Information Dissemination During Pandemics: A Review on the Spanish Influenza and Covid-19

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Abstract

Background of the study: Information dissemination could be seen as the means through which facts and information are linked to the rightful individual seekers and organizations. Due to restrictions during pandemics, health professionals and other stakeholders have the important role of disseminating information and resources on the pandemic to the public through various media channels available to them.

Purpose: This study looked into how information disseminations were carried out during the Spanish Influenza and Covid-19 pandemics based on review of literature

Method: Through the use of relevant keywords and search strategies, the study retrieved literature from Google Scholar for review. The literature were then analysed based on themes to produce a narrative report.

Findings: The study reveals that information access and dissemination were timely and speedily during the Covid-19 pandemic due to advancements in technology whereas the dissemination of information during the Spanish Influenza were limited and rarely timely worldwide.

Conclusion: Currently, there exist a problem of misinformation and an ‘infodemic.’ Due to advancements in information sharing technologies. The study recommends the need to tackle ‘infodemic’ and misinformation during pandemics.

Keywords: Covid-19, Information dissemination, Spanish Influenza, Infodemic, Misinformation

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Introduction
The transportation of information to the intended recipients while meeting certain requirements such as dependability, accuracy, delays, and dependability is referred to as information dissemination. (Wu et al., 2016). These specifications differ depending on the type and purpose of information being disseminated. This attests to the fact that information dissemination can be viewed as a means of connecting facts to the appropriate individuals and organizations. (Bello and Aghadiuno, 2019).

Dhawan (2018) defines information dissemination as "a proactive information service designed to educate and inform various groups of users on social, economic, and educational issues, problems, and opportunities of interest to them." The dissemination of information serves as a channel for the exchange of knowledge and information. This is critical during pandemics because it allows health professionals and other stakeholders to provide timely information on how to limit infection spread and manage the pandemic.

Clearly, information dissemination necessitates systematic planning, collection, organization, and storage of information in order to reach the intended audience. All of this, however, may not be possible without the necessary technology and tools. Another issue to contend with is the possibility that the information transmitted is inaccurate or out of date, as well as irrelevant to the target population's environment. Librarians play an important role in disseminating COVID-19–related information and resources to the public via the various virtual media channels at their disposal, especially since most people may not visit the library or the library may be closed during the COVID-19 pandemic (Okike, 2020:1)

The Spanish Influenza (Spanish Flu)
In May 1918, nearly four years into the First World War, the British and French armies on the Western Front were desperately fighting to prevent the Germans from overrunning them before two million American troops arrived to save them from the threat posed by the Central Powers. While the Allies successfully fought to keep the enemy out of Reims and Épernay, an existential threat was settling over Europe: the Spanish Flu (Heffer 2020).

The virus that caused the 1918 influenza pandemic was of type A, H1N1 sub-type. Seasonal influenza viruses were unknown at the time of the pandemic. In fact, their existence was only proven in 1933. The discovery of the viral agent sustaining the 1918 influenza pandemic, on the other hand, was only possible in the late 1990s, when the viral genetic material was isolated from victims buried in Alaska permafrost. Furthermore, the original animal reservoir of the 1918 influenza virus is still debatable.

Two hypotheses have been advanced to explain the virus's introduction into the human population. The first assumes a direct introduction from a single unknown host. The second maintained that the 1918 influenza virus was the result of a recombination process between avian, swine, and/or human influenza viruses in the years preceding the 1918 pandemic. This question remains unanswered due to the lack of influenza virus sequence data prior to the 1918 pandemic.

The 1918 influenza pandemic spread in three waves, the first in the spring of 1918, the second in the autumn of 1918 and the third in the winter of 1918-1919 (Scarpa et al. 2020). The majority of historians adhere to one of two schools of thought as far as the history of origination was concerned. The first is that it started at Camp Funston, a Kansas Army base where some experts believed the 1918 flu originated. It came from a massive holding camp for men who were about to go to Europe and help win the war, and who kindly brought it across the Atlantic with them (Bubar 2020). Despite the name “Spanish flu,” some experts believed the virus
originated in the United States. What is certain was that on March 4, 1918, a soldier arrived with the flu at Camp Funston, a Kansas Army base located at Fort Riley, where soldiers were training for World War I (1914-1918), southwest of Manhattan in Kansas.

However, a particularly aggressive influenza had already been observed in late January and early February in Haskell County, Texas, three hundred miles west of Funston. It was believed that because young Haskell residents had relocated to Camp Funston for military training, the outbreak that erupted there in March 1918 was most likely a continuation of the one that had previously been observed in Haskell. Within a few weeks, several soldiers required inpatient care and treatment at the army camp's infirmaries. Funston was an important staging area for American troop movements to other military camps and to Europe.

As a result, it can be assumed that this was the path for the spread of the influenza pandemic in other American Army bases and, later, in France, particularly at Brest, Europe's largest port of disembarkation for American soldiers (Scarpa et al 2020). By the middle of September, the number of cases and deaths in major cities such as Boston, New York, and Philadelphia, as well as the rest of the country, had skyrocketed (Ewing et al). Over the next few days, more than 1,000 men presented to the camp hospital with similar symptoms, and 38 died. Thousands of Americans traveled to Europe that spring to fight in the war, bringing the flu with them (Bubar 2020).

During the war, the United States and many European countries censored the news. It was against the law to publish anything that could jeopardize war efforts, including reports that a disease was spreading among troops. However, Spain, which did not participate in the war, did not censor its press. Because journalists in Spain frequently covered the disease, it became known as the Spanish flu (Scarpa et al 2020). The Spanish flu got its name because of an early and severe outbreak in Spain, but it did not originate there (Garrett 2005).

With the world's attention focused on King Alfonso XIII, who nearly died from the flu, it appeared that Spain was at the epicenter of the outbreak. By the 2nd of June, 700 people had died in Spain in ten days, with 100,000 infected in Madrid alone. On June 22, it was reported that “an influenza epidemic, said to be similar to that reported in Spain,” had occurred (Trilla et al 2008). The infectious disease most likely arrived in Spain from France, possibly as a result of heavy railroad traffic carrying Spanish and Portuguese migrant workers to and from France (Trilla et al 2008). Because the disease was initially no worse than seasonal flu, health officials did little to prepare for a major outbreak. However, the virus quickly became more powerful (Bubar 2020).

The second school of thought held that the Spanish flu mutated in the massive military hospital camp at Étaples on the French coast, which was overcrowded and infested with various diseases. Regardless, the first had gained currency, and it is now accepted that the Spanish flu originated in the United States. The 1918 influenza pandemic occurred in three waves. Although it affected many young adults around the world, the initial spring wave (March–June 1918) was clinically mild, with no significant effects on overall mortality rates. In August 1918, a second — and more lethal — wave swept the world. The majority of the victims were between the ages of 20 and 40. They went blue in the face, struggled to breathe, and bled from the nose and mouth (Bubar 2020).

By mid-October, the second wave had taken hold, with no breaks in Liverpool, Dublin, or Middlesbrough. The death rate in Southampton increased from 14 to 44 per thousand people, while it increased from 12 to 41 per thousand people in Glasgow. Flu was responsible for half of the deaths in Hornsey, north London, in the four weeks leading up to October 21. Brighton’s elementary schools were closed for a month, and many other towns soon followed (Heffer
The third pandemic phase began in January 1919 and was surprisingly milder (Scarpa et al. 2020). The third wave of the flu arrived in the winter and spring of 1919, but it was not as deadly. By May of that year, the flu had mostly died down. In total, 675,000 Americans died during the pandemic, which was more than the total number of U.S. soldiers killed in all of the twentieth century's wars combined. Nonetheless, the 1918 pandemic was quickly forgotten, overshadowed by World War I (Bubar 2020).

However, in most parts of the world, the pandemic struck in two waves, first in the spring and summer and then in the autumn (the highest number of deaths worldwide occurred in October), lasting until 1919. According to one theory, the pandemic ended abruptly because the virus mutated into a less lethal strain (Heffer 2020). Experts estimate that by the time the flu subsided in 1919, one out of every three people on the planet had been infected, with at least 50 million deaths (Bubar 2020).

The United States and the world at large was not prepared to stop such a deadly disease. For one thing, with so many nurses and doctors stationed in Europe because of the war, hospitals in the U.S. were understaffed. The war also created ideal conditions for the spread of a contagious virus. Factory workers were crammed into factories, and soldiers were crammed into barracks. This meant that a large number of people were in close proximity to one another. Many officials also downplayed the virus's threat or spread misinformation (Bubar 2020).

During the 1918 influenza pandemic, maritime travel was the most popular mode of transportation for both tourists and business travelers. As a result, several countries imposed quarantine measures on incoming ships in order to contain the epidemic. In 1918, most American cities imposed restrictions on person-to-person relationships and schools, churches, theatres and generally common meeting places were closed. Furthermore, certain mass gatherings, such as weddings, funerals, and conferences, were prohibited. These measures were especially effective when implemented early and kept in place for an extended period of time (Scarpa et al. 2020).

The flu spread to Allied forces, the German military, and civilian populations in Europe, then to Asia, Africa, South America, and back to North America. In the United Kingdom, 600 cases were discovered four days later in two factories in Letchworth. By the 1st of July, the flu had swept through London, particularly in the East End textile trade (Fargey 2019).

The rapid onset of the flu – the fever, renal pains, and exhaustion was alarming. The Midlands were the hardest hit in early July, though it was reported that 70% of men were absent from heavy industry in Newcastle. By the third of July, doctors in Birmingham found it difficult to deal with the volume of patients (Heffer 2020). The doctors were mostly elderly as well; anyone under the age of 55 had been drafted into the army. Newspapers were strewn with quack remedies like eating porridge, forcing oneself to sneeze first thing in the morning and last thing at night, and going for brisk walks. Others suggested that the best fresh air, cleanliness, and constant disinfection be used.

It wasn't until the 21st of October, four months after reports of widespread infection in the UK, that Arthur Newsholme, the Local Government Board's principal medical officer, issued a memorandum on how to best combat the scourge. Newsholme advised victims to sneeze or cough into a handkerchief and advised that rooms where patients were treated, as well as their bedding and clothing, be cleaned and disinfected. He also advocated for allowing as much fresh air as possible to circulate indoors, avoiding overcrowded areas, and staying as far away from others as possible. In the cinemas the time between performances was greatly increased, to allow for a complete change of air inside the building. He cautioned alcoholics...
that they were particularly vulnerable (Heffer 2020). The sale of quinine, regarded as one of the few possible prophylactics, was to be regulated by the Army Council under the Defence of the Realm Act, as it was in short supply and causing public concern (Heffer 2020).

Although there was no lockdown, the manner in which people were asked to change their behavior was unsettling. But no one was barred from going out or working: victory was close at hand, and everyone had to do their part. Also, during the 1918 flu pandemic, not wearing a mask was illegal in some parts of the United States (Bubar 2020). On October 28, the government admitted that as a result of the epidemic, the national mortality rate had skyrocketed (Heffer 2020). According to William Hayes Fisher, president of the Local Government Board, things are not as bad as they are in Paris or Vienna. Despite this, an estimated 4,000 people died in a single week. The Medical Research Council devoted an increasing amount of its resources to preventing the spread of the flu, but due to its work on wound treatment, it was unable to devote the necessary effort to the epidemic (Bubar 2020). The flu arrived in Berlin in July 1918 and began to kill an undernourished and exhausted population whose leaders were already suing for peace. The reported cases in Scotland arrived at the peak of mortality before the rest of the UK. Mortality increased in October before peaking in November, with a more sustained peak than in England and Wales. It also appears that Scotland was hit by the third wave earlier, with a peak in February 1919, whereas England and Wales were hit in March (Johnson 2004).

The flu spread from Europe to the rest of the world. Outposts of the British empire were severely impacted, most notably India (where approximately 14 million people died) and west and southern Africa. It ravaged a defeated Central Europe, whose people were already malnourished after years of blockade and whose agriculture was running at half speed. Soldiers returning to the United States and other countries carried the new, more virulent strain that had sparked the second wave in Europe. According to the most recent, though disputed, estimates, 3 to 5% of the world's population, or 60 to 100 million people, died as a result of the flu (Heffer 2020).

The COVID-19 pandemic

The Covid-19, on the other hand, is a beta-coronavirus that was originally transmitted to humans from an animal host. The COVID-19 pandemic, also known as the coronavirus pandemic, is a worldwide outbreak of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2. (SARS-CoV-2). The virus was discovered in Wuhan, China, in December 2019. Chinese authorities identified this novel coronavirus as the cause on January 7, 2020, and it was temporarily dubbed “2019-nCoV.” (Duncan 2020). So far, older adults and people with chronic conditions have been the most affected populations (Cabo et al 2020). As of July 2020, this new virus strain had emerged in Wuhan, Hubei, China, and the global pandemic had spread to 216 countries, areas, or territories, with over 14.5 million cases and more than 600,000 deaths reported worldwide (Nanthini and Nair 2020). Thailand reported the first COVID-19 case outside of China, making Southeast Asia the first region affected outside of Northeast Asia. As of July 2020, the number of known COVID-19 cases in ASEAN countries had surpassed 222,000, with Indonesia having the most cases (over 89,000) (Nanthini and Nair 2020).

It enters the cell by binding to angiotensin-converting enzyme receptors via its protein S. It is spread by direct contact and respiratory drops. It was first isolated from three people with pneumonia who were linked to the Wuhan cluster of acute respiratory illness cases. In nature, all structural features of the novel SARS-CoV-2 virus particle are found in related
coronaviruses (Zoumpourlis et al., 2020).

This new virus is phylogenetically related to the Coronavirus that causes Severe Acute Respiratory Syndrome (SARS-COV) and caused the 2002 outbreak (Scarpa et al 2020). This new virus was named Coronavirus SARS CoV-2 by the International Committee on Taxonomy of Viruses on February 11, 2020, and the disease caused by it was named coronavirus disease 2019 by the World Health Organization (COVID-19). Although Coronaviruses usually cause common colds, they can cause outbreaks when they spread from animal reservoirs to humans. This was the case with the SARS-COV outbreak in China in 2002 (reservoirs of bats) and the MERS-COV (Middle East Respiratory Syndrome-Coronavirus) outbreak in 2012 (reservoirs of dromedary camels and/or bats) (Scarpa et al 2020). In the case of COVID-2019, several reservoirs have been suspected (bats, snakes, pangolins). Although the first case's infection route is unknown, the location where the contagion began has most likely been identified as Wuhan's Huanan Seafood Wholesale Market. COVID-19 likely spread out from China through air travels of possible infected travellers (Scarpa et al 2020). The virus that causes COVID-19 spreads primarily through close contact between infected individuals. As an infected person breathes, coughs, sneezes, sings, or speaks, small droplets and aerosols containing the virus can spread from their nose and mouth. Other people can become infected if the virus enters their mouth, nose, or eyes. The virus can also spread through contaminated surfaces, but this is not thought to be the primary mode of transmission. The exact route of transmission is rarely proven conclusively, but infection occurs primarily when people are in close proximity to one another for an extended period of time (Dzisi and Dei 2020).

Covid-19, also known as SARS-CoV-2, infects cells via the viral structural peak protein (S), which binds to the angiotensin-converting enzyme receptor 2 (ACER2) (ACE2). To enter cells, the viral particle uses host cell receptors and endosomes. The host has a transmembrane serine type 2 protease (TMPRSS2) that helps the virus enter the cell via the S protein (Cabo et al 2020). Once inside the cell, viral poly proteins are synthesized that encode the replicase-transcriptase complex. The virus then uses its RNA-dependent RNA polymerase to create RNA. Finally, structural proteins are formed, and viral particles are released (Cabo et al 2020). According to the World Health Organization, the virus spreads from person to person. It could be through flush drops expelled by infected patients when they cough, sneeze, or speak. They can stay on surfaces for a certain amount of time depending on factors such as surface, humidity, or heat. Covid-19 infection is thought to have been transmitted to humans from an animal host, but the risk of transmission through contact with animals remains unknown. There have been no reports of fecal-oral transmission. Furthermore, there is no evidence that it can survive in water, including sewage (Cabo et al 2020). The Covid-19 virus can survive for up to 72 hours on plastic and stainless steel surfaces, for less than 4 hours on copper surfaces, and for less than 24 hours on cardboard surfaces.

According to data from other corona viruses, the duration of viral persistence on surfaces is also affected by ambient temperature, relative humidity, and the size of the initial inoculum. Disinfectants containing alcohol can significantly reduce virus survival (Cabo et al 2020). Covid-19 has increased mortality in the elderly and people with chronic conditions such as diabetes, hypertension, and obesity. In a series of cases in China, the case-fatality rate was less than 0.5 percent among people under the age of 50, 1.3 percent between the ages of 50 and 59, and 3.6 percent between the ages of 60 and 69. People over the age of 60 face a case-fatality rate that is more than 20 times higher than people under the age of 50 who do not have a high-risk condition (Cabo et al 2020).

In Africa, specifically, there were generally few in April, but they grew most visibly in
May 2020. Cases increased exponentially in South Africa and Kenya in May and June, but slowly in Uganda and Rwanda. On March 21, 2020, Uganda reported its first case of COVID-19 (Tumwesigye et al 2020). While the first case of COVID-19 was reported in Ghana on March 11, 2020, Kenya recorded its first case on March 12, 2020 (Tumwesigye et al 2020). Malawi confirmed its first three cases of COVID-19 on 2 April 2020, having closed all international borders and banned air travel on 27 March, except for essential health and other supplies and returning Malawian citizens or residents (Tumwesigye et al 2020). South Africa has the most confirmed cases on the African continent and ranks fifth in the world, with 553,000 cases and 10,210 deaths as of August 8, 2020 (Tumwesigye et al 2020). Nigeria confirmed its first case on February 27, 2020, and by August 9, 2020, the total number of cases was 46,140, with 942 deaths (Tumwesigye et al 2020). South Africa, for example, experienced health-service saturation because more than 80% of people sought treatment for chronic diseases such as tuberculosis and HIV. Despite its efforts to combat Covid-19, this country was forced to reduce the severity of its blockades and isolation. South Africa had recorded 17,200 cases, 312 deaths, and had performed 488,609 tests by May 19, 2020, when a less stringent blockade was imposed (Cabo et al 2020).

Information dissemination during the Spanish Flu pandemic

The bacterial complications, primarily pneumonia, but also meningitis, bronchitis, and acute diarrhoea, contributed to the severity of the Spanish Influenza. (Mamelund 1996). The pandemic, which appeared in three bouts – the first in the summer of 1918, the second in the fall of 1918, and the third in the first months of 1919 – is estimated to have affected at least 500 million people worldwide, or more than one-fourth of the population at the time. (Laidlaw 1935).

According to historical accounts, the spread of information about the Spanish flu was limited. Lockdowns hampered the popular information dissemination channel – the newspaper. Due to the closure of schools and other public spaces, information dissemination was rendered ineffective. (Collier 1974).

It is also reported that during the 1918 pandemic, many European countries attempted to protect soldier morale by suppressing information on the spread of influenza, both within the country and on the front lines. (Barry, 2007). The term "Spanish Flu" was likely coined as a result of Spain's lack of information suppression. During the Spanish Influenza, many municipalities prohibited public gatherings, closed schools, or required masks, but researchers had to compile this data from multiple sources in order to create databases on non-pharmaceutical intervention (Johnson and Mueller 2002).

Information dissemination during the Covid-19 pandemic

The 2019-nCoV (Covid-19 virus) is a beta coronavirus that causes severe respiratory symptoms or mild, cold-like symptoms (Cheng and Shan 2020). The Covid-19 occurred at a time when online information access was at an all-time high. Because of the accessibility and speed of social media platforms, health professionals and other stakeholders were able to disseminate information about the Covid-19 virus and disease more quickly. A good example is the peak of information searches on the Internet and social media platforms in “China, which preceded the peak of incidence in COVID-19 cases by 10-14 days, and with which Internet and social media network searches have a demonstrated correlation with disease incidence.” (Abd-Alrazaq, et. al., 2020; Li, et. al., 2020).

During the pandemic, the Internet and other online platforms were critical tools for...
information dissemination, especially given the lockdown restrictions imposed on individuals and organizations such as libraries and information centers. During the early stages of the pandemic, a lack of understanding of the Covid-19's pathogenesis, routes of entry, and epidemiological characteristics hampered the development of a better classification and knowledge of the disease. (Peng and Zhou 2020). Regardless, the dissemination of knowledge and related information about the pandemic was not slowed when researchers discovered it due to technological advancements – the Internet and social media. For example, within a few days of its discovery, information about the unusual genetic features of the Covid-19 virus that allowed it to potentially jump across different species to effectively facilitate its rapid spread was widely disseminated around the world (Andersen et al. 2020).

Online platforms also made it possible and easier for organizations with limited resources to develop protocols quickly in order to implement or adapt other people's protocols to their specific situation. In the COVID-19 era, this allowed for the rapid dissemination of educational content. For example, an info-graphic on airway management in patients with suspected or confirmed COVID-19 was created and distributed by Chan et al. (2020) through Twitter and WeChat. Requests for translation into more than ten languages were received just a few days after the info-graphic was shared on social media platforms. Again, the dissemination of the info-graphic allowed it to be tailored to the specifics of each healthcare setting.

Despite the fact that access to and sharing of information on Covid-19 was highly encouraging due to the availability of online sources, there was a problem with misinformation and an ‘infodemic.’ The World Health Organization (WHO) defines a ‘infodemic' as an abundance of information that contains some inaccuracies, making it difficult for the public to obtain reliable and dependable information when they need it (WHO 2020). It is important to note that disinformation travels at the same rate as information. It was not surprising, then, that the WHO created a special section of its website dedicated to debunking coronavirus myths and misinformation.

While online “instantaneous dissemination of information may be beneficial in some circumstances, verifying the accuracy of the disseminated information can be potentially problematic,” resulting in a “infodemic.” (Zarocostas 2020). False information was not unique to the Covid-19 pandemic, but its impact made the public anxious and fearful.(Ortutay and Klepper 2020; de la Garza 2020). During the Covid-19 pandemic, a series of patients' personal information was leaked onto social media, posing another challenge. The sharing of patients' and their families' personal information increased the risk of stigmatization, discrimination, and blame.

**Conclusion**

Unlike the Covid-19 pandemic, which put the elderly at risk, the majority of excess mortality from the Spanish Influenza occurred among people aged 20 to 40. Information about the Covid-19 virus spreads quickly online, making it easier to spread information about the virus. Unfortunately, due to a lack of Internet and other online tools during the pandemic, this could not be said of the Spanish Influenza.

During the Covid-19 pandemic, one of the most important features of the online platforms was the rapid dissemination of protocols around the world. Information on protocols for personal protection equipment, treatment, and seeking assistance was quickly disseminated via online and social media platforms. (Emmanuel, et. al., 2020). On the other hand, due to a lack of sophisticated information sharing tools and some governments' deliberate attempts to
suppress information, the dissemination of information on protocols was limited and rarely timely worldwide during the Spanish Influenza. (Barry, 2007).

Whereas governments and other COVID-19 pandemic stakeholders have made novel use of cell-phone data to measure compliance, research on 1918 compliance is often limited to anecdotal evidence. Furthermore, social media platforms were useful tools for the general public to keep in touch with friends and family about virus-prevention measures during the Covid-19 pandemic (Brooks, et. al., 2020). While social distancing laws and guidelines were well documented during COVID 19, the 1918 influenza pandemic was not as well documented.

Limitation and recommendation for further studies

This study’s limitation is manifested in the fact that it examined literature that were purposively retrieved from Google scholar. Employing a detailed bibliometric analysis to look into the study would produce a better quantitative and clearer statistical understanding of the phenomenon. Further studies are recommended to look into employing a detailed bibliometric analysis of the phenomenon within a defined country or geographic area subject to funding opportunities.

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