Post Covid-19 Health Indications of Covid-19 Patients

By

Tanzim Khan

ID: 14246002

A thesis submitted to the Department of Pharmacy in partial fulfillment of
the requirements for the degree of Bachelor of Pharmacy (Hons.)

School of Pharmacy
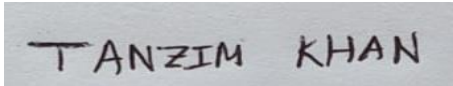
Brac University

May, 2022

Declaration

It is hereby declared that

1. The thesis submitted is my/our own original work while completing degree at Brac University.

2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.

3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.

4. I have acknowledged all main sources of help.

Student's Full Name & Signature:

Tanzim Khan
14246002

Approval

The thesis titled "Post Covid-19 Health Indication of Covid-19 Patients" submitted by Tanzim Khan (14246002) of Spring, 2022 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Bachelor of Pharmacy (Hons) on [22nd May, 2022].

Examining Committee:

Supervisor:
(Member)

_____
Dr. Shahana Sharmin
Assistant Professor, School of Pharmacy,
Brac University.

Program Coordinator:
(Member)

_____
Namara Mariam Chowdhury,
Lecturer, School of Pharmacy,
Brac University.

Deputy-Chair:
(Member)

_____
Dr. Hasina Yasmin
Professor & Deputy-Chair, School of Pharmacy,
Brac University.

_____

Dean:
(Chair)

Dr. Eva Rahman Kabir

Professor and Dean, School of Pharmacy,

Brac University.

Ethics Statement

No harm to any animal was done on this survey. All the surveys were collected from individuals with their full consent and willingness.

Abstract

This study was designed in such a way so that it can focus on how patients can express or understand their post covid indications that are being faced by them. The sample size was determined by using Raosoft sampling method where 5% margin of error and 95% confidence level, sample size of 385 were calculated. Amongst them, 216 were validated for this survey.

 Among 216 participants, most of the patients were female. Most of the participants were admitted in the hospital and surprisingly most of them didn't feel any sort of health issues before getting affected. A small portion of the participants are facing some new health complications after they got cured from covid-19.

There is a possibility that the result got biased as the survey was done at such a time when people were afraid and unaware about COVID-19. Apart from being aware, people are still not much aware about the prevention. Or in short we can say, they don't feel the urge to follow preventive measures such as wearing masks properly. Here health education is much more needed.

Dedication (Optional)

Dedicated to my parents, Chairperson of the Department of Pharmacy, Dr. Eva Rahman Kabir and also my supervisor Dr. Shahana Sharmin.

Acknowledgement

This project would not have been completed without the support of the people who are recognized here.

First and foremost, I would like to express my gratitude and appreciation to my most respected supervisor Dr. Shahana Sharmin, Assistant Professor, Department of Pharmacy, Brac University. I would like to thank her for the constant support, direction and encouragement towards this project which allowed me to complete my work. Her linguistic skill helped me to build up my capacity of expressing thoughts in an ordered manner.

Then, I would like to express my deepest gratitude and honor to Professor Dr. Eva Rahman Kabir, Chairperson and Professor, Department of Pharmacy, Brac University, for giving me the opportunity to work on this project. I would also like to thank her for providing me constant guidelines and inspiration throughout my graduation.

Last but not least, I would like to thank my family and my dear friend Rithin for being with me and supporting me to work harder in every phase of life. Without their prayer and unconditional love, I would not come this far.

Table of Contents

List of Tables

List of Figures

List of Acronyms

SARS	Severe Acute Respiratory Syndrome
COVID	Corona Virus Disease
WHO	World Health Organization
IEDCR	Institute of Epidemiology, Disease Control and Research
nCOV	Novel CoronaVirus-2
ICTV	International Committee on Taxonomy of Viruses
MERS	Middle East Respiratory Syndrome
EC	Emergency Committee
IHR	International Health Regulations

PHIEC   Public Health Emergency of International Concern

ICD   International Classification of Diseases

EUA   Emergency Use Authorization

Chapter 1

Introduction

1.1 Background

COVID-19 is a newly discovered infectious disease that originates from a new virus which is kind of similar to the common cold & connected to the similar genealogy of viruses as Severe Acute Respiratory Syndrome (SARS).

Corona is represented by 'CO,' virus is represented by 'VI,' and disease is represented by 'D.' The sickness was initially reported in Wuhan, Hubei Province, China, in December of this year. On January 30, 2020, the World Health Organization labeled the epidemic a PHEIC, which implies it was a worldwide declaration of public health danger. After then, on March 11, 2020, it was declared a worldwide health threat or pandemic. (WHO statement on the IHREC's second meeting on the spread of novel coronavirus (2019-nCoV), January 30, 2020)

A virus can be spread by a person who is infected and seems to have no symptoms. Droplets are discharged in the time of sneezing, coughing or exhaling of an infected individual. This is why it's critical to maintain a safe distance of at least 2 meters. (IAMAT, n.d.).

Individuals can potentially become infected by coming in contact with contaminated surfaces and touching their bodies (e.g., mouth, nose etc.). The COVID-19 microbe can survive superficially many hours before they are being killed by standard bactericide or sanitizer.

We are still learning the effects of COVID-19 on people in a daily basis. People who are older, as well as those who have chronic medical conditions including diabetes mellitus and heart issues, are more likely to be at an elevated danger of having crucial indications. The viruses impact on children are still subjected to learning regularly.

However, as everyone despite from their age differences are in danger of getting affected by COVID-19, there have been small number of scenarios of the virus recorded among children. We are at immediate challenge to understand about the impacts of the virus on children as it is a recently discovered virus. In rare situations, the virus can be life threatening and also can affect primarily older adults with pre-existing health conditions (Unicef et al., 2020).

An upper respiratory infection is an upper respiratory tract infection that can cause fever, cough, stuffy nose, fatigue, and other signs of illness. In 75% of patients, the infection can progress to a severe infection with dyspnea and chest symptoms similar to pneumonia (Velavan & Meyer, 2020).

The global economy could lose $3.7 billion in output as a result of this crisis. COVID-19 has the potential to push half a billion people into poverty, and the developing country's informal sectors will suffer greatly as a result (K. Ahmed, 2020). The World Bank's president, David Malpass, stated that the least developed countries will bear the brunt of the economic crisis, particularly those with massive debts. COVID-19 is resulting in a decrease in domestic supply and tourism business in Asia's developing countries, as well as obstructing trade and supply linkage (Abiad et al., 2020).

1.2 Research Gap

On March 8, 2020, the first COVID19 case in Bangladesh was reported. Bangladesh reported their first COVID-19 fatality on March 18, 2020. (10 days after reporting the first COVID- 19 confirmed case). According to the Institute of Epidemiology, Disease Control and Research (IEDCR), 182 COVID-19 death cases were reported in Bangladesh between March 8 and May 4, 2020.

Persons over 60 accounted for 42% (76), people 51-60 accounted for 27% (49), individuals 41-50 accounted for 19% (35) and people under 60 accounted for 7% (13) of all fatalities. 73 (73 percent: 133/182) of the 182 COVID-19-related deaths were men. (WHO, 2020).

Covid-19 has thus far killed 9,865 men (71.55 percent) and 3,922 women (28.45 percent) in the United States. When compared to the total number of cases identified, the death rate is 1.59 percent. (Tribune, 2021).

1.3 Objective of the study

The main objective of the research is-

1.   To search and understand the escalation of Covid-19 situation in Bangladesh with plausible symptoms.

2.   To learn about the post covid health indication among the patients.

3.   To find out the most effective and frequently used medications by health practitioners.

4.   To find out the quality of treatment provided to the patients and their experience towards the medication dispensed.

5.   To see if patients developed any new symptoms after getting affected by Covid-19.

1.4 Rationale

Bangladesh has been affected by Covid-19 since last year (2020), and now that the second wave has arrived (2021), the people are not as aware or cautious as they should be. This study will bring the dangers of Covid-19 to the attention of everyone. People who are still unaware of critical topics related to Covid-19 will learn about it and benefit from it after the research is completed. Furthermore, as awareness grows, the rate of suffering will decrease.

This document's main goal is to provide clear and actionable guidelines for safe operations at all stages (e.g. prevention, early detection, and control of COVID-19). Moreover, the health practitioners and experts will be able to educate people with the help of this study. Thus, this study will spread knowledge regarding Covid-19 to everyone.

Finally, because knowledge is power, knowledge gained through this study will bring light to the dark and obsolete fear of poor treatment or death due to a scarecity of knowledge about the disease (Covid-19), ensuring the completion of our preliminary goal of educating and warning people about Covid-19.

Chapter 2

Literature Review

2.1 All about Covid-19

2.1.1 History

Following the 1918 flu pandemic, Covid-19 is the fifth pandemic to be documented. Covid-19 was discovered for the first time in Wuhan, China. On December 1, 2019, many people were diagnosed with viral pneumonia after exhibiting symptoms such as fever, lethargy, dry cough, and dyspnea. The disease was previously named Wuhan pneumonia by the media because of the outbreak's location and pneumonia symptoms. Whole genome sequencing has revealed that the Wuhan pneumonia is caused by a novel coronavirus, the seventh member of the coronavirus family. (Liu, Kuo, & Shih, 2020).

On February 12, 2020, the World Health Organization (WHO) designated the virus as 2019 Novel CoronaVirus (2019-nCov), before renaming it Coronavirus disease 2019. (Covid-19). The virus was formally categorized as SARS-CoV-2 by the International Committee on Taxonomy of Viruses (ICTV) based on phylogeny, taxonomy, and established method. (Liu et al., 2020).

COVID-19 began in China, but it quickly expanded to other countries in less than four months. On March 11, 2020, the WHO declared COVID-19 a pandemic, following the 1918 Spanish flu (H1N1), 1957 Asian flu (H2N2), 1968 Hong Kong flu (H3N2), and 2009 Pandemic flu (H1N1). According to estimates, these pandemics killed 50 million, 1.5 million, 1 million, and 300,000 people, respectively. (Liu et al., 2020).
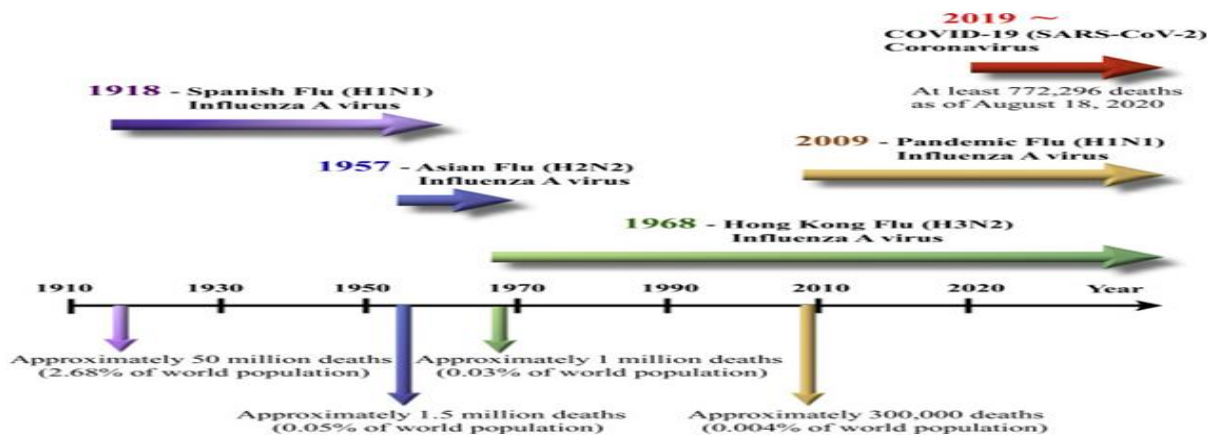

Figure-1: Timeline of five pandemics since 1918 (Liu et al., 2020)

2.1.2 Timeline of Covid-19: (WHO, 2020b).

December 31st, 2019

The local health commission in Wuhan, Hubei Province has reported some unidentified instances of pneumonia.

January 1st, 2020

WHO has established Incident Management Support Teams (IMSTs) at its headquarters, regional headquarters, and national level three tier organizations to put the organization into emergency mode to respond to the outbreak?

January 4th-5th, 2020

A cluster of non-fatal pneumonia infections was reported by the WHO on social media in Wuhan, Hubei Province.

The WHO has released the first 'epidemic news' of a new virus that originated in Wuhan, China. It includes assessments and recommendations China has communicated to the organization, patient conditions, and public health responses.

January 10th, 2020

WHO recommended all governments on how to detect, test, and manage suspected cases based on what was known at the time about the virus.

January 12th-14th, 2020

The genomic sequence of COVID-19 was made available by China. Thai officials confirmed instances of COVID-19 in Thailand on the 13th of January (first reported outside China).

The World Health Organization (WHO) identified 41 instances of the corona virus in Mexico on the 14th, and warned that a bigger outbreak is possible. Human-to-human transmission would not be unprecedented, based on previous experience with SARS, MERS, and other respiratory viruses.

January 20th- 23rd, 2020

On January 20, 2020, WHO experts from its China and Western Pacific regional offices paid a quick field visit to Wuhan.

The WHO team to China indicated in a statement on January 22, 2020, that there is evidence of virus transmission from human to person in Wuhan, but that more investigation is needed to identify the exact degree of transmission.

There is evidence of Ebola virus transmission from one person to another in Wuhan, China, but more research is needed to determine the exact quantity of transmission. The World Health Organization (WHO) has formed an Emergency Committee (EC) to determine whether the outbreak is a public health emergency that requires international response.

January 28th, 2020

Dr. Tedros Abrolhos led a high-level WHO mission to Beijing to engage with Chinese leaders.

January 30th, 2020

A corona virus epidemic in China has been labeled a Public Health Emergency of International Concern by the World Health Organization (WHO) (PHEIC). This occurred two days after the first reports of limited human-to-human transmission outside of China, which was two days ahead of the 10-day deadline..
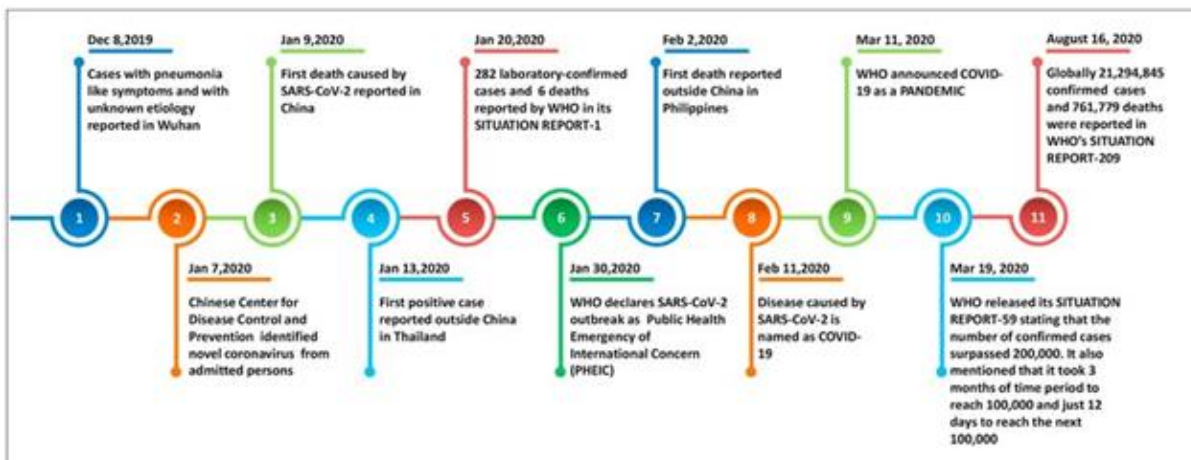
Figure-2: timeline of covid-19 virus (Muralidar, Ambi, Sekaran, & Krishnan, 2020)

2.1.3 Structure of SARS-COV
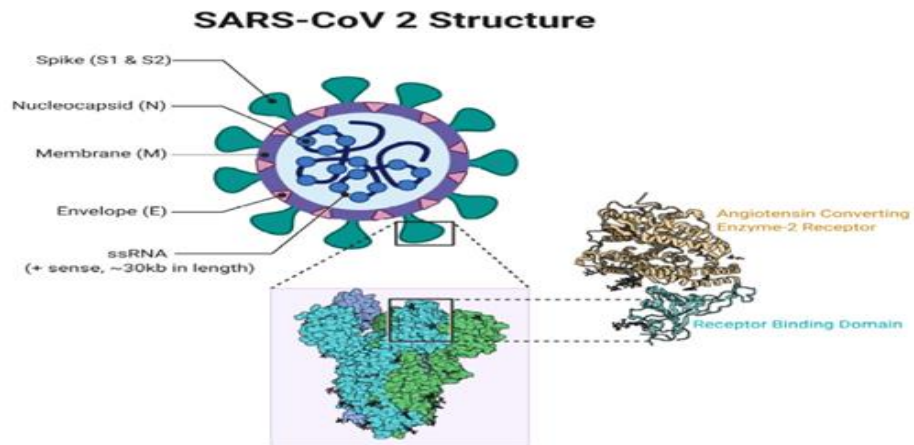
Figure-3: Structure of SARS- CoV-2 (WHO, 2020c).

2.1.4 Classification of Corona virus

Viruses are given names based on their genetic structure to facilitate the development of diagnostic tests, vaccinations, and treatments. The International Committee on Virus Taxonomy assigns names to viruses (ICTV). In order to assist discussion regarding illness prevention, transmission, severity, and treatment, diseases are given names. Diseases are legally named by WHO in the International Classification of Diseases since WHO is responsible for human disease preparedness and response (ICD) (WHO, 2020c).

2.1.5 Structure of CoronaVirus
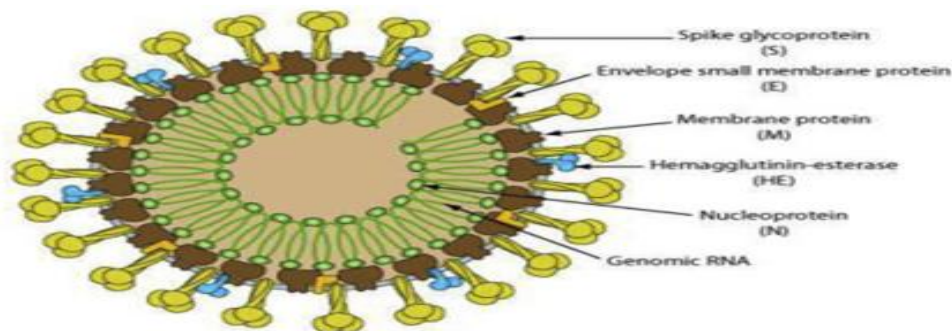
Figure-4: Schematic of a coronavirus (Mousavizadeh & Ghasemi, 2020).

2.1.6 Signs & symptoms of Covid-19

People with these symptoms may have COVID-19:

1. The presence of a fever or chills
2. Cough
3. Shortness of breath or difficulty breathing
4. Fatigue
5. Aches and pains in the muscles or throughout the body
6. Headache
7. New loss of taste or smell
8. Sore throat
9. Congestion or runny nose
10. Vomiting
11. Diarrhea

This list does not include all possible symptoms. Older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness. (CDC, 2021).

The virus can lead to pneumonia, respiratory failure, heart problems, liver problems, septic shock, and death. Many COVID-19 complications may be caused by cytokine release syndrome, also known as a cytokine storm. This occurs when an infection causes the immune response to release inflammatory proteins known as cytokines into the bloodstream. They have the potential to kill tissue and cause injury to organs. In some cases, lung transplants have been needed.If someone notices the following severe symptoms they should get medical help right away (Neha Pathak, MD, 2021).

1. Breathing difficulties or shortness of breath

2. Chest discomfort or pressure that persists

3. A new source of perplexity

4. Inability to completely awaken

5. Lips or face that is bluish.

2.1.7 Prevention of Corona virus (WHO, 2021).

1. Avoiding social gatherings or crowds
2. Getting vaccinated.
3. Maintaining a physical gap of at least one meter between yourself and others.
4. Wearing masks in a proper way.
5. Frequently washing hands with an alcohol-based hand rub or soap and water.

6. When coughing or sneezing, cover your mouth and nose with a bent elbow or a tissue. Used tissues should be disposed of as soon as possible.

7. If someone develops symptoms or tests positive for COVID-19, self-isolation should be maintained until recovery.

How to wear mask properly:
- Covering nose, mouth, and chin.
- Cleaning hands before putting the mask on, before and after taking it off, and after touching it at any time.

Environmental Safety:

Colds, flu, and other respiratory disorders such as the common cold and Coronavirus can be avoided by avoiding locations that are closed, crowded, or entail close contact - such as small public meetings - and maintaining excellent respiratory hygiene.

2.1.8 Risk Factors (Rashedi et al., 2020).

The following are some of the potential risk factors that have been found so far:

- Poverty and crowding
- Certain occupations
- Pregnancy

- Age

- Race/ethnicity

- Gender

- Some medical problem

- Use of certain drugs.

2.1.9 Treatment

Scientists from all over the world are researching and developing COVID-19. For critically sick patients and those at risk of severe disease, the best supportive care includes oxygen as well as a more advanced respiratory help like ventilation.

Dexamethasone is used to prolong the life of severely ill patients who are on a ventilator. Remdesivir, hydroxychloroquine, lopinavir/ritonavir, and interferon regimens have little or no effect on 28-day mortality or COVID-19 in-hospital course among hospitalized patients, according to the findings of the WHO's Solidarity Trial.

COVID-19 treatment with hydroxychloroquine has not been proven to be effective. Self-medication is never been recommended by the doctor. One should take medication by the proper prescription of doctor. WHO is trying to invent the curing medicine for covid-19 and once it happens; it would be updated and available in their page (Badellino, Gobbo, Torres, & Aschieri, 2021).

Are antibiotics effective in preventing or treating covid-19?

As antibiotic is used for bacterial infection, it cannot be used to treat Covid-19 (as Covid-19 occurs from the attack of virus). Sometimes doctors can prescribe antibiotic to treat some other complications which may arise from Covid-19 (WHO, 2021).

What exactly are monoclonal antibodies, and how do they operate? Can they assist with COVID-19 treatment?

Three types of COVID-19 treatment have received emergency use authorization (EUA) from the FDA. Non-hospitalized adults and children aged 12 and up who have mild to moderate symptoms and have recently tested positive may benefit from treatment.

Monoclonals are synthetic versions of antibodies produced by human bodies to combat invaders such as the SARS-CoV-2 virus. These treatments must be given intravenously at a clinic or hospital. Monoclonal antibodies can be combined with corticosteroids like dexamethasone to reduce the immune response in critically ill hospitalized patients. Some COVID patients develop worse as a result of an exaggeration of the body's immunological response (a cytokine storm) (Badellino et al., 2021).

What exactly is convalescent plasma? Is it beneficial to people who have COVID-19?

The FDA granted an emergency use authorization (EUA) for convalescent plasma in COVID-19 patients in August 2020. Plasma containing antibody is produced when a patient recovered from Covid19. Within three days of observing the symptoms of Covid-19, patients who received plasma were 48% less likely to mature severe COVID sickness (Badellino et al., 2021).

2.1.10 Complications (WebMD, 2021).

- **Acute respiratory failure:** Acute respiratory failure was the major cause of death in several studies of COVID-19 victims.

- **Pneumonia:** Because the lungs are clogged with fluid, pus, and cell debris, pneumonia is a life-threatening infection. The bodies of patients are unable to transport oxygen to the blood, and in some cases, this prevents the body's functions from functioning normally. (WebMD, 2021).

- **Acute cardiac injury:** COVID-19 has the potential to induce long-term heart problems in people who have recovered from corona virus infection, although this has yet to be proven.

- **Acute liver injury**

- **Acute kidney injury**

- **Septic shock**

- **Blood clots**

- **Chronic fatigue**

How long it needs time to get well from covid-19 is different for everyone?

Many people recover completely within 12 weeks in the majority of situations. However, symptoms or weakness might remain for weeks or months after the primary illness has passed. It is commonly known as **'Long Covid'.**

Long Covid: (NHC, 2021).

Symptoms of long covid: There are lots of symptoms one can have after the covid-19 situation. Common symptoms may include:

1. Excessive weariness (fatigue)

2. Difficulty in breathing

3. Tightness or pain in the chest

4. Memory or attention problems (brain fog)

5. Sleeping difficulties (insomnia)

6. Palpitations in the heart

7. Dizziness

8. Depression and anxiety

9. Feeling sick or weak,

10. Loss of appetite.

2.2 Difference between Covid-19 and Flu

Table-1 Difference between Covid-19 & Flu (WHO, 2020a).

Flu	Covid-19
Median incubation period is shorter for influenza	The covid-19 virus has a comparatively larger incubation period
It has a shorter serial interval (3 Days)	Longer serial interval (5-6 days)
Spreading speed for influenza is faster	Covid-19 spreads slower than influenza

Rate of death is lower	Death for COVID-19 appears higher than for influenza

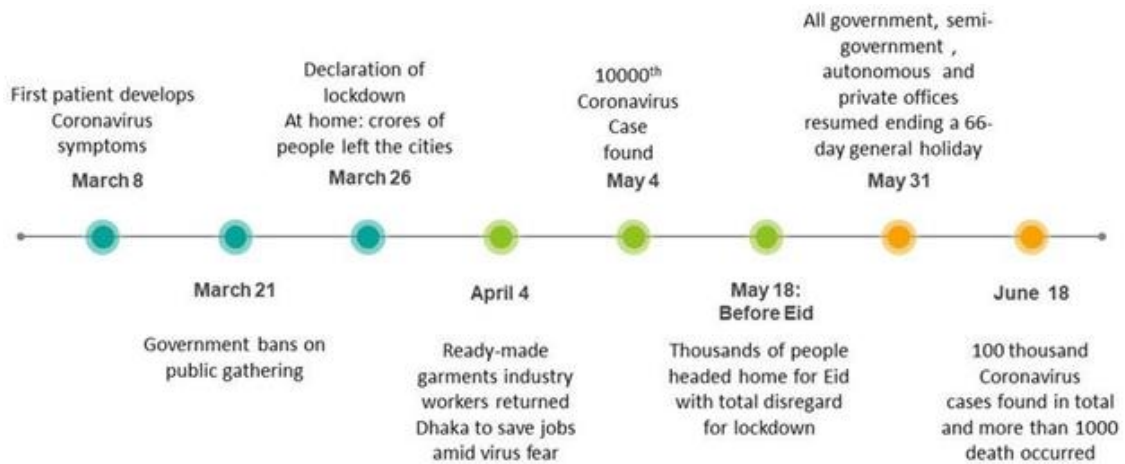## 2.3. Corona virus: Scenario of BD

Fig-5: Timeline of covid-19 in Bangladesh (Joarder, Nahian, Khaled, & Zaman, 2020).

2.3.1 Preventive measures taken in BD

Bangladesh had 33 confirmed cases of Covid-19 on March 23, 2020. The Ministry of Public Administration issued a 10 (ten)-day general vacation beginning March 26. The Bangladeshi government imposed another lockdown on April 5, 2021, for the second year in a row (Antara, 2021).

2.3.2 Impact of Lockdown in BD

Besides being protected from covid-19, many social issues like, child marriage, violation against women, education lose, losing jobs arises.

The Covid-19 pandemic has displaced around three percent of the country's workforce. An estimated 16.38 million "new poor" were created by the pandemic. About 1080000 day laborers lost their jobs during the lockdown in Bangladesh. The drop in export system affected an estimated 100,000 garment workers (Antara, 2021).

Economic loss

In Bangladesh, the Covid-19 pandemic has had a substantial impact on income and economic position. The country lost an estimated Tk 100, 000 crores in March. All modes of communication have been shut down, including road, rail, waterways, and aviation (Antara, 2021).

Educational Impact

Due to government austerity measures, Bangladesh's educational institutions have been closed for the past 15 months. According to a World Vision research provided by the World Health Organization, almost 40% of children are hungry and 55% are depressed at home (WHO). During World pandemic, girls were considered as burden in many families and rate of child marriage increased. As a result, many young women have been victims of sexual exploitation and abuse (Antara, 2021).

Child marriage

Bangladesh's child marriage rate increased by forty-four percentages in 2020 compared to 2019. Child marriage has long been a significant impediment to progress in Bangladesh. Most of the

child is suffering from depression, as they have never been locked to their homes for so long (Antara, 2021).

Gender-based violence

According to a survey of Manusher Jonno Foundation and the Brac James P Grant School of Public Health's study "Life in the Time of Coronavirus: A Gendered Perspective", for the first time during the epidemic, in Bangladesh about 30% of women had been suffer from various forms and types of violence, including torture on a physical, emotional, economic, and sexual level. The women claimed in the survey that they never had experienced domestic violence by their partners (Antara, 2021).

Chapter-3: Methodology

3.1 Research Design

Through a questionnaire, this study aimed to produce a statistic on Covid-19 patients' post-covid-19 health indicators. The purpose of this study was designed by researching different journal, online research. The rationale of this research was to develop an idea and build knowledge on different health hazards seen in Covid-19 patients after they were tested negative. There are many articles on Covid-19, history of Covid-19 but very little research has been done on post covid-19 health indication of Covid-19 patients. The participants of this study were selected from different hospitals where are Covid-19 patients are being treated. Total participants were 216 whereas 97 were female and 119 were male. Among the patients 62 were in between age of 0 to 18 years and 47 were from 19 to 39 years and 107 were in between 40 years and above.

Participants who satisfied the criteria of this study were selected and everyone gave their consent to contribute to this research.

3.2 Sample size Determination
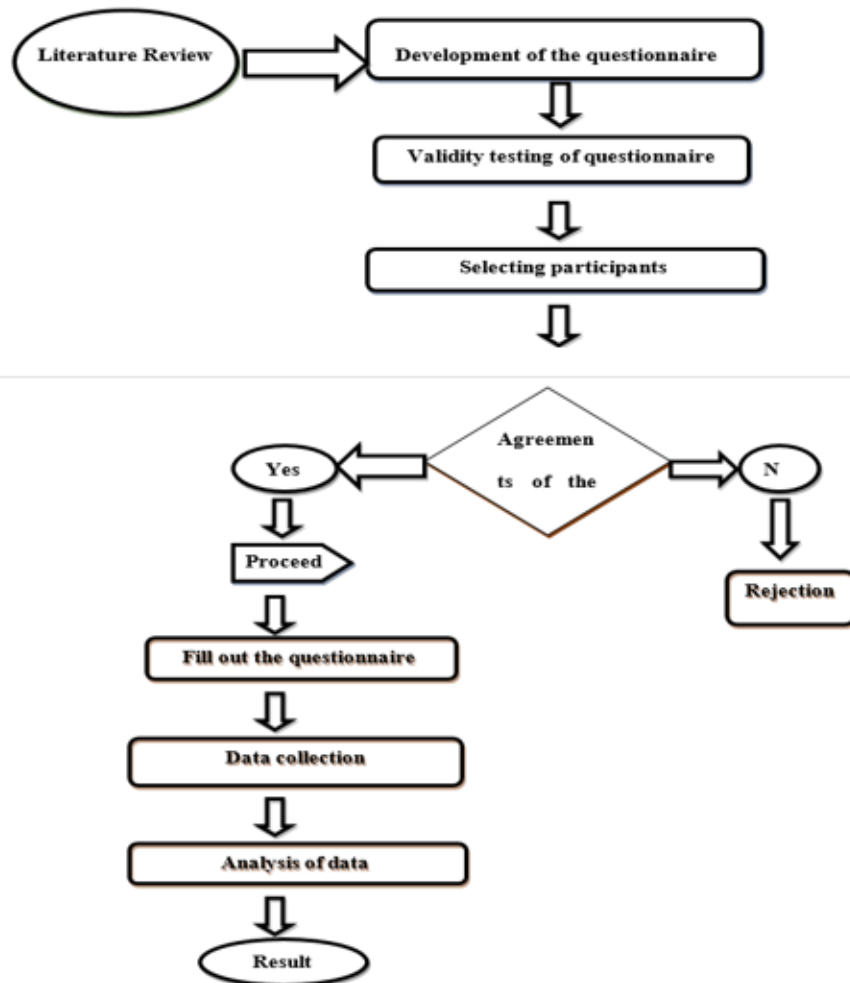
3.3 Development of the sample size

The sample size was determined by using Raosoft sampling method where 5% margin of error and 95% confidence level, sample size of 385 were calculated. Amongst them, 216 were validated for this survey. The questionnaire was developed in such a way so that it meets the goal of the study. Before making the question, an adequate discussion was done with an expert. The survey included inquiries about patients' age, gender, occupation, drug-taking difficulties, awareness amongst different people with different jobs, newly arisen health issues, etc. The questionnaire was completely understandable and the inquiries were straightforward as well as significant to the patients.

3.4 Validity testing of the questionnaire

As a simple and understandable questionnaire is important to get the exact result, this particular questionnaire was made in such a way so that it could be easy and understandable to the participants of the survey. The questionnaire was also reviewed by the respected instructor to ensure the validity of the questions to be asked.

3.5 Selecting the participants

The participants were selected from the people who were affected by COVID-19 and were interested to participate in the survey. Ethical permission was taken from them.

3.6 Data Collection and completion of the study

The survey was completed by collecting the data from randomly selected 216 patients who satisfied the criteria to complete the study.

3.7 Data analysis

Data analysis was done by placing the data in an excel file and pie charts were made for some individual data, some data were placed in a pivot table to analyze the data.

Chapter-4
Results and Discussion
4.1 Results

Count of Gender
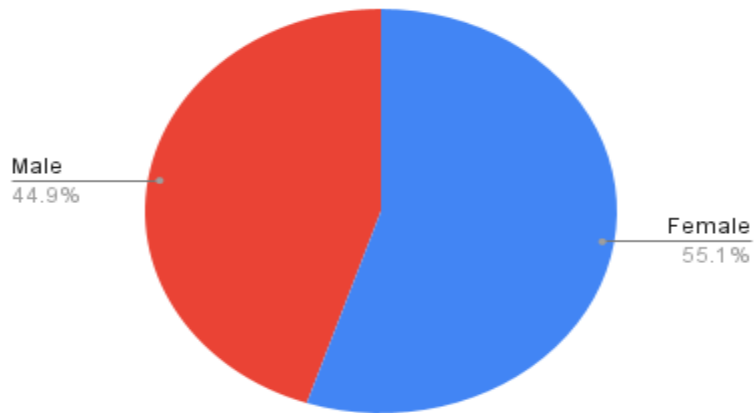
Figure-6: Count of gender.

Count of any sort of health issue before getting affected by covid-19?
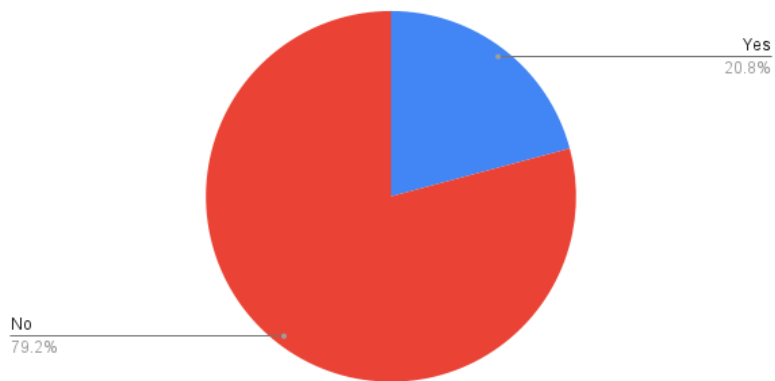
Figure-7: Count of health issues before getting affected by Covid-19.

Count of symptoms after identification

Yes
13.9%

No
86.1%
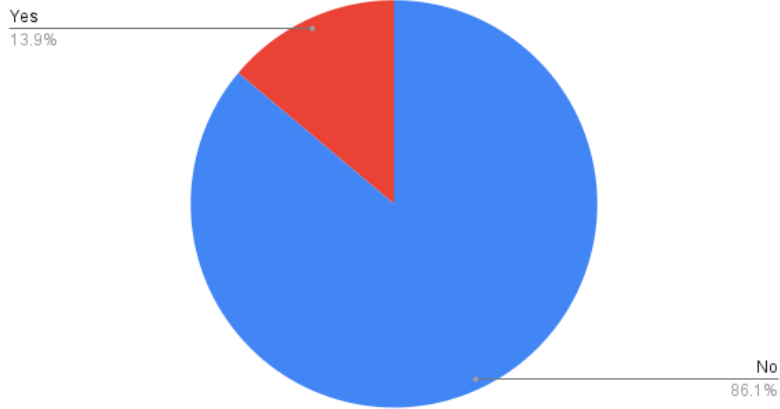
Figure-8: Count of symptoms after identification.

Count of person admitted in hospital

No
37.0%

Yes
63.0%

Figure-9: Count of persons admitted in hospital.

Count of new health complication developed after getting affected by covid-19

Yes
13.9%

No
86.1%
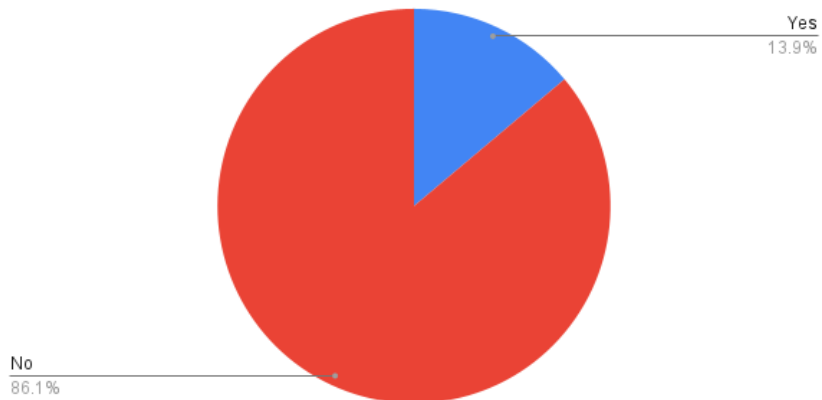
Figure-10: Count of new health complications developed after getting affected by covid-19.

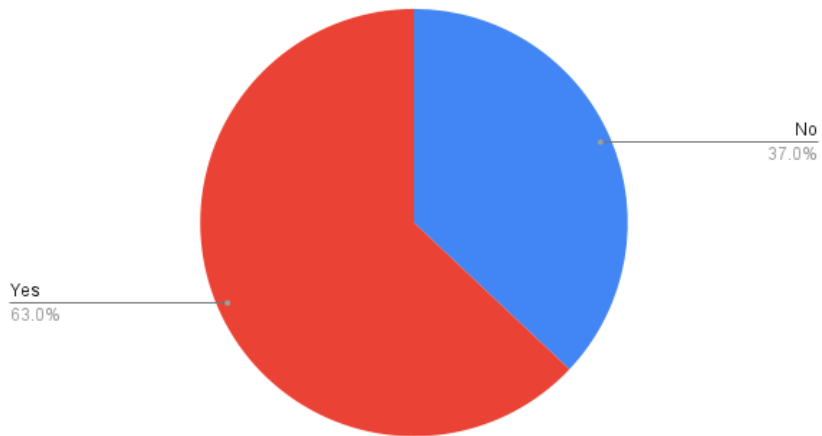| Count of Awareness among different people who are in different occupation		
Occupation	*How aware were you about the Covid-Female9 situation*	*Number*
business	Average	13
	Highly	7
	Little	19
business Total		39
day laborer	Average	12
	Little	16
day laborer Total		28
service holder	Average	10
	Highly	28
	Little	16
service holder Total		54
student	Average	11
	Highly	12
	Little	7
student Total		30
unemployed	Average	18
	Highly	5
	Little	42
unemployed Total		65
Grand Total		**216**

Figure-11: Count of awareness among people from different occupations.

Count of difficulty facing when patient's are taking their medication		
Are you facing any kind of difficulties using current medication?	*If then what?*	**COUNT of Can you take the drug all by yourself?**
No	Nothing	203
No Total		203
Yes	Fever rising and going down rapidly	1
Yes Total		13
Grand Total		**216**

Figure-12: Count of difficulty faced by patients.

Count of Health complications after being affected by covid-19		
Any new health complication developed after getting affected by covid-19?	**If then what were those?**	**COUNTA of Any new health complication developed after getting affected by covid-19?**
No		159
	, fever	1
	diarrohea	2
	Diarrohea, Loss of smell	1
	Fever	7
	Loss of taste	2
	nausea	1
	shortness of breath	12
	vomitting	1
No Total		186
Yes		27
	fever	2
	Nausea, fever	1
Yes Total		30
Grand Total		216

Figure-13: Count of health complications after being affected by Covid-19.

Count of frequency of having complications after being affected by Covid-19			
Any new health complication developed after getting affected by covid-19?	**If then what?**	**How often do you have these complications?**	**Count of How often do you have these complications?**
Yes	Fatigue	Irregular	2
	Shortness of breath	Irregular	8
	Shortness of breath, fatigue	Irregular	1
	shortness of breath, Loss of smell or taste, fatigue	Regular	2
	Shortness of breath, loss of taste	Irregular	3
	Shortness of breath, tiredness	Irregular	1
	Shortness of breath, Tiredness, loss of taste	Regular	3
	Shortness of breath, Weakness	Irregular	2
	Weakness	Regular	3
	Weakness, Diarrohea	Irregular	1
	Weakness, loss of taste	Regular	2
	Grand Total		58

Figure-14: Count of frequency of complications.

Health issue before getting affected by covid-19?	Issues	Count of having any sort of health issue before getting affected by covid-19.
No		171
No Total		171
Yes	Asthma	4
	Asthma, Diabete	1
	Asthma, High BF	1
	Chronic heart co	1
	Diabetes	9
	Diabetes, asthm	1
	Diabetes, High E	2
	Diabetes, Osteo:	1
	Diabetes, Osteo	1
	Heart condition	2
	Heart condition,	1
	High BP	4
	High BP, Diabete	1
	High BP, Osteoa	1
	High BP, Osteoc	1
	Hypertension	6
	Hypertension, Di	1
	Osteoarthritis	2
	Osteocalcemia	4
	Osteocalcemia, I	1
Yes Total		45
Grand Total		216

Figure-15: Count of health issues before getting affected

Can you take the drug all by yourself?	Are you facing any kind of difficulties using current medication?	If then what?	COUNT of Can you take the drug all by yourself?
			0
No	No	Nothing	35
	Yes	Medicines are not working properly	1
		Not good results	1
		Poor efficacy	1
		Too many medicines but doesn't work much	1
No Total			39
Yes	No	Nothing	168
	Yes	Fever rising and going down rapidly	1
		Medicines are not treating properly	1
		no efficacy	1
		Not satisfactory result	2
		Poor efficacy	4
Yes Total			177
Grand Total			216

Figure-16: Count of difficulties faced by current medication.

Count of symptoms after getting affected by covid		
Did you have any symptoms after identification?	If then what were those?	Count of Did you have any symptoms after identification?
No		186
No Total		186
Yes	, fever	1
	diarrohea	2
	Diarrohea, Loss of smell	1
	Fever	9
	Loss of taste	2
	nausea	1
	Nausea, fever	1
	shortness of breath	12
	vomitting	1
Yes Total		30
Grand Total		216

Figure-17: Count of symptoms after Covid-19.

The percentage of individuals is given on table no-02. During the research, 216 people participated in the study. Most of the patients were female (55.1%). From the study we can see that most of the patients were admitted in hospital (63.0%) as most of them didn't face any symptoms after or during the time of getting affected by Covid-19 (79.2%), all of a sudden they faced breathing problems and had to get admitted to the hospital.

Table-2: Percentage of acquired variables.

Variable	Percentage (%)
Sex	Male (44.9) Female (55.1)
Percentage of hospital admission	Yes (63.0)) No (37.0)
Percentage of having health issue before getting affected by Covid-19	Yes (20.8)) No (79.2)
Percentage of having symptoms after identification of Covid-19	Yes (20.8) No (86.1)

Percentage of having new health complication	Yes (13.9) No (86.1)

4.2 Discussion

The aim of the survey was to identify and understand the escalation of Covid-19 situation in Bangladesh with plausible symptoms, and to find out the most effective and frequently used medications by health practitioners as well. Among total 216 patients, 203 patients didn't face any difficulties and rest of the 13 faced some difficulties such as poor efficacy (5), fever rising (1), no improvement (2) and so on.

However, another prior goal of the study was to search out the rate of awareness among different people from different professions. Data shows that the rate of high awareness among service holders is higher (28 persons have high awareness among 54 participants) than the other professions people (Students, Unemployed, Day laborer).

The study was aimed to see if patients developed any new symptoms after getting affected by Covid-19. After health issues among the covid-19 patients and also was to find out the most popular form of drugs for the pulmonary disease as well. From the collected data we can say that, among 216 patients, 171 patients didn't face any sort of difficulties or symptoms after getting affected. Rest of the 45 patients are facing some problem like hypertension, asthma etc.
As a new "matter of concern", patients were too much concerned, anxious, afraid and nervous as well. So it may happen, they became restless during taking the medicine and questioned about the efficacy of the medication. On a separate note, as said earlier it's a new "matter of concern" data may get biased because of a patient's or patient's attendant's nervousness, anxiousness.

Pharmacists can play a great role to make or feel the patient's comfort about the medications that are being provided by the doctors. One should keep in mind there is a slight difference between flu and covid-19. They should be aware, follow the preventive measures and take the medication according to doctor's advice and keep faith and patience to their advice.

Chapter-5

Conclusion

Patients' education needs to be increased specially for the people who are day labourers as awareness among them is very less. To increase the awareness about covid-19 and medication for covid-19 as well among the people, the government and different mass media can arrange different types of events. Though some patients are getting well due to taking medication properly, they should wash hands, wear masks accordingly. Pharmacists should raise awareness among the patients about the efficacy of the medications, it's side effects, adverse effects, dose and so on. This is how Bangladesh can educate and make aware and give relief to the Covid-19 or post covid-19 patient's.

Limitations

There is a possibility that the result got biased as the survey was done at such a time when people were afraid and unaware about COVID-19. Apart from being aware, people are still not much aware about the prevention. Or in short we can say, they don't feel the urge to follow preventive measures such as wearing masks properly. Here health education is much more needed.

As a new "matter of concern", patients were too much concerned, anxious, afraid and nervous as well. So, it may happen, they became restless during taking the medicine and questioned about the efficacy of the medication. On a separate note, as said earlier it's a new "matter of concern" data may get biased because of a patient's or patient's attendant's nervousness, anxiousness.

References:

Antara, N. F. (2021). *What are the impacts of the Covid-19 lockdown?* Retrieved from https://www.dhakatribune.com/bangladesh/2021/06/28/what-are-the-impacts-of-the-covid-19-lockdown

Badellino, H., Gobbo, M. E., Torres, E., & Aschieri, M. E. (2021). Early indicators and risk factors associated with mental health problems during COVID-19 quarantine: Is there a relationship with the number of confirmed cases and deaths? *International Journal of Social Psychiatry*, *67*(5), 567–575. https://doi.org/10.1177/0020764020966020

CDC. (2021). Symptoms of COVID-19. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html

Joarder, T., Nahian, M., Khaled, B., & Zaman, S. (2020). *Health systems trust in the time of Covid-19 pandemic in Bangladesh : A qualitative exploration*. 1–22.

Liu, Y. C., Kuo, R. L., & Shih, S. R. (2020). COVID-19: The first documented coronavirus pandemic in history. *Biomedical Journal*, *43*(4), 328–333. https://doi.org/10.1016/j.bj.2020.04.007

Mousavizadeh, L., & Ghasemi, S. (2020). Genotype and phenotype of COVID-19: Their roles in pathogenesis. *Journal of Microbiology, Immunology and Infection*, *54*(2), 159–163. https://doi.org/10.1016/j.jmii.2020.03.022

Muralidar, S., Ambi, S. V., Sekaran, S., & Krishnan, U. M. (2020). The emergence of COVID-19 as a global pandemic: Understanding the epidemiology, immune response and potential therapeutic targets of SARS-CoV-2. *Biochimie*, *179*(September), 85–100. https://doi.org/10.1016/j.biochi.2020.09.018

Neha Pathak, MD, D. (2021). *Coronavirus and COVID-19: What You Should Know*. Retrieved from https://www.webmd.com/lung/coronavirus

NHC. (2021). *Long-term effects of coronavirus (long COVID)*. Retrieved from https://www.nhs.uk/conditions/coronavirus-covid-19/long-term-effects-of-coronavirus-long-covid/

Rashedi, J., Poor, B. M., Asgharzadeh, V., Pourostadi, M., Kafil, H. S., Vegari, A., … Asgharzadeh, M. (2020). Risk factors for covid-19. *Infezioni in Medicina*, *28*(4), 469–474.

WebMD. (2021). Complications of Coronavirus. Retrieved from https://www.webmd.com/lung/coronavirus-complications#1

WHO. (2020a). Coronavirus disease (COVID-19): Similarities and differences between COVID-19 and Influenza. Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19-similarities-and-differences-with-influenza

WHO. (2020b). Listings of WHO's response to COVID-19. Retrieved from World Health Organization website: https://www.who.int/news/item/29-06-2020-covidtimeline

WHO. (2020c). Naming the coronavirus disease (COVID-19) and the virus that causes it. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it. Accessed online on 8th of. *World Health Organization*.

WHO. (2021). Advice for the public: Coronavirus disease (COVID-19). Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public