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Review

Psychosocial, Economic and Environmental Impact of COVID-19: Risks and Rewards

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Abstract

Background and Objective: Two thousand twenty was a significant year for the world, changing drastically every aspect of human life within a short period of time due to the outbreak of COVID-19. The pandemic affected human beings physically, psychologically as well as and socioeconomically. A noticeable reduction of environmental pollution and climate changes were reported during the worldwide lockdown in response to COVID-19 pandemic. In January 2020, the World Health Organization (WHO) declared the outbreak of COVID-19 as a public health emergency. In spite of the panic created globally, the positive and negative elements resulting in risks and rewards have been discussed extensively. This narrative synthesis further presents suggestions to reorganize the social systems to save the earth during pandemic.

Methods: A thorough literature search was carried out during December 2019 – January 2021 period, using the PubMed, Researchgate and Google Scholar. Findings were presented as a narrative synthesis.

Results: Findings report a noticeable reward of COVID-19 including the positive impact of family life, in terms of improving inter-family relationships, climate changes such as reduction of environmental pollution, carbon emissions and energy use. Negative aspects include the economic crisis and financial risks caused by restrictions such as lockdown measures.

Conclusions: The COVID-19 has immediate positive effects on the environment while there are negative effects on economic aspects.

Keywords: *COVID-19, psychosocial, economic, environmental, impact*

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Introduction

The pandemic affected globally; as of 30th January 2021, there have been 101,561, 219 confirmed cases of COVID-19, including 2,196,944 deaths (WHO, 2021a). Sri Lanka confirmed 62,445 cases of COVID-19 and 305 deaths as of 30th January 2021 (WHO, 2021b). The virus primarily spreads from person to person through droplets produced by sneezing, talking, coughing, and direct contact (Rume & Islam 2020). Scientists and experts suggest the use of non-pharmaceutical measures such as wearing face masks and washing hands with soap, regular use of antiseptic solutions and maintaining social distance to control the spread of the virus (Hui et al., 2020). Due to this outburst, almost seven billion people have started using protective measures, which created a considerable amount of refuse accumulating in the environment (WHO, 2020a). Due to the pandemic curfews and nation-wide lockdowns, people were confined to their residences and flights as well as all other modes of transport were cancelled worldwide, resulting in a drop in demand for fuel, thermal power and use of other industrial productions (Saadat et al., 2020). After the outbreak it was reported that the quality of air and water in waterways had started to improve and wildlife to flourish (Lokhandwala & Gautam, 2020). Effective waste management started to minimize possible secondary influences upon the health and the environment (Fadare & Okoffo, 2020). World organizations suggested attractive modifications to build a more sustainable and inclusive economy in affected countries (United Nations Sri Lanka, 2020).

Restriction of movement due to an imposed lockdown (WHO, 2020b; Rume & Islam, 2020) affected individual life and socio - economic environment, creating a significant decline in the global economy (Saadat et al., 2020). The poorer families were less financially resilient and were more exposed to losing their jobs and earnings influencing heir psychosocial environment. At the same time, their children were disadvantaged by school closures. Nevertheless, it increased the sense of social connectedness and morality of the family (Karunathilake, 2020).It was widely reported that psychological issues among people were rising parallel to COVID -19 spread. Mental health services were provided by psychother apists and psychologists for those who needed mental support (Liu et al., 2020).

The impact of COVID-19 pandemic on reduction of environmental pollution and climate changes are widely reported and considered a reward of the outbreak (Bashir et al., 2020). There is evidence of connection between environmental and economic impact on health and wellbeing. Therefore, it is timely to explore the socio-economic and environmental impact of COVID-19 on health and well-being of the people. The purpose of this narrative review is to explore recent research studies on COVID 19 and further discuss its adverse and positive indirect effects on human lives and environment and how to re-organize the affected social systems.

Methods

Narrative reviews describe and discuss the existing literature on a specific topic or theme from a theoretical and contextual point of view with 'little explicit structure' for collecting and presenting evidence (Henry et al., 2018). The scientific literature published in English from 2019–2021 through PubMed, Researchgate and Google Scholar was searched through electronic means. Period between 2019–2021 was selected as it was the period covered by the curfews and nation-wide lockdowns in response to COVID-19 pandemic. Studies included in the review were identified using the keywords 'COVID-19', 'corona virus', 'SARS-CoV-2 virus', 'psychological', 'social', 'psychosocial','economic*','environment*'

and 'impact*'. In addition, the available published literature and information from relevant reports, journals published by different government and nongovernmental organizations and official websites and reference lists of primary articles were reviewed. An explicit methodological approach was not used for this narrative review when identifying potential papers to be reviewed. Therefore, defining search terms or critically appraising of articles and selecting articles for full-paper review using a strict inclusion and exclusion criteria was not followed similar to a systematic review (Henry et al., 2018).

The information given in articles not relating to COVID-19 and the duplicates were excluded. Opinion papers including correspondence and editorials were included if they are relevant to the search topics. Finally, nine research papers, nine opinion papers, four review papers and 17 reports were selected for final review.

Results

Negative and positive impacts of COVID-19

Effects on the physical environment

The augmented usage of personal protective equipment (e.g., face masks, hand gloves, gowns, face shields, goggles, etc.) and their disposal posing health risks and a substantial amount of waste has generated an environmental burden (Fadare & Okoffo, 2020). In Wuhan, China, 200 tons of clinical wastes were removed daily, with a fourfold increase after the pandemic (Saadat et al., 2020). Similarly, in Asian countries, an increase in disposal of used masks and gloves piled upon the land, beaches and water systems, has been reported thereby worsening environmental pollution (Singh et al., 2020; Saadat et al., 2020).Various infectious and biomedical waste generated from the hospitals (Saadat et al., 2020) has numerous environmental effects on air, water, and soil (Rume & Islam, 2020). In India, the unsafe disposal of health care waste have made labourers, cleaners and trash collectors susceptible to the disease (Singh et al., 2020).

While, Italy has prohibited infected residents from sorting their waste, the United States of America (U.S.A.) has limited recycling programs, as there was a risk of COVID-19 spreading in waste recycling centres (Zambrano-Monserrate et al., 2020). Polypropylene and Tyvek used to manufacture N-95 masks, protective suits, gloves, and face shields can persist for a lengthy period in the environment releasing toxic substances (Singh et al., 2020). These substances can be dangerous to the human body and the natural inhabitation of both land and sea (WHO, 2020a).

Meanwhile, the worldwide COVID-19 pandemic has triggered numerous positive effects on the environment and the climate. As the world passes through the lockdown system, the accumulation of significant air pollutants and air contaminants such as NO_2, CO, SO_2, particulate matter, and gaseous and dust emissions have drastically fallen (Sarkodie & Owusu, 2020). Particulate matter has decreased during this period, especially in Asian (India, China) and European (France, Spain, and Italy) countries (Lokhandwala & Gautam, 2020). Studies of Satellite images, onsite monitoring data and Air Quality Index show that the consequences of the COVID-19 pandemic have successfully recovered the environment while setting a positive impact on global climate change (Lokhandwala & Gautam, 2020; Verma & Prakash, 2020).

The total daily CO_2 value declined globally during the pandemic. The low usage of oil (20–30%) and coal (50%) resulted in a 25% CO_2 decrease in the air in China, which is similar to 6% of global emissions (Espejo et al., 2020). Compared to the previous year, a significant reduction of CO, NO_2 levels (by 49%, 35%) has been reported in this period across Almaty in

Kazakhstan (Kerimray et al., 2020). In addition, Berman and Ebisu (2020) states that during the pandemic in the U.S.A., Nitrous Oxide declined around 25% concerning 2017–2019 levels and by 20–30% in Italy, France, Spain, and Germany.

The NO_2 level dropped by 70% in India, and up to 54.3% decrease of NO_2 was observed in Sao Paulo of Brazil (Lokhandwala & Gautam, 2020). Further, China deducted nearly 17% of national CO_2 emissions as they reduced almost 70% of domestic flights, compared to January 20, 2020 (Rume & Islam, 2020). However, in contrast, household energy consumption is predicted to rise very quickly, around 6 to 8% in the U.S.A. (Saadat et al., 2020).

The study by Bera et al. (2020) further depict a significant reduction of surface temperature during the lockdown period compared with the previous years (2017–2019) in Kolkata City in India. The average value was 31.84°C during 2017–2019, and it was identified that the average surface temperature in Kolkata during the specific period is 29.98°C in 2020, contributing to reduction of global warming (Sarkodie & Owusu, 2020).

In addition, noise level has been identified as a source of discomfort for people and environment that can change the ecosystems (Zambrano-Monserrate et al., 2020). The noise reduction due to the decline of industrial activities, traffic congestion, and air flights during lockdown might have helped birds reproduce in town areas in the United Kingdom (Zollinger et al., 2019) positively influencing nature.

Effects on the socio-economic and psychosocial environment

Factories and workplace closure due to lockdown and social distancing, made employees lose their careers and income. The number of malnourished people, estimated at 690 million, could increase up to 132 million by the end of 2020 (WHO, 2020b). This economic deceleration was due to social distancing, self-isolation, and lack of interaction. The COVID-19 impacts the worldwide economy (El Keshky et al., 2020) and many countries face declining expected global trade.

The weakening of tourist arrivals and tourist revenue globally and a sudden decrease in air travel, hotel industry and related employment were reported during the pandemic (Kumudumali, 2020). Further, the tourism industry declined rapidly due to health and economic calamities with the spread of the coronavirus. It has been estimated by the United Nations World Tourism Organization that the pandemic has contributed to a loss of nearly 100-120 million jobs, more than 01 billion international tourist arrivals, with a loss of US$ 910 to 1.1 trillion export incomes globally (Kumudumali, 2020). In Europe and America, overall rates of economies have declined as same as emerging economies (World Bank, 2020).

The employment rate in Sri Lanka decreased to 94.30% in the first quarter of 2020 from 95.50% in the fourth quarter of 2019 (Trading Economics, 2020). Furthermore, World Bank (2020) assumes that Sri Lanka would fight with the economy because the economic growth was between 3.0 and 0.5 in the country's first quarter of the year 2020. They expected this range to remain low during the year (Karunathilake, 2020).

Considering the psychosocial environment, the health workers in the United Kingdom experienced depression and stress diminishing their quality of life (El Keshky et al., 2020). As described by Saladino et al. (2020). The health workers in the field working with COVID-19 patients in India, Italy, and Spain suffered from acute psychological stress due to prolonged social isolation and fear of contaminating others (Li et al., 2020). Moreover, evidence

of increased intimate partner violence has directly threatened the well-being of children and those who are being abused and this hazard was predicted to be exacerbated by increased substance use during this period (Usher et al., 2020).

Further, economic activity is also diminutive because stress is always forced on people globally, destructively affecting their minds and productivity (El Keshky et al., 2020).The children in Italy and Spain were at risk of having anxiety and they showed behavioral changes such as nervousness, irritability, restlessness, difficulty concentrating, and loneliness (Orgilés et al., 2020). COVID-19 would negatively impact children's cognitive and non- cognitive skills attainment (Di Pietro et al., 2020). With the closure of schools disrupting education, many negative consequences were observed; such as increased early marriages, sexual abuse of girls and young women, teenage pregnancies, and escalation of child labour (UNESCO, 2020). Closures of universities and income loss made young adults experience poor mental health, anxiety, and depressive disorder (56%), substance use (25% vs. 13%) and suicidal thoughts (26% vs. 11%) (Saladino et al.,2020). Furthermore, as Di Pietro et al. (2020) mentioned, students obtain social skills by engaging in classroom activities, interacting with teachers and other students, which are essential for advancing positive self-esteem, sense of self, and self-confidence. Distance learning made children isolated in their homes losing the opportunity for socialization. Children from less advantaged backgrounds were less likely to have a suitable home learning environment and less access to digital technologies and devices. It has made students externally less motivated to engage in learning activities (Di Pietro et al., 2020). The weekly learning time of students aged between 10 and 19 years in Germany, Austria, and Switzerland during the COVID-19 lockdown was reduced to between four and eight hours, compared to when schools were open (Huber et al., 2020).

Further, COVID-19 affects the quality of life and psychological health as the two factors determine the human living standards (Li et al., 2020). Sustainability of people's psychological health is damaged as they perceived negativity due to the pandemic preventive measures. Restricted and controlled personal activities adversely impact their learning, eating habits, gardening, dancing, meditation, exercising, and other activities (Yao et al., 2020).

However, COVID-19 has become a blessing in some aspects of life. The telecommunication industry in Sri Lanka provided free internet supply to the university sector during the coronavirus disease.It is reported that almost 540,000 teachers and students in Sri Lankan Universities, used Lanka Education and Research Network (LEARN) video conferencing solution, per week in July 2020. Online education saved time, facilitated physical distance, rendered flexibility in teaching, provided opportunities to use modern technology and motivation to enhance relevant skills and empowered the students to learn continuously without spreading COVID-19 (Hayashi et al., 2020). People became familiar and cleverer in using modern technologies (Kamdi Deogade, 2020).

Moreover, COVID-19 has become a "Bonding strength" and has provided an opportunity to improve family cohesiveness. Many children have the advantage of spending more time with their parents being restricted to their homes. They get daily meals and bedtime patterns were more regular than during the pre-COVID period (The Committee for the Coordination of Statistical Activities, 2020). Realizing the importance of life, people started to take care of old parents and themselves by engaging in recreations and interests such as painting, cooking, gardening, writing poetry and articles (Kamdi & Deogade, 2020).

Discussion

One of the positive effects on the environment and the climate was reducing NO_2 levels. During this period, the level of NO_2 as a result of the pandemic especially in India (Bera et al., 2020), Sao Paulo of Brazil (Lokhandwala & Gautam, 2020), U.S.A. (Berman & Ebisu, 2020), Italy, France, Spain and Germany (Sarkodie & Owusu, 2020).

It is necessary to reconsider the threats to ecosystems and wildlife, including climate change, habitat loss and pollution, and plan strategies to protect the natural environment envisaging a sustainable tomorrow. The United Nations Environment Programme (UNEP) is planning to introduce site-specific approaches to diminish the risk of such dreadful diseases in the future (UNEP, 2020). This concept necessitates the careful and responsible management of harmful medical and chemical waste, facilitating the conversion to carbon neutral economies, global safety, conserving nature and biodiversity and creating green jobs. Further, UNEP is willing to help states recovering from COVID-19 by introducing green financial stimulus packages and economic policies to achieve these sustainable developing goals. Further, to regulate the release of dangerous chemicals in the atmosphere, UNEP cooperates with the United Nations Development Programme (UNDP) theWHO and governments.

Although the pandemic had an adverse impact on incomes, work patterns and subjective wellbeing (Zhou & Kan, 2021) a lockdown cannot be imposed indefinitely. It is evident that industries cannot be closed down for a lengthy period nor can movements be restricted, yet patterns of living can be changed and thoughtful approaches can be implemented. In any case, as typically a temporary shut-down of mechanical, commercial and transport exercises, the shared environment can reestablish its steadiness (El Kelshy et al., 2020).

The effects of the pandemic are numerous, among them specially longtime isolation, lack of supplies and information, economic loss and stigma has given way to fear of the infection, frustration and boredom. Promoting psychological interventions is essential for the population who is more likely to have psychological sufferings (Saladino et al., 2020). As a result of the emerging issues, psychological support was provided online, in spite of the technological challenge (Liu et al., 2020) for those affected due to idleness, career loss, salary reduction, loneliness, and worries of family wellbeing, personalized interventions has to be initiated. Creative solutions of many countries include crisis hotlines, teleconsultations, digital self-help platforms, psychotropic medicines and rendering psychosocial support. They are being used to overcome service interruptions and preserve care for those with psychological conditions (Saladino et al., 2020; Kang et al.,2020). It is noted that parents experienced extensive mental stress finding themselves inadequate to give needed care to their children in a time of quarantine. After the lockdown, parents experienced a quicker and more extensive decay in mental well-being. The decrease in subjective wellbeing was not recovered after the lockdown measures were facilitated in some societies. It infers that the pandemic will have long-lasting negative impacts on people's mental wellbeing. Offering a nature-based coping mechanism during times of personal or public stress and adequate urban green space could be provided as remedies for all sections of society (Kang et al., 2020).

Easy access to expert exposure to educational environments, and connecting student communities,increased flexibility and learning prospects are the number of rewards due to the effectiveness of online education. However, there are several disadvantages of online education; computer compatibility, internet browsing issues, financial issues, or technical issues. Online education courses or projects

can be used for university and high school students to utilize online tools in distance learning activities (Butnaru et al., 2021).

Providing laptops and high - speed, uninterrupted, inexpensive internet access, particularly for students in or remote areas with fewer facilities, is pivotal in ensuring equal access to tertiary education (Hayashi et al., 2020). The World Bank (2020) mediates as one of the most substantial funding sources and education for developing countries. The World Bank takes more extensive actions to help developing countries that suffered a lot after a COVID outbreak to strengthen their economics. They support public health interpositions, supplying essential, necessary supplies and equipment, and help the private sector sustain jobs. The World Bank is arranging almost $160 billion in financial assistance for more than one year to support more than 100 nations to protect the poor and vulnerable (World Bank, 2020).

Lack of accessible databases in the Sri Lankan context was a hindrance to conduct a systematic review and to retrieve some of the relevant published evidence.

Conclusions

The world will face many long term and short-term impacts of COVID-19 such as impacts on global economy, human life and ultimately the climate and the environment directly or indirectly. The pandemic changed the pattern of family life all over the world. A notable reward of COVID-19 was the impact of family life, giving new light to inter-family relationships. However, children, the elderly and health workers were affected by the virus positively and negatively. The restricted economic activities have also contributed towards a cleaner environment.

Considering the risks and benefits on the environment, it could be said that the partial lockdown will benefit the health and well-being of the environment as a whole, rather than regarding it as a tenacious global curse. The impact of COVID-19 on the physical, psychosocial and economic environment should be considered an environmental grace and a blessing globally.

The administrators, scientists, policymakers and researchers must reexamine environmental and socioeconomic impact of COVID-19 to help control future outbreaks, and to develop new tools and methods to ensure recovery. In addition, it is needed to plan strategies to save the earth not only on health sciences, but also based on socio-economic and environmental issues. The health innovators must address the risks of COVID-19 infection to limit the spreading, and contemplate seriously in developing sustainable strategies to protect people from a future pandemic.

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