

COVID-19 and H1N1 – The two pandemics and their consequences on human life: A Mini-Review

Review Article



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ABSTRACT

Background: A global pandemic has always been the after-effect of lessened immunity in the human population. This is a brief narrative review comparing some points of both pandemics. **Methods:** A comparative study was conducted by data collection through published articles and official websites. **Conclusion:** The current pandemic has affected all aspects of life. Psychological issues are dominating in this COVID-19 pandemic especially in six different groups of people. Emergency responses process was slower in COVID-19 pandemic than that of H1N1. H1N1 pandemic of 2009 proved to have a lesser impact on education, traveling, even the mental state of people. COVID-19 and H1N1 infections have most of the similar things but distinctions are very subordinating.

Keywords: COVID-19, H1N1, Pandemics, Quarantine, Swine flu.

INTRODUCTION

When the immunity of the population is not capable of combating the virulent and the mutant strains of viruses, it has the potential to turn into a global pandemic.[1,2] We may not know for years, the repercussions of this pandemic but the available statistics tell a different tale. COVID-19 has been unpredictable, has defied the norms and most countries have been unable to eradicate this disease. With current infection of over 38 million and mortality of over a million, COVID-19 is the pandemic that may change the world as we know it today.[1,2,3,4] But there was another pandemic, one that claimed nearly 50 million lives in 1918 and re-infected the world in 2009.[1,5,6] We may have learned a lot till now, but there is always a time to revisit the basics, to have a look into history. Current study is a brief narrative review offering insights into some aspects of the H1N1 pandemics and COVID-19 pandemic.

METHODOLOGY

A detailed search, that included but was not limited to, published scientific literature platforms (Google

Scholar, NLM catalog), official government websites, World Health Organization (WHO) reports, Centre for disease control (CDC) reports was conducted utilizing boolean logic. The following keywords were utilized; "Coronavirus", "COVID-19", "Influenza Virus", "Swine flu", "spanish flu", "Influenza Virus". Literature was searched to investigate the similarities and differences among the 2 pandemics.

RESULTS AND DISCUSSION

COVID-19 and H1N1 had similar mode of transmission and affected respiratory tract primarily due to droplet infection. Person to person transmission was the chief source of spread of the viruses.[1,2] Both had zoonotic origins. The clinical features of fever and upper respiratory tract infections were common in both the pandemics. [1,2] Respiratory distress syndrome was leading cause of fatalities in both pandemics. The cardinal clinical features are same in both the pandemics[Table 1]. The commonly reported life threatening complications included pneumonia, acute respiratory distress syndrome, respiratory failure, in case of COVID-19 and H1N1 pandemic.[1-6] We found out a few differences among the two pandemics that need to be elaborated. There was a delay in reporting of index case in COVID 19. In 2009, the hospital administration reported a patient infected with the H1N1 virus of swine flu within 15 days, whereas the COVID 19 index case was reported after 23 days.[4,7] The index case's reporting response was eight days



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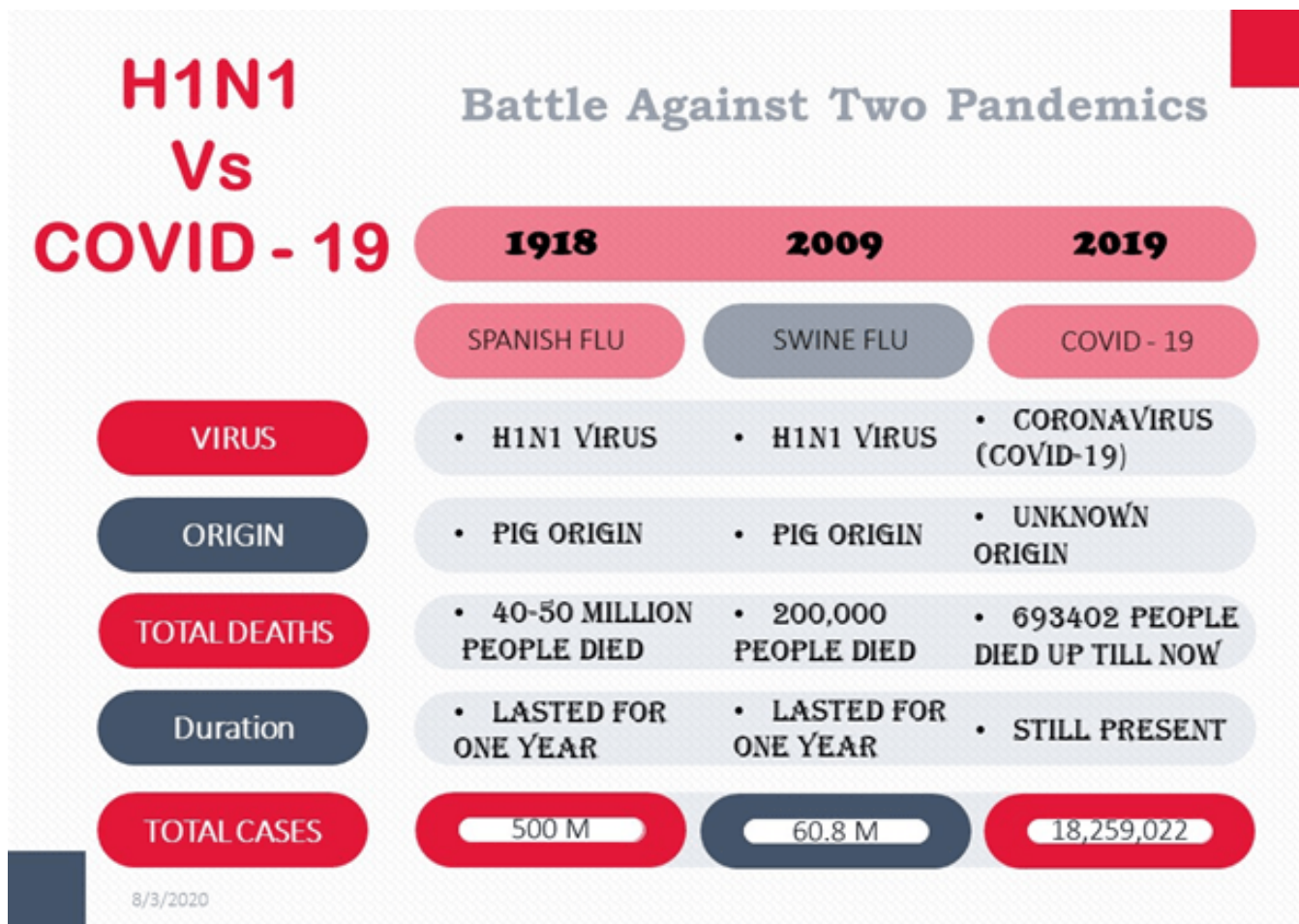


Figure 1: H1N1 versus COVID-19. A brief summary depicting epidemiological features of H1N1 and COVID-19 pandemics.

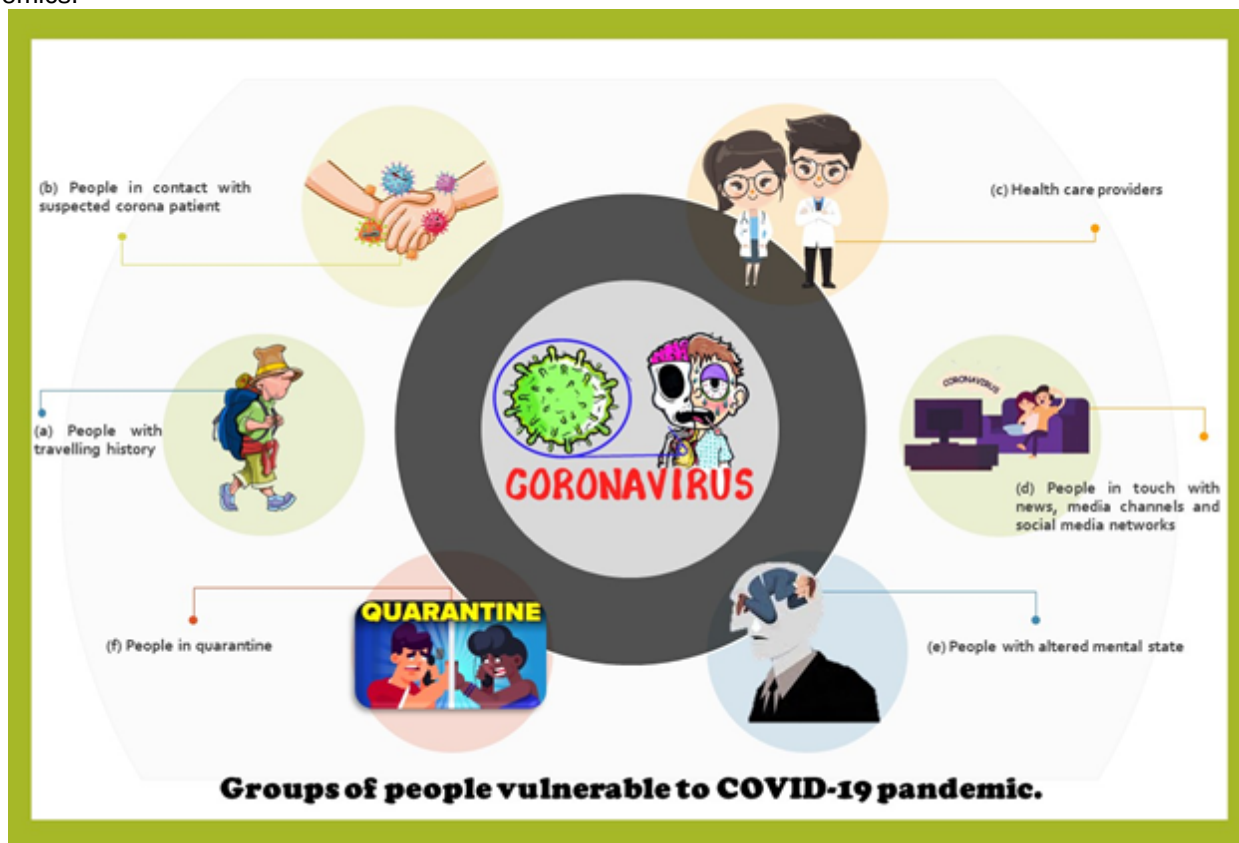


Figure 2: Groups of people vulnerable to COVID-19 pandemic. Health of six different groups of people is at risk to be affected by the current pandemic situation. (a) People with travelling history (b) Established history of contact (c) Health care providers (d) Those who believe in fake news (e) Altered mental state (f) Quarantine

slower for COVID 19 than that of the H1N1 pandemic. Similarly, virus identification and gene sequencing were also slower in coronavirus pandemic than that of the H1N1 epidemic (5 days difference).[4,8,9] Although H1N1 was an only 2nd-time occurrence in 2009, many influenza virus strains were known to humankind, and there were treatments in existence for symptomatic treatment of common cold in 2009. COVID-19 may have caught the world looking wrong, but the world is coping with it, and life is trying to return to a new normal.

After 1918, the world saw the influenza virus in 2009, when the index patient of Swine Flu was identified in Mexico. Soon after Mexico, H1N1 strains of influenza virus were found in other countries across the globe. The outbreak of H1N1 influenza was declared a public health emergency of international concern (PHEIC) by WHO.[4,7] This exacting pandemic affected 0.8 million globally.[4] An effective treatment plan against H1N1 infection, including vaccination of masses, delivery of antiviral drugs to affected, was formulated within a few weeks after Swine Flu was declared PHEIC. Despite this, the H1N1 influenza pandemic of 2009 lasted for nearly a year.[4,5] While Swine flu was at its peak, people were going about their normal lives. Educational institutions and all other public and private businesses were operating normally, and lockdowns were unheard of during the H1N1 pandemic.[3,4,6,8]

The COVID-19 pandemic not only affected the patients but the everyday life of a normal human. In the worst-hit countries, schools, colleges, university campuses have shut down, with a subduing effect on both the students, faculty members, and working staff.[9] Many institutions have shifted their classes and exams online to overcome the loss. Non-essential travel and large-scale events are prohibited by the governments of different countries in order to control the contact and minimize the spread of the disease.[9] The current pandemic is affecting and has affected the mental state of most of the uninfected people because it's invisible. A cough, sneeze from infected, or an uncleaned surface can lead to the spread of infection.[11,12] Researchers are still heading towards the treatment plan for COVID-19 infection. The current pandemic is affecting everyone at its best, but there are a few groups of people that are more susceptible to contact COVID 19, are elaborated in Figure 2. Six different groups of people are vulnerable to for COVID-19 pandemic in terms of their physical, mental, and social well-being:

1. Those with a recent history of foreign travel [2]
2. Those with an established history of contact with diagnosed/suspected cases of COVID-19 [2]

Serial No.	Symptoms	H1N1	Coronavirus
1	Fever	often	often
2	Chill or Rigor	often	often
3	Sore Throat	sometimes	sometimes
4	Shortness of breath	rare	sometimes
5	Headache	often	sometimes
6	Fatigue/Weakness	often	often
7	Body Pain	often	sometimes
8	Nausea & Diarrhea	sometimes	sometimes
9	Suffocation	rare	sometimes
10	Loss of smell or taste	rare	often
11	Cough	often	often

Table 1: Comparison between signs and symptoms of H1N1 and COVID-19 infections.

3. The health care providers [9,10]
4. Those who believe fake news[11,12,13]
5. Those with an established history of mental dysfunction [11]
6. Those who are in quarantine.[8]

Figure 2 illustrates these groups.

There was lack of data about Coronavirus when the world was hit by pandemic where as influenza virus had been known to world for decades.[14,15] This lack of data slowed the initial response time and the world has yet to return to normal. H1N1 had a small incubation period of 1-4 days where as COVID-19's incubation period is 2-14 days.[5]

There is an interesting hematological difference among the 2 pandemic infections. It has been studied that the COVID-19 infection cause and increase in monocyte and a decrease in number of eosinophils. H1N1

influenza virus has its own typical hematological features of leukopenia, relative lymphopenia with rare thrombocytopenia.[18,19]

LIMITATIONS

This is a very narrow literature review as we just focused on performing a brief comparison of those aspects of the 2 pandemics that were scientifically proven.

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CONFLICT OF INTEREST

The Authors Declared No Conflict of interests.

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