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CONCEPT PAPER

COVID-19 and its Impact– Science and Management

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ABSTRACT

Public and community health is get badly affected with the lack of control of COVID-19 pandemic. The novel Coronavirus disease 2019 (COVID-19) is caused by SARS-CoV-2, has created such a pandemic scenario where the infection has reached to millions and correspondingly the death toll. Many developed and developing countries proved that during the urgency of the situation. The system, staff, strategy, skills and facilities are weak enough to manage this public health crisis and incapable enough to control the risk of infection. COVID-19 has diffused worldwide so rapidly in comparison with SARS and MERS. This chapter on COVID-19 influence have discussed various information about the virus, current treatment options, drugs available, ongoing trials, recent diagnostics and probable vaccines for COVID-19 control. The paper suggests theoretical implications and provide recommendation to public health management.

Keywords: COVID-19, Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), Pandemic public health, Vaccine, Control measures, Public health management.

Introduction

Communicable diseases or infectious diseases have its effect on human health, and it is noticeable with the outbreak of COVID-19, worldwide (James & Webb Jr, 2015). It is untruly to believe that communicable diseases are easily controllable and can be effectively eliminated from the earth. Wuhan, China, has witnessed the atrocious impact of this novel coronavirus disease and had to shut down the region from rest of mainland China to control the pandemic scenario (WHO, 2005a, 2020b). Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), formerly named to as 2019-nCoV, is the virus accountable for triggering COVID-19 (WHO, 2020c, CDC, 2019). The effect of COVID-19 not only restricted to mainland China but also worldwide (WHO 2020c). The impact of COVID-19 has forced everyone to realize the threat of infectious diseases to mankind. The question of sustainable solution be contingent on the epidemic process, which include various aspects like occurrence, diffusion, and termination of diseases, and which it interns depends on the contagion sources, spread routes and vulnerable population. Health specialists everywhere in the world are occupied to develop a vaccine for COVID-19 as it continues to diffuse round the world.

Literature Review

Historical Perspective

- 14th century Europe: bubonic plague. 25 million (pop. 100 million)
- 1918-1920 Worldwide Influenza epidemic. 50 million or higher
- 1981-currently AIDS: >25 million lives + 33 million living with HIV
- Recent smaller outbreaks:
- 2002-04 SARS: 8k cases, 774 death
- 2009 Avian flu: 151k-575k deaths
- 2014-16 Ebola: >11k deaths

Source: Notes by Flavio Toxvaraed; Baldwin and Weder di Mauro (2020), "Economics in the Time of COVID-19"

The COVID-19

As it is exemplified in the above diagram COVID-19 is a sphere-shaped or pleomorphic enclosed element covering single-stranded (positive-sense) RNA connected with a nucleoprotein within a capsid encompassed of matrix protein. The wrapper stands club-shaped glycoprotein projections. Some of the coronaviruses too comprises a hem agglutinin-esterase protein (HE) (de Haan, Kuo, Masters, Vennema, Rottier 1998). It is reported that amongst all RNA viruses, COVID-19 embrace the largest genomes (26.4e31.7 kb), with G þ C contents varying from 32% to 43%. Unpredictable numbers of small ORFs are existing between the numerous conserved genes (ORF1ab, spike, envelope, membrane and nucleocapsid) and, downstream to the nucleocapsid gene in varied coronavirus lineages. The viral genome comprises distinguishing features, together with a unique N-terminal portion within the spike protein. Genes for the main structural proteins in all coronaviruses occur in the 50e30 order as S, E, M, and N (Woo, Huang, Lau, Yuen. 2010). Clearly illustrative in its structure, a distinctive coronavirus comprises at least six ORFs in its genome. However, there is some structural variation in Gammacoronavirus. It is observed in this case that lakes nsp1, the first ORFs (ORF1a/b), about two-thirds of the whole genome length, encode 16 nsps (nsp1-16). ORF1a and ORF1b cover a frameshift in between which produces two polypeptides: pp1a and pp1ab. Add to the point, such polypeptides are managed by virally encoded chymotrypsin-like protease (3CLpro) or major protease (Mpro) and one or two papain-like proteases into 16 nsps. sgRNAs of CoVs are the source of all structural and accessory proteins. It clearly visible that all the four main structural proteins comprise spike (S), membrane (M), envelope (E), and nucleocapsid (N) proteins are encoded by ORFs 10, 11 on the one-third of the genome near the 30-terminus. (van Boheemen, de Graaf, Lauber, Bestebroer, Raj, Zaki, et al. 2012; Czub, Weingartl, Czub, He & Cao. 2005). In addition to these, COVID-19 encode distinct structural and accessory proteins, which include as HE protein, 3a/b protein, and 4a/b protein. These matured proteins are accountable for numerous significant purposes in genome upkeep and virus replication (van Boheemen, de Graaf, Lauber, Bestebroer, Raj, Zaki, et al. 2012). COVID-19 membrane comprises of three or four viral proteins. The utmost plentiful structural protein is the membrane (M) glycoprotein; its extents the membrane bilayer three times, exiting a small NH2-terminal sphere external the virus and an extended COOH terminus (cytoplasmic domain) inside the virion. (de Haan, Kuo, Masters, Vennema & Rottier, 1998). The spike protein (S) constitutes the peplomers. As it is observed, the core inducer of nullifying antibodies is S protein. M plays a major role

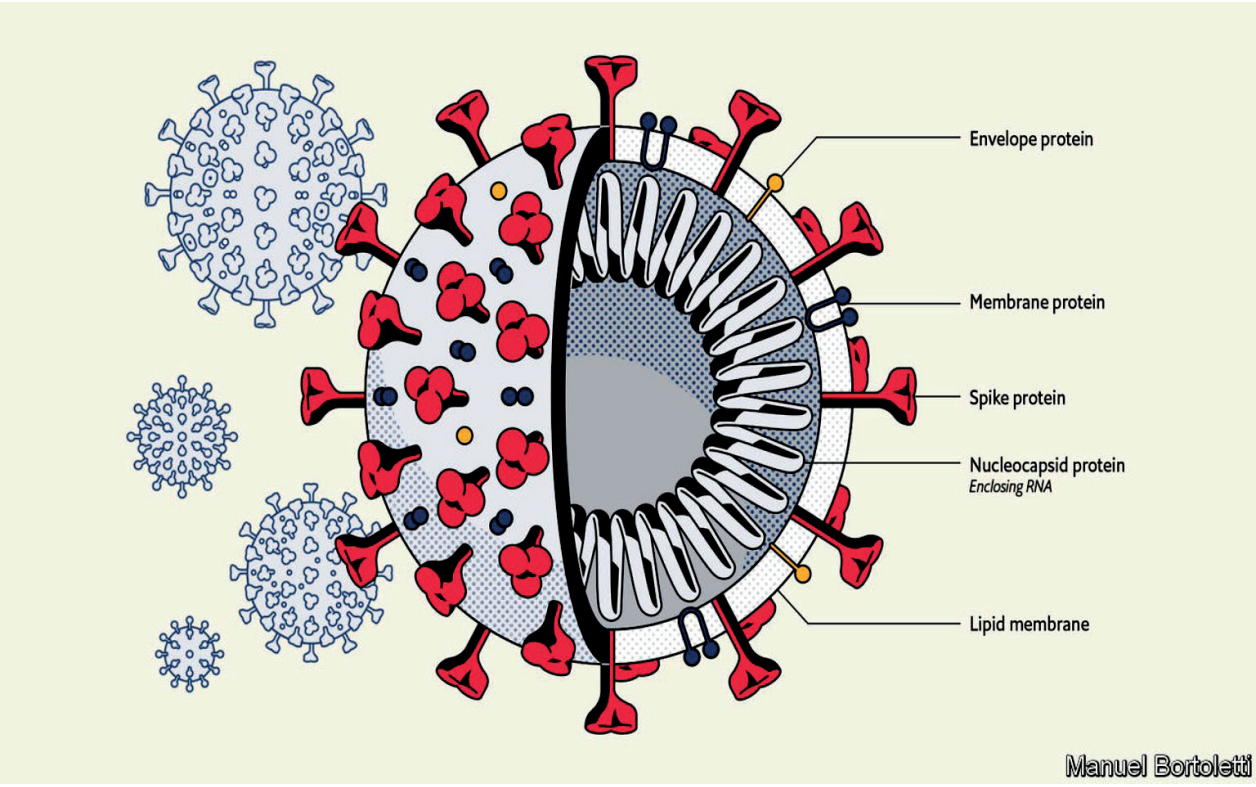

Figure 1: The covid-19
Source: The Economist, 14th March 2020

in the intracellular development of virus elements without requiring S. In the presence of tunicamycin coronavirus raises and develops spike-less, noninfectious virions that contain M but devoid of S (de Haan, Kuo, Masters, Vennema, & Rottier 1998; Woo, Huang, Lau, & Yuen2010).

Methodology

Content analysis is a tool widely used in qualitative research to extract the codes, categories and themes which are emerged from given qualitative data. This particular study made use of journals, articles. Medical reports, doctor's commentaries, statistical data and public health reports for content analyses and come up with proper information for dissemination. Language has long been seen as closely connected with identity in a number of distinctive ways (Satpathy, 2019). Investigators looked into the messages within the texts and derive individual and group feelings on the said categories and themes. The primary sources of the data derived through interviews and observations.

How contagious is the COVID-19? (Ro)

The reproductive number (Ro, pronounced *R-nought* or *r-zero*) is related to the transmitability rate or the outbreak rate of the virus, which signifies the average quantity of people to which a single infected individual will transmit the virus.

- WHO's predicted (on Jan. 23) Ro to be between 1.4 and 2.5. (WHO, 2020).
- Other studies have estimated a Ro between 3.6 and 4.0, and between 2.24 to 3.58.
- Initial figures had projected Ro to be between 1.5 and 3.5.
- An outburst with a reproductive number of below 1 will steadily vanish.
- For comparison, the Ro for the common flu is 1.3 and for SARS it was 2.0.

COVID-19 Fatality Rate

COVID-19 is a new virus and there is little information about this virus due to little opportunity for the clinical trials. As it is reported, soon after the outbreak of COVID-19, the mortality rate over a period of 1 year per 100 000 Chinese citizens would be around 0·23 (as of March 16, 2020). Several factors contribute to high and low rate of mortality which include Health care capacity and capability factors, including the availability of healthcare workers, resources, facilities, and preparedness. Consequently, precisely speaking, neither older estimates nor new calculation can be referred to as the mortality rate. Although highly transmissible, the (Case Fatality Rate) CFR of COVID-19 appears to be lower than that of SARS (9·5%) and Middle East respiratory syndrome (34·4%), (Munster Koopmans van Doremalen, van Riel, de Wit 2020), but higher than that of influenza (0·1%) (de Wit E, van Doremalen Falzarano, & Munster 2016; Fauci, Lane, & Redfield 2020). The new COVID-19, where the case fatality rate has been estimated at around 2%, (WHO, 2020).

COVID-19 Incubation Period

There are several research reports available on the COVID-19 incubation period. Early transmission studies on undercurrents of COVID indicates that the average incubation period was 5.2 days (95% confidence interval [CI], 4.1-7.0), with the 95th percentile of the distribution at 12.5 days (Li Q, Guan X, Wu P, Wang X, Zhou L, & Tong Y, et al. 2020). Remarkably, a long incubation time means adaptations in screening and control policies (Jiang, Rayner & Luo 2020). The 19-day incubation period is a low likelihood event, and specialists propose 14 days for isolation. It is thus estimated in general that the incubation period **(**time from exposure to the development of symptoms**)** of the virus is estimated to be between 2 and 14 days based on the following sources.

Comparative Analysis of Emergence and Spreading of Coronaviruses

During 2003, the history claims that, Chinese of community Guangdong has infected with a virus causing called Severe Acute Respiratory Syndrome (SARS). The patient who suffered this illness echoed the symptom of pneumonia with a diffused alveolar injury, that lead to acute respiratory distress syndrome (ARDS). Later the scientists established that virus was belonging to the Betacoronavirus subgroup SARS-CoV (Peiris, Guan, Yuen, 2004; Pyrc, Berkhout & Van Der Hoek, 2007). The virus spread quickly, and it led to the infection of more than 8000 individuals and 776 deceases. While in 2012, it was also reported that a several Saudi Arabian nationals also diagnosed with different coronavirus.

The spotted virus was established as a affiliate of coronaviruses and named as the Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Based on the WHO report almost the MERS-CoV caused 2428 individuals and 838 deaths (Rahman, & Sarkar 2019). Phylogenetically MERS-CoV varied from other human-CoV. It is reported that this virus is part of beta-coronavirus subgroup. A low level upper respiratory injury can initiate the development of acute respiratory illnesses among human being with this virus. The patients infected with MERSCoV starts with pneumonia and then will lead to ARDS and renal failure (Memish, Zumla, Al-Hakeem, Al-Rabeeah, & Stephens, 2013). It has been informed by the Chinse government to WHO that they have observed some sort of unacquainted etiology on pneumonia, with varied cases obtained. As it is reported in several articles, the outburst was started from the Hunan seafood market in Wuhan city of China and swiftly infected more than 50 individuals. The Hunan seafood market is widely known as a market which usually sell bats, frogs, snakes, birds, marmots and rabbits (Wang, Horby, Hayden & Gao, 2020). With the symptomatic similarities National Health Commission of China reported additional particulars about the epidemic, recommended virus-related pneumonia (Wang, Horby, Hayden & Gao, 2020).

Based on the constant analysis isolates from the patients done by the health experts the virus was recognized as a different coronavirus. Furthermore, the genetic order was also provided for the diagnosis of viral infection. Originally, it was proposed that the patients infected with Wuhan coronavirus brought pneumonia in China may have visited the Hunan seafood market or might have consumed infected animals or birds. The diffusion of virus is thus occurred through close interaction with an infected person, exposed to coughing, sneezing, respiratory droplets or aerosols. These aerosols can penetrate the human body (lungs) via breath over the nose or mouth (Phan, Nguyen, Luong, Nguyen, Nguyen, & Le, et al. 2020; Riou, & Althaus, 2020; Parry, 2020, Li, Guan, Wu, Wang, Zhou, & Tong, 2020)

Symptoms

What makes more confusing to the experts in identifying whether the virus infected is COVID-19 or not is the variations in the symptoms. It's tough to distinguish how the virus will affect any individual person and the symptomatic confirmation. However, some observations in this regard provide better understanding on symptoms of COVID-19. It is reported that approximately 5.2 days after the incubation period the infection appear, the symptoms start appearing (Li, Guan, Wu, Wang, Zhou, & Tong, et al, 2020). A median of 6 to 41 days is usually agreed by the experts from the commencement of COVID-19 to death. However, such duration is depending on the several factors like the age of the patient and status of the patient's immune system. As it is reported the age of patients > 70-years old,

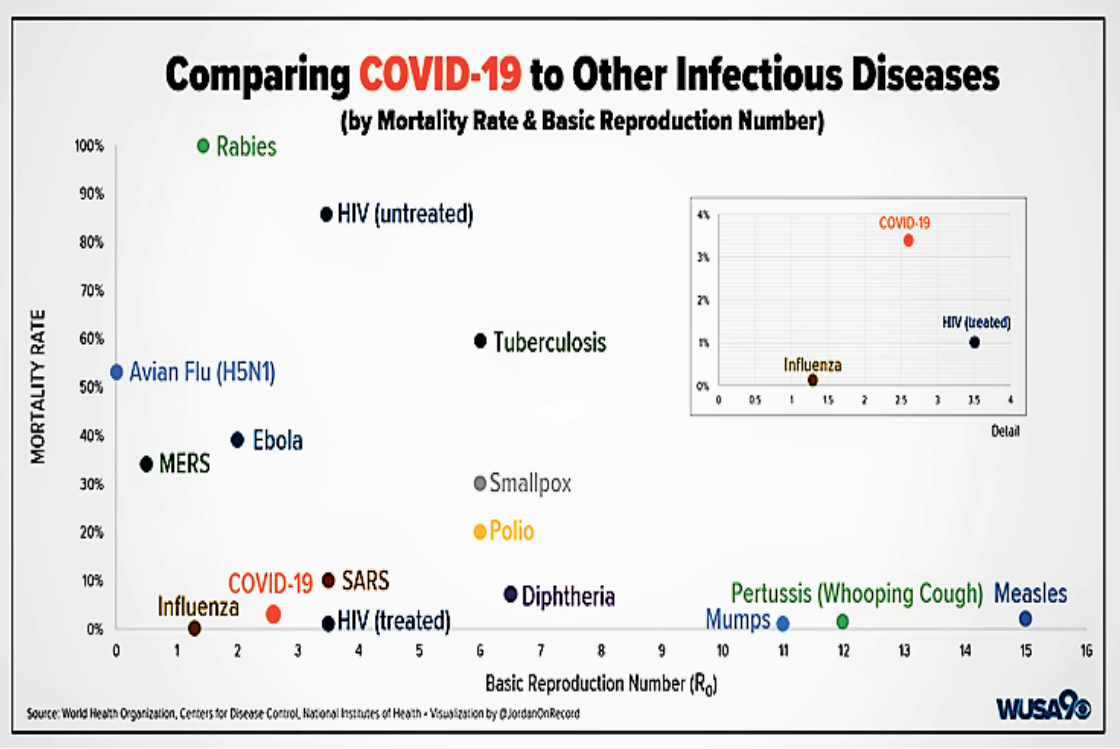

Figure 2: Covid19 and other infectious diseases
Source: WHO, Centre for Disease Control, National institute of Health

compared with those under the age of 70 (Wang, Tang, Wei, 2020). The most shared symptoms at commencement of COVID-19 infection are fever, cough, and fatigue, whereas additional symptoms include sputum production, headache, hemoptysis, diarrhea, dyspnea, and lymphopenia (Ren, Wang, Wu, Xiang, Guo, & Xu, et al., 2020, Huang, Wang, Li, Ren, Zhao, Hu, et al., 2020, Wang, Tang, Wei, 2020, Carlos, Cruz, Cao, Pasnick, & Jamil, 2020). Though the CT scan reports obtained from the lab is identified the illness as pneumonia, there were atypical features such as RNAaemia, severe respiratory distress syndrome, severe cardiac injury and occurrence of grand-glass opacities that led to death (Peiris, Guan, & Yuen, 2004). Scientists have observed resemblances in the symptoms amongst COVID-19 and earlier betacoronavirus such as fever, dry cough, dyspnea, and bilateral ground-glass opacities on chest CT scans (Peiris Guan & Yuen 2004). Even though such resemblances exists, COVID-19 displayed some exclusive clinical features that comprise the targeting of the lower airway as manifest by upper respiratory tract symptoms like rhinorrhea, sneezing, and sore throat (Kan, Wang, Jing, Xu, Jiang, Yan et al. 2004; Zheng, Guan, Wong, Zhou, Wong, & Young BWY, et al. 2008). Add to those symptoms, it is also observed by health specialists that some of the cases of chest radiographs confirm an infiltrate in the upper lobe of the lung that is related with growing dyspnea with hypoxemia (Shi Z, & Hu 2008). Significantly, the patients infected with COVID-19 established gastrointestinal indications like diarrhea, a low level of MERS-CoV or SARS-CoV patients experienced similar GI distress. Henceforth, it is significant to test faecal and urine samples to dismiss a possible alternate route of transmission, explicitly through health care workers, patients etc. (Zheng, Guan, Wong, Zhou, Wong, & Young BWY, et al. 2008).

How is COVID-19 different from Influenzas?

Health experts have come with a comparison between COVID-19 and influenza, in order to make the public aware about the symptoms associated with resultant illnesses. Both these viruses cause respiratory disease, hitherto there are significant differences amongst these two viruses and how they diffuse into society. This has significant consequences for public health measures that should be executed to respond to each virus.

Why has the virus spread so fast?

Quoting the expert opinion WHO stated that the COVID-19 virus is believed to be dispersed primarily by

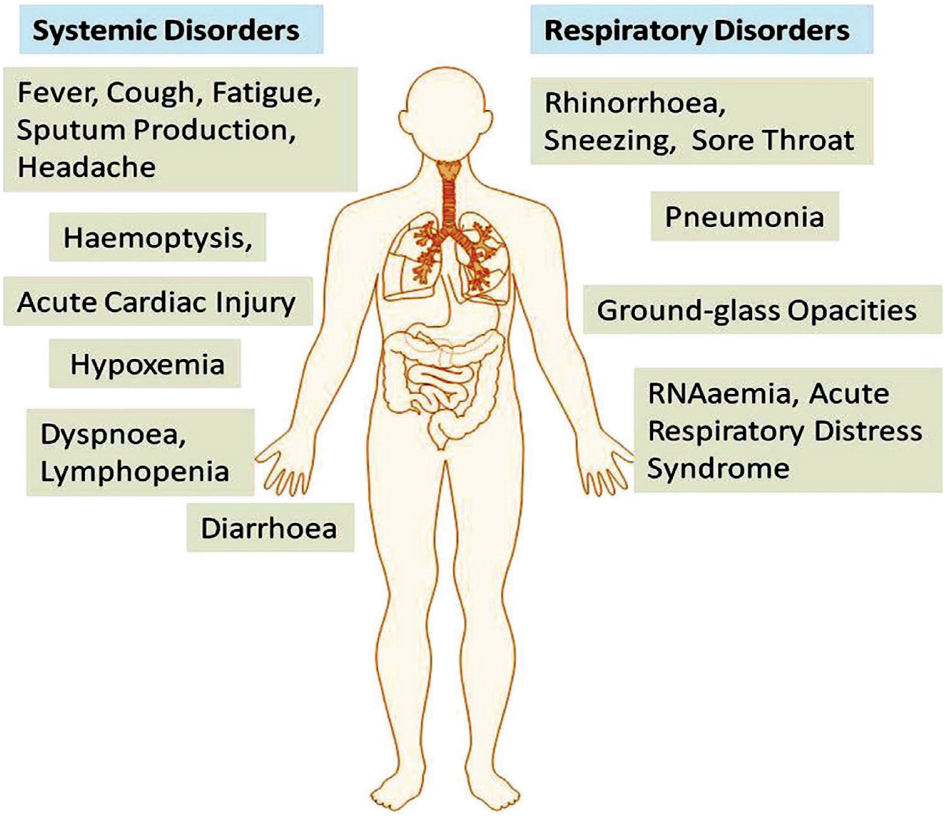

Figure 3: Systemic and Respiratory disorders
Source: Rothan and Byrareddy, 2020

Table 1: COVID-19 difference from Influenzas

COVID-19 compared to other common conditions				
Symptom	**COVID-19**	**Common cold**	**Flu**	**Allergies**
Fever	Common	Rare	Common	Sometimes
Dry cough	Common	Mild	Common	Sometimes
Shortness of breath	Common	No	No	Common
Headaches	Sometimes	Rare	Common	Sometimes
Aches and pains	Sometimes	Common	Common	No
Sore throat	Sometimes	Common	Common	No
Fatigue	Sometimes	Sometimes	Common	Sometimes
Diarrhea	Rare	No	Sometimes*	No
Runny nose	Rare	Common	Sometimes	Common
Sneezing	No	Common	No	Common

*Sometimes for children
Sources: CDC, WHO, American College of Allergy and Immunology

respiratory droplets. When infected individual breathes, cough, or sneeze they oust little droplets of moisture that have the virus. People near to the infected person could breathe droplets of moisture and thus will be affected. Even the virus which is landed on the floor or any other surface when touch by individuals also get infected. By touching the mouth, nose or eyes, after contacting with an infected person or surface thus turned to be the causative factor behind rapid spread of this virus. The survival chance for this virus is very high in several accession. It is also confirmed by the scientist that the virus can remain viable on a hard, surface like plastic or steel for around three days, and a rough surface like cardboard for about a day (Morawska 2006).

The mode of transition is varied from viral droplets. The scientists also suggested two added possible routes that need to be explored: fecal-oral and airborne. Airborne transmission describes as circumstances where the droplet nuclei (residue from evaporated droplets) or dust particles holding microbes can stay suspended in air for unpredictable period. It is informed that these microbes should be capable of living for long periods external the body and unaffected to drying. Airborne spread permits microbes to pass in the upper and lower respiratory tracts.

Some health experts claim that new coronavirus is not "airborne" — meaning that unlike extremely contagious diseases like measles, it's unlikely to linger in the air for hours on end. But that doesn't mean the virus can't linger in the air for some amount of time. Some scientists explain that the novel coronavirus is not airborne. Nevertheless the corona virus can possibly still remain in the air for some time and under some conditions. However, there is no consensus regarding under what conditions it stays and expires. One thing is sure that the virus definitely will be in the air, after an infected person sneezes or coughs, but there is no clarity in this inference that when the particles finally come to rest on the ground. The global as well as 75,465 COVID-19 cases in China reported, no airborne transmission (WHO 2020). However, WHO cautions that "airborne transmission may be thinkable in explicit conditions and locations."

Certain medical measures like intubation, suctioning, and ventilation may conceivably create airborne viral aerosols. Hence in hospital settings, it's vital for health care staffs to wear appropriate personal protective equipment (PPE) to prevent the viral infection. One of the constrain to get identify the spread of COVID-19 symptom is, difficulty in recognizing people with mild symptoms and people without symptoms. It is reported by WHO that between 25 and 50 percent of people infected with the virus show no symptoms. As it is expected some percentage of those asymptomatic cases can spread the virus to others. Such situation makes it too dangerous with the fact that COVID-19 virus can spread sneakily and silently it also likely to diffuse before a person shows symptoms. Before precipitating the symptom, if infected individual attends any group functions can spread the disease so fast to others in the group. It is reported that presymptomatic spread was found in a singing class, church pew, and households (CDC, 2020).

Gender Difference in COVID-19 Infection

Substantiating the gender difference in corona virus impact there are results from several countries. A study

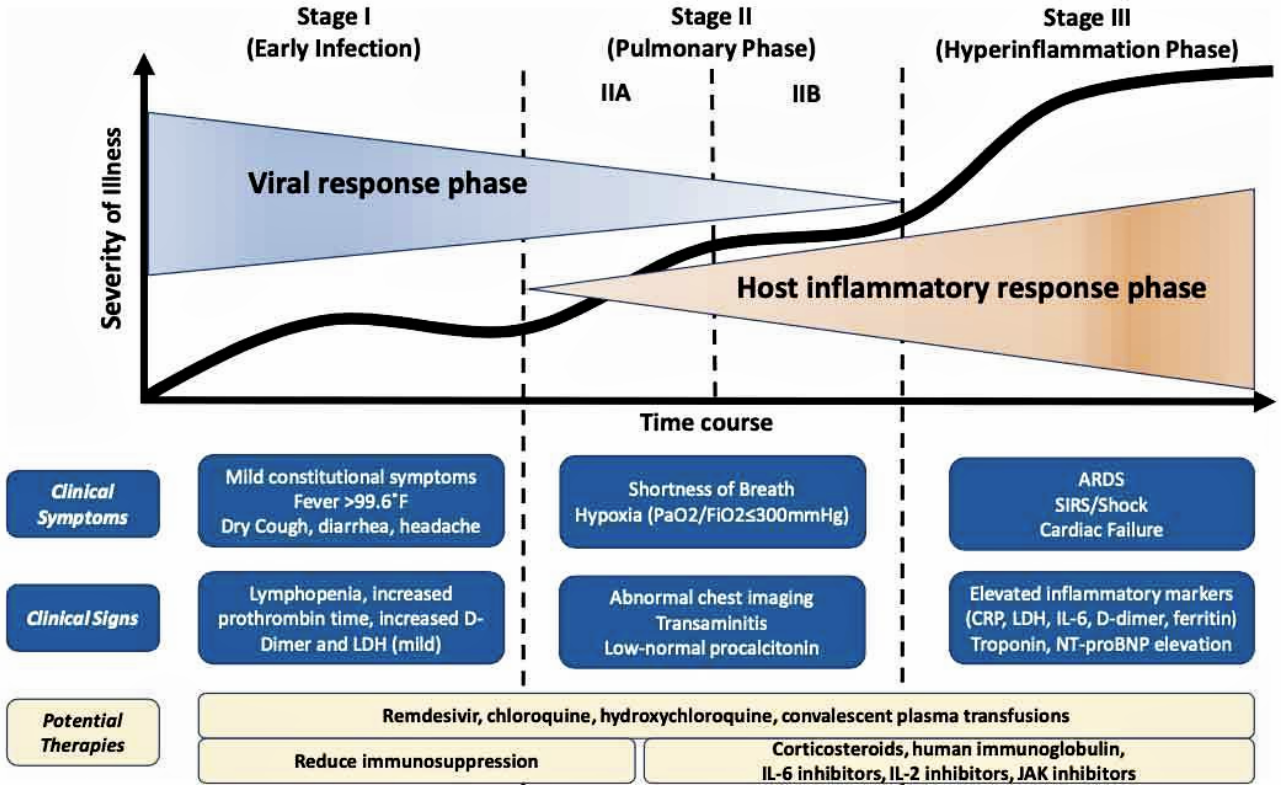

Figure 4: Phases of infection

report from Italy, 1,591 cases of critically ill people who were admitted into intensive care units indicated that about 82% of them were men. Almost similar study conducted in U.S. for COVID-19 in March 2020 observed that males are disproportionately affected by COVID-19 in comparison with females. New York city has affected more COVID-19 in entire US. Public health information from the city of New York, states that men are more likely to be hospitalized and are nearly twice as likely to die. China's Center for Disease Control (CDC) reported that the fatality rate among men with confirmed coronavirus infections was roughly 65% higher than it was among women. Early reports from China, where the COVID-19 first appeared, and from South Korea, where detection and tracking of COVID-19 infections have been all-inclusive. In South Korea, men observed for nearly 62% of all cases. And infected men were 89% more likely to die than were women.

Age and Underlying Diseases related to COVID-19

Reports coming from China and Europe indicates strong correlation between age and COVID-19 related illnesses. A study of 25 death cases in China by the investigators reported that the age and underlying diseases were the most important risk factors for death.

Diabetes and COVID-19 Infection

Diabetes, or Diabetes mellitus, is described by the doctors a condition where the patient having high blood glucose (blood sugar). Diabetes is one of the foremost reasons of morbidity and mortality around the world. Diabetes is a chronic inflammatory condition characterized by multiple metabolic and vascular abnormalities that can affect our response to pathogens (Knapp, 2013). This condition is caused either by because insulin production is insufficient, or because the body's cells do not respond accurately to insulin, or both. Few of the conditions reported by patients' high blood sugar typically experience polyuria (frequent urination), they will become increasingly thirsty (polydipsia) and hungry (polyphagia). Patients with diabetes mellitus found to have more vulnerable towards infectious diseases, which possibly increases their morbimortality. Immune dysfunction (damage to the neutrophil function, depression of the antioxidant system, and humoral immunity) is the major crisis faced by the diabetic patients which are caused by the hyperglycemic environment. Infections, predominantly influenza and pneumonia, are often common and more severe in elder people with type 2 diabetes mellitus (T2DM) (Li, Wang, Zhang, Li, & Liu 2019). A connection amongst diabetes and infection has long been clinically documented (Pearson-Stuttard, Blundell,

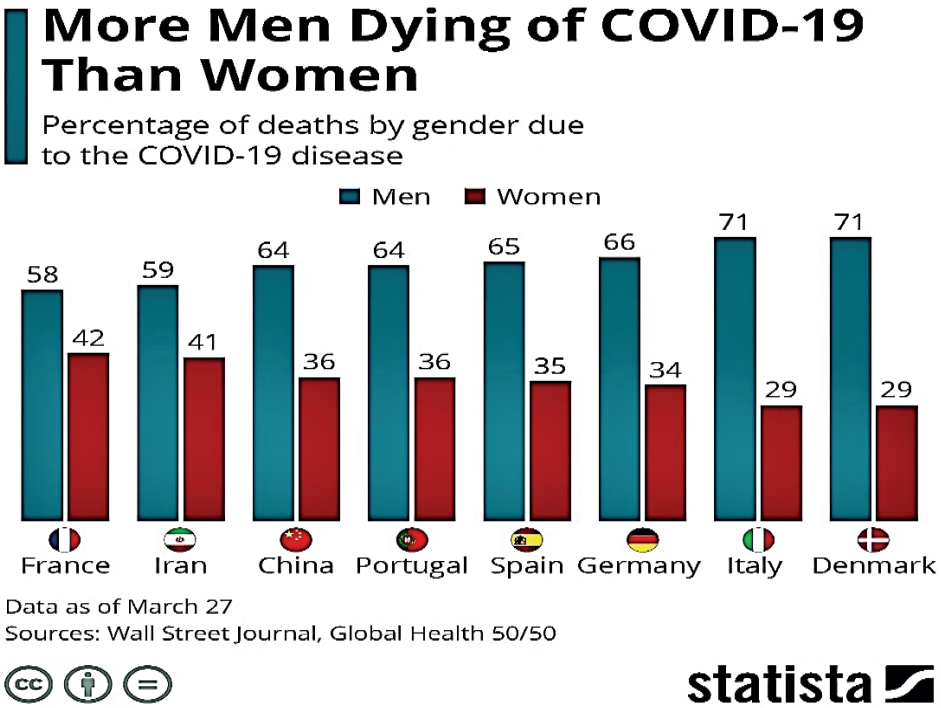

Figure 5: Gender comparison of COVID-19

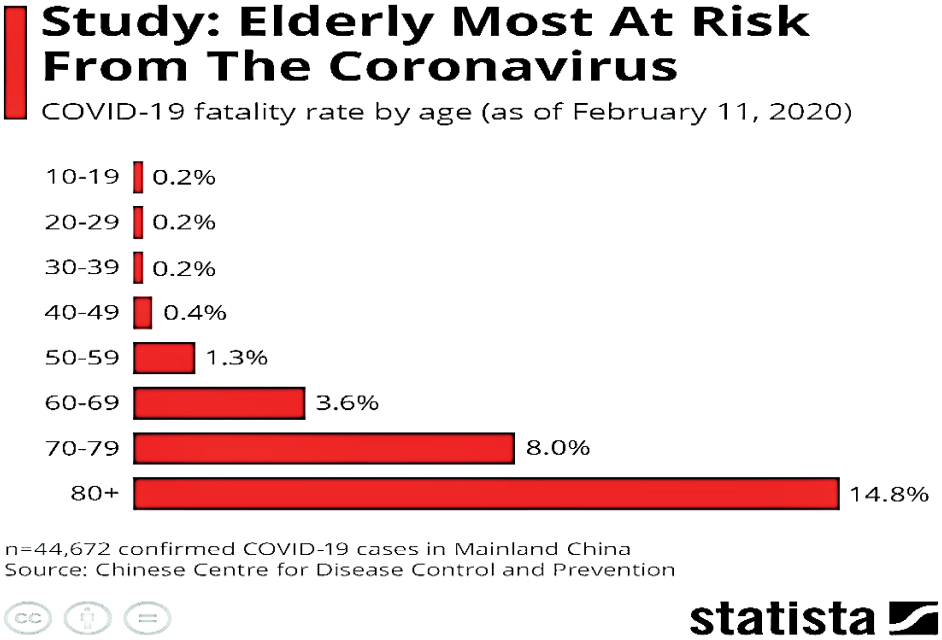

Figure 6: Age variation and COVID-19 infection

Harris, Cook, & Critchley 2015). The scientific evidences suggest that hyperglycemia and insulin resistance reassure augmented synthesis of glycosylation end products (AGEs) and pro-inflammatory cytokines, oxidative stress, in addition to stimulating the production of adhesion molecules that mediate tissue inflammation (Knapp 2013; Petrie, Guzik, & Touyz, 2018). Such inflammatory process may comprise the underlying mechanism that leads to a higher propensity to infections, resulting worst outcomes thereof in patients with diabetes (Knapp, 2013).

Vaccines

The scientific reports from WHO states that at present, there are not any identified active treatments for COVID-19 and does not endorse the use of antiviral drugs, antibiotics, glucocorticoids, or traditional Chinese medicine (WHO, 2020). There are biotechnology firms and universities in China working on SARS-CoV-2 vaccines. Vaccines for SARS-CoV-2 have been advanced much faster than those for Ebola because of the cooperative efforts of global researchers

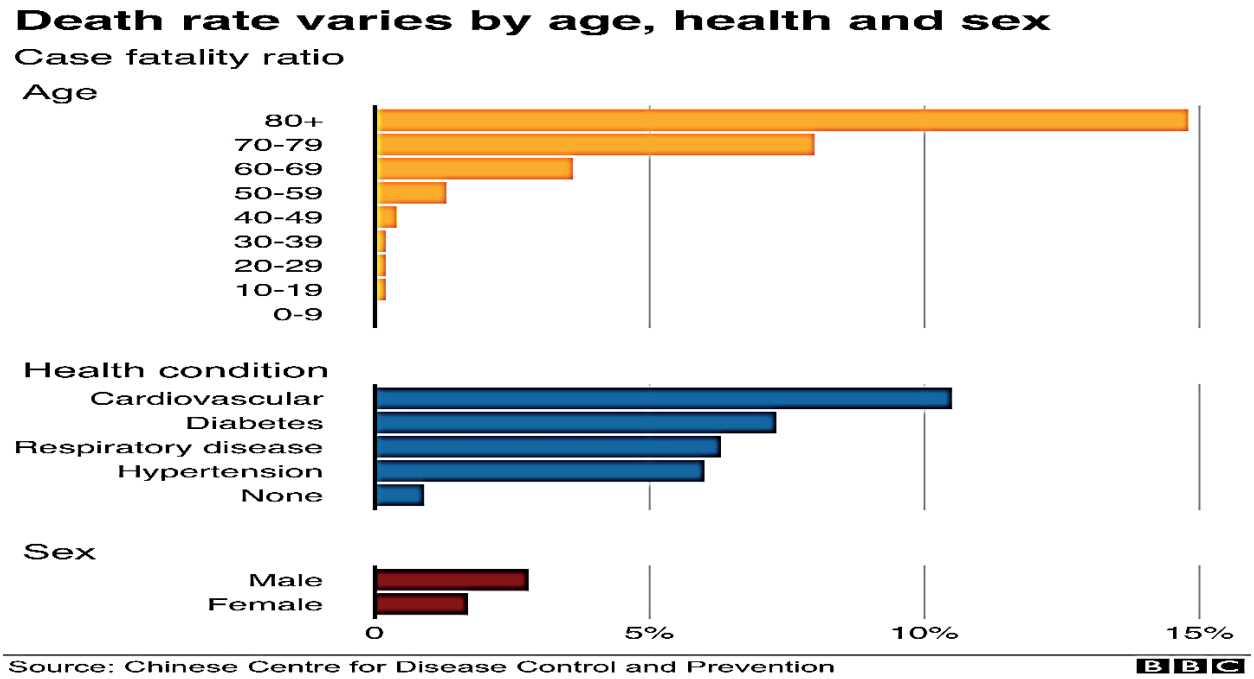

Figure 7: Age, health and gender variation and COVID-19 infection

and the speedy approval of SARS-CoV-2 vaccine development efforts by the Chinese health organizations.

How to control speed of contagion the curve?

In order to avoid excess of demand and control the speed of contagion include two major steps that can be taken to control.

1. Expand intensive care capacity (expand supply of health care)

2. Slowdown the speed of contagion (contract demand for health care)

Why Social Distancing is Important

The purpose of social distancing is to prevent or limiting the physical contact with others by staying away from others as well staying away from all public places where people used to gather around. It is not necessary that you people are sick but avoiding the contact with others or distancing two meters away from others when outside in the publica places can help in slowing the spread of COVID-19. Bodily distancing is also termed as social distancing. The physical distancing in its form does not indicate a total cut off from family or significant others. One need to identify realm of emotional sharing through other means with the support of phone calls, texting, social media and video chat. Distancing does not indicate a disconnect. One should stay connect emotionally or socially but puts space between individuals. If physical contact is not coming up, the probability to diffuse the virus will be less (CDS, 2020). Social distancing comprises of withdrawing from large community gatherings, such as sports events and performances, schools, churches, shopping in big markets and restaurants. Though the experts pointed out this fact that the spread of COVID-19 cannot be stopped,

Table 2: Vaccine testing – Promising drugs to treat COVID-19

Drug	Current Use	Original mode of action	Being tested
Chloroquine	Anti-Malarial	Heme polymerase inhibitor	Yes
Kaletra (ritonavir + lopinavir	HIV	Protease inhibitor	Yes
Interferon alfa-2b	Hepatitis-C	Immune modulator	Yes
Remdesivir	Experimental	Nucleotide analogue	Yes
Favipiravir	Infuenza	RNA polymerase inhibitor	Yes
Actemea (Tocilizumab)	Rheumatoid Arthritis; Covid19	Anti-inflammatory	Approved
Kevzara (Sarilumab)	Rheumatoid Arthritis;	Anti-inflammatory	Trial expected

Source: WHO, adapted from landscape analysis, 17th February 2020. (For use of COVID-19 in March 2020)

but can be slowed down explicitly by measures currently summed up under the term "social distancing". By preventing human contact, it is possible to decrease the transmission rate drastically.

Discussion and Implications

The objective of this paper is to investigate the theoretical knowledge of COVID-19 impact and suggest some measures to management the health of public during the pandemic days. The paper has facilitated the advancement of the body of knowledge in the area of COVID-19 public health issues. The study suggests following recommendations to ensure better public and individual health management.

- People should evade from close contact, especially one should evade near interaction with people who are sick and small children.
- When an individual is sick, better to stay at home.
- Avoid stirring your eyes, nose or mouth. Since the touch can spread the virus one should touches his or her eyes, nose, or mouth. It is also suggested that one should cover the mouth and nose.
- Put a facial mask. Cover your mouth and nose with a tissue, when coughing or sneezing.
- Avoid sharing personal items.
- Clean hands. Washing hands often for 20 seconds will protect one from germs.
- Avoid sharing personal household items and clean all "high-touch" surfaces every day.
- Use consistent household cleaning spray or wipe to clean objects and surfaces at home, work or school.
- Pursue swift medical care, if the illness is deteriorating (coughing, difficulty breathing).
- Keep the air clean. Open a window in the sick room or use a fan to keep fresh air flowing.
- Clean all "high-touch" surfaces, such as counters, tabletops, doorknobs, bathroom fixtures, toilets,

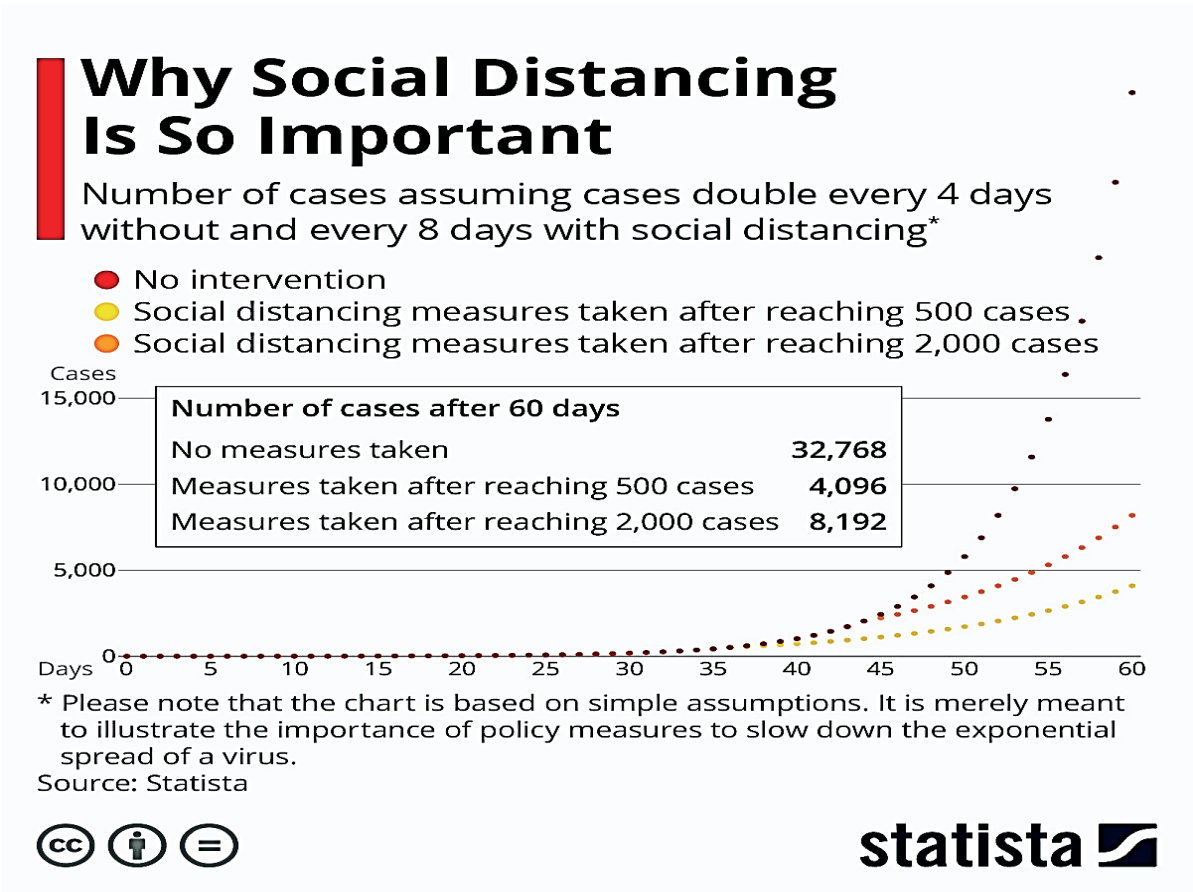

Figure 8: Social distancing

phones, keyboards, tablets, and bedside tables, every day.

- Place all used throwaway gloves, facemasks, and other contaminated items in a lined container before disposing of them with another household waste.
- Avoid close contact with people who are sick.
- Keeping distance from others is especially important for people who are at high risk of getting very sick.
- Avoid eating undercooked animal foodstuffs. Handle raw meat, milk or animal organs with care to avoid cross-contamination with other uncooked food.
- Avoid eating the meat that comes from animals that have died of diseases.
- Enhancing the diet quality in susceptible individuals for COVID-19 might alleviate their risk of severe infection.
- In spite of the indecisive pieces of evidence, oral probiotics are expecting to be the rational adjunctive option in various viral illness control Centers for Disease Control and Prevention, 2020).

Conclusion

The COVID-19 pandemic has diffused very fast across the globe. Many countries got an opportunity to look at their resources and facilities to curb the viral infection. The chapter discussed several aspects spin around COVID-19 like the historical perspective, magnitude of the risk, risk of contagiousness, fatality rate, incubation period, comparison with other contagious diseases, symptoms, gender and age differences in infection, diabetes and proneness, possible vaccines, models of virus diffusion, social distancing and management of health habits. Effective preventive steps can control the virus spread to a great extent. In the process of management of COVID-19 infections, close attention should be paid on both Personal hygiene and social distancing to avoid further spread of the viral infection, till adequate vaccine will be introduced.

Competing Interest Statement

The author has read and approved the manuscript and takes full responsibility for its contents. The author has declared that no competing interest exists.

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