



Perspective

COVID-19: Impact on health of people & wealth of nations

The prophetic warning by the Nobel Laureate Joshua Lederberg¹ that “the microbe that felled one child in a distant continent can reach yours today and seed a global pandemic tomorrow” has once again proved its relevance with the emergence of coronavirus disease 2019 (COVID-19) as the latest pandemic that is affecting human health and economy across the world. COVID-19 pandemic erupted in the Wuhan City of People’s Republic of China in December 2019. The PR China, under its obligations for International Health Regulations (2005), reported to the World Health Organization (WHO) that between December 31, 2019 and January 3, 2020, 44 cases with pneumonia of unknown aetiology had taken place². Soon, the disease spread rapidly within and outside the Hubei Province and also engulfed a large number of countries, with Thailand, Japan and the Republic of Korea as the initially affected countries². The Chinese authorities identified the virus to be a new coronavirus which was subsequently named as severe acute respiratory syndrome (SARS)-CoV-2 by the International Committee on Taxonomy of Viruses³. The WHO also named the disease due to this virus as COVID-19⁴.

As of February 29, 2020, a total of 85,403 confirmed cases and 2,838 deaths had taken place with no respite in geographical spread, mortality, morbidity and economic loss due to the virus⁵. The data currently available indicate mild symptoms in almost 80 per cent of the infected individuals but higher vulnerability of the elderly, especially those with underlying medical condition. The case fatality ratio is less than that seen in two recent epidemics due to SARS-CoV-1 and Middle East respiratory syndrome (MERS)-CoV, but greater transmissibility and rapidity of the spread are the observed characteristics of this virus⁶. Various predictions have been made for the spread of COVID-19 including by a leading Harvard epidemiologist Marc Lipsitch who warns that the coronavirus will infect up to 70 per cent of humanity within a year⁷.

History of pandemics and emergence of new pathogens

Pandemics of various infectious diseases with millions dying have been recorded in the history for the past several centuries. The most well known in the history have been pandemic due to plague⁸ in Asia and several pandemics of influenza that killed millions of people⁹. The pandemics continued in the current millennium too, and COVID-19 is the latest and certainly not the last pandemic. One of the reasons for the occurrence and delayed response to pandemics is the lacklustre approach to building capacity to respond to infectious diseases. With the availability of antibiotics, even the Surgeon General of the United States of America, William Stewart, said in 1967, “The time has come to close the book on infectious diseases”¹⁰. But it was not to be. The past three decades have seen emergence of almost 40 new pathogens, most of which are viruses including HIV, hepatitis C virus and coronaviruses that have caused pandemics, novel-influenza viruses, *etc*¹¹. Many non-technical but popular publications have also highlighted the persistence and revival of infectious diseases¹².

Pandemics and human development

It has been generally believed that poverty and underdevelopment predispose to infectious diseases. Although true to some extent, the occurrence of the ongoing COVID-19 in developed countries also highlights the fact that developed countries and rich populations are not immune to the outbreaks of infectious diseases. Sufficient evidence in support of this contention through the use of human-made weapons of mass destruction and nature’s agents of mass destruction has been provided to support the aforesaid assumption¹³.

There exists an inextricable relationship between human development and infectious diseases. The

United Nations Sustainable Development Goals also recognize this in its Goal No. 3¹⁴. This fact has been highlighted for the last several decades in popular literature¹⁵. There is another side of development. Ecological changes brought about by the development activities include new technology, construction of new irrigation channels, dams, deforestations, migration of people, high density of populations, emergence of urban ghettos, globalization of food and increasing international travel. All these facilitate rapid spread of infection across the countries¹⁶. Some of these factors have been responsible for the rapid spread of COVID-19 across international geographical borders.

Global warming, or the climate change, is another factor that may have acted as a predisposing factor for the emergence and spread of several epidemic-prone diseases¹⁷.

Impact of pandemics on global economy

Pandemics adversely impact the economy of all affected countries. Poor get hit the most. This has been documented earlier¹⁸, and even the United Nations has indicated that the pandemics threaten national security¹⁹. A comprehensive study extending over a period between 1950 and 1991, involving 20 countries including developed, developing and underdeveloped countries, revealed that the increasing prevalence of infectious diseases will not only increase human mortality and morbidity, but also result in gradual erosion of State capacity and increase in poverty²⁰. This pathogen-induced economic decline was found to have a negative effect of such measures of state capacity as fiscal resource, resilience, reach and responsiveness, autonomy and legitimacy. There has been evidence to support the claims that infectious diseases constitute a verifiable threat to national security and State power. Infectious diseases' prevalence was found to have a negative association with the ability of the state to maintain the armed forces with adverse effect on State security²¹.

Many industrial units in PR China, Republic of Korea and other countries with large number of cases of COVID-19 had to be closed down within a month of onset of the outbreak. PR China having interrupted the supply chain to other countries has adversely affected its industrial production, thus undermining trade and tourism. The world tourism body has estimated the cost to world tourism to be around US\$ 22 billion²². Economists warn of a reduced global economic growth since 2009. Concerns about the pandemic have already

ruined global stock exchange markets. Both World Trade Organization (WTO) and Organization for Economic Cooperation and Development (OECD) have indicated COVID-19 pandemic as the biggest threat to global economy since the financial crisis of 2008-2009.

Conclusions

Microorganisms antedated human beings. They will continue to cause pandemics because of their ingenuity and basic survival instinct²³. It is obvious following the spread of COVID-19 that notwithstanding the phenomenal advances in epidemiology, disease biology, molecular biology, genomics and proteomics, humanity is still unable to predict and prevent the unsuspected onset of epidemics and pandemics of infectious diseases. It is also obvious that besides their disastrous effect on human morbidity and mortality, there are equally distressing socio-economic consequences for the affected countries and the whole world. It is essential to strengthen biomedical research, improve healthcare delivery system, establish a permanent 'watch-dog' body and create an improved communication and coordination mechanism for the diverse agencies responsible for mitigating the broader adverse consequences of pandemics. This will require not only national efforts but a coordinated global response through international agencies and development partners.

Conflicts of Interest: None.

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Post-script: Within a week of submitting this manuscript for publication the situation both in respect to health and economy, has rapidly deteriorated globally. Thus, as per latest information [WHO coronavirus disease 2019 (COVID-19) Situation Report - 59] the infection has spread to 147 countries, involving over 0.2 million individuals and resulting in over 8,000 deaths. Its adverse effect on economy has disturbed the political leaders of the most advanced countries, USA, UK, Germany, Japan. The President of USA indicated the need for one trillion dollars to meet the expected ravages of the pandemic. Similar thoughts have been expressed by several other nations.

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