Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

DIALOGUE SOCIAL SCIENCE REVIEW

Vol. 3 No. 8 (August) (2025)

COVID-19 Pandemic: Global Health Crisis, Economic Consequences, and Social Transformation Worldwide

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ABSTRACT
The COVID-19 pandemic changed economies and cultures around the world, in addition to inflicting an unprecedented global health catastrophe. Its horrific toll on human life spurred requests for quick technical advancement, debates regarding public health recommendations, and heightened awareness of the flaws in medical facilities. Increased unemployment, worldwide recessions, supply chain interruptions, and a growing divide between countries and communities were among the economic effects of the epidemic. Socially, it exacerbated mental health conditions, loneliness, and toxic information while

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www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

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Vol. 3 No. 8 (August) (2025)

speeding up distant employment, online learning, and digitization. The disaster served as a reminder of the value of international collaboration, preparedness, and resilience in the future battle against pandemics.

Keywords: COVID-19, Global Health Crisis, Economic Impact, Social Transformation, Pandemic Preparedness

Introduction

Over the past century, the risk of pandemics has increased due to factors such as urbanisation, land use change, international travel and trade, and more severe misuse of common habitats. These trends are likely to continue and intensify. Strategic discussions have highlighted the need to differentiate and limit the development of events that could lead to a pandemic, as well as the need to continually refine the boundaries of preparedness and well-being. A pandemic is characterized by a "disease that spreads over a very large area, transcends global boundaries, and generally affects countless people" (Kritika et al., 2025). Therefore, pandemics are perceived primarily based on their geographical scale, rather than the severity of the disease. For example, pandemic influenza is characterized by "another influenza that spreads around the world and most is not severe" and not influenza that spreads regularly every year (Tisdell et al., 2020).

Origin of Pandemics

The majority of new pandemics begin when "animal" infections spread from animals to humans, and the next pandemic is likely to be a zoonotic disease as well. Zoonotic diseases enter human populations from both domestic animals (e.g., domesticated pigs and poultry) and wildlife (Marrana et al., 2022). A significant number of zoonotic diseases are introduced through the expansion of post-training human-biological relationships, with the most likely zoonotic diseases (including avian influenza virus) originating from the animal-making framework. This trend is expected to continue and intensify. Some pathogens, such as Ebola, are not predatory and are tracked and utilized by wild species (e.g., consuming wildlife meat), wildlife exchanges, and contact with other natural organisms.

Zoonotic pathogens undergo evolutionary adaptation to establish and maintain transmission within human populations. The transition from animal-to-human transmission follows a well-characterized continuum, progressing from exclusive animal host specificity (stage 1) to sustained human-to-human transmission (stage 5). The majority of zoonotic pathogens remain poorly adapted to human hosts (stages 2-3), resulting in sporadic spillover events that fail to establish sustained transmission chains and typically resolve as self-limiting outbreaks.

These intermittent spillover events, while often epidemiologically contained, represent critical opportunities for pathogen adaptation and evolutionary selection pressure. Each spillover episode provides the pathogen with exposure to the human host environment, potentially facilitating mutations that enhance transmissibility, virulence, or immune evasion capabilities. Pathogens that successfully transition beyond stage 3 demonstrate enhanced human adaptation, enabling efficient direct or vector-mediated transmission

ISSN Online: 3007-3154
ISSN Print: 3007-3146

between individuals. This adaptation facilitates the establishment of sustained transmission chains and removes geographical constraints on pathogen spread, thereby elevating pandemic risk (Burci et al., 2020; Singh et al. 2021; Elhakim et al., 2024; World Health Organization, 2020; Webb et al., 2025; Janik et al., 2020; Cheng et al., 2021). The 1918 influenza pandemic serves as a historical benchmark, with mortality estimates ranging from 20 to 100 million deaths globally, affecting populations across all continents. The severity of this pandemic reflected the convergence of viral virulence factors with limited therapeutic interventions, as effective antimicrobials, antiviral, and vaccines were unavailable to mitigate transmission and reduce case fatality rates.

During the 1918 pandemic, the mortality rate was indeed higher in low- and middle-income countries (LMICs) compared to high-income countries (HICs). Strengthening healthcare systems, improving access to healthcare services, and promoting healthy lifestyles can help reduce the burden of pandemics on vulnerable populations (Gizaw et al., 2022; Belich et al., 2022).

The fifth cholera pandemic, beginning in 1881, demonstrated global reach with mortality exceeding 1.5 million individuals worldwide, corresponding to approximately 9.7 deaths per 10,000 populations. This pandemic generated significant social unrest and political instability in affected regions.

The 1918 influenza pandemic represents one of the most severe health crises in recorded history, with global mortality estimates ranging from 20 to 100 million deaths, equivalent to 111-555 deaths per 10,000 populations (Ferreira et al., 2023). Beyond its devastating human toll, this pandemic generated substantial economic disruption, with gross domestic product contractions of 11% in the United States, 15% in Canada, 17% in the United Kingdom, and 3% in Australia. The 1957 Asian influenza pandemic, while less severe, still claimed 0.7-1.5 million lives globally (2.4-5.1 deaths per 10,000 population) and resulted in approximately 3% GDP reductions across major economies, including the United States, Canada, Japan, and the United Kingdom (Taskinsoy et al., 2020)

The Hong Kong influenza pandemic of 1968 spread globally and resulted in approximately one million deaths, corresponding to an estimated mortality of 2·8 per 10 000 population. In the United States, the outbreak generated both direct and indirect economic losses of US$23–26 billion. The HIV/AIDS pandemic, first recognized in 1981, has since caused more than 70 million infections and 36·7 million deaths worldwide, with sub-Saharan Africa experiencing an annual reduction of 2–4% in GDP growth. In 2003, severe acute respiratory syndrome (SARS) spread to 37 countries across four continents, causing 8098 probable cases and 744 deaths, and leading to economic losses of approximately US$4 billion in Hong Kong, US$3–6 billion in Canada, and US$5 billion in Singapore.

The 2009 H1N1 influenza pandemic (swine flu) was associated with an estimated 151 700–575 500 deaths (0·2–0·8 per 10 000 population) worldwide, alongside an economic loss of about US$1 billion in South Korea. In 2012, Middle East respiratory syndrome coronavirus (MERS-CoV) emerged; affecting 22 countries, with 1879 reported cases and 659 deaths. The outbreak in South Korea alone resulted in an estimated US$2 billion in economic losses and prompted US$14 billion in government support measures. The 2013 Ebola virus outbreak in West Africa caused 28 646 confirmed cases and 11 323 deaths, with Guinea, Liberia, and Sierra Leone together sustaining losses of approximately

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ISSN Online: 3007-3154
ISSN Print: 3007-3146

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US$2 billion (Sambo et al., 2023). In 2015, the Zika virus epidemic extended across 76 countries, leading to 2656 cases of congenital central nervous system malformations, including microcephaly, and producing economic losses of US$7–18 billion across Latin America and the Caribbean.

Current Epidemics

HIV AIDS

Estimating the prevalence of HIV/AIDS in young people (15–49 years old) by nation in 2008 revealed significant disparities in global health trends. While the World Health Organisation (WHO) describes HIV as a "global evil," some content creators use the term "pandemic" to emphasize its widespread impact. It is widely acknowledged that HIV originated in Africa, where it continues to exacerbate public health challenges, particularly in southern and eastern Africa, where incidence rates may reach up to 25%. In South Africa, for instance, HIV prevalence among pregnant women was 29% in 2006.

In several African nations that invest in national education initiatives, effective instruction on safer sexual practices and blood-borne disease precautions has contributed to a reduction in the spread of HIV/AIDS (Omonayin, et al., 2022).

COVID-19

A novel corona virus strain, first identified in Wuhan, Hubei Province, China, in December 2019, was responsible for the outbreak of acute respiratory illness now known as corona virus disease 2019 (COVID-19). Within months, the virus spread rapidly, affecting nearly 200 countries and territories, with major outbreaks reported in China, Iran, Western Europe, and the United States. On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a global pandemic. By July 1, 2020, more than 10·5 million confirmed cases had been reported worldwide, including approximately 5·8 million recoveries and 514 050 deaths. These figures, however, likely underestimate the true burden of disease. In the early stages of the outbreak, limited testing capacity, the presence of asymptomatic or mildly symptomatic infections, and delays in clinical evaluation contributed to underreporting. Moreover, recovery statistics required confirmatory testing, and attribution of mortality was complicated by co morbidities and misclassification. This problem was especially evident in large urban centers, where many patients were initially managed at home. Subsequent investigations confirmed that a significant proportion of these cases were attributable to COVID-19–related lung disease. As of mid-2025, cumulative confirmed deaths have reached approximately 7.1 million globally (Lippi, G., & Sanchis-Gomar, F. (2025)). It is important to recognize that reported figures likely underestimate the true toll, due in part to under-testing in early epidemic phases, mild or asymptomatic cases that went undetected, and complexities in attributing deaths among individuals with co morbidities. These challenges were especially acute in dense urban areas, where many individuals were managed at home without testing—many subsequently shown to have suffered COVID-19–related respiratory diseases

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Pandemic Risk Factors

As mentioned earlier, pandemic risk is influenced by a combination of risk accumulation and risk disclosure. Analyzing these two risks often leads to duplicated efforts, which are less likely to have a significant impact, particularly in certain low- and middle-income countries (LMICs) such as Central Africa, West Africa, and Southeast Asia. The opposition and its disadvantages can hinder effective risk management strategies. (Li, et al., 2016).

Spark Risk

The distinction between zoonotic diseases can be made through research or by analyzing the symptoms associated with animal life. Zoonotic diseases transmitted by trained animals are concentrated in densely populated, animal-centric areas, such as parts of China, India, Japan, America, and Europe. The major drivers of the hazard posed by trained animals include increased contact with animals, generalization, breeding, production, and the expansion of pathways to natural habitats and ecological resources, including species range and distribution.

In recent years, zoonotic diseases have spread significantly, with a focus on regions such as the Amazon basin, West Africa, Central Africa, China, and India. The drivers of this spread have been linked to the implementation of functions related to characteristics (e.g., marketability), such as hunting bushmeat and using animals for cultural purposes, as well as deforestation and habitat destruction (Davidson, et al., 2009).

Following pathogen introduction into human populations through spillover events or importation, the subsequent risk of sustained transmission and epidemic spread is determined by complex interactions between pathogen characteristics, including virulence and transmissibility, and population-level factors such as demographic density, mobility patterns, and baseline disease susceptibility. Host population dynamics, including migration patterns, urbanization trends, and social connectivity, fundamentally influence the trajectory of disease emergence and propagation.

Dense urban populations, particularly in rapidly industrializing regions and metropolitan centres, serve as amplification sites for infectious disease transmission, facilitating rapid pathogen dissemination through high-frequency interpersonal contact networks. Social determinants of health, including socioeconomic disparities and structural inequalities, create differential vulnerability patterns within populations that can exacerbate disease burden and transmission dynamics.

Environmental and infrastructural deficiencies, particularly inadequate water and sanitation systems, increase susceptibility to infectious diseases, while concurrent health challenges including malnutrition, chronic co morbidities, and immunocompromising conditions elevate individual risk for severe clinical outcomes and mortality. These risk factors converge disproportionately in marginalized populations, including migrant communities, residents of informal settlements, and individuals in peri-urban areas, creating heightened vulnerability to infectious disease outbreaks (Donner et al., 2008).

The intersection of these demographic, social, and environmental factors creates complex risk landscapes that require targeted public health interventions and equity-focused pandemic preparedness strategies to protect the most

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ISSN Online: 3007-3154
ISSN Print: 3007-3146

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vulnerable populations during health emergencies.

Consequences of Pandemics

Health Impacts

The immediate well-being impact of a pandemic can be catastrophic. For instance, it is estimated that 30-50% of the European population died during the Black Death. Since 1981, the HIV/AIDS pandemic has claimed over 35 million lives.

Pandemics can disproportionately affect younger and more economically dynamic populations (Dowling et al., 2014). During influenza pandemics, a greater number of younger individuals are less susceptible than more experienced individuals, potentially extending overall longevity lost. The severity and prevalence of age-related deaths shift towards a younger population. Furthermore, many fascinating diseases can have infinite effects, which may become increasingly normal due to a pandemic or be fully understood. For example, deer-related microcephaly affects health and prosperity.

The pandemic's deviant well-being impact can further exacerbate mortality and morbidity. Factors affecting abnormal well-being include redirection or depletion of integrated assets, leading to daily reviews and daily reviews resulting from travel, fear, or helplessness on various variables. Access is reduced. Additionally, fear stimulates the proliferation of "stressed" requests for unnecessary revisions, further straining the human services framework.

The neglect of jungle fever during the 2014 West African Ebola outbreak, HIV/AIDS, and 10,600 more tuberculosis cases are anticipated in Guinea, Liberia, and Sierra Leone as a result of this diversion. 11,300 people were killed by Ebola in these nations due to this neglect. Wealth, clinical wealth, and redirection of the workforce also reduced routine vaccination coverage by 30% in the affected countries. During the 2009 flu pandemic, a more pronounced wave of flu and pneumonia claims in emergency clinics was associated with intense myocardial dead tissue and a noticeable increase in the course of stroke (Davis et al., 2022). However, during a pandemic, it may be impossible to recognize which pathways are due to the pandemic itself, and simply unintentional.

Sign-in or avoid daily social insurance. Ebola outbreaks decreased outpatient visits for normal mother and child health care by 31%, according to a study of 45 open offices in Guinea. Among children younger than five, clinics reduced running visits by 60% and visits to severe respiratory diseases (ARI) by 58%. In Sierra Leone, visits to open offices for conceptual social insurance decreased by up to 40% during a spike. During a pandemic, human service workers become less accessible due to disease, asylum, and fear. Viral haemorrhagic fever, for example, Ebola, involves particularly extreme costs for health professionals who face huge presentations on interesting materials. In 1976, a significant Ebola outbreak in the Democratic Republic of the Congo (During that period (known as Zaire), the hospital at the focal point of the restoration of the Yangbuk mission was closed because 11 out of 17 employees died of illness (Sooneon et al., 2025). During the Ebola Kikwit relapse in 1995 in a similar country, cases occurred between known or suspected social security workers. During the 2014 Ebola outbreak in West Africa, human service workers saw high mortality rates: 7% in Sierra Leone and 1% in Guinea. Regardless of whether or not human service, workers are delivered, their capacity to help

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ISSN Online: 3007-3154
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might be diminished. Up to 40% of social insurance workers must consider their ailing family at the worst of a flu pandemic and have to think about their children following school retirement. Not being able to report your obligations.

Economic Impacts

Pandemics generate acute, short-term currency volatility while inflicting lasting damage on economic growth. Initial public health measures—such as contact restrictions, quarantine, and case isolation—require substantial human and material resources. As outbreaks escalate, additional facilities are often established to manage severe cases, further straining health systems. Simultaneously, surges in demand for essential supplies, including medical equipment, personal protective gear, and pharmaceuticals, drive up health-care expenditure. Declining tax revenues exacerbate financial instability, particularly in low- and middle-income countries, where fiscal structures are fragile and government budgets are tightly constrained (Onyekwena et al., 2024; Granados et al., 2005; Ahmadi-Abhari, S. et al., 2025; Madhav et al., 2017)

Political and Social Effects

In Sierra Leone, for instance, the enforcement of cordons sanities was delayed amid fears that such measures would be interpreted as politically motivated. In fragile states, or those already experiencing civil war, pandemics can therefore act as accelerants of existing instability (Burkle et al., 2006; Beck, 2022; Grabova et al., 2020).

Pandemics may also undermine state capacity in more subtle but long-lasting ways. The HIV/AIDS pandemic offers a striking example: in the 1990s and early 2000s, extremely high infection rates within African militaries weakened operational capacity and eroded state security, reducing governments' ability to maintain order (Whiteside et al., 2006).

The 1994 Surat plague in India, despite relatively few confirmed cases, prompted the flight of over 500 000 residents—including health professionals—demonstrating how fear alone can overwhelm health and governance systems. Such displacement worsened hygiene, nutrition, and social stress, compounding health risks. Epidemics also frequently exacerbate stigma, scapegoating, and discrimination against vulnerable groups. During the Black Death, Jewish communities in Europe suffered persecution, exclusion, and violence (Burnett et al., 2004). More recently, African migrants in Hong Kong reported social isolation, anxiety, and economic hardship due to fears linking them to Ebola (Ben-Enukora et al., 2023; Chon, M. G., & Kim, S. (2025; Nyenswah, et al 2016).

About Fashion and Possibility

During the pandemic, welfare workers are utilizing patient care and treatment to mitigate the severity of illness, thereby reducing the risk of severe outcomes such as hospitalization. Drug therapies range from vague and persistent considerations to unpleasantly explicit treatments. In the pre-epileptic era, it is essential to create and test plans for implementing these measures through entertainment. A strong consideration should be given to the balance between infectious diseases, as they can reduce symptoms and, consequently, mortality (Onyekuru, N. A. et al., 2023; Connelly et al., 2021). Personal protective equipment, disinfectants, ICU supplies (such as ventilators), and emergency

ISSN Online: 3007-3154
ISSN Print: 3007-3146

clinic beds are among the clinical resources that must be continuously reviewed and prioritized during a pandemic. In pandemic influenza clinical treatments, the combination of antiviral and anti-infective medications for bacterial co-infections has been shown to be effective (Duarte et al., 2022). Administering antiviral medication within 48 hours of symptom onset can significantly lower mortality rates.

Conclusion

Examining several aspects, many of which are specific to catastrophic situations, leads directly to pandemic preparedness. Epidemics are uncommon, and their likelihood of occurring is influenced by human-caused alterations to common habitats. Responsibility for preparedness is also widespread, and the countries with the highest risk have limited control and reduced likelihood of epidemics. The development of epidemiological thinking is unpredictable, as well as coordination with departments, the general public, and special disciplines, as well as different drugs and different criteria (disease transmission, clinical medicine, coordination, and disaster response). Corrections between survey calculations are necessary. However, a well-measured and well-trained workforce (e.g., packaging specialists, midwives, disease transmission specialists, veterinarians, laboratories, etc.) should have basic support with proper coordination mechanisms. Needs-WHO has 23 wonderful experts for every 10,000 people. Analysts need to fill a large gap in available information about pandemic preparedness and response. To maximize efficiency, we need to improve the following costs and aid flows that are directly related to pandemic forecasting and preparedness: Inadequate deliberate disclosure of response costs in low-wage environments, including information on response costs such as clinical departments, human resources, and chambers. By filling in these knowledge gaps, you can enhance your readiness and reaction to pandemics through dynamic, supportive virtual assistants that prevent pests and epidemics.

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