Pandemics Throughout History

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INTRODUCTION

The year 2020 can be defined as 'history in the making' accruing to the novel CoronaVirus which has affected all the countries in the world causing millions of deaths. The world is at a standstill and several countries have imposed a 'total' lockdown in order to prevent the spread of this highly contagious virus. It has been 9 months since the first case was detected which subsequently spread all over the world. Etymologically, the word 'pandemic' can be broken into '*pan*' meaning *all and* '*demos'* meaning *people*. The term pandemic can be defined as a disease/virus that has affected all people or has gone beyond the territorial boundaries of its origin point. However, this is not the first time that a virus has affected the world to such an extent. Throughout history, there have been time periods when a virus has reached the stage of a pandemic. The Asiatic Flu, or more commonly known as the Russian Flu of 1889, is often referred to as 'the last great pandemic of the 19th century.' It killed 1 million people worldwide. It is still not clear what caused this virus and experts are disputed over Influenza or CoronaVirus OC43. The Russian Flu has returned several times in subsequent years, however, it is suggested that a large portion of the population is immune to it now.

The deadliest pandemic ever recorded in human history was the 'Bubonic Plague', or The Black Death. It originated in the year 1347 and resulted in the death of 100-200 million people. It was believed for a long time that the Bubonic Plague originated in China; however, new research indicates that the virus may have originated in southern Russia. A/H1N1 virus or more commonly known as the Spanish Flu of 1918 was one of the deadliest pandemics ever witnessed by the human race. It almost infected 500 million people and killed an estimated 20 million people. Scholars believe that the 'second-wave' of the Spanish Flu caused the most casualties.

As we can see, history is no stranger to pandemics, and how each pandemic was caused by a new strain of virus affecting millions of people, there is one common thread connecting all the pandemics together, i.e. how a strain of the virus can cause shifts in the global order. We can see how in the current situation the general opinion is against China, and some have gone to the extent to term COVID-19, as the 'China' virus. Consequently, this has caused a lot of backlash, imposing a number of challenges to China (being the manufacturing hub of the world).

Through this paper, the researchers will attempt to do a comparative analysis of global pandemics throughout the history with specifically focusing on Spanish Flu and COVID-19, studying the trajectory with reference to the rate of increase and the effect of containment measures on both the diseases, thus concluding with a qualitative comparative analysis.

COMPARATIVE ANALYSIS

It has been 100 years since the Spanish Flu, while the world is yet again amidst a global pandemic. Called the 'mother of all pandemics', the Spanish Flu set the benchmark for the way the world perceives and responds to pandemics.

The first commonality between the two pandemics is that both were aggravated by travel. In the case of Spanish Flu, the mode was ships and today, it is aeroplanes.

Symptoms

Respiratory symptoms of the Flu were cough, sore throat, runny nose, nasal congestion, and breathing problems. However, the predominant cause of death was secondary bacterial pneumonia. Symptoms of pneumonia include shortness of breath, chills, and difficulty in breathing. Common symptoms of Covid-19 are fever, fatigue, dry cough, loss of appetite/ smell/ taste, body aches, and sometimes nausea and diarrhoea. Older people with acute underlying conditions such as heart or lung disease or diabetes are at the highest risk for developing serious complications from COVID- 19.

The Spanish Flu of 1918 and COVID-19 has similar symptoms which can be broken down into three stages.

Stage I (Early Stages)

- Fever
- Chills
- Repeated shaking with chills
- Muscle pain
- Headache
- Sore throat
- New loss of taste or smell

Stage 2 (Mild Symptoms)

- Blocked nose
- Muscle pain
- Runny nose
- Vomiting
- Diarrhea
- Abdominal pain

Stage III (Severe Symptoms)

- Trouble breathing
- Constant pain, or pressure, in the chest
- Confusion
- Inability to wake up
- Blue tinted lips or face

The Spanish Flu and COVID-19 are both contagious respiratory diseases; however, they are caused by different strains of viruses. An estimated 60 million people have died from both the diseases combined which shows how important is to practice social distancing and isolation in the times of a pandemic.

Origin

Though both of them share some characteristics, there are some key differences. The novel coronavirus originated in Wuhan, China, and quickly spread to other Chinese states and then inevitably to other countries. The first case was reported to the authorities on November 17, 2019 in the Hubei province. Contrary to the popular perception, the Spanish Flu did not originate in Spain. It was named so because Spain was the only neutral country during the first world war and hence was free to report its effect. Scientists are not sure of the origin of it. There are various theories that point towards France, Britain, China, or the US, where the first case was reported in Camp Funston in Fort Riley, Kansas on March 11, 1918.

Impact on different ages, sexes, and demographics

The age-specific mortality for the two diseases is very contrasting. Spanish flu was dangerous for young people and infants. In 1918, 99% of the deaths in the U.S. occurred in people under 65 years of age, and around 50% of the deaths were in young adults of 20 to 40 years. On the other hand, COVID-19 can prove fatal for the elderly.

Age	Death Rate (COVID- 19)
80+ years old	14.8%
70-79 years old	8.0%
60-69 years old	3.6%
50-59 years old	1.3%
40-49 years old	0.4%
30-39 years old	0.2%
20-29 years old	0.2%
10-19 years old	0.2%

0-9 years old	No fatalities

Death Rate = Number of deaths / Number of cases

Covid-19 Fatality Rate by comorbidity: The following is a representation of the risk of dying if infected by Coronavirus and having a pre-existing condition.

Pre-existing condition	Death rate (confirmed cases)	Death rate (all cases)
Cardiovascular disease	13.2%	10.5%
Diabetes	9.2%	7.3%
Chronic respiratory disease	8.0%	6.3%
Hypertension	8.4%	6.0%
Cancer	7.6%	5.6%
No pre-existing condition	-	0.9%

Case Fatality Rate of Covid-19 as compared to other diseases:

Disease	Estimated case fatality rate (CFR)
SARS-CoV	10%
MERS-CoV	34%
Seasonal Flu (US)	0.1-0.2%
Ebola	50%, 40% in the 2013-16 outbreak

Transmission

Coronavirus can be caught by others who are infected. The primary source of infection are droplets from the nose or mouth, when the infected person coughs, sneezes, or speaks. It is caused if someone breathes in these droplets. The droplets can land on daily-use objects such as furniture and doorknobs. One may get infected if they touch their eyes, nose, or mouths, after touching these surfaces.

The R_0 for COVID-19 can be anywhere between 1.4-5.7. That means one infected person can transmit the virus up to 5-6 persons. If this number is more than one, then the cases will increase at a very high rate. But if the number is lower, the disease will eventually die down, as not enough new people are being infected for the outbreak to last. R_0 will keep on increasing if proper steps are not taken by the authorities. R_0 during the 1918 flu pandemic was 1.8. If the current R_0 of Coronavirus is controlled, it will not be as bad as the Influenza pandemic.

Transmission rates of other diseases are as follows:

Name of the disease	R_0
Seasonal Flu	1.3
2009 H1N1	1.5
1957 flu pandemic	1.7
SARS	2-5
Measles	12-18
Ebola	2
MERS	0.5

Mortality Rate

Also known as the death rate or case-fatality rate,

Mortality Rate = Number of deaths/ Number of infections

The statistics were as follows as on September 2, 2020:

Country	Confirmed cases	Death	Rate
Globally	2,58.09,515	8,58,295	3.25%
United States	61,67,006	1,87,441	3.03%
Brazil	39,50,931	1,22,596	3.10%
India	38,23,449	67,155	1.75%
Russia	10,05,000	17,414	1.73%
Peru	6,57,129	29,068	4.42

The second wave of the Spanish flu killed around 20 million to 50 million people, whereas the first wave killed 3 million to 5 million people. The exact death rate is unknown because of imprecise and patchy records in underdeveloped regions. The fatality rate is believed to be around 2.5%, which indicates that 2.5% of the infected people died.

The following table shows the death rates per thousand head of population for different countries. The data has been taken from *The Geography and Mortality of the 1918 INFLUENZA PANDEMIC* by K. David Patterson and Gerald F. Pyle published by The Johns Hopkins University Press:

Place	Deaths	Deaths per 1000
England and Wales	2,00,000	4.9
France	2,40,000	3.9
Germany	2,50,000- 3,00,000	4.2- 5
Brazil	1,80,000	6.8
New Zealand	6,000	5
Mexico	3,00,000- 5,00,000	21.4- 35.7
India	12.5- 20 million	42- 67
China	4.0- 9.5 million	10.0- 22.5
Canada	50,000	5.7
United States of America	5,50,000	5.2

Mortality Rate of other diseases is as follows:

Disease	Mortality Rate
Seasonal Flu	0.1%
2009 H1N1	0.02%
1957 Flu pandemic	0.6%
SARS	10%
MERS	35%
EBOLA	Exceeds 50%

Economic Effects

As per the latest forecasts by Organisation for Economic Cooperation and Development, the world may experience a long-term loss of upto $7trn. The direct effect of lockdown is borne by the businesses that are left to deal with plunging revenues and interrupted supply chains due to restricted activities. As the policymakers struggle to implement fiscal measures that protect the economy, unemployment is accelerating. The unemployment rate in the US in April rose up to 17.4% when 20 million Americans lost their jobs.
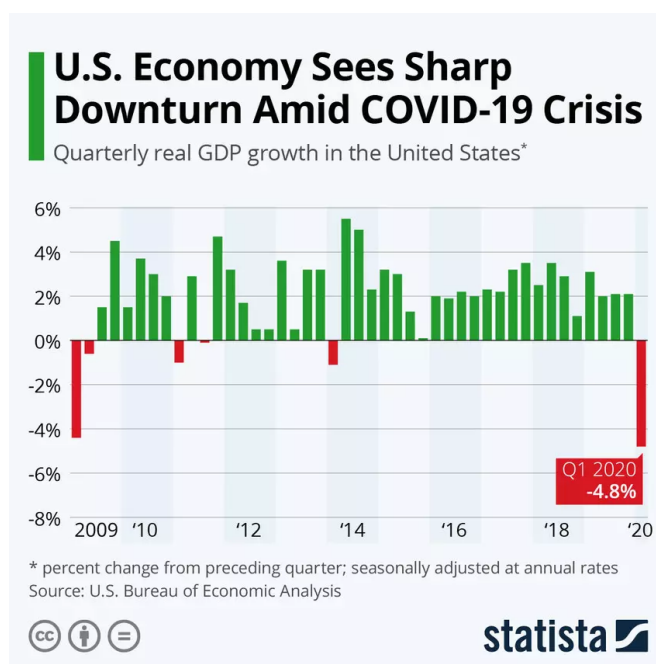

Source: Statista

The greatest economic shocks have been faced by restaurants, travel and tourism industry, and the airlines. India's lockdown was the cause of 122 million job losses in April, as per CMIE. Both developed and developing nations have entered a recessionary phase due to the

pandemic. France, Italy, and Canada have seen their economies shrink by 13.8%, 12.4%, and 12% respectively. Germany's GDP fell by 10.1%, followed by the US and Japan by 7.6%.

It is being said that the pandemic's financial toll on all the major economies in the world is notably more than the 2009 financial crisis. The reports suggest that the GDP for the G20 nations fell by 6.9%. The worst quarter in 2009 recorded a drop of 1.6%. The countries around the world currently in the recession are as follows- Austria, Belgium, Canada, USA, UK, India, Denmark, Estonia, Finland, Hungary, Ireland, Italy, Latvia, Lithuania, Mexico, Netherlands, Norway, Romania, Russia, and Spain.
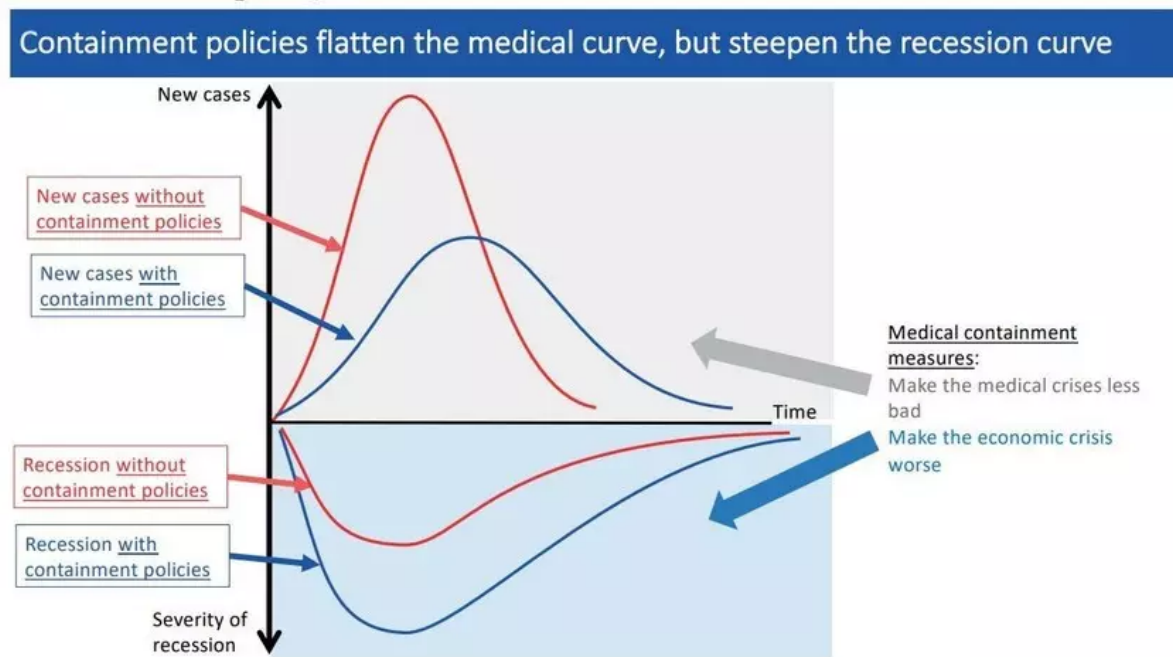
Source: Centre for Economic Policy Research

The obvious solution to the current economic crisis is to lift the lockdowns and open businesses. However, some of the most respected Australian economists say it is impossible to speed up the economic recovery by removing movement restrictions this early. Countries with high infection rates have experienced a deeper economic wound. China was the only country to have seen a positive growth in the second quarter because the number of infected persons reduced and the officials were able to open the lockdown.

India imposed the harshest lockdown because it was announced on such a short notice. Former RBI Governor Dr. Raghuram Rajan said that the relief packages provided by the government have been meagre and the data has been patchy. The common man is still hesitant to spend on high-contact services such as restaurants and salons. The spending in these sectors will remain low till the time the number of cases don't come down.

Dr. Rajan, in an interview, gives a three-point plan for the revival of the Indian economy. The first focus point should be the protection of people as they are the central source of wealth. He stresses importance on the protection of people and then the financial institutions

which will restart the economy so that there is a certain structure post Covid. Secondly, the former RBI governor says that the vulnerable firms should be looked out for and make sure that post Covid they are able to absorb the impact and are ready to reopen. The final point that he gives is to make sure that the financial system is working perfectly fine and it does not freeze. He stresses on the importance of these points heavily and says it is necessary for the revival post Covid.

The economic effects of Spanish Influenza are not definitive due to fragmented economic data. However, according to some reports, the Spanish Flu cut the world's economic output by 4.8% and cost more than $3 trillion. The economic effects of a pandemic depend on the steps taken by the authorities to contain it. Many of the measures implemented during the Spanish flu pandemic are strikingly similar to those used in the current pandemic.

Treatment

Significant events like the Tokyo Olympics have been postponed or even called off. The researchers are now focusing on developing treatments and vaccines. It is very important to understand the genetic makeup of the virus to be able to move in the correct direction.

The current pandemic is being caused by SARS-CoV-2, which belongs to the family of coronaviruses. For a vaccine to be used commonly in humans, a series of tests need to be done. Hence, developing them takes a long time. It has been proven time and again that the best way to prevent diseases is a vaccine. Some of the promising vaccine candidates are listed below:

- The most promising COVID- 19 vaccine is 'Covishield.' It is being developed by the joint efforts of the University of Oxford and AstraZeneca. The phase II of the clinical trials began on August 26, 2020.
- 'ZyCov-D' is being developed by Zydus Cadila. The company began phase II on August 6, 2020.
- 'Covaxin' being developed by Bharat Biotech has safely completed phase I of human trials.

That being said, prevention is worth a pound of cure. The easiest and the best way to prevent the illness is to avoid exposure.

100 years ago, medical science and infrastructure were not as developed as it is now. There were no tests or vaccines to treat patients. The number of cases gradually went down as people developed herd immunity- a phenomenon where a large number of people contract the disease and during recovery, develop antibodies against it. The pandemic progressively got eliminated by 1920. A few cases kept on springing up even after that, but they were not enough for the pandemic to sustain itself.

Quarantine measures

Social distancing is not something being practised for the first time. The officials of different countries are dealing with COVID- 19 in the way their ancestors dealt with the Spanish Flu. Since medical science was not advanced back then, the only way to flatten the curve was to

avoid gathering in huge crowds. A campaign against coughing, sneezing, and spitting in public was launched by the Philadelphia officials in 1980. As the cases kept on rising, schools, colleges, religious places and other public gathering places were closed. Infected people were asked to quarantine to avoid further spread. It was noticed that relaxation in lockdown rules caused a spike in the number of cases.

Social and Cultural Effects

The COVID-19 pandemic has upended our way of life. It has completely changed the face of social and cultural life which existed prior to the pandemic. As we see more and more cases every day, social distancing and isolation are being the most effective measures to prevent the infection. COVID-19 has had a profound impact on the social sphere. Major global events are either being cancelled or postponed indefinitely, for instance, the world's biggest multi-sporting event, Olympics 2020 is now rescheduled for 2021. Furthermore, this pandemic has also given a boost to already existing problems to those social groups who are already in a vulnerable position such as daily wage labourers, farmers, people with disabilities, and indigenous people. It has also created a disproportionate impact as homeless people are unable to find shelter and are at high risk of being exposed, and people without basic amenities such as running water, and displaced people stand to suffer. In a report by the World Bank, it was projected that post the pandemic 71 million people could be pushed into extreme poverty, and as a result global extreme poverty rate would increase from 8.23% to 9.18%. COVID-19 has also had a major impact on the travel and tourism industry, which are vital for the cultural sector. There is a 99% decrease in visitors to world heritage sites. The Spanish Flu of 1918 caused a similar impact on the social and cultural sphere. The second wave of the Spanish Flu was the most severe and it almost killed 70 million people. It was during the months of October 1918 when the second wave of the Spanish Flu hit and during that time major Halloween functions were cancelled and social distancing was practiced much like the current times. The flu hit the poor people hardest, and many countries with limited healthcare infrastructure suffered from high numbers of deaths. This shows how a pandemic even 100 years old had almost the same detrimental impact as COVID-19, and how it brought a standstill to social and cultural life.

CONCLUSION

A single strain of the virus that causes a pandemic has some severe effects in both the long-run and the short-run. We have seen how the Spanish Flu and COVID-19 brought irreversible changes in the social, political, cultural life. Pandemics as we know can bring long term changes in the balance of power. The current pandemic might drive a shift in power from West to East. The response of countries like Singapore, South Korea and even China, after the initial mistakes, has been remarkable. The response of countries like the US and UK has been delayed. There was a perfect opportunity for the US to emerge as a global leader once again. However, it has displayed gross self-interest and amateur behaviour. Furthermore,

the virus has already grossly exposed inequality. Even though the world has seen its leaders fail miserably, the situation has been worse in South Asian countries. A drop of 69% has been witnessed in the incomes of people in poorer nations as compared to the 45% fall in prosperous ones. Even social isolation has been very difficult in poor communities where a number of people share a one-room apartment. In addition to this, we can also see how the Spanish Flu gave the world a precedent about life in a pandemic and how to best cope up with it. A pandemic 100 years ago was also fought with social distancing and isolation. Given the current times, the pandemic will itself be a testimony of the interdependence of all the countries. End of COVID-19 will bring with itself a smaller and a less prosperous global economy as everyone is focusing just on what is taking place within their borders. It is, however, extremely important for the world to come together and fight against this virus and come up with innovative solutions and vaccines that will benefit all of humanity.

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THE PARLEY Project

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We aim to connect students to professionals for mutually insightful discussions and conversations about various pressing agendas. Through various youth conferences and carefully curated agenda-specific events we wish to bring together inquisitive minds to research and provide new insights to contemporary issues and come up with solutions for the same.

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