistance is highly risky. Where chances to get infected unknowingly from someone having symptoms of SARS CoV 2 are relatively higher while visiting a physician. If the hospitals start taking the precautions and ask for testing, then it becomes quite costly. Simultaneously, with all focus on COVID-19, regular patients are being denied even the necessary facilities, and there is a high mortality rate. The availability of items like food, vegetables, and other eatables was not readily available during the lockdown period. Countries like India, where most shop vendors are not educated enough to make healthy and clean environments surrounding their shops, are unknowingly promoting transmission. |
| 2     | Availability of essential goods and items | As observed from the previous pandemics/epidemics, health emergencies, like the Ebola outbursts, the most devastating impact is on the education sectors in countries resulting in poor learning outcomes, higher left out rates, and the prolonged closure of educational institutes invite disproportionately higher negative impact on the most susceptible students. The majority of households in the present world have varied access to technology, access to the internet with high bandwidth, access to smartphones, and all these factors are interrelated with the financial status, especially in middle-income countries. The utmost urge is to launch programs that can approach the target in need is decisive. |
| 3     | Education system             | As observed from the previous pandemics/epidemics, health emergencies, like the Ebola outbursts, the most devastating impact is on the education sectors in countries resulting in poor learning outcomes, higher left out rates, and the prolonged closure of educational institutes invite disproportionately higher negative impact on the most susceptible students. The majority of households in the present world have varied access to technology, access to the internet with high bandwidth, access to smartphones, and all these factors are interrelated with the financial status, especially in middle-income countries. The utmost urge is to launch programs that can approach the target in need is decisive. |

4. Security Surveillance

Security is also among the top challenges in conditions where adequate surveillance is required to protect human lives and private and government-owned properties. Office work, whether it is government or private, all have got extensive losses due to lockdown, and it will take a long time to bring back their positions and recover their losses. There is a mass relocation of labor and other working populations. Thereby creating hunger & poverty problems, and many of the global population may move below the stipulated poverty line.
5.2. Do not blame the sick

The present world is inclined to accuse people who get infected due to pandemics/epidemics. The cholera epidemics surfaced during the 1830s–1860s, where white Protestants spurned Irish migrants as routes of the plague. In the 1950s, for polio African Americans, were targeted. Similarly, in the 1980s, for HIV-AIDS, the LGBTQ community was blamed.

5.3. Losses are everywhere

Forfeiture of human lives was not the only loss witnessed by the world during these periods; pandemics tend to have a harsh impact everywhere in social and economic fields.

5.4. Social distancing works

The reason it was so deadly and transmitted so quickly across the world that anyone gets in contact with the infected one will transmit the virus. Maintaining social distance will help to reduce the chances of transmission.

5.5. This pandemic will end

Preventive measures like social distancing, herd immunity building, collaborative work to develop treatments and vaccines will ultimately bring the effect of these deadly viruses to come to an end.

6. Possible make-over in the working platform during COVID-19

Today, it is impossible to completely shift the existing work platform in every field due to resource constraints and the type of job to be performed, and the organizational culture. Whereas, the sectors where make-over in the working platform are best suited and feasible are discussed in sections.

6.1. Education: online education and remote learning

In response to the present situation, extensive lockdowns have been imposed. This has invited technology interventions in education, like studying from home, online learning, distance learning, etc. The shift of platform in the educational field for distance learning invites students without exposing themselves to the outer world in the present situation, which is a welcome step during pandemics [52,53]. Many apps /online portals have come to provide support and help students & teachers during this period to cover the losses that occurred due to the unavoidable circumstances (COVID-19). Make-over of the platform for learning can contribute to the prevention and quick recovery of public health while extenuating the impression on students and learning. Where health amenities are being threatened, schools/ colleges/ universities have started into makeshift holding centres during the pandemic. The education sector has enormous potential to contribute and shield our children and youth from becoming transmission carriers for COVID-19. Educational administrators can frame policies that can be used during the pandemics to make-over novel learning modules that can reach everyone, make the arrangements more robust, and prepare for emergencies [28].

6.2. Online medical assistance: development of online portals and applications to provide virtual health care

Shifting towards Virtual Health Care during COVID-19 pandemics has been successful. Thus, healthcare planners worldwide share their experiences and expertise online to lower the transmission rate of patients. Further, they are pursuing medical assistance through online mode rather than visiting the hospital after the pandemic emerged as worldwide. Virtual Health Care technologies and machinery are being espoused at a considerable rate to offer patients convenience and reduce coronavirus transmission. Virtual Health Care is an online model where health-related facilities, information, and services were delivered to the patient via permanent technology solutions. The easy availability of a virtual health care system can significantly improve patients’ wide-ranging health results while remaining safely at home.

6.3. Software and hardware support

Working from home, due to COVID-19, especially when one has the right mix of equipment’s and software that helps the workflow. The basics requirement for work from home are a PC or a laptop, good LAN or Wi-Fi connection, and a continuous power supply. Amid the Coronavirus outbreak, both Google and Microsoft have extended their helping hand by granting free access to Hangouts Meet and Teams, respectively, to all their enterprise subscribers for a limited time. G Suite users can use Hangouts Meet for texting, sharing links, video calling, and even sharing stickers. Similarly, Microsoft’s Teams allows one to collaborate with teammates through texts, video calls, audio calls, and screen sharing features. Zoom has also captured a good market of video conferencing market.

6.4. Entertainment (gaming and non-gaming)

For the development of Gaming platforms which support work from the home culture in the present scenario are GameMaker: Studio, Unity, Stencyl, Cocos2D, PlayCanvas, MonoGame provides the most popular game development tools in the industry. With the emergence of these platforms, many have had the chance to make their epic adventures with these top game development engines. Amazon Prime, Netflix, Hotstar, Vudu, Sony Crackle, Disney+, HBO Now Hulu, Tubi TV, etc. are among the various entertainment apps with the latest movies, web series, TV Serials, etc. which are very useful in the current lockdown situation for anyone to entertain themself.

6.5. Remote monitoring of processes using IoT for security and surveillance

Remote surveillance or monitoring using the Internet of Things (IoT) is a web-based technology like Global Positioning System (GPS) receiver and an onboard communication device with every single machine. The machine location has been identified by the GPS receiver, while the sensors on the machine collect the information and sending data to it over the communication device [3,37]. Web Ports are used for transmitting data and information through the modem to designated users. With the help of remote monitoring, users can track real-time data of machines positioned virtually anywhere and use the information to improvise their security concerns [15,40].

Monitoring starts with accumulating facts by instrumenting the arrangements one is working with. As with some IoT set-ups, the surveillance systems were not the devices themselves, whereas the surrounding and external processes are the subject matter of concern. Different monitoring devices are installed as per individuals’ requirements like an alarm panel on-premises or buzzer. These monitoring types are valuable but have restricted possibilities for long-term analysis or in-depth [32,40,48].

6.6. Delivery of items with a twist

The emergence of online shopping/ delivery in categories likes electronics, stationery items, and others and grocery items bring comfort to its users. As grocery items, fruit and vegetables are the essential days to day needs, which invites a more significant risk of transmission of COVID-19 from a local vendor where security checks and hygiene were not given much importance. In the prevailing situation, the delivery of all essential items from hygiene and secure places boosts the daily user.
to stay in and stay safe. Due to COVID-19, people are self-isolating and, at a time, are unable to get the food they need. Such platforms’ availability brings ease to some people in the prevailing situation [26,48].

6.7. Data security concerns

As with a major shift of work from offline mode to online mode, the highly secure and effective data transmission mode is required to fulfill the hour’s need.

7. Major contributions of the study

The flow of work will not get halted even under the situation of lockdown as caused by COVID-19. The availability of alternative ways to Work From Home (WFH) or the quarantine place will boost the work culture for any sector offering alternative platforms to work with [7,35,40]. The shift in platform brings the opportunity to start working throughout the world without location constraints. Freelance networks like Toptal [47] have taken advantage of this idea and have started joining top corporations with superlative software developers from every corner of the world. The major contributions of the study are as under:

- It will reduce the risk of losing a job, even under such situations, sufficient staff to fulfill the demand and supply is readily available.
- It will help to satisfy the need for all the essential items required during these situations and help their production as well.
- One major advantage of shifting the work platform to online mode is that it will save commuting time from home to office, and this is a real-time burner in major cities.

8. Limitations of the study

With the sudden change in the working platform, a formal training session needs to be conducted to make this platform user-friendly. These major limitations of this study are; that under the present circumstances of COVID-19, there is no work for many, and one has to replace it with a suitable platform to contribute and lower the damages/losses that occurred due to the lockdown.

- It is challenging to monitor performance—new ways and means need to be explored to manage home workers and monitor their performance.
- Risk of information security—platform shift could more likely invite information security problems.
- Increased telecommunications costs—work from Home scenario will increase telephone, broadband, electricity, bills, etc.
- Economic differences—the present world is divided into various economic classes where accessibility of online services to the general public is not that easy as it seems.
- Many jobs do not support platform shift—sectors like Tourism Industry, Manufacturing, Laboratories, Developmental work, and Constructional work are not supported to shift in the platform under lockdown situations.

9. Future scope of the study

In the future, Work from Home (WFH) technologies will be required to handle such situations, and these need to be encouraged in pandemic like COVID-19. This revolutionary shift to the new platform could be easily adopted by the professionals, administrators, engineers, doctors, staff, and the general public to reduce the transmission rate of COVID-19 and other similar pandemics or epidemics. The present world is heading towards unexpected threats from the environment for which new ways and means need to be explored to protect the world from the ill effects of Mother Nature. This revolution provides disruptive innovation to reduce the ill consequence of COVID-19 pandemic.

10. Conclusion

The purpose of historical timeline research is to help humankind to learn from human evolvement during any emergency. We must consider how best to prevent diseases among several sectors and how best to limit outbreaks in a maximum sustainable manner. Preparedness is the only possible, visible, and initial cure we have learned from the previous diseases. While different scenarios exist, several assume that the novel COVID-19 spread will happen in waves, which means the process of addressing it should be cyclical. It would enable “coping” once the predicament hits and diminishing the undesirable effects. The plan can include introducing protocols for virtual healthcare and hygiene practice, offering distance learning, work from home, etc. It is critical to work jointly on the experience of previous outbreaks (Ebola, SARS, etc.) in support of Governments in understanding the options available. Adopting and implementing organizational, environmental, and personal measures recommended in various sectors will help overcome this COVID-19 pandemic.

Declaration of Competing Interest

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