



UNIVERSITI PUTRA MALAYSIA

***FACTORS ASSOCIATED WITH FACE MASK USAGE DURING
COVID-19 OUTBREAK AMONG STUDENTS AND STAFF OF
FACULTY OF MEDICINE AND HEALTH SCIENCES, UPM.***

GROUP 31

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EXECUTIVE SUMMARY

Covid-19 is the infectious disease caused by the most recently discovered coronavirus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. According to the previous severe acute respiratory syndrome (SARS) as well as H1N1 experience, anticipation and lack of knowledge of the new pandemic may have impact on relevant public health behaviors such as wearing a face mask in public spaces, which could play an important role in the control of this outbreak. This study investigates face mask usage alongside other associated health behaviours.

The aim of our study is to determine face mask usage in reflect to other positive hygiene practices in daily routine life during Covid-19 amongst students and staff of (FMHS), UPM.

Online questionnaires forms will be distributed via Whatsapp and email. Participants are needed to complete an online questionnaire that is designed to collect the data on the socio-demographic status, prevalence of wearing face mask and knowledge regarding its usage, knowledge about COVID-19, behaviours towards the disease, precautionary measures being applied during the pandemic to prevent as well as barriers that prevents them from wearing face mask.

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CHAPTER 1: INTRODUCTION

1.1. Background

In light of the outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that caused coronavirus disease 2019 (Covid-19), the usage of face masks has become omnipresent in China and other Asian countries such as South Korea and Japan (Lai et al., 2020). Similarly, in Malaysia, the face mask stock is in high demand following the announcement of a movement control order that requires citizens to adhere to strict Standard Operating Procedures (SOPs) to help curb the spread of this disease.

Past events have proven that anxiety and misconceptions of infectious outbreaks may lead to unwarranted worry and chaos in a situation where the public is in health hazard (Blendon et al., 2004). In addition, misconceptions and worries have led to the public displaying inappropriate behaviour such as; refusal to comply with precautionary measures, including wearing a mask or accepting a vaccination and avoidance of certain activities, including visiting the hospital due to fear of healthcare facilities as a venue for acquiring the infection (Larson et al., 2010; Rubin et al., 2009; Tang & Wong, 2003).

According to the World Health Organization (WHO), current information suggests that the two main routes of transmission of the Covid-19 virus are respiratory droplets and direct contact. Respiratory droplets are generated when an infected person coughs or sneezes. A person who is in close contact (within 1 m) with someone who has respiratory symptoms including cough and sneeze is at risk of being exposed to potentially infective respiratory droplets. Droplets may also land on surfaces where the virus could remain

viable. Thus, the immediate environment of an infected individual can serve as a source of transmission (contact transmission) (Organización Mundial de la Salud, 2020).

Wearing a face mask is one of the prevention measures that can limit the spread of certain respiratory viral diseases, including Covid-19 (Organización Mundial de la Salud, 2020).

This measure and positive hand hygiene practice have been shown to reduce the risk of contracting respiratory illness in households with a relatively high adherence to mask-wearing. However, some other research has shown that compliance when wearing a face mask is low, especially in non-randomized studies due to the fact that asymptomatic participants preferred to not wear a face mask as they saw it to be of no use (Aiello et al., 2010, 2012) (Wu et al., 2020) (Ferng et al., 2011; Larson et al., 2010).

1.2 Problem Statement

Malaysians seem to be hogging face masks without fully understanding the purpose and proper usage of it including picking the appropriate type for Covid-19. There are also misconceptions regarding the facts surrounding Covid-19 such as the cause of the disease, mode of transmission as well as the common symptoms that can be seen. Besides using face masks, Malaysians have also been practising the use of wearing hand sanitisers and frequent handwashing. Apart from studies in Japan and Saudi Arabia, very

few studies appear to have explored the association between face mask use and other personal hygiene practices and health behaviors (Balkhy et al., 2010; Wada et al., 2012).

1.3 Significance of Study

By carrying out this study, we will be able to identify the misapprehensions surrounding the usage and significance of face masks amid this pandemic. Using this data, public health officials can come up with an approachable guideline that can help the citizens practise proper usage of face masks in helping to curb the spread of the disease. Next, we will be able to identify the level of knowledge regarding Covid-19 possessed by Malaysians. This will encourage health officials to confirm the facts as well as dismiss the myths surrounding the disease to help ease the anxiety of the citizens. Not only that, this study will help bring to light the other positive hygiene practices that are adopted by the citizens during the pandemic. Furthermore, we will be able to explore the association of these practices in regard to face mask usage. Other than the potential public health benefits, studying these associations could help minimize statistical confounding during research on the effectiveness of face masks in non-randomized studies.

1.4 Research Questions

1. What is the prevalence of face mask usage among students and staff of Faculty of Medicine & Health Sciences (FMHS)?
2. What are the factors associated with face mask usage among students and staff of FMHS?

1.5 Research Objectives

1.5.1 General Objective

To determine the factors associated with face mask usage in relation to Covid-19 outbreak among students and staff of the Faculty of Medicine and Health Sciences (FMHS), Universiti Putra Malaysia (UPM).

1.5.2 Specific Objectives

- i. To determine the prevalence of face mask usage among the respondents;
- ii. To determine the sociodemographic factors (age, gender, education level, occupation), hygienic practices (washing hands, using hand sanitizer,), source of information, attitude, barriers to using face mask, and level of knowledge on Covid-19 and face masks among the respondents;

- iii. To determine the association between sociodemographic factors and face mask usage among the respondents;
- iv. To determine the association between hygienic practices and face mask usage among the respondents;
- v. To determine the association between source of information and face mask usage among the respondents;
- vi. To determine the association between attitude and face mask usage among the respondents;
- vii. To determine the association between barriers to using face mask and usage of face mask among the respondents;
- vii. To determine the association between level of knowledge and face mask usage among the respondents.

1.6 Research Hypothesis

- i. There is significant association between sociodemographic factors and face mask usage among the respondents;
- ii. There is significant association between hygienic practices and face mask usage among the respondents;
- iii. There is significant association between source of information and face mask usage among the respondents;

iv. There is significant association between attitude and face mask usage among the respondents;

v. There is significant association between barriers to using face mask and face mask usage among the respondents;

vi. There is a significant association between level of knowledge and face mask usage among the respondents.



CHAPTER 2 : LITERATURE REVIEW

2.1 Introduction

An outbreak of coronavirus disease 2019 (COVID-19), caused by a novel severe acute respiratory coronavirus 2 syndrome (SARS-CoV-2), occurred in Wuhan City, Hubei Province, China, in early December 2019. The outbreak was declared a public health emergency of international concern by the World Health Organization on 30 January 2020. As of 14 February 2020, there were global reports of 49,053 laboratory-confirmed deaths and 1,381 deaths. Perceived risk of disease acquisition has led several governments to adopt a variety of control measures, including face mask usage. The efficacy of face masks during disease outbreaks has been studied extensively over time to identify the association between face masks usage and risk of getting infected. Most of the studies that have been conducted were made for the public, not much was conducted among the medicine and health sciences students as well as staff. Very few studies have explored the level of knowledge and its effect on the prevalence of mask wearing during an outbreak. There are, however, studies that dealt with factors associated with mask wearing such as positive hygiene practices (Wada et al., 2012). Thus, it is important to look into the level of comprehension and awareness of face mask usage among Malaysians, specifically the students and staff of FHMS during an outbreak.

2.2 COVID-19

2.2.1 Pandemic of COVID-19 in the world

COVID-19 is the infectious disease caused by the most recently discovered coronavirus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019 (Q&A on Coronaviruses (COVID-19), 2020).

COVID-19 is affecting 213 countries and territories around the world and 2 international conveyances. Globally, as of 12:54pm CEST, 21 June 2020, there have been 8,708,008 confirmed cases of COVID-19, including 461,715 deaths, reported to WHO (Figure 1 & 2) (WHO Coronavirus Disease (COVID-19) Dashboard, 2020).

On February 11, 2020, WHO newly named the coronavirus disease 2019 (COVID-19) from formerly named the 2019-nCoV (World Health Organization. “Coronavirus”. Geneva: WHO news (2020)).

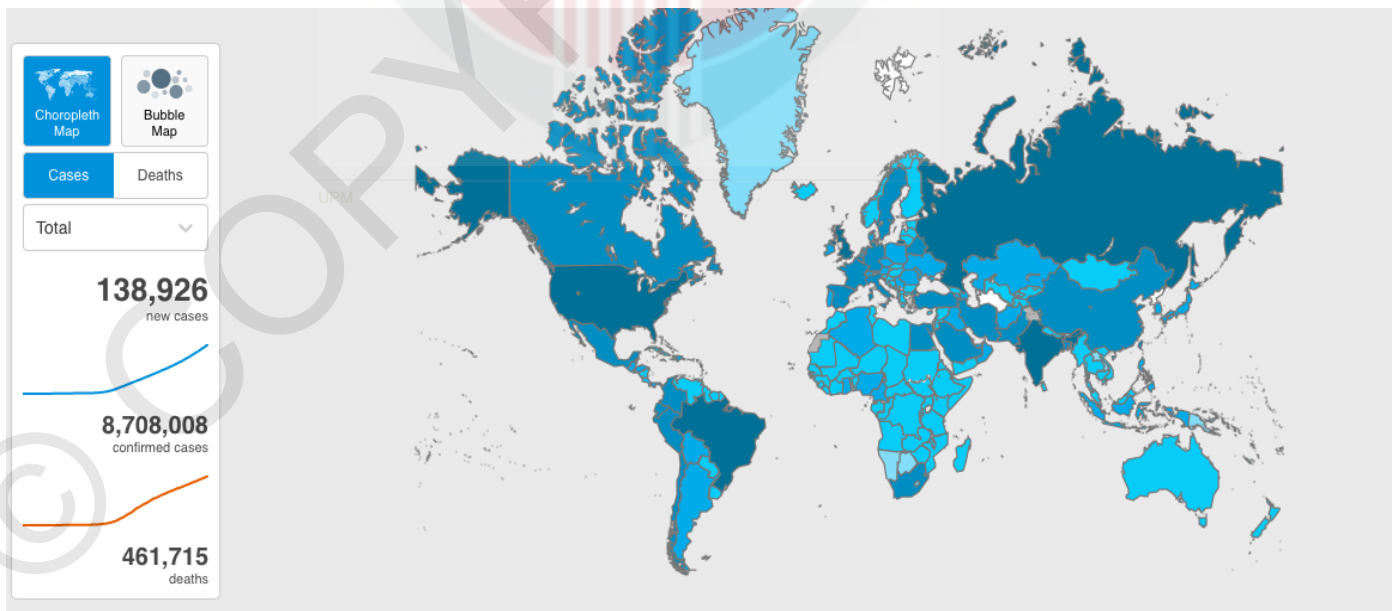


Figure 1: Global map of countries with confirmed coronavirus disease 2019 (COVID-19) in the world reported by the WHO as of June 21, 2020. (adapted from WHO Coronavirus Disease (COVID-19) Dashboard, 2020).

Case Comparison

WHO Regions

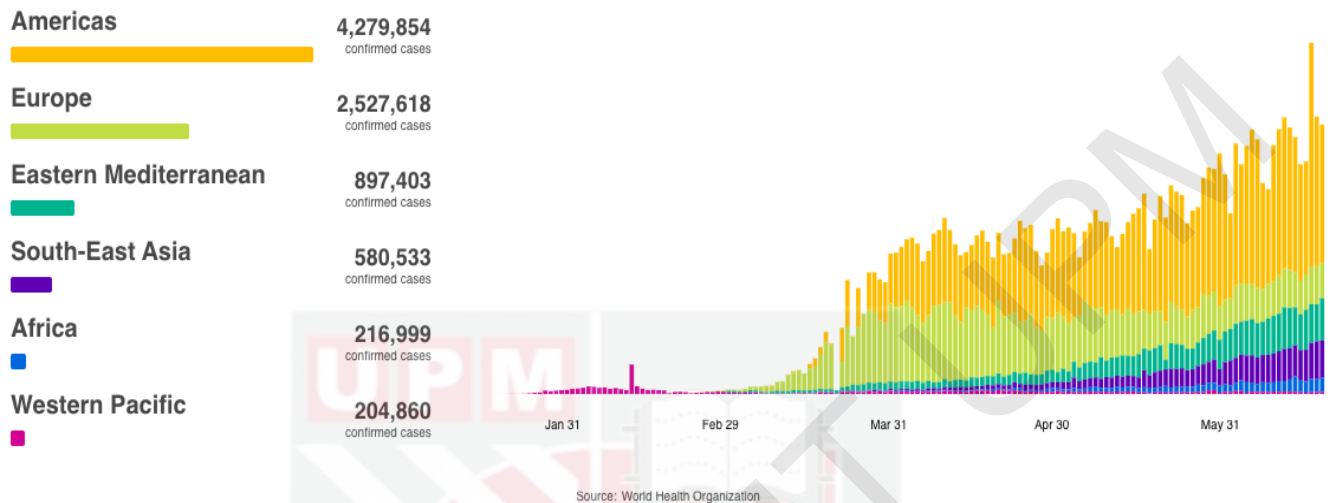


Figure 2: Case comparison in WHO regions reported by the WHO as of June 21, 2020. (adapted from WHO Coronavirus Disease (COVID-19) Dashboard, 2020).

2.2.2 Source and Spread of the Coronavirus

Public health authorities and collaborators are working hard to find the initial source of the virus causing COVID-19. Coronaviruses are a large family of viruses, some of which cause disease in humans and others which circulate among animals including camels, cats, and bats. Researchers assume that the virus could have been transmitted from bats to another species, such as a snake, and then to man. This transmission was possibly occurring in the open food markets of Wuhan, China (International Locations with Confirmed COVID-19 Cases, 2020). Analysis of the genetic tree of this virus indicates that it originated in bats (Jewell T., Healthline (2020)), but whether the virus sprang directly from bats or whether an intermediate host of animals existed is not yet known (World Health Organization. "Coronavirus". Geneva: WHO news (2020)).

2.2.3 Type of Virus

COVID-19 is a new illness, caused by a novel (or new) coronavirus not seen in humans before. The virus that triggers COVID-19 is not the same as coronaviruses generally circulating among humans and causing mild illness, as is common cold (2019 Novel Coronavirus, 2020). There are many types of human coronaviruses including some commonly causing mild diseases of the upper respiratory tract.

2.2.4 Transmission of COVID-19 Among Humans

According to WHO, current evidence suggests that COVID-19 spreads through direct , indirect (through contaminated objects or surfaces), or through mouth and nose secretions close contact with infected persons. Those involve saliva, breathable secretions or droplets for secretion. They are released from the mouth or nose when, for example, an infected person coughs , sneezes, talks or sings. People who are in close contact with an infected individual (within 1 metre) may catch COVID-19 when the infectious droplets get into their mouth, nose or eyes.

2.2.5 Symptoms

There are similarities between clinical manifestations of 2019-nCoV infection with SARS-CoV, where fever, dry cough, dyspnoea, chest pain , fatigue and myalgia are the most common symptoms (Huang et al., 2020; Smits et al., 2010; Wang et al., 2020). Less frequent symptoms include headache, dizziness, abdominal discomfort, diarrhoea, nausea and vomiting (Huang et al., 2020; Wang et al., 2020). Based on the

first 425 confirmed cases reported in Wuhan, the common symptoms include fever, dry cough, myalgia and fatigue while less commonly are sputum production, headache, haemoptysis, abdominal pain, and diarrhoea (Li et al., 2020). However, in contrast to SARS-CoV and MERS-CoV infections, very few COVID-19 patients show prominent signs and symptoms of the upper respiratory tract, such as rhinorrhea, sneezing or sore throat, suggesting that the virus may have a greater preference for infecting the lower respiratory tract (Huang et al., 2020). The common clinical presentation of 2019-nCoV infection are presented in Table 1.

Study	(Chen et al., 2020)	(Huang et al., 2020)
Patient count	99	41
Age (mean, year)	55.5	49
Fever	83%	98%
Cough	81%	76%
Shortness of breath	31%	55%
Myalgia	11%	44%
Haemoptysis	-	5%
Sputum production	-	28%
Confusion	9%	-
Sore throat	5%	-
Rhinorrhea	4%	-

Chest pain	2%	-
Diarrhoea	2%	1%

Table 1: Clinical symptoms of patients with 2019-nCoV infection

2.2.6 Diagnosis

Case definitions vary by country and will evolve over time as the epidemiological circumstances change in a given location.

For Malaysia, (Guideline COVID Management No.4/2020, 26 February 2020) a person under investigation (PUI) is defined as: Fever OR acute respiratory infection (sudden onset of respiratory infection with at least one of: shortness of breath, cough or sore throat) AND travel to or reside in affected countries in the 14 days before the onset of illness OR Close contact in 14 days before illness onset with a confirmed case of COVID-19.

Whereas a confirmed case of COVID-19 is defined as:

A person with laboratory confirmation of infection with the COVID-19.

LABORATORY TESTING FOR PUI OF COVID-19 IN HOSPITAL

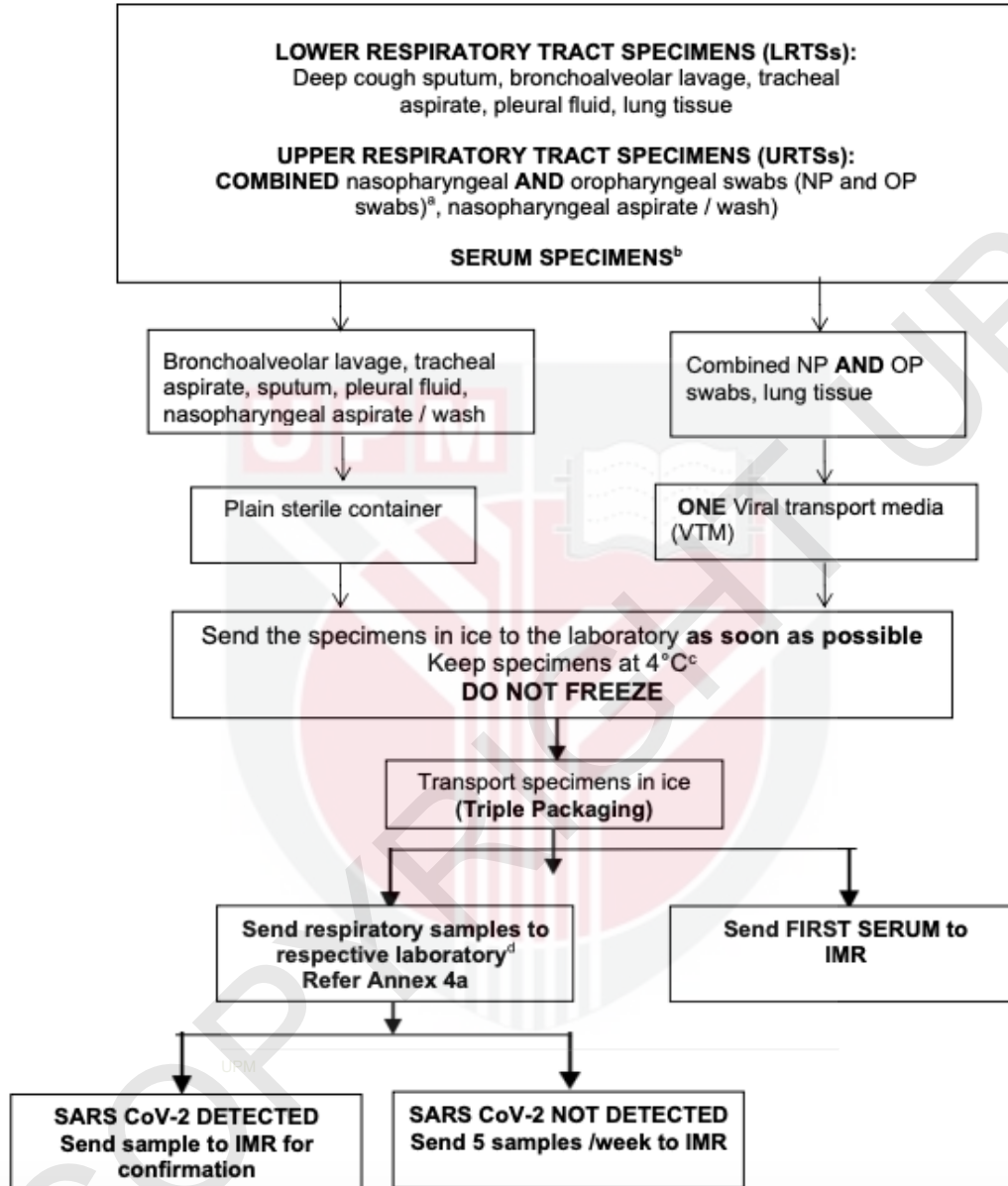


Figure 3: Laboratory testing for Person Under Investigation (PUI) of Covid-19 in hospital. (adapted from Guidelines COVID-19 Management In Malaysia No. 5/2020)

LABORATORY TESTING FOR ASYMPTOMATIC CONTACTS OF COVID-19

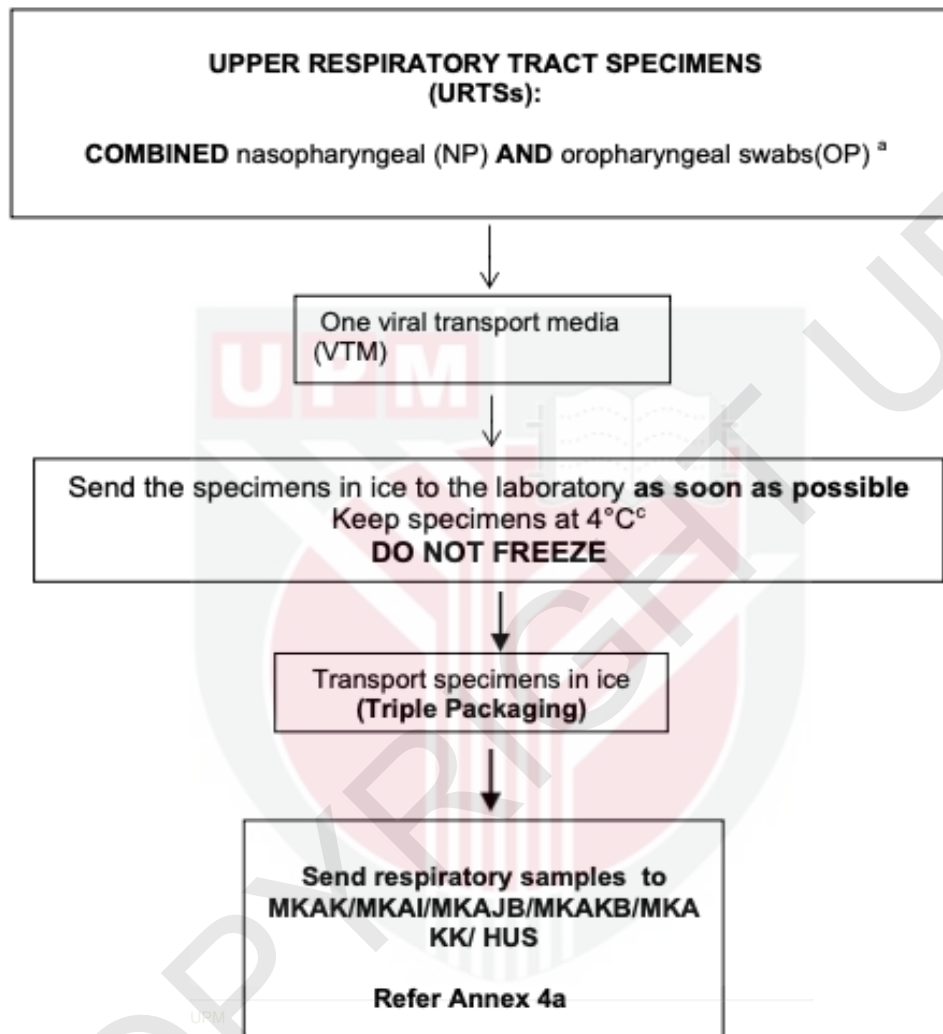


Figure 4: Laboratory testing for asymptomatic contacts of Covid-19. (adapted from Guidelines COVID-19 Management In Malaysia No. 5/2020)

2.2.7 Management of a Case

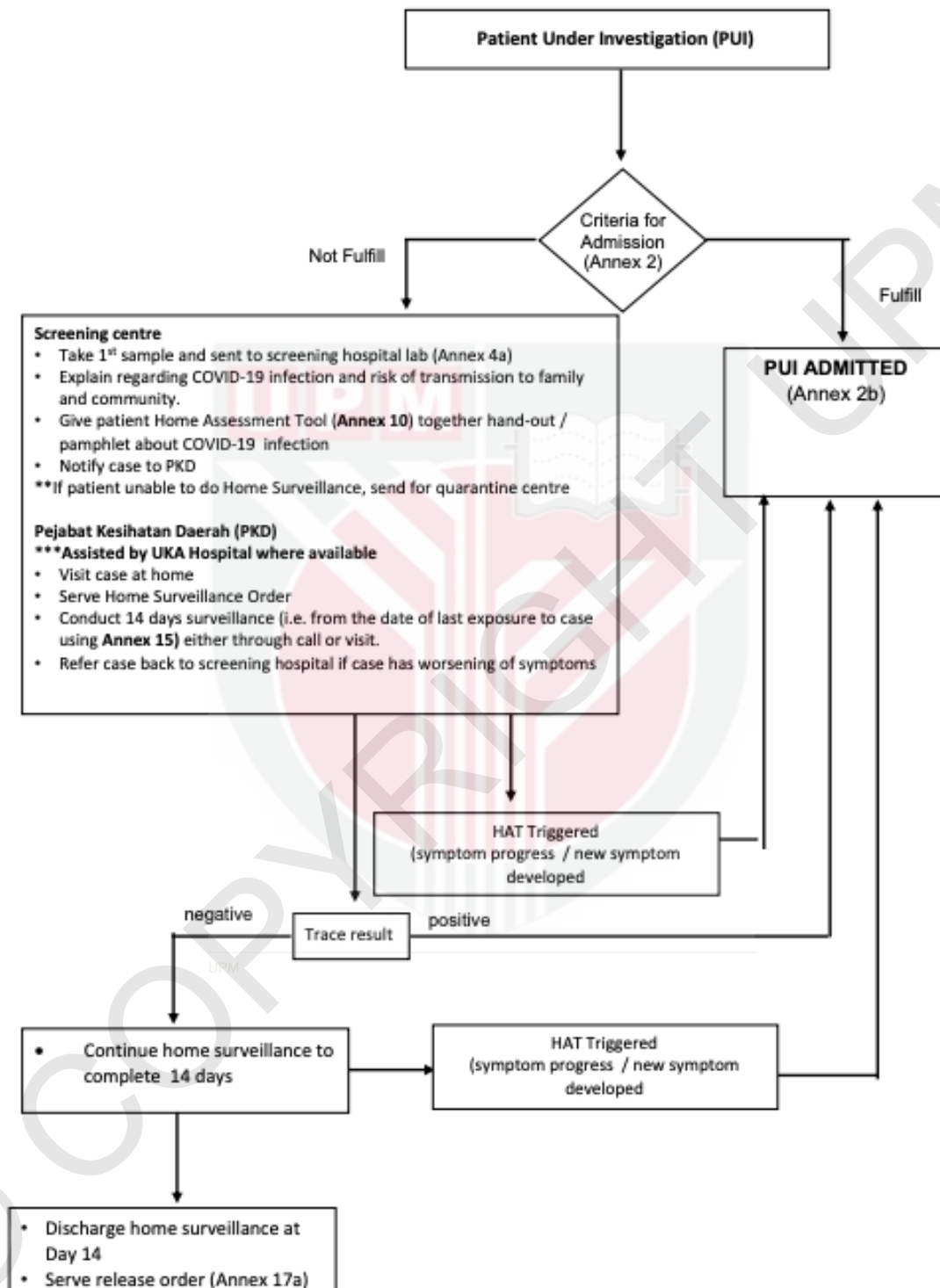


Figure 5: Management of PUI as outpatient. (adapted from Guidelines COVID-19 Management In Malaysia No. 5/2020)

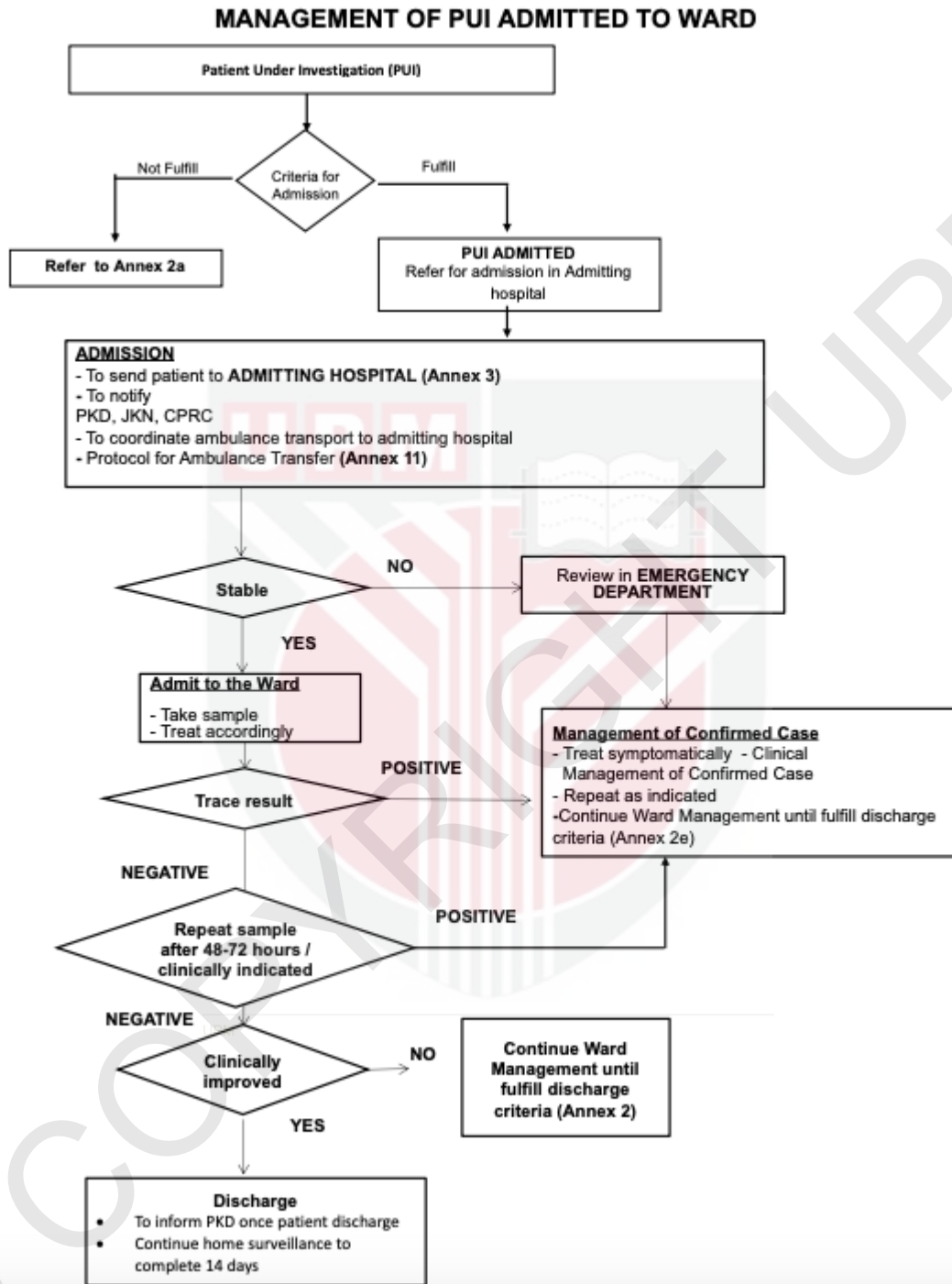


Figure 6: Management of PUI admitted to ward. (adapted from Guidelines COVID-19 Management In Malaysia No. 5/2020)

2.2.8 Preventive Measures

WHO recommends the following set of measures to prevent person-to-person spread of COVID-19:

- Limit close communication between people who have infections and others.
Ensure the physical distance from others is at least 1 metre.
- Wear a mask in places where COVID-19 circulates and the gap can't be guaranteed.
- Identify sick people quickly so that they can be removed and cared for, and quarantine all their near contacts in suitable facilities.
- Clean hands and always cover with a tissue or bent elbow coughs and sneezes.
- Evite crowded areas, conditions with close touch and cramped and enclosed spaces with inadequate ventilation.
- Ensure good indoor ventilation for homes and workplaces.
- Stay home if you feel unwell, and contact your health care provider as soon as possible to decide whether medical treatment is needed.
- Across countries or regions where COVID-19 circulates, health staff can make constant use of surgical masks across health care facilities during all daily operations in clinical areas.
- Also, health workers should use additional personal protective equipment and precautions when caring for patients with COVID 19.
- Workplaces should have safeguard measures in place.

2.2.9 Mortality and Morbidity Consequences of COVID-19 Infection

Early in the pandemic, people who died from COVID-19 may not have been identified due to insufficient knowledge of the infection or lack of availability of testing, and their deaths may have been attributed to another respiratory disease, such as influenza (Gill & DeJoseph, 2020, p. 27). Persons who died at home or in nursing homes may not have been screened for or diagnosed with COVID-19 and those deaths will not be counted in mortality related to the pandemic.

Moreover, other deaths not caused by COVID-19 may have resulted from the pandemic, particularly in connection with concerns about SARS-CoV-2 exposure and social distancing measures. One analysis found that hospitalizations at Veterans Affairs hospitals for 6 emergencies and potentially life-threatening conditions such as myocardial infarction and stroke declined by 41.9 per cent during the first weeks of the pandemic (from 77,624 admissions in weeks 5-10 of 2020 to 45,155 admissions in weeks 11-16)(Baum & Schwartz, 2020, p. 96). Individuals may have missed the signs because they obeyed instructions to stay at home or were concerned about going to a hospital where they could catch the virus. There are not yet statistics on whether treatment denial has translated into additional deaths.

By comparison, quarantine steps may also have resulted in a reduction in deaths from other causes, such as car accidents, because less people were driving on the highways. A California study showed that traffic accidents, injuries , and deaths dropped by half in the month following the state's stay-at-home rule (California Crashes During “Shelter-in-

Place” Orders, January - July 2020 | Road Ecology Center, 2020). Furthermore, it has been shown that social distancing steps decrease the prevalence of influenza (Sakamoto et al., 2020, p. 1969) and other respiratory viruses, potentially reducing deaths from these causes.

2.3 Face Mask

2.3.1 History of Face Mask

According to Strasser & Schlich (2020) it all started when the germ theory in surgery was introduced by the scientist in understanding contagion. Joseph Lister, a British surgeon in 1867 postulated that germs, the small-scale living microorganism described by Louis Pasteur is the cause of wound disease. Then, Carl Flügge who experimentally proved that droplets from human carried culturable bacteria started working with the head surgery department of the University of Breslau, Johann Mikulicz. This finding makes Mikulicz wear a face mask, described as “a section of gauze tied by a pair of strings connected to the cap , and extended across the mouth , nose and beard to cover them”. The real objective of doing so was actually to prevent the germs from the surgeon’s face area from infecting the patient during surgery, as opposed to eliminating them with chemicals (Strasser & Schlich, 2020).

In 1905, Alice Hamilton published a paper dealing with the spread of Streptococcus through the ‘invisible sputum’ (Resident, 2015). Then, she also stressed out the use of masks and pointed out that they must be worn by the nurses when performing sterile dressings. Other than that, her suggestion includes that doctors must

wear a face mask so that the droplet from nose and mouth that caused infection will not be able to infect patients during surgery, consulting, talking or teaching.

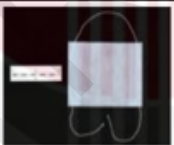
Finally, the newer type of face mask was invented. Professor Peter Tsai from University of Tennessee , along with his team invented N95 respirator with virus blocking technology and patented in 1995 (Juang & Tsai, 2020).With the highest Filtration Efficiency , this mask can clean and reused by rotating every 3-4 days , 30 minutes heating , boiled or steamed for five minutes followed by air-dried. These methods can maintain Filtering Efficiency 92.4%-98.5% (Juang & Tsai, 2020). Till today, this mask is widely used in the whole world.

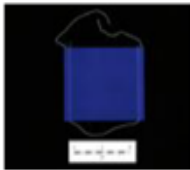
2.3.2 Types of Face Masks & its Efficacy

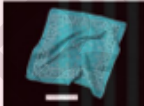
Face mask is used to protect the wearer from accidental sprays or splash of bodily fluid and the contaminated wound of a patient (Stone et al., 2020). Thus, the virus-contained respiratory droplet cannot pass through the entrance (oral or nasal) to infect our body.

Table 2: Types of Face mask

RP TYPE	DESCRIPTION OF RP	IMAGE OF RP	DESCRIPTION AND THICKNESS (mm) OF LAYER N			
			LAYER 1	LAYER 2	LAYER 3	LAYER 4
N95- equiv.	A certified disposable dust respirator with valve, conforming to EN 149: 2001 standard. Model: 3M 9322		Fibres fused together, (0.19)	Cotton non-woven, metal strip at nose area, (0.72)	Non-woven transparent, sponge at nose area, (0.11)	
N99-equiv.	A certified disposable dust respirator with valve, conforming to EN 149: 2001 standard. Model: 3M Aura 9332		Fibres fused together, (0.20)	Cotton non-woven, metal strip at nose area, (0.76)	Non-woven transparent, sponge at nose area, (0.16)	
PM _{2.5} surgical (J)	A surgical-style mask, purposing to block PM _{2.5} particles, with adaptations to improve fit (cheek/chin flaps); sold in pharmacies and malls		Fibres fused together, transparent (0.15)	Fibres fused together, transparent (0.09)	Cotton and metal strip across nose area, (0.22)	Fibres fused together, transparent, (0.16)
Surgical (J)	A standard, pleated surgical mask (but with shaped edge) available from pharmacies and supermarkets in Japan, commonly worn by the public for daily use as well as when ash is present		Fibres fused together, transparent, (0.17)	Cotton non-woven and metal strip across nose area, (0.20)	Fibres fused together, transparent, (0.18)	

RP TYPE	DESCRIPTION OF RP	IMAGE OF RP	DESCRIPTION AND THICKNESS (mm) OF LAYER N			
			LAYER 1	LAYER 2	LAYER 3	LAYER 4
Surgical (M)	A standard, pleated surgical mask available from pharmacies in Mexico		Fibres fused together (folded), (0.29)	Cotton non-woven and metal bar across nose area (folded), (0.20)	Fibres fused	
Basic flat-fold (I)	A basic mask with ear loops contiguous with the mask material, distributed widely by the Red Cross (PMI) in Yogyakarta, Indonesia, during volcanic eruptions. Donated to PMI by the Japanese Red Cross		Fibres fused together, transparent, (0.24)	Cotton non-woven, (0.13)	Fibres fused together, transparent, (0.20)	
Basic non-pleated #1 (M)	A basic, liquid-repellent mask made of a single, rectangular piece of non-woven material, with adjustable ear loops, commonly distributed by agencies in Mexico but design for medical use (according to packaging)		Fibres fused together, transparent, (0.23)	Fibres fused together, transparent, (0.21)		

RP TYPE	DESCRIPTION OF RP	IMAGE OF RP	DESCRIPTION AND THICKNESS (mm) OF LAYER N			
			LAYER 1	LAYER 2	LAYER 3	LAYER 4
Basic non-pleated #2	A basic, liquid-repellent mask made of a single, rectangular piece of non-woven material, with adjustable ear loops, commonly distributed by agencies in Mexico but probably design for medical use. Slightly thicker than (#1), above		Fibres fused together, (0.52)			
Basic non-pleated #3 (M)	A very basic mask made of a single, rectangular piece of fused material, with contiguous ear straps, commonly distributed by the Red Cross and local leaders in Mexico		Fibres fused together, (0.17)			
Hard cup (M)	A 'nuisance dust' or 'DIY' mask, commonly available from hardware stores in Mexico and around the world and recently distributed by agencies in Mexico and Philippines		Non-woven material and metal strip across nose area (0.60)			

RP TYPE	DESCRIPTION OF RP	IMAGE OF RP	DESCRIPTION AND THICKNESS (mm) OF LAYER N			
			LAYER 1	LAYER 2	LAYER 3	LAYER 4
Fashion (I)	'Fashion' masks are commonly available from roadside stalls in Indonesia, and are worn to prevent inhalation of urban pollution by those on scooters, as well as for prevention of ash inhalation		Thread and wool/fur, (1.72)	Sponge material, transparent, (1.97)	Woven cotton/nylon material, (0.42)	
Scooter (I)	'Scooter' masks are commonly available from roadside stalls in Indonesia, and are worn to prevent inhalation of urban pollution by those on scooters, as well as for prevention of ash inhalation		Elasticated cotton/nylon bonded to foam (2.54)	Elasticated cotton/nylon, Foam, Elasticated cotton/nylon, (3.48)		
Bandana (I)	Bandanas can be purchased from roadside stalls in Indonesia and are commonly used to prevent ash inhalation		Woven fabric, (0.31)			
Veil (I)	In Indonesia, Muslim women wearing veils have been observed to hold the veils over their mouth and nose in ashy conditions		Woven cotton, (0.04)			

(adapted from Mueller et al., 2018)

There are many types of face mask worn by the community (Table 2). There are three types of face mask that are widely used all over the world including the N-95, surgical and cloth-type mask. The reasons are because these face masks are the most widely used in the industrial sector (N-95), amongst the medical sector (surgical mask) and domestic usage (cloth-type).

The N95 face mask is the most widely used in industrial and health care settings (Qian et al., 1998). It is well known for its highest filtration efficiency, as compared to other types of masks. N95 face mask has the greatest median filtration efficiency (Mueller et al., 2018). It also has higher filtration efficiency than non-certified surgical masks as reported in laboratory experiments with NaCl-certified aerosols and particle-size spectrometer measurements (Qian et al., 1998). However, the disadvantage of this mask is that the total inward leakage could be poorer in person with wrong technique usage (Mueller et al., 2018).

Surgical masks are commonly used amongst health care workers. Since the early 1900's, surgical masks have been commonly used to help prevent infection of surgical wounds from nasal and oral bacteria in handling patients by the health care worker (Oberg & Brosseau, 2008). Surgical masks provide less filtration efficiency compared to N95. (Oberg & Brosseau, 2008). Furthermore, the disadvantage of surgical masks is the shape itself not made to seal the face (Mueller et al., 2018).

The most accessible face mask is the cloth type. The examples of this type are the bandanas, T-shirts and handkerchiefs. Levels of penetration efficiency of these fabric materials against both polydisperse and monodisperse aerosols were much higher than those of the N95 respirator filter media control (Rengasamy et al., 2010). Mueller et al., 2018 reported that all types of fabric material (bandanas, t-shirts, shawls, shawls and handkerchiefs) were poorly performed in filtration efficiency (FE) tests, with none achieving a median FE overall of less than 44% (Mueller et al., 2018).

In conclusion, the best type of mask according to filtration efficiency is the N-95. However, loose fitting face mask does not filter or block microscopic particles in the air by nasal droplet (Stone et al., 2020). Thus, ensuring that the mask is fit to the face is very crucial. The most efficient methods to prevent the nasal droplet transmission are good hand hygiene practice and social distancing (Stone et al., 2020).

2.4 Factors Associated with Face Mask Usage

2.4.1. Sociodemographic Status

From the research findings, high level of precaution was taken by males ($p < 0.001$), older individuals ($p = 0.047$), those with a higher education ($p = 0.04$), and those with a higher level of knowledge about the disease ($p < 0.001$) (Balkhy et al., 2010). Besides, a study from Hong Kong that studied prevention measures taken for a SARS threat, also found that young and poor-educated males were least likely to practice prevention measures (Tang and Wong, 2004).

According to research conducted by Tang and Wong (2004), respondents who were women ($OR = 1.39$), who belonged to the older age group ($OR = 1.037$), who were married ($OR = 1.487$), who have higher income ($OR = 2.512$), who felt more susceptible to contract SARS ($OR = 2.575$), who think SARS have more serious impact ($OR = 1.176$), who believed greater benefits in wearing face masks ($OR = 1.354$), who encountered greater barriers in wearing face masks ($OR = 1.131$), and who were more aware of environmental cues ($OR = 2.447$) were more likely to wear face masks.

Hence, these studies show that educational level is the main predictors that affect knowledge, attitudes and positive practices towards the disease. For example, when the participants' educational level is higher, the knowledge regarding the infection and understanding on importance of positive practices will be more accurate. Thus, the tendency for them to implement preventive measures such as face mask usage will be greater. In addition to the educational level, other factors such as age, sex, marital status and income status could also influence the knowledge, attitudes and practices of face mask usage.

2.4.2 Hygiene Practices

According to a study conducted by Wada and Oka-Ezoe (2012), evidence shows that positive personal hygiene practices and health behaviors among Japanese adults are associated with face mask usage. Participants using face mask were more likely to practice additional preventive hygiene measures. This includes hand washing, gargling, avoiding crowds and close contact with ill people, having good quality sleep and being vaccinated against influenza. Therefore, in our study, we want to investigate whether hygiene practices can influence face mask usage in an individual.

2.4.3. Source of Information

Another factor that may affect the level of knowledge and practices regarding face mask usage is the source of information about the infection. The majority (84.2%) of the

participants received information about swine flu from the television; 51.1% received information from written media such as newspapers and magazines, while 48.2% received information from the internet. Only 16.1% received their information from a physician or a health educator (Mursy and Mohamed, 2019).

According to the research conducted by Mursy and Mohamed (2019), the study identified that the role of physicians and health educators in educating the public is not adequate. In order to spread precise information on what the public should do to break the chain of the infection, increased communication between physicians and the public should happen. Efforts from the Ministry Of Health together with other agencies are needed focusing on public education and training through media resources. Studies have shown that communications that highlight perceived susceptibility and simultaneously increase the perception that a particular health behavior will reduce the health threat are successful in promoting various preventive behaviors (Tang and Wong, 2004).

Besides, environmental cues such as any signs and posters that are placed in prominent areas (schools, public places) to remind people about face mask usage are very crucial. Other researchers also have argued that environmental manipulation and policies support are crucial to ensure individuals comply towards the preventive efforts (Tang and Wong, 2004).

2.4.4 Attitude and Behaviour Towards Face Mask Usage

Perceived benefit is the understanding of the potential benefits of a particular action (Leung, 2013). Typically the word perceived advantage is used in behavioral medicine to describe the motivations of a person to perform a behaviour and follow an intervention or treatment. Researchers and theorists believed that behavior is motivated by the cognition of a person regarding acceptability, motivations and attitudes toward such behaviour, especially if it is favorable (Leung, 2013). If a person is aware of the advantages of wearing a mask during the flu pandemic, he or she may act on it. Conversely, if individuals are unaware of the perceived benefits of wearing masks, they can neglect this personal prevention.

Similar trend parallels attitudes towards influenza vaccination. In a 2009 analysis (Hashmi et al., 2016) of the effects of preventive approaches and policies on behavioral improvements during the outbreak of the H1N1 pandemic, students from the Massachusetts Institute of Technology (MIT) surveyed understanding of influenza vaccines and the efficacy of preventive health policy approaches. The findings revealed a lack of awareness about flu vaccines in more than half of unvaccinated students. In this case when the students were asked whether they had received the flu vaccine during the 2009 H1N1 pandemic, they were asked to explain their reasoning to the students who did not receive the flu vaccine. When they mentioned something wrong about the flu shot and its results, their responses were coded as "lack of information". It showed that most students were marked as lacking knowledge of flu vaccination.

In a another study by Chalmers in the UK, there were statistical differences in attitudes towards influenza and influenza vaccination between vaccinated or unvaccinated groups (8 of 13 items those related to issues of risk and benefits/protection). Those vaccinated appeared to view risk to self and patients greater than those unvaccinated and view more positively the benefit of influenza vaccination in protecting against the disease.

Similar findings are observed in a study conducted in Saudi Arabia, in which 90% parents avoid influenza vaccines due to their side effects (Faden et al., 2015). Many other studies have also reported that parents believe on side effects of influenza vaccines is important factor of low vaccination rate. [Eastwood, K., Durrheim, D. N., Jones, A., & Butler, M. , (2010), Torun, S. D., Torun, F., & Catak, B. (2010), Akis, S., Velipasaoglu, S., Camurdan, A. D., Beyazova, U., & Sahn, F. (2011)].

Health behavior studies have established the perception of risk as a prerequisite for behavioral improvement (Weinstein & Nicolich, 1993; Brewer, Weinstein, Cuite & Herrington, 2004). A high perceived risk of harm is thought to motivate individuals to take steps to minimize the danger (Sadique et al., 2007). If the person is unaware of the influenza risk, he or she is not as likely to take preventive action. A U.S. analysis of influenza vaccination, for example, found that individuals who self-reported less than excellent health prefer to vaccinate more, irrespective of accuracy (self-rated safety vs. real safety). In other words, people who felt themselves to be in excellent health prefer

to vaccinate less (Budhwani & De, 2016). They assumed they were safe so prevention wasn't needed.

2.4.5 Barriers to Face Mask Usage

The use of face masks (including medical and cloth masks) and respirators is strongly recommended by the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) as a standard for transmission-based precaution (WHO, J.D. Siegel, E. Rhinehart, M. Jackson, L. Chiarello, 2007). But even though this practice is highly recommended, actual policies and practices regarding the use of face masks and respirators vary (A.A. Chughtai, H. Seale, C.R. MacIntyre, 2013).

In a study by Chughtai et al., shortage of face masks was reported in many hospitals by both physicians and nurses. The type of product used is extremely dependent on what is provided by the hospital. In some instances, healthcare workers reported being unable to afford to buy extra face masks themselves owing to low salaries and they need to rely on what was provided by the hospitals. Participants also suggested that face masks are also not typically worn when talking with patients' family members and caregivers, as these people are considered healthy, and there is a concern that face mask use may "hurt their feelings." A few participants even felt that it was "unfriendly" to wear a face mask while having a short conversation on the ward with patients, because patients may feel "discriminated against" and become "hostile." The main factors

reported as barriers to face mask use appeared to be social (ie, not wanting to offend patients or their family members) and attitudinal (ie, not wanting to frighten children).

2.4.6 Level of Knowledge (Covid-19 and Face Mask)

General public knowledge and practices about the Covid-19 and face mask usage are an important issue. Incorrect knowledge could lead to mistreatment that could negatively affect the country's resources and patients' quality of life.

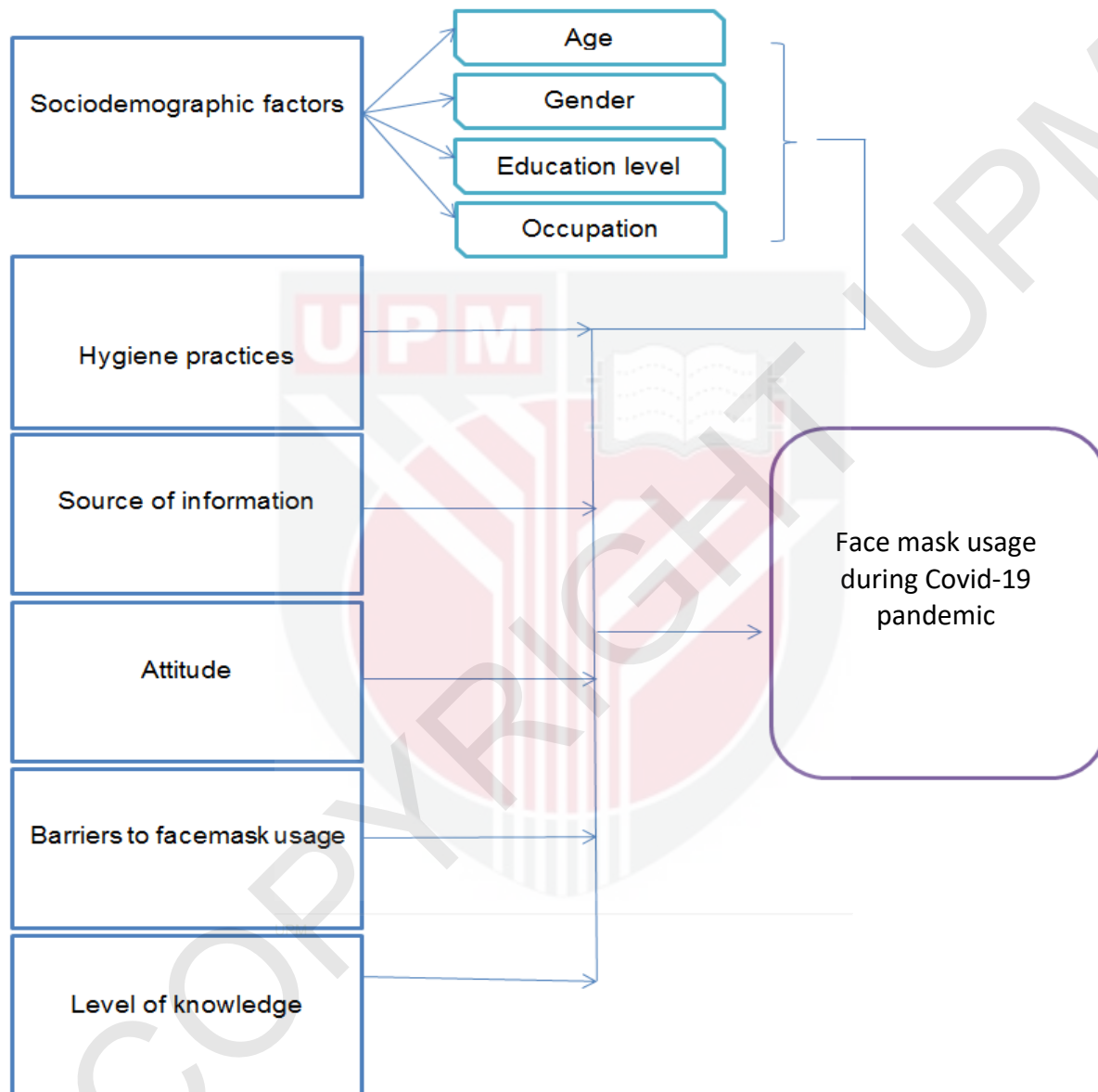
In a study conducted by Al-Haddad et al., the majority of respondents demonstrated poor knowledge about the common cold. Forty percent of respondents believed that there was no difference between the common cold and the flu. Sixty-six percent of participants believed that antibiotics would cure the common cold. Only 24% believed that coughing and direct contact with patients suffering from the common cold would spread this illness. A small number of participants, after catching the common cold, took precautionary measures such as avoiding contact with other people.

Another study by Faber et al. in Germany found that a majority of people were aware that antibiotics were not needed to treat the common cold, and only 25% stated that antibiotics are effective against viruses (M.S. Faber, K. Heckenbach, E. Velasco, et al., 2010). However, in many cases antibiotics are prescribed for viral infections, even though prescribers are aware that antibiotics are not effective against viral infections, sometimes due to the pressure they feel from patients to assign them antibiotics

(M.S. Faber, K. Heckenbach, E. Velasco, *et al.*, 2010, Q. Sun, O.J. Dyar, L. Zhao, *et al.*, 2015, J.W. Cals, D. Boumans, R.J. Lardinois, *et al.*, 2007).

In a research by Chughtai et al. in Vietnam, face masks and respirators were considered an effective approach of preventing respiratory infections. Most participants described face masks/respirators as the “only” and the “best protection” method available to protect HCWs from respiratory infections. Participants had mixed views on the level of protection afforded by the various types of products available, however. N95 respirators were considered the most effective, although most nurses emphasized that they had never used N95 respirators in their workplace, whereas some doctors remarked that N95 respirators were only available during emergencies. Both medical and cloth masks were described as being “comfortable” and “easy to breathe through.” Medical masks were associated with being “safe,” “effective,” “airy,” and “clean,” whereas cloth masks were “soft” and “cheap.” Some of the negative aspects associated with medical masks included that they are “expensive” and can be “saturated with sweat,” whereas cloth masks are “difficult to tie” and “dirty.” There is a perception that medical masks are of better quality than cloth masks, despite the fact that medical masks are not subject to regulatory standards in Vietnam.

2.5 Conceptual Framework



CHAPTER 3 : METHODOLOGY

3.1 Study Location

This study will be conducted in Faculty of Medicine & Health Sciences (FMHS), Universiti Putra Malaysia.

3.2 Study Duration

The duration of this study is approximately 5 months and will be conducted from June 2020 until October 2020.

3.3 Study Design

A cross-sectional study design will be used for this study. Cross-sectional study is a type of observational study where data from a population, or a representative subset, is analyzed at a specific point in time. This study design aims to provide data that can be generalized on the entire population under study. We will be using an online questionnaire to collect the data during the data collection period. Electronic versions of administered questionnaires will be distributed via Whatsapp and email.

3.4 Sampling

3.4.1 Study Population

The students and staff of Faculty of Medicine & Health Sciences, UPM were identified as the study population.

3.4.2 Sampling Population

Student and staff of Faculty of Medicine and Health Sciences, UPM who fulfil the selection criteria.

3.4.2.1 Inclusion Criteria:

- i. All students that study at Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.
- ii. All staff who work at Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.
- iii. Malaysians who are ≥ 18 years old.

3.4.2.2 Exclusion Criteria

- i. Students and staff who are not available during data collection or do not respond to the online questionnaire during the data collection time frame [17 August - 24 August]

3.4.3 Sampling Frame

The sampling frames is the list of all students and staff of FMHS which will be obtained from the administrative office.

3.4.4 Sampling Unit

A student or a staff of the FMHS who fulfils the selection criteria.

3.5 Sampling Method

The sampling method that will be used in this study is simple random sampling. Name list of students and staff of Faculty of Medicine and Health Sciences, UPM who fulfil the selection criteria will be compiled and each individual will be assigned a number. 220 numbers will be randomly selected, and these individuals will be sent a link of our questionnaire in order to participate in our study.

3.6 Sample Size Estimation

- 1) Based on the study conducted by The Chinese University of Hong Kong (2008), the prevalence of wearing face masks in public venues when having influenza-like symptoms was 15.3% (Lau et al., 2008).

Therefore, the sample size (n) calculation using the single proportion formula by Lwanga & Lemeshow (1990) in estimating a population proportion with specified absolute precision is as follows:

$$n = \frac{z^2 \times p(1-p)}{\Delta^2}$$

$z = 1.96$ for 95% confidence interval

$p = 0.153$

$\Delta = 0.05$ for margin of error at 5%

$$\begin{aligned} n &= \frac{1.96^2 \times 0.153(1-0.153)}{0.05^2} \\ &= 199.1 = 200 \text{ respondents} \end{aligned}$$

Taking into account 10% non-response rate, minimum sample size required:

$$n = 200 + 20 = 220 \text{ respondents}$$

- 2) Based on the study conducted by Kitasato University School of Medicine (2012), the proportion of face mask wearers who washed hands frequently was 0.74 and the proportion of non-face mask wearers who washed hands frequently was 0.5 (Wada et al., 2012).

Therefore, the sample size (n) calculation using the two proportions formula Lwanga & Lemeshow (1990) as follows:

$$\frac{\{[z_{(1-\frac{\alpha}{2})} * \sqrt{2P(1-p)}] + [z_{(1-\beta)} * \sqrt{P_1(1-P_1) + P_2(1-P_2)}]\}^2}{(P_1 - P_2)^2}$$

n = Sample size estimate

$Z_{\alpha/2}$ = Standard error associated with 95% confidence interval = 1.96

$Z_{1-\beta}$ = Standard error associated with 80% power = 0.842

P_1 = Proportion of face mask wearers who washed hands frequently was 0.74, P_2 : 0.74 (Wada et al., 2012).

P_2 = Proportion of face mask wearers who did not practice washing hands was 0.02, $P_2 = 0.5$ (Wada et al., 2012).

$$P = (P_1 + P_2) / 2 = 0.62$$

$$Z_{1-\alpha} = 1.96$$

$$Z_{1-\beta} = 0.842$$

$$\frac{\{[1.96 * \sqrt{2(0.62)(1 - 0.62)}] + [0.842 * \sqrt{0.74(1 - 0.74) + 0.5(1 - 0.5)}]\}^2}{(0.74 - 0.5)^2}$$

$$n = 61 \times 2 = 122$$

Taking into account non-response rate of 10%, minimum sample size required:

$$n = 122 + 13$$

$$n = 135 \text{ respondents}$$

Reference: Lwanga S. K., Lemeshow S., & Organization W. H. (n.d.). *Sample size determination in health studies: a practical manual* / S. K. Lwanga and S. Lemeshow. World Health Organization

Objective	Statistical Formula	Sample Size
1. To identify the prevalence of wearing face mask among students and staff of FMHS.	$N = \frac{z^2 \times p(1-p)}{\Delta^2}$ P: 15.3% Source: Lau, J. T. F., Kim, J. H., Tsui, H. Y., & Griffiths, S. (2008). Perceptions related to bird-to-human avian influenza, influenza vaccination, and use of face mask. <i>Infection</i>, 36(5), 434–443. https://doi.org/10.1007/s15010-008-7277-y	n = 220
2. To compare the practices of wearing face mask in relation to other positive hygiene practices among students and staff of FMHS during covid-19 pandemic.	$\frac{\{[z_{(1-\frac{\alpha}{2})} * \sqrt{2P(1-p)}] + [z_{(1-\beta)} * \sqrt{P_1(1-P_1) + P_2(1-P_2)}]\}^2}{(P_1 - P_2)^2}$ P₁ = 0.74 P₂ = 0.5 Source: Wada, K., Oka-Ezoe, K., & Smith, D. R. (2012). Wearing face masks in public during the influenza season may reflect other positive hygiene practices in Japan. <i>BMC Public Health</i>, 12(1), 1. https://doi.org/10.1186/1471-2458-12-1065	n = 135
3. To analyse the attitude, behaviour, practices, level of knowledge and compliance towards Covid-19 pandemic among students and staff of FMHS.		This is a descriptive variable.

Since the first formula gives the bigger sample size, we will use **n = 220** for our study.

3.7 Variables

There are two types of variables being tested in this study, namely, the dependent and independent variables. The independent variable is the variable that is changed or controlled by the experimenter and is assumed to have a direct effect on the dependent variable. The dependent variable is the variable being tested and measured in an experiment and is 'dependent' on the independent variable.

3.7.1 Dependent Variables

Variable	Interpretation
Face mask usage	Prevalence of face mask usage; answered in questionnaire as 'always', 'only when I feel sick' and 'never'

3.7.2 Independent Variables

The independent variables in this study are:

Variable	Interpretation
Sociodemographic factors (age, gender, education level, occupation)	Answered in questionnaire: Age – categorical – pick category of age in questionnaire Gender – categorical – pick male or female in questionnaire

	Marital status – categorical – pick married or unmarried in questionnaire Education level – categorical – pick no formal education, secondary school, diploma, degree, master or PhD Working status – categorical – pick student, employed or unemployed
Hygienic practices (washing hands, hand sanitizer, gargling, etc.)	Answered in questionnaire - all are categorical – pick the practices that are practised during Covid-19 season – subjects are grouped into high level of precaution, moderate level or poor level
Source of information	Answered in questionnaire – pick between tv, newspaper & magazines, radio, internet, public lectures, physician or health educator
Attitude	Answered in questionnaire - strongly agree, agree, neutral, disagree, strongly disagree to statements regarding attitude towards certain practices - subjects are grouped into three

	categories according to their level of concern: extremely concerned, quite concerned or little concerned
Barriers to face mask usage	Answered in questionnaire - difficult to get the face mask, feel discomfort when wearing face mask, costly to buy face mask, people in environment do not wear face mask, think wearing face mask is not effective to prevent covid-19 infection, feel awkward and weird
Level of knowledge	Answered in questionnaire – answer a series of questions regarding face mask usage and Covid-19 with points - participants are grouped into three categories according to their level of knowledge: low, average or high.

3.8 Study Instrument

Participants are needed to complete an online questionnaire that is designed to collect the following data:

a) Socio-demographic characteristics such as gender, age, education, and occupation.

b) Prevalence of wearing face mask and knowledge regarding its usage.

This section is assessed by 15 factual statements which participants respond to with “yes” or “no.” A scoring system is applied to assess the level of knowledge of the subject: 1 point is given for each correct answer, and 0 point is given for each incorrect answer. Participants are grouped into three categories according to their level of knowledge:

- Low – less than 8 points
- Moderate – 8 to 11 points
- High – 12 or more points

c) Knowledge about the disease, its nature, mode of transmission, symptoms and signs, incubation period and preventive measures. —

This section is assessed by 18 factual statements which participants responded to with “yes” or “no.” A scoring system is applied to assess the level of knowledge of each subject: 1 point is given for each correct answer, and 0 point is given for each incorrect answer. Participants are grouped into three categories according to their level of knowledge:

- Low - <10 points

- Moderate - 10-12 points
- High - 13 or more points

This section also assesses the sources of information available or used by the participants.

d) Behaviours towards the disease and response on governmental efforts to combat it is assessed by six attitudinal statements that participants respond with “strongly agree,” “agree,” “neutral,” “disagree,” or “strongly disagree.”

A scoring system is applied using the Likert 5-point scale; 5 points are assigned to “strongly agree,” and 1 point is assigned to “strongly disagree.” Total attitude scores range from 6 to 30 points.

Subjects are grouped into three categories according to their level of concern:

- Extremely concerned - agree for 5-6 statements
- Quite concerned - agree for 3-4 statements
- Little concerned - agree for 2 or fewer statements.

e) Participants are asked to report the precautionary measures (hygienic practices) being applied during the pandemic to prevent infection from 8 given options.

Each participant is given 1 point for each precautionary measure taken.

Total precaution score ranges from 0 to 8 points.

- High level of precaution - 6 - 8 points,
- Moderate level - 3 - 5 points
- Poor level - 2 points or less.

f) Participants are asked to report any barriers that prevent them from wearing face mask from 6 given options.

Each participant is given 1 point for each barrier reported. Total barrier scores range from 0 to 6 points.

- High level of barrier - 5-6 points,
- Moderate level - 3-4 points
- Low level - 2 points or less.

The items in the questionnaire are adapted based on validated questions from previous studies (Balkhy et al., 2010).

3.8.1 Validity and Reliability

Content validity will be measured by experts to assess the degree of relevancy and representativeness of each item in the questionnaire. Face validity will be measured by asking for feedback on the degree of clarity and comprehension of each item from

participants. Internal consistency of the measures will be tested using a reliability test where the Cronbach alpha coefficient will aid in determining the reliability of the variables. The accepted value of Cronbach's alpha is 0.7; however, values above 0.6 are also accepted (Griethuijsen et al., 2015; Taber, 2018). It is attested that the items used on each section are therefore acceptable.

Section A: -

Section B:

Cronbach alpha from previous study : 0.56

Section C:

Cronbach alpha from previous study : 0.70, indicating internal reliability.

Section D:

Cronbach alpha from previous study : 0.81, indicating internal reliability.

Section E:

Cronbach alpha from previous study : 0.770, indicating internal reliability.

Section F:

Cronbach alpha from previous study : 0.89, indicating internal reliability.

3.9 Data Collection Method

Online questionnaire will be used for this study. The distribution of online questionnaires forms will be distributed via Whatsapp and other social platforms. Distribution will be randomly to the selected 220 students and staff of Faculty Medicine and Health

Sciences Whatsapp group and email address. Participants who volunteer to fill the online questionnaire form will answer all the respective questions provided.

3.10 Data Analysis

For independent data, categorical data includes age group, gender, education level, hygiene practices, source of information, attitude, barriers to face mask usage, level of knowledge and occupation. Descriptive statistics, such as percentages and frequencies will be calculated. Chi square test will be used to investigate the association between dependent variable (face mask usage) and independent variables [sociodemographic factors, (age, gender, education level, occupation), hygienic practices (washing hands, hand sanitizer, gargling, etc.), source of information, attitude, barriers to face mask usage, and level of knowledge]. Statistical significance for all analyses will be considered at $p < 0.05$. All analyses will be performed using IBM SPSS Statistics 25.

3.11 Ethical Approval

The study will be conducted online among the students and staff of FMHS, UPM. Thus, the research proposal will be submitted to Ethics Committee for Research Involving Human Subject (JKEUPM) of Universiti Putra Malaysia (JKEUPM) for evaluation and

approval. We will also have to obtain permission from the Dean of the Faculty of Medicine and Health Sciences, UPM, where the study will be conducted.

Data from the respondents will be kept confidential and will not be identified. Consent will be obtained from the respondents prior to conducting the study.



CHAPTER 4: RESULTS

4.1 Response Rate

Our calculated sample size was 220. During the period of online questionnaire distribution from 17/08/2020 to 25/08/2020, there were total of 220 respondents, thus achieving our sample size that is required. The response rate for this study is 100%.

4.2 Normality Assessment

The normality assessment is done for continuous variable in a study. As our study does not involve any continuous data, normality assessment is not carried out.

4.3 Characteristics of Respondents

4.3.1 Sociodemographic Characteristics of Respondents

Table 4.1 shows the characteristics of 220 respondents by age group, gender, marital status, education level and working status. The age group ranged from 20 to 85. 54.5% of the respondents were in the age group of 20-24, 6.8% in the age group of 25-30, 9.1% in the age group 31-34, 13.6% in the age group 35-40 and 15.9% in the age group of 41 and above. Out of 220 respondents, 65.9% of the respondents were female while 34.1% were male.

Out of 220 respondents, the majority of the respondents (60.9%) were single. 32.7% were married and 6.4% were divorced. In regards to educational level (n=220),

most of the respondents (80.0%) have a degree, followed by diploma (9.1%), secondary education (7.3%), master (2.7%), PhD (0.5%) and no formal education (0.5%). Meanwhile for the working status (n=220), most of the respondents (62.7%) were students, followed by employed (31.8%) and unemployed (5.5%).

Table 4.1 : Characteristics Of The Respondents By Sociodemographic Characteristics (n=220)

Sociodemographic Characteristics	n(%)
Age Group	
20-24	120(54.5)
25-30	15(6.8)
31-34	20(9.1)
35-40	30(13.6)
>40	35(15.9)
Gender	
Male	75(34.1)
Female	145(65.9)
Marital Status	
Married	72(32.7)
Single	134(60.9)
Divorced	14(6.4)
Education Level	
No Formal Education	1(0.5)
Secondary School	16(7.3)
Diploma	20(9.1)
Degree	176(80.0)
Master	6(2.7)
PhD	1(0.5)
Working Status	
Student	138(62.7)
Employed	70(31.8)
Unemployed	12(5.5)

4.3.2 Hygienic Practices

Table 4.2 shows the answers given by the respondents regarding hygienic practices.

Nearly all respondents (97.7%) reported that they wash their hands often during the Covid-19 outbreak, while the rest of them (2.3%) did not. 189 out of 220 respondents (85.9%) avoiding touching their eyes, nose or mouth. Besides that, 208 respondents (94.5%) reported that they cover their nose and mouth with a tissue when coughing or sneezing, while 12 of the respondents (5.5%) did not. Next, majority of the respondents (89.1%) reported that they throw the tissue in the trash after using it while a small amount of respondents (10.9%) did not. 186 respondents (84.5%) also reported that they avoid normal activities, including work, school, travel, shopping and others if they have flu symptoms. Moreover, there are 214 respondents (97.0%) who use hand sanitizers and 6 respondents (2.7%) who do not. Finally, almost all respondents (94.5%) avoid close contact with the people who are infected, while 12 respondents (5.5%) did not do so.

Table 4.2: Characteristics of The Respondents by Hygienic Practices (n=220)

Hygienic Practices	Yes	No
	n(%)	n(%)
Wash my hands often	215(97.7)	5(2.3)
Avoid touching my eyes, nose or mouth	189(85.9)	31(14.1)
Cover my nose and mouth with a tissue when I cough or sneeze	208(94.5)	12(5.5)
I throw the tissue in the trash after I use it	196(89.1)	24(10.9)

If I have flu symptoms, I avoid normal activities, including work, school, travel, shopping, etc.	186(84.5)	34(15.5)
I use hand sanitizer	214(97.3)	6(2.7)
I avoid close contact with people who are infected	208(94.5)	12(5.5)

Table 4.3 shows the level of precautionary measures (hygienic practices) taken by the respondents. Most respondents (84.5%) take high level of precautionary measures against Covid-19, followed by moderate level (13.6%) and poor level (1.8%).

Table 4.3: Characteristics of The Respondents by Level of Precautionary Measures Against Covid-19 (n=220)

Level	Frequency (n)	Percentage (%)
Poor	4	1.8
Moderate	30	13.6
High	186	84.5

4.3.3 Source of Information

Table 4.4 shows the characteristics of 220 respondents by their source of information. Majority of the respondents (90.9%) selected TV as their source of information whereas 20 respondents (9.1%) did not. 148 respondents (67.3%) picked newspaper and/or magazines as their source of information. Next, 103 out of 220 respondents (46.8%) selected radio as their source of information while more of the

respondents (53.2%) did not. Almost all the respondents (95.9%) picked internet as their source of information, except for 9 respondents (4.1%) who did not. Out of 220 respondents, only 74 of them (33.6%) selected public lectures as a source of information. Not only that, 115 respondents (52.3%) also selected physician or health educator as their source of information.

Table 4.4 : Characteristics Of The Respondents By Source Of Information (n=220)

Source	Not selected n(%)	Selected n(%)
TV	20(9.1)	200(90.9)
Newspaper &/or Magazines	72(32.7)	148(67.3)
Radio	117(53.2)	103(46.8)
Internet	9(4.1)	211(95.9)
Public Lectures	146(66.4)	74(33.6)
Physician or Health Educator	105(47.7)	115(52.3)

4.3.4 Attitude and Behaviour Towards Covid-19

Table 4.5 shows the distribution of answers given by respondents regarding their attitudes and behaviour towards Covid-19. Out of 220 respondents, 40.9% of respondents strongly agree, 37.3% of respondents agree, 17.7% of respondents are neutral, 3.2% of respondents disagree and 0.9% of respondents strongly disagree that we should avoid getting outside homes nowadays.

Total of 33.6% respondents strongly agree, 35.0% of respondents agree, 8.6% of respondents are neutral, 11.8% of respondents disagree and 10.9% of respondents strongly agree that Covid-19 may prevent me from travel.

Besides that, 152 out of 220 respondents (69.1%) strongly agree, 50 respondents (22.7%) agree, 11 respondents (5.0%) are neutral, 2 respondents (0.9%) disagree, 5 respondents (2.3%) strongly agree that government should restrict the travel from and to the areas of the disease.

Next, 60.5% of respondents strongly agree, 27.7 of respondents agree, 8.6% of respondents are neutral, 0.9% of respondents disagree and 2.3% of respondents strongly agree that all mass gatherings for this year should be cancelled by government.

The majority of the respondents (66.8%) strongly agree, 24.5% respondents agree, 5.5% respondents are neutral, 0.9% respondents disagree while 1.8% of respondents strongly disagree that government should isolate patients with Covid-19 in special hospitals.

Lastly, out of 220 respondents, 69.1% of respondents strongly agree, 23.2% of respondents agree, 4.1% respondents are neutral, 1.8% of respondents disagree and 1.8% of respondents strongly disagree that government should avoid importing workers from areas of the disease.

Table 4.5 Characteristics Of The Respondents By Attitude and Behaviour Towards Covid-19 (n=200)

Attitude	Strongly Agree n(%)	Agree n(%)	Neutral n(%)	Disagree n(%)	Strongly Disagree n(%)
We should avoid getting outside homes nowadays	90(40.9)	82(37.3)	39(17.7)	7(3.2)	2(0.9)
If I decided to travel, Covid-19 may prevent me	74(33.6)	77(35.0)	19(8.6)	26(11.8)	24(10.9)
The government should restrict the travel from and to the areas of the disease	152(69.1)	50(22.7)	11(5.0)	2(0.9)	5(2.3)
Government should cancel all mass gatherings for this year	133(60.5)	61(27.7)	19(8.6)	2(0.9)	5(2.3)
The government should isolate patients with Covid-19 in special hospitals	148(67.3)	54(24.5)	12(5.5)	2(0.9)	4(1.8)
The government should avoid importing workers from the areas of the disease	152(69.1)	51(23.2)	9(4.1)	4(1.8)	4(1.8)

Table 4.6 shows the level of attitude and behaviour of respondents towards Covid-19.

Most respondents (94.1%) show extreme concern towards Covid-19, followed by moderate concern (4.5%) and little concern (1.4%).

Table 4.6: Characteristics of The Respondents by Level of Attitude and Behaviour Towards Covid-19 (n=220)

Level	Frequency (n)	Percentage (%)
Little concerned	3	1.4
Moderately concerned	10	4.5
Extremely concerned	207	94.1

4.3.5 Barriers to Face Mask Usage

Table 4.7 shows the distribution of answers given by respondents regarding the barriers to face mask usage. Out of 220 respondents, only 20 respondents (9.1%) state that they find it difficult to get a face mask, while the rest of them (90.9%) disagree with the statement. Next, more than half of the respondents (56.8%) feel discomfort when wearing a face mask while the other respondents (43.2%) do not feel so. Besides that, 31 respondents (14.1%) say that buying a face mask is costly and the other 189 respondents (85.9%) do not have a problem with the cost. Moreover, there are 10 respondents (4.5%) who report that they do not wear a face mask because the people around them do not wear it too. Furthermore, some of the respondents (6.4%) think that wearing face mask is not effective to prevent Covid-19 infection, while the rest of them (93.6) think otherwise. Finally, 11 respondents (5.0%) state that they feel awkward and weird when using a face mask, while the other 209 respondents (95.0%) have no problem wearing it.

Table 4.7 Characteristics of The Respondents By Barriers To Face Mask Usage (n=220)

Barriers to Face mask Usage	Yes n(%)	No n(%)
I find it is difficult to get a face mask	20(9.1)	200(90.9)
I feel discomfort when wearing a face mask	125(56.8)	95(43.2)
It is costly to buy a face mask	31(14.1)	189(85.9)
People in my environment do not wear face mask	10(4.5)	210(95.5)

I think wearing a face mask is not effective to prevent Covid-19 infection	14(6.4)	206(93.6)
I feel awkward and weird using a face mask	11(5.0)	209(95.0)

Table 4.8 shows the level of barriers to face mask usage among the respondents. Most respondents (92.3%) have low level of barriers to face mask usage, followed by moderate level (6.4%) and high level (1.4%).

Table 4.8 Characteristics of The Respondents By Level of Barriers To Face Mask Usage (n=220)

Level	Frequency (n)	Percentage (%)
Low	203	92.3
Moderate	14	6.4
High	3	1.4

4.3.6 Knowledge Regarding Face Mask Usage

Table 4.9 shows the distribution of answers given by respondents regarding knowledge on face mask usage. Out of 220 respondents, the majority of respondents (96.8%) knew that there is more than 1 type of face mask. The majority of the respondents (83.6%) also knew that all types of face mask can be used for Covid-19. Besides that, 174 out of 220 respondents (79.1%) thought that the coloured part of face mask must be facing outwards at all times, while 40 of the respondents (18.2%) thought the opposite and 6 respondents (2.7%) were not sure.

Next, the majority of the respondents (90.9%) knew that wearing a face mask does not guarantee 0% risk of getting Covid-19. 206 respondents (93.6%) knew that the same face mask cannot be reused multiple times, while 10 respondents (4.5%) answered wrongly and 4 respondents (1.8%) were not sure. Almost all of the respondents (99.1%) knew that their face mask cannot be shared with family members, 1 respondent (0.5%) thought otherwise and another respondent (0.5%) was not sure.

109 respondents (49.5%) correctly answered that face mask does not need to be worn at all times, while 105 respondents (47.7%) answered wrongly and 6 respondents (2.7%) were not sure. Majority of the respondents (93.2%) knew that they should not remove their face mask when coughing or sneezing. Besides that, 202 out of 220 respondents (91.8%) knew that face mask is not the only protective measure against Covid-19, 15 out of 220 respondents (6.8%) got it wrong and 3 respondents (1.4%) were not sure.

Next, 176 respondents (80.0%) knew that it is not okay to wash their face mask while 23 respondents (10.5%) did not, and 21 respondents (9.5%) were not sure. Most of the respondents (86.8%) correctly answered that cloth type mask is not better than surgical/medical mask for Covid-19, while 7 respondents (3.2%) got it wrong and 22 respondents (10%) were not sure of the answer. 159 out of 220 respondents knew that N-95 is the best type of face mask for Covid-19.

For the last 3 questions, respondents had to pick the right type of face mask based on the pictures given. For the first question, 212 respondents (96.4%) correctly picked N-95

while 8 respondents (3.6%) answered wrongly. Next, 217 respondents (98.6%) corrected answered cloth mask while 3 respondents (1.4%) did not get it right. 212 respondents (96.4%) correctly identified surgical mask while 8 respondents (3.6%) failed to do so.

Table 4.9: Distribution of answers given by respondents regarding knowledge on face mask usage (n=220)

Knowledge	Yes n(%)	No n(%)	I don't know n(%)	Correct and score n(%)
1. There is more than 1 type of face mask	213(96.8)	5(2.3)	2(0.9)	213(96.8)
2. All types of face mask can be used for Covid-19	28(12.7)	184(83.6)	8(3.6)	184(83.6)
3. The coloured part of face mask must be facing outwards at all times	174(79.1)	40(18.2)	6(2.7)	174(79.1)
4. Wearing a face mask guarantees 0% risk of getting Covid-19	11(5.0)	200(90.9)	9(4.1)	200(90.9)
5. The same face mask can be reused multiple times	10(4.5)	206(93.6)	4(1.8)	206(93.6)
6. I can share my face mask with my family members	1(0.5)	218(99.1)	1(0.5)	218(99.1)
7. Face mask does not need to be worn at all times	109(49.5)	105(47.7)	6(2.7)	109(49.5)
8. I should remove my face mask when coughing or sneezing	7(3.2)	205(93.2)	8(3.6)	205(93.2)
9. Face mask is not the only protective measure against Covid-19	202(91.8)	15(6.8)	3(1.4)	202(91.8)
10. It is ok to wash my surgical face mask	23(10.5)	176(80.0)	21(9.5)	176(80.0)

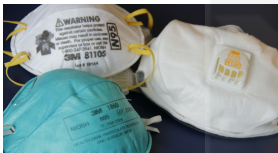
11. Cloth type mask is better than surgical/medical mask for Covid-19	7(3.2)	191(86.8)	22(10.0)	191(86.8)
12. N-95 is the best type of face mask for Covid -19	159(72.3)	31(14.1)	30(13.6)	159(72.3)
Knowledge	Surgical mask n(%)	N-95 n(%)	Cloth mask n(%)	Correct and score n(%)
13. Pick the correct type of mask using the options given	8(3.6)	212(96.4)	0(0)	212(96.4)
				
14. Pick the correct type of mask using the options given	0(0)	3(1.4)	217(98.6)	217(98.6)
				
15. Pick the correct type of mask using the options given	212(96.4)	8(3.6)	0(0)	212(96.4)
				

Table 4.10 shows the level of knowledge regarding face mask usage among the respondents. Most respondents (82.3%) have high level of knowledge regarding face mask usage, followed by moderate level (17.3%) and poor level (0.5%).

Table 4.10: Level of Knowledge Regarding Face mask Usage (n=220)

Level	Frequency (n)	Percentage (%)
Low	1	0.5
Moderate	38	17.3
High	181	82.3

4.3.7 Knowledge Regarding Covid-19

Table 4.11 shows the distribution of answers given by respondents regarding knowledge on Covid-19. Out of 220 respondents, the majority of respondents (88.6%) knew that Covid-19 is a communicable disease. The majority of the respondents (99.1%) also knew that Covid-19 is a pandemic that has affected populations all across the world. Besides that, 209 out of 220 respondents (95.0%) thought that Covid-19 only affects the older population, while 9 of the respondents (4.1%) thought the opposite and 2 respondents (0.9%) were not sure.

Next, only 69.5% of the respondents knew that there is no vaccine for Covid-19. 20 respondents (9.1%) were not sure whether Covid-19 can affect people more than once alive which is the answer provided for this question, 36 respondents (16.4%) answered Covid-19 can affect people more than once alive while 164 respondents (74.5%) answered no. Most of the respondents (74.5%) knew that most people who get Covid-19 recover from it, 36 respondents (16.4%) thought otherwise and another respondent (9.1%) was not sure.

201 respondents (91.4%) correctly answered that drinking alcohol cannot protect against Covid-19 infection, while 3 respondents (1.4%) answered wrongly and 16 respondents (7.3%) were not sure. Majority of the respondents (75.0%) knew that thermal scanners cannot detect Covid-19 virus. Besides that, 122 out of 220 respondents (55.5%) knew that Covid-19 virus can be transmitted in areas with hot and humid climates, 41 out of 220 respondents (18.6%) got it wrong and 57 respondents (25.9%) were not sure.

Next, 156 respondents (72.3%) knew taking a hot bath does not prevent Covid-19 infection while 32 respondents (14.5%) did not, and 29 respondents (13.2%) were not sure. Most of the respondents (70.9%) correctly answered that eating garlic cannot help prevent Covid-19 infection, while 18 respondents (8.2%) got it wrong and 46 respondents (20.9%) were not sure of the answer. 148 out of 220 respondents (67.3%) knew that antibiotics are ineffective in preventing and treating Covid-19 infection.

Besides, 137 respondents (62.3%) knew vaccines against pneumonia cannot protect against Covid-19 infection while 17 respondents (7.7%) did not, and 66 respondents (30.0%) were not sure. Most of the respondents (74.5%) correctly answered that hand dryers are ineffective in killing Covid-19 virus, while 11 respondents (5.0%) got it wrong and 45 respondents (20.5%) were not sure. 148 respondents (67.3%) correctly answered that Malaysia is not positioned as the 10th most infected country globally, while 16 respondents (7.3%) answered wrongly and 56 respondents (25.5%) were not sure.

For the last 3 questions, respondents had to pick the right answer based on the statements given. For the first question, 219 respondents (99.5%) correctly answered virus is the cause of Covid-19, 101 respondents (45.9%) knew that immunodeficiency causes Covid-19 and 202 respondents (91.8%) correctly answered that inherited disease does not cause Covid-19 infection.

Next, 217 respondents (98.6%) correctly answered droplets after coughing or sneezing cause Covid-19, 161 respondents (73.2%) knew that touching an infected person causes Covid-19 and 177 respondents (80.5%) answered correctly that the use of objects of an infected person causes Covid-19.

Lastly, 218 respondents (99.1%) knew that fever, sore throat and cough were signs and symptoms of Covid-19, 188 respondents (85.5%) answered correctly that it did not lead to death immediately while 214 respondents (97.3%) knew that difficulty in breathing is one of the signs and symptoms of Covid-19.

Table 4.11 Distribution of answers given by respondents regarding knowledge on Covid-19 (n=220)

Knowledge	Yes n(%)	No n(%)	I don't know n(%)	Correct and score n(%)
1. Covid-19 is a communicable disease	195(88.6)	13(5.9)	12(5.5)	195(88.6)
2. Covid-19 is a pandemic that has affected populations all across the world	218(99.1)	1(0.5)	1(0.5)	218(99.1)

3. Covid-19 only affects the older population	9(4.1)	209(95.0)	2(0.9)	209(95.0)
4. There is a vaccine for covid-19	37(16.8)	153(69.5)	30(13.6)	153(69.5)
5. Covid-19 can affect people more than once alive	175(79.5)	12(5.5)	33(15.0)	33(15.0)
6. Most people who get Covid-19 recover from it	164(74.5)	36(16.4)	20(9.1)	164(74.5)
7. Drinking alcohol protects you against Covid-19 infection	3(1.4)	201(91.4)	16(7.3)	201(91.4)
8. Thermal scanners can detect Covid-19 virus	30(13.6)	165(75.0)	25(11.4)	165(75.0)
9. Covid-19 virus can be transmitted in areas with hot and humid climates	122(55.5)	41(18.6)	57(25.9)	122(55.5)
10. Taking a hot bath does not prevent Covid-19	159(72.3)	32(14.5)	29(13.2)	159(72.3)
11. Eating garlic can help prevent Covid-19 infection	18(8.2)	156(70.9)	46(20.9)	156(70.9)
12. Antibiotics are effective in preventing and treating Covid-19 infection	29(13.2)	148(67.3)	43(19.5)	148(67.3)
13. Vaccines against pneumonia protect me against Covid-19 infection	17(7.7)	137(62.3)	66(30.0)	137(62.3)
14. Hand dryers are effective in killing Covid-19 virus	11(5.0)	154(74.5)	45(20.5)	154(74.5)
15. Malaysia is positioned as the 10th most infected country globally	16(7.3)	148(67.3)	56(25.5)	148(67.3)

Knowledge		Virus n(%)	Immunodeficiency n(%)	Inherited Disease n(%)
16. The cause of covid-19 is ...	Yes	219(99.5)	101(45.9)	11(5.0)
	No	1(0.5)	102(46.4)	202(91.8)
	I don't know	0(0)	17(7.7)	7(3.2)

Knowledge		Droplets after coughing or sneezing n(%)	Touching an infected person n(%)	The use of objects of an infected person n(%)
17. Covid-19 is transmitted through ...	Yes	217(98.6)	161(73.2)	177(80.5)
	No	2(0.9)	51(23.2)	38(17.3)
	I don't know	1(0.5)	8(3.6)	5(2.3)
Knowledge		Fever, sore throat, cough n(%)	Blurred vision n(%)	Difficulty in breathing n(%)
18. What are the signs and symptoms of Covid-19?	Yes	218(99.1)	21(9.5)	214(97.3)
	No	0(0)	188(85.5)	3(1.4)
	I don't know	2(0.9)	11(5.0)	3(1.4)

Table 4.12 shows the level of knowledge regarding face mask usage among the respondents. Most respondents (72.7%) have good knowledge regarding Covid-19, followed by moderate knowledge (25.0%) and poor knowledge (2.3%).

Table 4.12: Level of Knowledge Regarding Covid-19 (n=220)

Level	Frequency (n)	Percentage (%)
Low	5	2.3
Moderate	55	25.0
High	160	72.7

4.4 Prevalence of Face Mask Usage

Out of 220 respondents, 197 (89.5%) respondents reported that they wear face masks all the time. 20 of the respondents (9.1%) reported that they wear face masks only when they feel sick. Lastly, 3 respondents (1.4%) reported that they never wear a face mask.

Table 4.13: Prevalence of Face mask Usage (n=220)

Face mask Usage	n	%
All the Time	197	89.5
Only when I feel sick	20	9.1
Never	3	1.4

4.5 Association Between Factors and Face Mask Usage

Chi square test was done between factors and face mask usage. Table 4.14 shows the association between sociodemographic factors, hygienic practices, source of information, attitude, barriers to using face mask, level of knowledge and face mask usage.

4.5.1 Association Between Sociodemographic Characteristics and Face Mask Usage

For association between age group and face mask usage, p value is 0.579 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between age group and face mask usage.

For the association between gender and face mask usage, p value is 0.400 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between age group and face mask usage.

For the association between marital status and face mask usage, p value is 0.407 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between age group and face mask usage.

For the association between education level and face mask usage, p value is 0.088 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between age group and face mask usage.

For the association between working status and face mask usage, p value is 0.499 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between age group and face mask usage.

4.5.2 Association Between Hygienic Practices and Face Mask Usage

For the association between hygienic practices and face mask usage, p value is 0.001 which is less than 0.05. The null hypothesis is rejected. Hence, there is significant association between hygienic practices and face mask usage.

4.5.3 Association Between Source of Information and Face Mask Usage

For the association between getting information from TV and face mask usage, p value is 0.852 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between getting information from TV and face mask usage.

For the association between getting information from newspaper &/or magazines and face mask usage, p value is 0.445 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between getting information from newspaper &/or magazines and face mask usage.

For the association between getting information from radio and face mask usage, p value is 0.650 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between getting information from TV and face mask usage.

For the association between getting information from the internet and face mask usage, p value is 0.025 which is less than 0.05. The null hypothesis is rejected. Hence, there is significant association between getting information from the internet and face mask usage.

For the association between getting information from public lectures and face mask usage, p value is 0.180 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between getting information from public lectures and face mask usage.

For the association between getting information from physician or health educator and face mask usage, p value is 0.707 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between getting information from physician or health educator and face mask usage.

4.5.4 Association Between Attitude and Face Mask Usage

For the association between level of attitude towards Covid-19 and face mask usage, p value is 0.001 which is less than 0.05. The null hypothesis is rejected. Hence, there is significant association between level of attitude towards Covid-19 and face mask usage

4.5.5 Association Between Barriers To Using Face Mask And Face Mask Usage

For the association between barriers to using face mask and face mask usage, p value is 0.130 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between barriers to using face mask and face mask usage.

4.5.6 Association Between Level of Knowledge and Face Mask Usage

4.5.6.1 Knowledge Regarding Face Mask Usage

For the association between level of knowledge regarding face mask usage and face mask usage, p value is 0.836 which is more than 0.05. We fail to reject the null hypothesis. Hence, there is no significant association between level of knowledge regarding face mask usage and face mask usage.

4.5.6.2 Knowledge Regarding Covid-19

For the association between level of knowledge regarding Covid-19 and face mask usage, p value is 0.778 which is more than 0.05. The null hypothesis is accepted. Hence, there is no significant association between level of knowledge regarding Covid-19 and face mask usage.

Table 4.14: Association between sociodemographic characteristics, hygienic practices, source of information, attitude, barriers to using face mask, level of knowledge and face mask usage

Factor	Face mask Usage			X ²	P value
	N	All The Time	Only When I	Never n(%)	

			n(%)	Feel Sick n(%)		
Age Group					6.616*	0.579
	20-24	120	110(91.7)	8(6.7)	2(1.6)	
	25-30	15	15(100.0)	0(0)	0(0)	
	31-34	20	20(100.0)	0(0)	0(0)	
	35-40	30	24(80.0)	6(20.0)	0(0)	
	>40	35	30(85.7)	5(14.3)	0(0)	
Gender					1.833*	0.400
	Male	75	65(86.7)	8(10.7)	2(2.7)	
	Female	145	132(91.0)	12(8.3)	1(0.7)	
Marital Status					3.995*	0.407
	Married	72	65(90.3)	7(9.7)	0(0)	
	Single	134	116(86.6)	15(11.2)	3(2.2)	
	Divorced	14	12(85.7)	2(14.3)	0(0)	
Education Level					16.436*	0.088
	No Formal Education	1	1(100.0)	0(0)	0(0)	
	Secondary School	16	14(87.5)	1(6.3)	1(6.3)	
	Diploma	20	20(100.0)	0(0)	0(0)	
	Degree	176	156(88.6)	18(10.2)	2(1.1)	
	Master	6	6(100.0)	0(0)	0(0)	
	PhD	1	0(0)	1(100.0)	0(0)	
Working Status					3.360*	0.499
	Student	138	123(89.1)	12(8.7)	3(2.2)	
	Employed	70	63(90.0)	7(10.0)	0(0)	
	Unemployed	12	3(100.0)	0(0)	0(0)	
Hygiene Practices					19.438*	0.001 ^a
	Poor	4	3(75.0)	0(0)	1(25.0)	
	Moderate	30	25(83.3)	4(13.3)	1(3.3)	
	High	186	169(90.9)	16(8.6)	1(0.5)	
Source of Information						

	TV	200	179(89.5)	18(9.0)	3(1.5)	0.321*	0.852
	Newspaper &/or Magazines	148	130(87.8)	16(10.8)	2(1.4)	1.619*	0.445
	Radio	103	93(90.3)	8(7.8)	2(1.9)	0.860*	0.650
	Internet	211	189(89.6)	20(9.5)	2(0.9)	7.392*	0.025^a
	Public Lectures	74	70(94.6)	3(4.1)	1(1.4)	3.429*	0.180
	Physician or Health Educator	115	104(90.4)	9(7.8)	2(1.7)	0.694*	0.707
Attitude						27.449*	0.001^a
	Little Concerned	3	1(33.3)	2(66.7)	0(0)		
	Moderately Concerned	10	7(70.0)	1(10.0)	2(20.0)		
	Extremely Concerned	207	187(90.3)	19(9.2)	1(0.5)		
Barriers To Using Face Mask						7.104*	0.130
	Low	203	182(89.7)	19(9.4)	2(1.0)		
	Moderate	14	13(92.9)	0(0)	1(7.1)		
	High	3	2(66.7)	1(33.3)	0(0)		
Level of Knowledge Regarding Face Mask Usage						1.446*	0.836
	Low	1	1(100)	0(0)	0(0)		
	Moderate	38	35(92.1)	2(5.3)	1(0.5)		
	High	181	161(89.0)	18(9.9)	2(1.1)		
Level of Knowledge Regarding Covid-19						1.770*	0.778
	Low	5	5(100.0)	0(0)	0(0)		
	Moderate	55	47(85.5)	7(12.7)	1(1.8)		
	High	160	145(90.6)	13(8.1)	2(1.3)		

Note: (a) Significant level at $p < 0.05$
(b) Significant level at $p < 0.001$
(*) Chi Square Test

CHAPTER 5: DISCUSSION

5.1 Distribution of Sociodemographic Characteristics

5.1.1 Age Group

Majority of the respondents were in the age group of 20-24, which accounts for 54.5% (n=120), followed by age group of 41 and above at 15.9% (n=35), age group 35-40 with 13.6% (n=30), age group 31-34 with 9.1% (n=20) and age group 25-30 with 6.8% (n=15). The age group of 20-24 has the highest number of respondents because most of our respondents were students from Faculty of Medicine and Health Sciences, UPM, while there was lesser response from the staff.

5.1.2 Gender

Female respondents were higher than male respondents. Majority of the respondents were female which accounts for 65.9% (n=145) while male respondents only accounts 34.1% (n=75). Higher number of female respondents is probably because there are more female students and staff in Faculty of Medicine and Health Sciences, UPM.

5.1.3 Marital Status

Out of 220 respondents, the 60.9% of the respondents (n=134) were single, 32.7% (n=72) were married and 6.4% (n=14) were divorced. The number of single respondents was the highest because most of them are still students and in the age group of 20-24.

5.1.4 Educational Level

In regards to educational level, most of the respondents 80.0% (n=176) have a degree, followed by diploma 9.1% (n=20), secondary education 7.3% (n=16), master 2.7% (n=6), PhD 0.5% (n=1) and no formal education 0.5% (n=1). High number of respondents with degree is due to the fact that most of the respondents are degree students in Faculty of Medicine and Health Sciences, UPM.

5.1.5 Working Status

Most of the respondents 62.7% (n=138) were students, followed by employed 31.8% (n=70) and unemployed 5.5% (n=12). High number of student respondents could be due to the fact that more students had been selected in the simple random sampling process.

5.2 Hygienic Practices

84.5% (n=186) of the respondents that have high level of precautionary measures against Covid-19 , while 13.6% (n=30) have moderate level . Only 1.8% (n=4) have poor level of precautionary measures against Covid-19. High level of precautionary measures is most probably due to the information of how easily the virus spread among human and also high demand of precautionary measures from the health ministry.

5.3 Source of Information

Majority of the respondents (90.9%) selected TV as their source of information. 148 respondents (67.3%) picked newspaper and/or magazines as their source of information. Next, only 103 out of 220 respondents (46.8%) selected radio as their source of information. Almost all the respondents (95.9%) picked internet as their source of information. Out of 220 respondents, only 74 of them (33.6%) selected public lectures as a source of information. Not only that, 115 respondents (52.3%) also selected physician or health educator as their source of information. Internet was picked the most as a source of information due to easy access and abundance of information in a short time

5.4 Attitude and Behaviour Towards Covid-19

It is important to know what proportion of the population is concerned about contracting a disease since those who are concerned would be expected to take more precautions. 94.1% (n=207) of the respondents with good attitude while 1.4% (n=3) of the respondents with poor attitude. The good attitude towards Covid-19 is due to the beliefs of high risks of getting infected and the awareness of precautionary measures towards Covid-19 that can be applied as advised by the government.

5.5 Barriers to Face mask Usage

92.3% (n=203) of the respondents that have low level of barriers to face mask usage, followed by 6.4% (n=14) that have moderate level of barriers. Only 1.4 % (n=3) of the respondents that have high level of barriers to face mask usage. Low level of barriers is due to high accessibility to face mask and the belief to strongly prevent the spread of the virus through the face mask usage.

5.6 Knowledge Regarding Face mask Usage

Most respondents 82.3% (n=181) have high level of knowledge regarding face mask usage, followed by moderate level 17.3% (n=38) and poor level 0.5% (n=1). High number of respondents with high level of knowledge regarding face mask usage could be because

most respondents are familiar with face mask as it is quite often used during haze and influenza seasons.

5.7 Knowledge Regarding Covid-19

72.2% (n=160) of the respondents have high level of knowledge, while 25.0% (n=55) respondents have moderate level of knowledge. Only 2.3% (n=5) of the respondents have low level of knowledge. High level of knowledge was most probably due to sufficient source of information and understanding towards Covid-19.

5.8 Prevalence of Face mask Usage

Out of 220 respondents, 197 (89.5%) respondents reported that they wear face masks all the time. 20 of the respondents (9.1%) reported that they wear face masks only when they feel sick. Lastly, 3 respondents (1.4%) reported that they never wear a face mask. This finding is considered to be quite high as compared to a study by Lau et al. (2008), where the prevalence of facemask usage in public spaces when experiencing influenza-like illnesses was only 36.6%. In the same study, high prevalence of both the influenza vaccination and the use of face mask behaviors was observed when outbreaks of emerging infectious diseases are evident (e.g., SARS) or being anticipated (e.g., human H5N1). These behaviors may be seen by means of self-protection and/or protecting others. High prevalence of face mask usage among our study respondents could be a

result of the SOPs requirements at public spaces where only those with face masks can enter and also the heavy penalties implicated upon failure to follow these SOPs.

According to a new research (Gunasekaran, 2020), high face mask saturation in the general population is an appropriate indicator of a strategy for public hygiene interventions that can help minimize the effect of Covid-19. Findings from a study by Machida et al. (2020) suggest that many Japanese are also using face masks to prevent COVID-19 in addition to simultaneously practicing personal protective measures mentioned above. It is possible that Japanese people voluntarily choose to wear face masks for preventive purposes during a respiratory virus pandemic, such as COVID-19, as they have become accustomed to do so (Burgess & Horii, 2012). Another study by Lau et al. (2005) documented that prevalent public health behaviors such as use of face mask when having influenza-like illnesses were also associated with the respondents' SARS experience.

5.9 Association Between Factors and Face mask Usage

5.9.1 Association Between Sociodemographic Factors and Face mask Usage

There is no significant association between age group and face mask usage ($p=0.579$).

Our results show that respondents from every age group more often wear their masks all the time. According to recent research (Lee et al., 2020), findings revealed that compared with younger adults (aged 18–24), older adults (aged 55–64) were less likely to wear face masks when having respiratory symptoms. It is believed that older adults do not use face masks because they have less resources and decreased capacity to buy face masks and instead rely on others to get face masks. In addition, older people

have very little chance and ability to access knowledge about health promotion.

Moreover, older adults have a low chance and capability to receive health promotion information. However, this is not the case in our study.

There is no significant association between gender and face mask usage ($p=0.400$).

Our results show that the male and female respondents almost equally wear their face masks all the time. In contrast, a study regarding gender differences in health beliefs and behaviour from Courtenay et al. (2002, p. 229) found that men engage in riskier behaviors and hold riskier beliefs than women. Similarly, a study from Lee et al. (2020) revealed that the practice of wearing face masks amongst male adults was poorer than that amongst females. Male adults typically retain masculinity-related values and view themselves as solid with a lower risk of contracting diseases. They are less likely to participate in preventive measures linked to health. In comparison, female adults, who are more likely to take on a caregiving role, may consider themselves to be at high risk for disease. Females are also more likely to take protective measures related to hygiene, such as the use of face masks. However, this is not the case in our study.

There is no significant association between marital status and face mask usage ($p=0.407$). In a study by Tang & Wong (2004), a higher level of compliance with mask-wearing was found among people who were married. This finding is supported by the study by Taylor et al. (2009), which found that individuals who were never married had lower compliance levels. However, the authors of that study explained that marital status was potentially a confounder as the likelihood of a person getting married

increases with age. As such, it may not be marital status that predicted mask-wearing adherence, but age itself.

There is no significant association between education level and face mask usage ($p=0.088$). In a study by Pereira-Ávila et al. (2020), most respondents reported a degree in higher education, indicating that they had a greater understanding of the value of wearing masks to avoid COVID-19. This result is corroborated by a literature review (Sim et al., 2014), discussing the use of masks to avoid respiratory infections, which found that higher education was positively related to the procedure, highlighting the need for education interventions targeted at the population as a whole, particularly those with fewer years of education. However, there is no link between education level and face mask usage found in our study.

There is no significant association between working status and face mask usage ($p=0.499$). All students, employed and unemployed respondents equally practice face mask usage all the time regardless of their working status. However, this factor has yet to be studied by other researchers and the findings of our study do not have enough support to exclude it from being a factor of face mask usage.

5.9.2 Association Between Hygienic Practices and Face mask Usage

There is significant association between hygienic practices and face mask usage ($p=0.001$). Our result shows most of our respondents (84.5%) have high level of hygienic

practice or precautionary measures, which may be a factor that affects face mask usage. This finding is on par with a study conducted by Wada et al. (2012). Evidence shows that positive personal hygiene practices and health behaviors among Japanese adults are associated with face mask usage. Participants using face mask were more likely to practice additional preventive hygiene measures such as washing, gargling, avoiding crowds and close contact with ill people, having good quality sleep and being vaccinated against influenza.

5.9.3 Association Between Source of Information and Face mask Usage

All except information from the internet and face mask usage have a significant association ($p=0.025$). Respondents that selected internet as their source of information were more likely to practice face mask usage. This could possibly be due to the fact that information regarding transmission of Covid-19 and the preventive measures recommended for it are more readily and quickly available on the internet as compared to the other sources of information. We presume that most of our respondents have a greater access to the internet as the majority of them are students in Faculty of Medicine and Health Sciences, UPM and the information is constantly updated. According to the early analysis of the source preferences literature by Krikelas (1983), individuals first use their own experiences and memories to determine whether they will be able to solve a problem and then seek assistance to obtain additional information from external sources. However, the introduction of the Internet changed the habits of source preferences drastically. It allowed individuals to easily access an overwhelming number of sources

outside their personal connections. It has been observed that Internet outlets have gradually replaced information sources that have been historically prevalent, such as people, newspapers, magazines, and television (Kaye and Johnson, 2003; Hektor, 2003). Interestingly, Case et al. (2004) found that among people searching for genetic and disease information, the Internet was the most favored source of first-choice outlets, followed by medical doctors and a public library.

5.9.4 Association Between Attitude and Face mask Usage

There is significant association between attitude and face mask usage ($p=0.001$).

According to Al-Hanawi et al. (2020), great efforts at all levels by the government, including awareness campaigns via various platform able to provide public with recent update and precautionary measures of Covid-19. Hence, this could be one of the factors that influenced the level of attitudes of the respondents towards Covid-19. Besides that, according to a study conducted by Andrew C et al. (2020), good attitudes towards personal safety, household safety and community safety were the most significant considerations of face mask usage. We found that a good level of attitudes could be due to the strict advices and regulations imposed by the government.

According to a study in China by Zhong et al. (2020), although COVID-19 attitudes were positive, most residents took precautions to avoid COVID-19 infection: not going to crowded places and wearing masks when outside. These stringent preventive policies can largely be attributed to the very strict prevention and regulation measures enforced by local governments, such as the prohibition of public meetings.

Hence, good level of attitudes will definitely influence the way of the respondents behave thus, enhance usage of face mask and other preventive measures.

5.9.5 Association Between Barriers To Using Face mask And Face mask Usage

There is no significant association between barriers to using face mask and face mask usage ($p=0.130$). Our result shows majority of our respondents have low level of barriers to using face mask, but this does not mean it can affect the face mask usage. However, a study by Chughtai et al. (2020) reported a shortage of face masks in many hospitals by both physicians and nurses. The type of product used is extremely dependent on what is provided by the hospital. Participants also suggested that face masks are also not typically worn when talking with patients' family members and caregivers, as these people are considered healthy, and there is a concern that face mask use may "hurt their feelings." These barriers have affected the usage of face mask among their respondents.

5.9.6 Association Between Level of Knowledge and Face mask Usage

There is no significant association between level of knowledge regarding face mask usage and face mask usage ($p=0.836$). Most of our respondents had high level of knowledge regarding face mask usage, but it does not seem to have an effect on the usage of face masks. This result conflicts with findings from a study by Sim et al. (2014), where the people higher level of knowledge are more likely to comply with

preventive behaviors which can be explained by the increased understanding of disease and disease hazards of these individuals, which helps them to have a more serious view of the risks associated with non-compliance. Given that these individuals may also have a greater understanding of public health interventions and their efficacy, and thus a higher awareness of the advantages of these preventive behaviors, they are more likely to comply with these interventions.

If individuals are to respond properly during the event of an infectious disease, they need to have a basic knowledge of how the disease spreads and whether there is a disease vaccine or an appropriate medical procedure that can be provided after it is contracted by others. Several studies have high-lighted different levels of awareness about infectious agents and public conduct towards these infections, especially after outbreaks of SARS and avian influenza [C. S. K. Tang & Wong, (2003), Elledge et al., (2008)].

There is no significant association between level of knowledge regarding Covid-19 and face mask usage ($p=0.778$). Our results show that about 72.2% participants have high knowledge of Covid-19. However, this does not always translate into good practices of face mask usage. A study by Khasawneh et al. (2020) states that medical official sites were less commonly used compared to social media and news channels to gain information on Covid-19. Therefore, the input gained by the respondents might be incorrect and caused confusion thus affecting understanding about importance of face mask usage. Besides that, our questionnaire was a bit general and might not have been able to assess the knowledge of respondents regarding Covid-19 as overall. Other than that, high level of knowledge does not determine the way people behave due to lack of awareness and ignorance. Hence, enhancement of policies, awareness campaign, and

further public health interventions need to be carried out to ensure the accurate knowledge towards Covid-19 to increase the practice of face mask wearing.

CHAPTER 6

6.1 Limitations

This study had certain limitation and weaknesses. By administrating online questionnaires, there are a few disadvantages. Unanticipated communication barriers between the investigator and respondents may have resulted in inaccurate results. It was difficult to use for our respondents with limited or no internet connection. Other than that, our questionnaire was mostly distributed via Whatsapp and there were a number of respondents who had trouble accessing or even responded late or overlooked our questionnaire due to overload of other messages.

Since this research is conducted in the Faculty of Medicine and Health Sciences, UPM, the results may not represent the whole population in Malaysia. There will be difficulty in making a generalized finding for the whole of Malaysia, let alone the whole of UPM. Not only that, we also had time constraints in collecting data, which was less than two weeks, as we started a little later than other groups since it took some time for us to get our approval from JKEUPM.

Besides that, respondents might have intendedly modified their answers on attitude and behaviors to meet the current proper norms instead of expressing their real experience.

6.2 Conclusions

In conclusion, there is high prevalence of facemask usage all the time among students and staff of Faculty of Medicine & Health Sciences, UPM during the Covid-19 outbreak. Most respondents are found to take high level of precautionary measures against Covid-19, followed by moderate level and poor level.

Besides that, the preferred source of information by our respondents was the internet, followed by TV. Attitude and behaviour wise, most respondents show extreme concern towards Covid-19.

Next, it is found that majority of our respondents have low level of barriers to facemask usage. Most respondents have high level of knowledge regarding facemask usage and Covid-19, followed by moderate level and poor level.

There is significant association between hygienic practices, source of information (internet), attitude & behaviour towards Covid-19 and facemask usage.

6.3 Recommendations

Based on the study, generally the respondents had high prevalence of facemask usage. High demand of precautionary measures, especially facemask usage must be continuously requested from the health ministry to maintain this level of prevalence and encourage everyone to have good attitude and behaviour towards the efforts taken by the health ministry.

The Ministry of Health should also continue feeding latest updates and knowledge regarding Covid-19 to Malaysians so that they can stay informed and maintain high level of knowledge regarding this topic. Staying informed will ensure that everyone is aware of what is happening and will be knowledgeable enough to include positive practices that can help combat this pandemic.

Lastly, the study should be carried out in a bigger area that could actually represent the whole country and should also include a larger and more diverse demographic population for more significant and generalised results. This will help increase not only the number of respondents, but the power of the study as well.

APPENDIX

Work Plan – Gantt Chart

ACTIVITY	MONTH				
	JUNE	JULY	AUG	SEPT	OCT
PHASE 1					
Proposal Preparation					
Proposal Submission					
Preparation for Proposal Presentation					
Proposal Presentation					
Submit Documents for JKEUPM and NMRR					
PHASE 2					
Data Collection					
Data Analysis					
Submission of Data Analysis (					
Data Analysis Presentation					
Submission of Scientific Article & Poster					
Poster Competition					
Submission of Final Report					
Preparation for Final Presentation					
Final Report Presentation					
Submission of Logbook and Hard Bound Copies of Final Report					

Budget

The following table shows the items and budgeted items for each.

No.	Item	Cost	Quantity	Total
1.	Printing Fees			
2.	Hardcover Binding			

Consent form



Factors Associated With Face mask Usage During Covid-19 Outbreak Among Students and Staff of Faculty of Medicine and Health Sciences, UPM.

*We are pleased to inform that you are randomly selected to participate in this research.
Your cooperation in completing this questionnaire is mostly appreciated.*

1. STUDY TITLE

Factors associated with face mask usage during Covid-19 outbreak among students and staff of Faculty of Medicine and Health Sciences, UPM.

2. INTRODUCTION

In 2019, the world was hit with Covid-19, a respiratory disease spread by a novel coronavirus.

Wearing a face mask is one of the prevention measures that can limit the spread of certain respiratory viral diseases, including Covid-19. This online questionnaire aims to study the knowledge, attitude, practices and hindrance of wearing face mask towards Covid-19 outbreak among students and staff of FMHS.

This online questionnaire aims to study the knowledge, attitude, practices and barriers on wearing face mask towards Covid-19 outbreak among students and staff of FMHS.

3. WHAT WILL YOU HAVE TO DO?

Respondents will need to fill in a questionnaire consisting of 6 sections: Section A, B C, D, E and F.

Questions in each section will be regarding the following topics:

- **Section A:** Socio-demographic characteristics such as gender, age, education, and occupation
- **Section B:** Prevalence of wearing face mask and knowledge regarding its usage - 15 factual statements which participants respond to with “yes” or “no”
- **Section C:** Knowledge about the disease, its nature, mode of transmission, symptoms and signs, incubation period and preventive measures - 18 factual statements which participants respond to with “yes” or “no”
- **Section D:** Behaviours towards the disease and response on governmental efforts to combat it - six attitudinal statements that participants respond with “strongly agree,” “agree,” “neutral,” “disagree,” or “strongly disagree”
- **Section E:** Precautionary measures being applied during the pandemic to prevent infection - from 8 given options
- **Section F:** Barriers that prevent you from wearing face mask - from 6 given options.

These sections are to be completed by all qualified respondents. Respondents are allowed to withdraw from this study at any time without any restrictions.

4. WHO SHOULD NOT PARTICIPATE IN THIS STUDY?

Anyone who are postgraduate students, part time students, foundation students, students who are from other universities, and undergraduate students who do not have WhatsApp should not participate in this study.

5. WHAT WILL BE THE BENEFITS OF THE STUDY?

a) TO YOU AS THE SUBJECT?

The respondents' participation will help the researchers in an effort to better understand the knowledge, attitude, practices and barrier on wearing face mask towards Covid-19 outbreak among students and staff of FMHS. The respondents will be able to test their knowledge on Covid-19 and pick up new information, especially regarding the proper usage of face mask from the questionnaire. We hope that after completing the questionnaire, the respondents will be able to do some self-reflection on their practices toward Covid-19, and improve on their shortcomings (if any) in order to help curb the disease. Not only that, respondents can also help spread awareness regarding face mask usage from the information obtained after completing the questionnaire. The respondents will be a part of a research that could prove to be significant in gathering information about Covid-19. Additionally, the respondents will be redirected to a link to claim a certificate of acknowledgment after completing the questionnaire. It is a token of appreciation for spending time to participate in our research questionnaire.

b) TO THE INVESTIGATOR?

The results obtained from respondents' feedback will enable the researchers team to study the knowledge, attitude, practices and barrier on wearing face mask towards Covid-19 outbreak among students and staff of FMHS.

It will help us identify the misapprehensions surrounding the usage and significance of face masks amid this pandemic. Using this data, public health officials can come up with an approachable guideline that can help the citizens practise proper usage of face masks in helping to curb the spread of the disease.

Next, we will be able to identify the level of knowledge regarding Covid-19 possessed by Malaysians. This will encourage health officials to confirm the facts of the as well as dismiss the myths surrounding the disease to help ease the anxiety of the citizens.

This study will help bring to light the other positive hygiene practices that are adopted by the citizens during the pandemic. Furthermore, we will be able to explore the association of these practices in regard to face mask usage.

6. WHAT ARE THE POSSIBLE RISKS?

There are no possible risks towards participants answering the questionnaire. All information regarding participant's identities will be kept private and confidential

7. WILL THE INFORMATION THAT YOU PROVIDED AND YOUR IDENTITY REMAIN CONFIDENTIAL?

All information and respondents' identity will be kept private and confidential.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

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5. Ahmad Muaz : 019-962 0280 (Group Member / 2nd Year Medical Student UPM)

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9. CONSENT

I Identity Card No.
address
.....hereby voluntarily
agree to take part in the research stated above *(clinical / drug trial / video recording /
focus group / interview – based / questionnaire – based).

I have been informed about the nature of the research in terms of methodology, possible
adverse effects and complications (as written in the Respondent's Information Sheet). I
understand that I have the right to withdraw from this research at any time without giving
any reasons whatsoever. I also understand that this study is confidential, and all
information provided with regard to my identity will remain private and confidential.

I *wish / do not wish to know the results related to my participation in the research.

I *agree / do not agree that the images / photos / video recordings / voice recordings
related to me be used in any form of publication or presentation (if applicable).

*delete where necessary

I confirm that I have explained to the respondent the nature and purpose of the above -
mentioned research.

Date

Questionnaire



FACULTY OF MEDICINE AND HEALTH SCIENCES,
UNIVERSITI PUTRA MALAYSIA

**FACE MASK: AWARENESS, KNOWLEDGE AND REAL APPLICATION IN REFLECT
TO OTHER POSITIVE HYGIENE PRACTICES IN COVID-19 OUTBREAK AMONGST
STUDENTS AND STAFFS OF FPSK VIA ONLINE MEDIUM.**

Section A: Demographic

Age : 20 - 24 व
 25 - 30 व
 30 - 34 व
 35 - 40 व
 > 40 व

Gender : Male व
 Female व

Marital Status : Single व
 Married व
 Divorced व

Educational Level : No Formal education व
 Secondary school व
 Diploma व
 Degree व
 Master व
 PhD व

Working Status : Student व
 Employed व
 Unemployed व

Section B: Face mask – Prevalence & Knowledge

	Always	Only when I feel sick	Never
I wear a face mask....			

No	Item	Yes	No	I don't know
1.	There is more than 1 type of face mask.			
2.	All types of face mask can be used for Covid-19.			
3.	The coloured part of face mask must be facing outwards at all times.			
4.	Wearing a face mask guarantees 0% risk of getting Covid-19.			
5.	The same face mask can be reused mutiple times.			
6.	I can share my face mask with my family members.			
7.	Face mask does not need to be worn at all times.			
8.	I should remove my face mask when coughing or sneezing.			
9.	Face mask is not the only protective measure against Covid-19.			
10.	It is ok to wash my surgical face mask.			

Pick the correct type of mask using the options given:

No.	Mask	Surgical mask	N-95	Cloth mask
11.				
12.				
13.				

14.	Cloth type mask is better than surgical/medical mask for Covid-19.			
15.	N-95 is the best type of face mask for Covid-19.			

Section C: Knowledge about Covid-19 infection

No.	Item	Yes	No	I don't know
1.	The cause of covid-19 is...			
	- Virus			
	- Immunodeficiency			
	- Inherited disease			
2.	Covid-19 is a communicable disease			
3.	Covid-19 is transmitted through...			
	- Droplets after coughing or sneezing			
	- Touching the infected person			
	- The use of objects of the infected person.			
4.	What are the symptoms and signs of covid-19?			
	- Fever, sore throat, cough			
	- It can lead to death immediately			
	- Difficulty in breathing			
5.	Covid-19 is a pandemic that has affected populations all across the world.			
6.	Covid-19 only affects the older population.			
7.	There is a vaccine for Covid-19.			
8.	Covid-19 can affect people more than once alive.			
9.	Most people who get COVID-19 recover from it.			
10.	Drinking alcohol protects you against COVID-19.			
11.	Thermal scanners can detect COVID-19.			
12.	COVID-19 virus can be transmitted in areas with hot and humid climates.			
13.	Taking a hot bath does not prevent COVID-19.			

14.	Can eating garlic help prevent infection with the new coronavirus?			
15.	Are antibiotics effective in preventing and treating the new coronavirus?			
16.	Do vaccines against pneumonia protect you against the new coronavirus?			
17.	Are hand dryers effective in killing the new coronavirus?			
18.	Malaysia is positioned as the 10th most infected country globally.			

19. Following the exposure to the cause of the disease, the symptoms started to appear after.....

Same day व

Next day व

After 5-6 days व

20. What is(are) the source(s) of your information about the disease?

TV व

Newspaper and magazines व

Radio व

Internet व

Public lectures व

Physician or health educator व

Section D : Behaviour & Attitude towards Covid-19

No.	Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.	We should avoid getting outside homes nowadays.					
2.	If I decided to travel, Covid-19 may prevent me.					
3.	The government should restrict the travel from and to the areas of the disease.					
4.	Government should cancel all mass gatherings for this year.					
5.	The government should isolate patients with Covid-19 in special hospitals.					
6.	The government should avoid importing workers from the areas of the disease.					

Section E: Practices to avoid the infection with Covid-19

In order to protect myself from the disease, I do the following:

- ☐ Wash my hands often.
- ☐ Avoid touching my eyes, nose or mouth.
- ☐ Cover my nose and mouth with a tissue when I cough or sneeze.
- ☐ I throw the tissue in the trash after I use it.
- ☐ If I have a flu symptoms, I avoid normal activities, including work, school, travel, shopping, etc..
- ☐ I use hand sanitizer.
- ☐ I avoid close contact with people who are infected.

Section F: Barriers that prevent me from wearing face masks

- ☐ I find it is difficult to get the face mask.
- ☐ I feel discomfort when wearing face mask.
- ☐ It is costly to buy the face mask.
- ☐ People in my environment does not wear face mask.
- ☐ I think wearing face mask is not effective to prevent covid-19 infection.
- ☐ I feel awkward and weird using face mask

**ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS
(JKEUPM)
UNIVERSITI PUTRA MALAYSIA**

Research title	: Factors Associated with Facemask Usage Among Students and Staff of Faculty of Medicine and Health Sciences, UPM.
Study Site	: Faculty of Medicine & Health Sciences, Universiti Putra Malaysia
JKEUPM Ref No.	: JKEUPM-2020-216
Researcher	: Aishwarya A/P Sivakumar, Dayana Aida Azhar, Ahmad Muaz Ibrahim
Supervisor	: Dr. Nurul Huda Mohd Nor

Documents received and reviewed with reference to the above study:

1. Ethics Application Form, Version 1 dated 24/6/2020
2. Respondent Information Sheet & Consent (English), Version 2 dated 25/8/2020
3. Proposal (English), Version 2 dated 28/8/2020
4. Questionnaires/ Interviews (English), Version 1 dated 24/6/2020
5. Curriculum Vitae of:
 - a. Dr. Nurul Huda Mohd Nor
 - b. Dr Nurul Hayati Mohamad

The University Research Ethics Committee, Universiti Putra Malaysia (JKEUPM) operates in accordance to the ICH-GCP Guidelines.

Decision by JKEUPM:

- ☒ Approved
- ☒ **Permission MUST BE OBTAINED from the respective hospitals/ institutions before conducting the research**
- ☐ Disapproved

Please note that the approval is **VALID UNTIL 1 SEPTEMBER 2021**

Researchers should comply with the following:

- I. Complete a Study Final Report upon study completion (Form 3.2).
- II. Ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

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