UNIVERSITI PUTRA MALAYSIA

KNOWLEDGE AND ATTITUDE OF HAND HYGIENE DURING COVID-19 AMONG COMMUNITY IN SEPANG, SELANGOR

INTAN SHAHIRA HANIS BINTI ATAN MOHAMAD

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Thesis Submitted to the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, In Fulfillment of the Requirements for the Degree of Bachelor of nursing

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KNOWLEDGE AND ATTITUDE OF HAND HYGIENE DURING COVID-19 AMONG COMMUNITY IN SEPANG, SELANGOR

Intan Shahira Hanis Atan Mohamad, Rosna Abdul Raman, Ruthpackiavathy Rajen Durai

ABSTRACT

Introduction: Hand hygiene is a general term referring to any action of hand cleansing such as antiseptic hand wash, hand rub or surgical hand antisepsis. Hand hygiene had received considerable attention during COVID-19 pandemic. It is simple, primary preventive measure that most people can do independently. **Objective:** To determine the level of knowledge and attitude of hand hygiene among the community in Sepang, Selangor during COVID-19. **Methods:** A cross-sectional study was carried out among 243 respondents from community in Sepang, Selangor. A self-administered online survey was used in this study. The questionnaire comprises three parts which are socio-demographic, knowledge of hand hygiene and attitude of hand hygiene. SPSS version 22.0 is used for data entry and analysis. Descriptive analysis, Pearson's correlation, independent t-test and One-way independent ANOVA were used to evaluate the resulting data. **Result:** The mean age of the respondents was 28.88±9.50 years old, 22.6% (55) were male, 77.4% (188) were female, 93% (226) were Malay, 2.1% (7) were Chinese and 2.1% (5) for both Indian and others ethnic. About 44.4% (108) of the respondent were having good knowledge while 38.7% (94) having moderate knowledge and 16.9% (41) having poor knowledge. Besides, 76.1% (185) had good attitude, 14.4% (35) had moderate attitude and 9.5% (23) had poor attitude. The result showed there was significant relationship between knowledge and attitude of hand hygiene ($p=0.005$). Meanwhile, the result showed there was no significant association between socio-demographic characteristics and the level of knowledge of hand hygiene ($p>0.05$). **Conclusion:** The result obtained in this study showed that majority respondents had good knowledge and attitude of hand hygiene during this pandemic. Although it seems that community in Sepang, Selangor are aware regarding the COVID-19 prevention, continuous health education campaign regarding hand hygiene should done among them.

Keywords: Hand hygiene, infection, COVID-19, community

PENGETAHUAN DAN SIKAP TERHADAP KEBERSIHAN TANGAN SEMASA COVID-19 DALAM KOMUNITI DI SEPANG

Intan Shahira Hanis Atan Mohamad, Rosna Abdul Raman, Ruthpackiavathy Rajen Durai

ABSTRAK

Pengenalan: Pembersihan tangan adalah secara umumnya merujuk kepada semua tindakan mencuci tangan seperti mencuci tangan menggunakan sabun, alkohol dan surgikal. Pembersihan tangan telah mendapat perhatian semasa pandemik COVID-19. Ia merupakan langkah pencegahan utama yang mudah dilakukan oleh kebanyakan orang secara sendiri. **Objektif:** Untuk mengetahui tahap pengetahuan dan sikap terhadap kebersihan tangan dalam komuniti di Sepang, Selangor semasa COVID-19. **Kaedah:** Kajian rentas telah dijalankan melibatkan 243 orang responden dari Sepang, Selangor di mana soal selidik elektronik yang diisi sendiri oleh responden telah digunakan. Soal selidik ini merangkumi tiga bahagian iaitu sosio-demografik, pengetahuan tentang kebersihan tangan dan sikap terhadap kebersihan tangan. SPSS versi 22.0 digunakan untuk menganalisis data. Analisis deskriptif menggunakan Pearson's correlation, independent T-Test dan One-way independent ANOVA telah digunakan untuk menilai data yang dihasilkan. **Hasil Kajian:** Umur min responden adalah 28.88±9.50 tahun, 22.6% (55) adalah lelaki, 77.4% (188) adalah perempuan, 93% (226) adalah Melayu, 2.1% (7) adalah Cina dan 2.1% (5) masing-masing India dan etnik lain. Sebanyak 44.4% (108) responden mempunyai pengetahuan yang baik 38.7% (94) mempunyai pengetahuan yang sederhana dan 16.9% (41) mempunyai pengetahuan yang rendah. Selain itu, 76.1% (185) mempunyai sikap yang baik, 14.4% (35) mempunyai sikap yang sederhana 9.5% (23)mempunyai sikap yang rendah. Keputusan menunjukkan terdapat hubungkait antara pengetahuan dan sikap terhadap kebersihan tahngan ($p=0.05$). Sementara itu, tiada hubungkait antara sosio-demografik dengan pengetahuan dan sikap terhadap kebersihan tangan ($p>0.05$). **Kesimpulan:** Keputusan yang diperoleh menunjukkan majority responden mempunyai pengetahuan dan sikap yang baik terhadap kebersihan tangan semasa pandemic ini. Walaupun kommuniti di Sepang, Selangor tahu mengenai pencegahan COVID-19, kempen pendidikan kesihatan mengenai kebersihan tangan yang berterusan perlu dilakukan.

Kata kunci: Kebersihan tangan, jangkitan, COVID-19, komuniti

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Thank you for the cooperation and kindness from all of you. I can only pray to the Almighty and may Allah give you all the best in return.

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LIST OF ABBREVIATION

COVID-19	Coronavirus disease 2019
WHO	World Health Organization
CDC	Centers for Disease Control and Prevention
CMCO	Conditional Movement Control Order
RMCO	Recovery Movement Control Order
CPRC	Crisis Preparedness and Response Centre
SOP	Standard Operating Procedure
HAI	Hospital Acquired Infection
n	Total Respondents
Ho	Null hypothesis
SPSS	Statistical Package for the Social Sciences

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Nowadays, all the country around the world has been hit by a pandemic known as Coronavirus disease (COVID-19) which caused a series of acute atypical respiratory disease. Besides attacking the respiratory system, it also involved other organs. According to World Health Organization (WHO) (2020), this virus is transmittable between human, mainly when an infected person stays closer to the other person. It can spread to the other person through respiratory droplets when the infected person coughs, sneezes, speaks or breaths. Affected person from the initial case series from Wuhan, China reported of having lower respiratory tract infection related symptoms such as fever, dry cough and dyspnea. In the same time, headache, dizziness, generalized weakness, vomiting, diarrhea was also observed (Yuki, Fujigo & Koutsogiannaki, 2020). Hence, a preventive measure should be taken to prevent this virus from spreading widely and reduce the general burden of the disease.

Hand hygiene practices have shown their strength in the past by diminishing transmission of SARS and Ebola as well as reducing the hospital-acquired infection (HAI). It also became more relevant during this on-going pandemic (Jindal & Pandhi, 2020). WHO and Control Disease Centre (CDC) (2020) recommended to all people around the world to practice proper hand hygiene in order to curb this COVID-19 virus transmission. Hand hygiene practice is the simplest, convenient and effective measure in the prevention of any nosocomial infection. Hand hygiene is a general term referring to any action of hand cleansing antiseptic hand wash, hand rub or surgical hand

antisepsis but most of the health care providers used alcohol hand rub as their hand cleansing rather than hand washing (Mahmood, Verma & Khan, 2015). Hand hygiene is also to prevent the microorganism which can be transferred in a variety of source such as in the air, vector and direct or indirect contact. Thus, this study is conducted to determine the level of knowledge and attitude of hand hygiene among the community in Sepang, Selangor, Malaysia during COVID-19.

1.2 Problem Statement

The novel coronavirus infection or known as COVID-19, has become the latest pandemic that has affected the whole world. After it was first described in December 2019 in China, Malaysia had their first confirmed case on 25 January 2020 and the first confirmed death on 17 March 2020. The daily new Covid-19 cases have been consistently above 100 between 15 March and 14 April, with new cases peaking on 26 March at 235. Up to 30 April, the daily new cases crossed the 200 mark only four times. Nonetheless, the active cases have been consistently lower than the total cases as infected individuals recovered from Covid-19 (Ministry of Health, 2020).

However, during Recovery Movement Control Order (RMCO), the positive cases gradually increased every day until the government needed to do Conditional Movement Control Order (CMCO) in certain states to control the transmission. On 29th December 2020, 1 915 positive cases were reported to Crisis Preparedness and Response Centre (CPRC). Selangor contributed the highest positive cases which was 311 cases followed by Sabah. The increase in daily cases and the number of deaths prove that certain society did not comply with the standard operating procedure (SOP).

Lack of awareness on hand hygiene, refuse to wear mask properly and did not practice social distancing is the main reason for the spike of new cases (Manikandan, 2020).

Mohamed and her colleagues (2019) had done a research among parents of preschool children and had found that most parents did not know the correct technique of hand washing that involves this following steps: rubbing both palms with fingers interlaced, rubbing right palm onto left dorsum with finger interlaced and vice versa, rubbing knuckles and fingers, rotational rubbing of thumbs, rubbing tips of right fingers on left palm and vice versa and rotational rubbing of wrist. Thus, following the WHO hand washing guidelines must be highlighted, so that a proper and effective hand washing can be done.

This study will be carried out in Sepang, Selangor. Apart of Selangor that the only state which contribute the highest number of positive cases daily among the other states in peninsular Malaysia, Sepang was chosen rather than other district as there was no study or campaign related to hand hygiene found in Sepang, Selangor. Meanwhile, this study will be conducted among community as there were limited studies done among them. Most of the studies only involved health care workers as well as nursing and medical students. Communities also have the right to know about the hand hygiene to prevent themselves from getting sick especially during this COVID-19 pandemic.

1.3 Research Question(s)

i. What is the socio-demographic characteristics among community in Sepang, Selangor?

ii. What is the level of knowledge and attitude of hand hygiene during COVID-19 among the community in Sepang, Selangor?

iii. What is the relationship between level of knowledge and attitude of hand hygiene during COVID-19 among the community in Sepang, Selangor?

iv. What is the association between socio-demographic characteristics and the level of knowledge of hand hygiene during COVID-19 among community in Sepang, Selangor.

v. What is the association between socio-demographic characteristics and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor.

1.4 Research Objectives and Hypotheses

1.4.1 General Objective

To determine the level of knowledge and attitude of hand hygiene during COVID-19 among the community in Sepang, Selangor.

1.4.2 Specific Objectives

i. To determine the socio-demographic characteristics among community in Sepang, Selangor.

ii. To determine the level of knowledge and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor.

iii. To determine the relationship between knowledge and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor.

iv. To determine the association between socio-demographic characteristics and the level of knowledge of hand hygiene during COVID-19 among community in Sepang, Selangor.

v. To determine the association between socio-demographic characteristics and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor.

1.4.3 Hypotheses

1.4.3.1 Null Hypotheses

Ho1: There is no significant relationship between knowledge and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor.

Ho2: There is no significant association between socio-demographic characteristics and level of knowledge of hand hygiene during COVID-19 among community in Sepang, Selangor.

Ho3: There is no significant association between socio-demographic characteristics and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor.

1.5 Conceptual Definition and Operative Definition

TERM	CONCEPTUAL DEFINITION	OPERATIONAL DEFINITION
Socio-demographic	Socio-demographic are the characteristics of a certain population.	This section will be defined by determining the socio demographic data of participants. In this study, socio-demographic characteristics consists of age, gender, ethnicity and educational level.
Knowledge	Understanding of or information about a subject that obtained by experience or study, either known by one person or by people generally (Cambridge Dictionary, 2018).	This section will be defined by determining the level of knowledge of hand hygiene. It consists of 5 questions that ask the need of hand washing, knowledge about hand rubbing and subject's main source of information about COVID-19 prevention.
Attitude	A feeling or opinion about something or someone, or a way of behaving that is caused by an event or experience (Cambridge Dictionary, 2018).	This section will be defined by determining the attitude of hand hygiene. It consists of 8 likert scale questions that represent the perception, practice and the feeling when

		participant not apply hand hygiene.
Hand hygiene	General term referring to any action of hand cleansing such as antiseptic hand wash, hand rub or surgical hand antisepsis (Mahmood, Verma,& Khan, 2015).	

Table 1.5.1: Conceptual and operative definition

1.6 Conceptual Framework

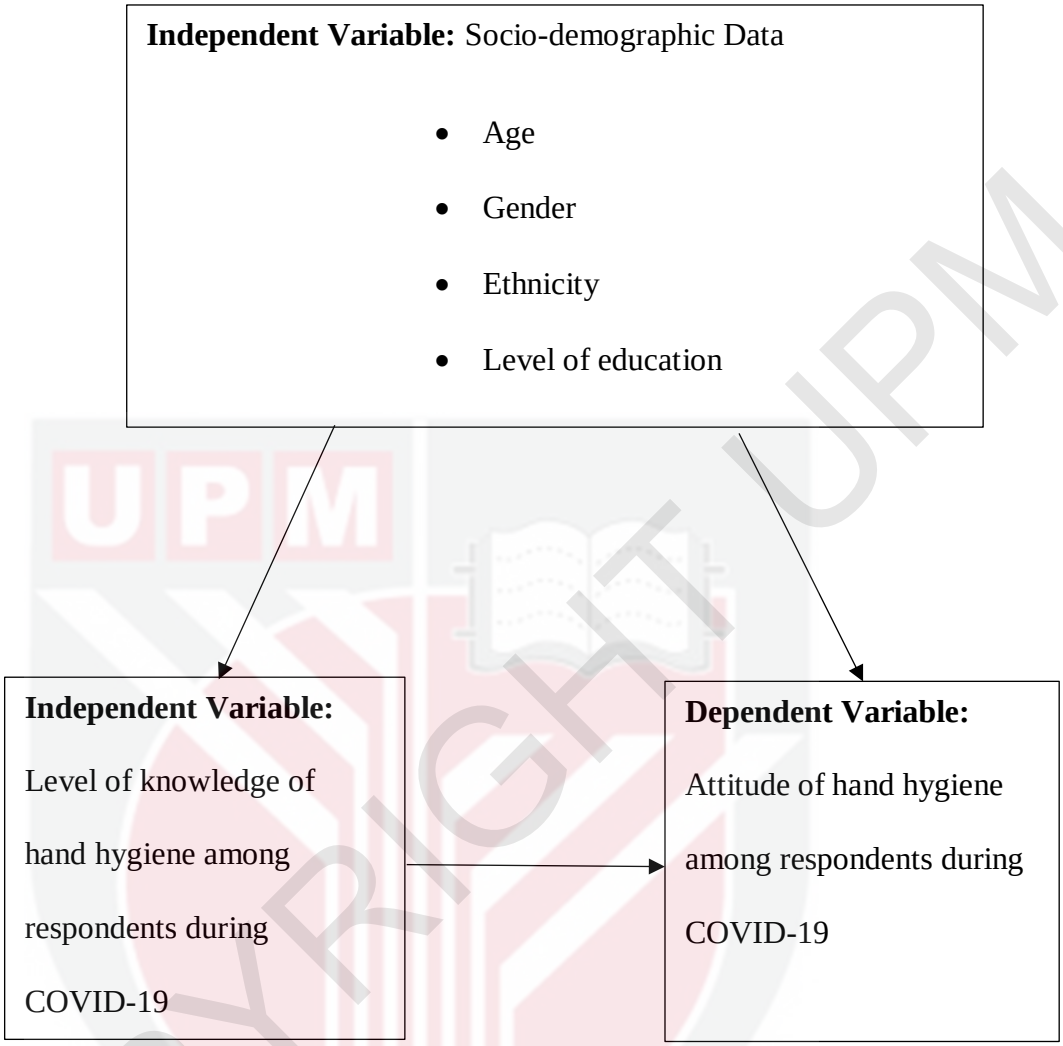

Figure 1.6.1 Conceptual framework of knowledge and attitude of hand hygiene during COVID-19 among community in Sepang.

Figure above shows the conceptual framework of knowledge and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor. The independent variable for this study is socio-demographic and level of knowledge of hand hygiene, whereas attitude of hand hygiene is dependent variable. For socio-demographic data, it will include age, gender, ethnicity and level of education. The relationship between the level of knowledge and attitude of hand hygiene and the association between socio-

demographic characteristics and the level of knowledge and attitude of hand hygiene will be find out in this study.

CHAPTER 2

LITERATURE REVIEW

2.1 Hand hygiene in preventing infection

Hand hygiene is an effort or act of cleaning hands, either by using an antiseptic soap under running water or using an alcohol-based hand rub (WHO, 2009). According to CDC (2016), alcohol-based hand sanitizer should contain at least 60% alcohol to the clean hands from the germs and greatest quality of alcohol-based hand antiseptics include either ethanol isopropanol or n-propanol, or the mix of two of these chemicals.

Alcohol-based hand rub is cleaning the hands by rubbing them with an alcohol-based formulation. It is suitable for routine hygienic hand antisepsis and if hands are not visibly soiled. It is faster, more effective, and better practice compared to washing with soap and water. Soap and water are needed when hands are visibly dirty or clearly soiled with blood or other body fluids or after using the toilet. In addition, washing with soap and water are needed when being exposed to potential spore-forming pathogens is strongly suspected or proven.

Based on WHO guidelines, the standard duration for alcohol hand rubs is around 20-30 seconds only while the entire procedure for hand washing around 40-60 seconds. In 2009, the World Health Organization initiates a campaign “SAVE LIVES: Clean Your Hands”. This campaign was intended to increase adherence of hand hygiene among people around the world and at the same time to protect health care workers and patients from Covid-19 and other pathogens. In this campaign also, the Five Moments of Hand Hygiene were introduced to prevent infection from the

healthcare workers' hands to the patients (WHO, 2009). The five moments hand hygiene was applied before touching a patient, before performing any procedure, after a procedure or body substance exposure risk, after touching patients and their surroundings.

2.2 Hand hygiene in community

Hand hygiene is one of the most effective measures that can be practised to reduce the spread of pathogens and prevent infections. Community members play a crucial role in fighting the spread of Covid-19 by adopting frequent hand hygiene as part of their day-to-day practices. According to Henderson, Müller-Pebody, Johnson, Wade, Sharland, and Gilbert (2013), they stated that infections are categorized into two types which is hospital-acquired and community acquired since 1970. It is categorized as community-acquired infection if the patient does not have history of admission to the hospital and those detected sample will be taken within 48 hours of hospitalisation. Meanwhile, patients who are categorized as having hospital-acquired infections are the ones who are found to have infection in their samples which was taken more than 48 hours after admission or discharge.

According to Ali and Dalugoda (2020), they said that besides health care workers, public also are more exposed to the significance of hand hygiene and they start to be familiarised with hand sanitizer when Covid-19 strikes the community. Normally, people will wash their hands if they want to eat, after going to the toilet or if their hands touched something dirty but now, they become more alert to cleaning their hands frequently and keeping themselves safe.

2.3 Gender

The relationship between gender and hand hygiene practice seem to have connections through several different studies. Lawson and Vaganay-Miller (2019) in their study found that females responded more positively to the poster intervention than males regarding overall hand hygiene practice and compliance. The result of pre and post-intervention observation periods revealed that more females practiced basic hand hygiene in the post-intervention observation period (62.81%) than during the pre-intervention period (49.23%). Besides that, Azlan et. Al (2020) also stated that female respondents were more likely practising good hand hygiene compared to males.

2.4 Age

Azlan et al. (2020) claimed that there was significant association between proper hand hygiene and age. People who are age between 18 years old to 29 years old and students were more likely to practise good hand hygiene. Meanwhile, people who are aged 50 years old and above seem not to practice good hand hygiene in the week prior to Movement Control Order (MCO).

A study done among Makerere University students and Katanga community residents by Nuwagaba et al. (2020) stated that, younger respondents aged 18 to 35 years old had good knowledge on hand hygiene (8.4%) whereas participants who are above 35 years old had poor knowledge on hand hygiene.

2.5 Ethnicity

Thanh Xuan and Huat (2013) in their study found that ethnicity also contribute to a bad impact on self-reported hand hygiene with soap (HWWS). In this study four different ethnic groups were selected including Kinh, Tay, Xa Pho and Day. They found that ethic group from Xa Pho shows that they have poor attitude to HWWS as parents from this ethnic have to work far away from their house for a long hours thus, they did not have opportunities to teach their children about hand hygiene. Instead of ethnicity, economical status also affect the attitude of hand hygiene.

According to Anderson et al. (2008) African-American students exhibited the highest hand washing frequency (93.8%), whereas the students in the ‘‘other’’ category had the lowest hand washing frequency (57.1%). Meanwhile, African-American students also got the higher percent (88.8%) in drying their hands after being washed, followed by Hispanic (67.5%), Asian (63.0%), White (62.6%) and others (52.4%).

2.6 Level of education

Mohamed et al. (2016) in their study found the knowledge, attitude and practice of hand hygiene according to parents' level of education, number of children and type of employment were not significantly different. However, educated parents were associated with better children education. This is evidenced by a report by Nematian et al. where they found that parents with higher educational level were related to decreased infection rate in their children.

CHAPTER 3

METHODOLOGY

3.1 Research Design

A cross-sectional study was conducted to determine the knowledge and attitude of hand hygiene among community in Sepang during this COVID-19 pandemic. It is cheap, quick and easy to conduct. The endpoint of this study were known after all participants answered and submitted the questionnaire to the researcher. Meanwhile, this study is suitable to use to assess the knowledge and attitude of participants at a given point of time. Thus, a cross-sectional study were used in this study to determine the knowledge and attitude of hand hygiene during COVID-19 among community in Sepang.

3.2 Study Location and Duration

This study was conducted at the residential area in Sepang, Selangor where the questionnaire were distributed via online platform which is google form. This data collection were done within five months (April 2021 until August 2021) and the whole process of this study took approximately one year to complete.

3.3 Study Population

The target population for this study is among the community in Sepang, Selangor. This study involved 396 participants who are willing to participate and meet the inclusion criteria of this study. The non-probability convenience sampling method were used in this study.

3.4 Subject Criteria

The table below shows the inclusion and exclusion of participants in this study.

Inclusion Criteria	Exclusion Criteria
i. Malaysian citizen ii. Age 18 years and above	i. Respondent who unable to understand and converse in English and/or Malay languages ii. Respondent who are not willing to participate in this study iii. The period of residence is less than three months

Table 3.4.1: Inclusion and exclusion criteria

3.5 Sample Size Estimation

The sample size was calculated by using single sample proportions which the proportions needed will be obtained from previous study. The formula for determining the sample sizes required is derived from https://goodcalculators.com/sample-size-calculator/

After calculation done by using sample size calculator, the estimated number of participants needed in this study is 396 respondents.

Formula sample size:

$$n = \frac{z^2 p(100 - p)}{d^2}$$

Where:

n = Sample size

z = standard normal deviate (considered 1.96 for 95% confidence interval)

d = margin of error (0.05)

p = estimated prevalence

According to Eshetu, Kifle and Hirigo (2020), the proportion of primary school children which have good score in knowledge and attitude regarding hand hygiene is 62.7% and 63.1% respectively. Sample size is calculated as below:

$$n = \frac{z^2 p(100 - p)}{d^2}$$

Good Knowledge (62.7%)	Good Attitude (61.3%)
$n = \frac{(1.96^2)(62.7)(100 - 62.7)}{5^2}$ n = 359.37 n = 360	$n = \frac{(1.96^2)(63.1)(100 - 63.1)}{5^2}$ n = 357.79 n = 358

Table 3.5.1: Total number of respondent who got good knowledge and attitude

The highest number is selected. Adjusted with 10% non-response rate=10% of 360=. Hence, the total sample size needed is 36 which rounded off as 396.

3.6 Sampling Method and Subject Recruitment

The participants were chosen by using the multi-staging method at the first stage, where the researcher will list all the district in Selangor, which are nine district altogether. After listing all nine district, the researcher will proceed with random sample where it will be picked through generated random picker and random draw from the district list will be come out. Only one district will be choose in this study based in the study criteria.

Then, the researcher proceed with the second stage. Non-probability convenience sampling method will be used recruit the subject. This is because the sample size available at the time or period of the research and it is selected for the sake of convenience. The sample selection process is continued until the required sample size is obtained. Therefore, this method is easy to do in this research because it requires less cost and less time. Besides that, the participants are selected based on their availability and willingness. It is called convenient sampling as the researcher selects the sample elements according to their convenient accessibility and proximity (Elfil and Negida, 2017).

3.7 Research Tools/Instruments

3.7.1 Questionnaire

Self-administered questionnaire were used in this study. The questionnaire was adopted from corresponding author of article titled: "The Era of Coronavirus; Knowledge, Attitude, Practices, and Barriers to Hand Hygiene among Makerere University Students and Katanga Community Residents", Julius Nuwagaba

2020 will be used. Written permission was obtained fron the corresponding author before conducting this study and it is attached in Appendix 5.

This questionnaire consists of three sections which are Section A, Section B and Section C. Section A is about the socio-demographic characteristics such as age, gender, ethnicity and level of education. In Section B, the questionnaire will access the knowledge of hand hygiene. Meanwhile, Section C will access the attitude of hand hygiene among respondents.

3.7.2 Scoring System

Section B: Knowledge of Hand Hygiene

There are 11 items in this section but only nine items will be taken to assess the knowledge of hand hygiene among respondents. A correct answer was given 1 score, whereas a 0 score was given for a wrong answer. According to previous study by Nuwagaba et al. (2020), participants who got 8 to 9, 6 to 7, and below 6 correct answers were taken to have good, moderate, and poor knowledge respectively.

Section C: Attitude of Hand Hygiene

In this section, it consists of 8 questions related to attitude of hand hygiene. To measure attitude of hand hygiene, a 5-point Likert scale with 1, 2, 3 ,4 and 5 indicating strongly disagree, disagree, not sure, agree, and strongly agree, respectively will be used. According to Arthi et al. (2016), 1 point will be given

for positive attitude and 0 for negative attitudes. A score of more than 75% was considered good, 50-74% moderate and less than 50% poor.

3.8 Pre-test

A pilot study was done among the Sepang community to test the reliability of the questions and it involved 10% from actual sample size. Before conducting the study, the questionnaire was translated into Malay version and the questionnaire was checked and reviewed by supervisor and a teacher of Bahasa Melayu to determine the face validity. Besides, Cronbach's alpha was carried out to measure the reliability of the questionnaire which was used in this study.

3.9 Validity and Reliability

From the pre-test, the result was analysed using Statistical Package for Social Science (SPSS) version 22.0 to get the value of Cronbach alpha (α). If the value for α coefficient between 0.70 and 0.91, the instrument will be accepted. Therefore, the Cronbach's alpha obtained from the pre-test is 0.7 for knowledge of hand hygiene and 0.91 for attitude of hand hygiene. Thus, this questionnaire were used to access the knowledge and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor.

3.10 Data Collection

The data collection for this study were collected through online platforms and social media to easily reach out by the respondents who stay in Sepang, Selangor. Questionnaire is made into online format using Google form. The link of the google

form was blast through Facebook. Researcher joined the “Sepang Residential group” on Facebook and blast message about the study. In the same time, researcher contacted the member of the groups privately through messenger to ensure that they aware and participate in the study. Each member was contacted three times to make sure they answered the survey. Besides that, researcher asked for help from her friend who stay in Sepang to blast the link regarding the study to her friends and family via whatsapp group.

Researcher explained to participant on the purposes of the study and ensure the privacy and confidentiality of participant is become the priority. The informed consent was in the first page of the questionnaire. The participant must read and understand all the details then fill in the consent form before proceed to the questions. Then, participants can answer the questions within allocated time. Meanwhile, the participant have the right to withdraw from this research at any time without giving any reason. All information were kept and used only for research purposes.

3.11 Study Flowchart

This flow chart shows the flow of process in data collection.

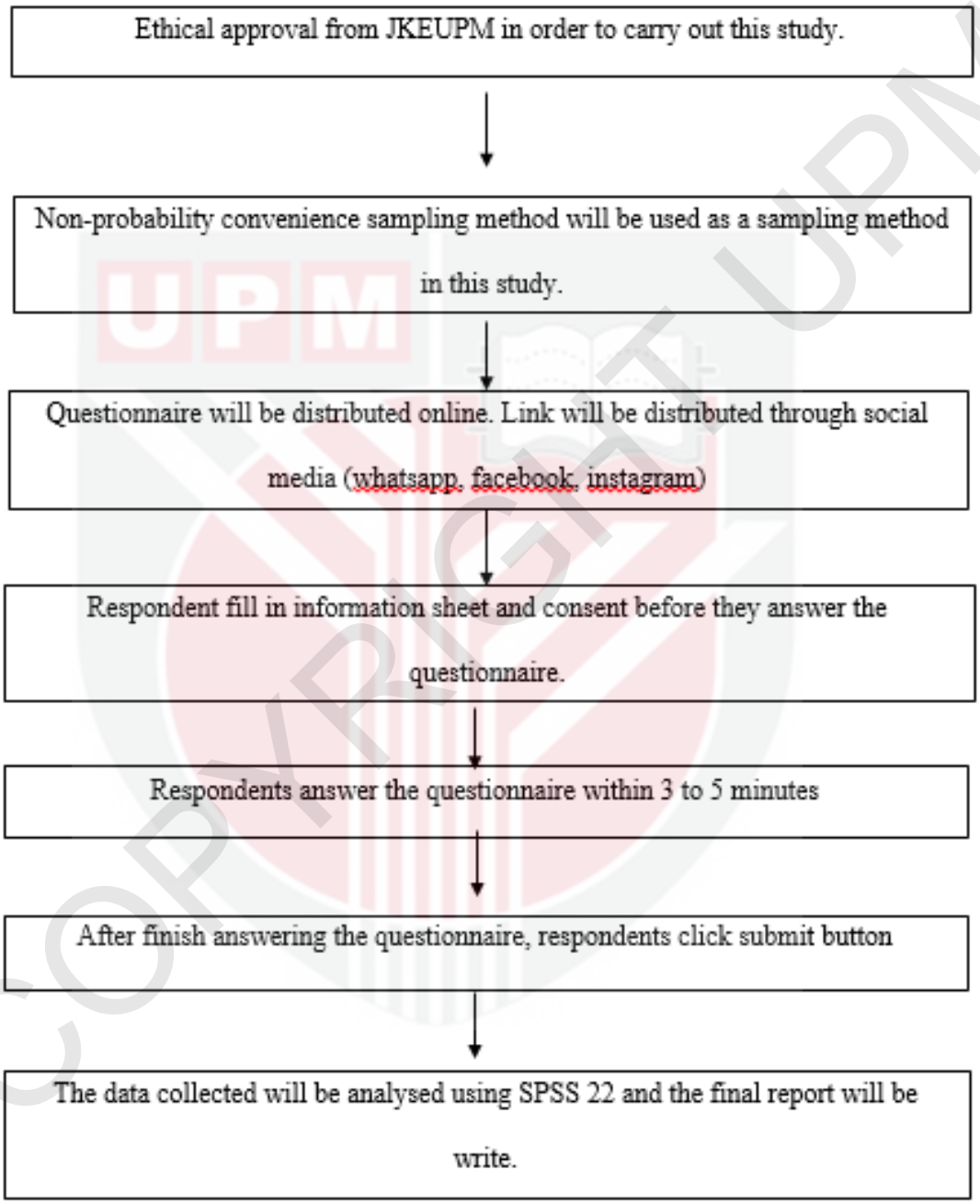

Figure 3.11.1: Study flowchart of this study

3.12 Data Analysis

The data collected were analysed by using Statistical Packages for Social Sciences (SPSS) version 22.0. The appropriate statistical procedure were used depending on the study objectives. Descriptive analysis and inferential analysis were used to analyse conclusion of the study.

3.12.1 Descriptive Statistic

Variables	**Types of Variables**	**Statistical Measurements**
Age	Continuous	Mean and Standard Deviation
Gender	Categorical	Frequency and Percentage
Ethnicity	Categorical	Frequency and Percentage
Level of education	Categorical	Frequency and Percentage
Level of knowledge of hand hygiene	Categorical	Frequency and Percentage
Attitude of hand hygiene	Categorical	Frequency and Percentage

Table 3.12.1.1: Descriptive analysis for this study

3.12.2 Inferential Statistic

Objectives	Dependent Variables	Independent Variables	Analysis
To determine the relationship between level of knowledge and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor.	Attitude of hand hygiene (Continuous)	Knowledge of hand hygiene (Continuous)	Pearson correlation
To determine the association between socio-demographic characteristics and the level of knowledge of hand hygiene during COVID-19 among community in Sepang, Selangor.	Knowledge and attitude of hand hygiene (Continuous)	Age (Continuous)	Pearson correlation
		Gender (Categorical)	Independent t-test
		Ethnicity (Categorical)	One Way Independent ANOVA
		Level of education (Categorical)	One Way Independent ANOVA

To determine the association between socio-demographic characteristics and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor.	Knowledge and attitude of hand hygiene (Continuous)	Age (Continuous)	Pearson correlation
		Gender (Categorical)	Independent t-test
		Ethnicity (Categorical)	One Way Independent ANOVA
		Level of education (Categorical)	One Way Independent ANOVA

Table 3.12.2.1: Inferential analysis for this study

CHAPTER 4

RESULT

4.0 Introduction

This chapter will explain the finding of the data analysis in detail. The results obtained were presented in the table and will be explained in text form. Two types of data analysis had been analysed which were descriptive and inferential analysis. The descriptive analysis presented in frequency and percentage for categorical data while the mean and standard deviation for continuous data of the respondents' socio-demographic characteristics, level of knowledge of hand hygiene and attitude of hand hygiene. Then, the inferential analysis showed that both knowledge and attitude were normally distributed; Skewness -1.489 and -1.430 and Kurtosis 2. 008 and 2.010 respectively. Hair et al. (2010) and Bryne (2010) argued that data is considered to be normal if skewness is between -2 to +2 and kurtosis is between -7 to +7. Thus, this value was acceptable as it is in the normal range. Pearson Correlation was done to determine the relationship between level of knowledge and attitude of hand hygiene among community in Sepang, Selangor. Lastly, Pearson correlation, independent t-test and one way independent ANOVA were done determine the association between socio-demographic characteristics and the level of knowledge and attitude of hand hygiene among community in Sepang, Selangor.

4.1 Response Rate

A total of 396 participants of community in Sepang, Selangor were the targeted sample size of this study. Only 243 participants had involved due to many limitations such as Conditional Movement Control Order (CMCO) and online questionnaire, which make the response rate is 61.36%.

4.2 Socio-Demographic Characteristics of Participants

Table 4.2.1 represents the distributions of participants' socio-demographic characteristics based on their age, gender, ethnicity and level of education. The mean age of the respondents were 28.88 ± 9.50 years old. Majority of the respondents were female (77.4%, n=188) while male were (22.6%, n=55). Most of the respondents were Malay (93%, n=226) followed by Chinese (2.9%, n=7), Indian (2.1%, n=5) and others (2.1%, n=5). Majority of the respondents had bachelor (45.7%, n=111), followed by diploma (20.0%, n=49), secondary school (19.8%, n=48), certificate (10.7%, n=26) and master (2.1%, n=5). Meanwhile, respondents who have doctor of philosophy (PhD) and did not get any formal education give the lowest percent which is (0.8%, n=2).

Table 4.2.1: Socio-demographic characteristics of the community in Sepang, Selangor (n=243)

Socio-demographic Characteristics	Frequency (n)	Percentage (%)	Mean ± Standard Deviation
Age			28.88 ± 9.50
Gender			
Male	55	22.6	
Female	188	77.4	
Ethnicity			
Malay	226	93.0	
Chinese	7	2.9	
Indian	5	2.1	
Others	5	2.1	
Level of education			
No formal education	2	0.8	
Primary school	0	0	
Secondary school	48	19.8	
Certificate (STPM/Matriculation/ Foundation/Others)	26	10.7	
Diploma	49	20.2	
Bachelor	111	45.7	
Master	5	2.1	
Doctor of Philosophy (PhD)	2	0.8	

4.3 Knowledge of Hand Hygiene during COVID-19 among Community in Sepang, Selangor

Table 4.3.1: Distribution of answer to questions in Knowledge of Hand Hygiene during COVID-19 among Community in Sepang, Selangor. (n=243)

	Knowledge of Hand Wash	
Questions	**Correct**	**Incorrect**
	n (%)	**n (%)**
When should hand washing be done		
After coughing or sneezing or after blowing the nose	233 (95.9)	10 (4.1)
Before, during and after you prepare food	223 (91.8)	20 (8.2)
When caring for the sick	201 (82.7)	42 (17.3)
After handling animals or animal wastes	214 (88.1)	29 (11.9)
After touching surfaces like money	161 (66.3)	82 (33.7)
After visiting markets, using public transport	207 (85.2)	36 (14.8)
After visiting the toilet	225 (92.6)	18 (7.4)
	Knowledge of Hand Rub	
	Yes	**No**
	n (%)	**n (%)**
Do you know about the alcohol-based hand rub	227 (93.4)	16 (6.6)
	Correct	**Incorrect**
	n (%)	**n (%)**
Hand rubbing is more effective against germs than hand washing	141 (58.0)	102 (42.0)
What is the minimum time needed for alcohol based hand rub to kill most germs on your hands	92 (37.9)	151 (62.2)

Main Source of Information about COVID-19 Prevention		
	Yes	**No**
	n (%)	**n (%)**
Newspapers	57 (23.5)	186 (76.5)
Television	169 (69.5)	74 (30.5)
Social media	233 (95.9)	10 (4.1)
Radio	74 (30.5)	169 (69.5)
Friends and family	121 (49.8)	122 (50.2)
Others	43 (17.7)	200 (82.3)

Table 4.3.2: Category of knowledge on hand hygiene during COVID-19 among community in Sepang, Selangor (n=243)

Variable	**Category, n (%)**			**Mean ± SD**
	Poor (0-5)	**Moderate (6-7)**	**Good (8-9)**	
Knowledge of hand hygiene during COVID-19	41 (16.9)	94 (38.7)	108 (44.4)	6.83±1.90

The total score of knowledge of hand hygiene for each respondents were classified into three groups, which were poor, moderate and good knowledge (Table 4.4). based on the result, majority of the respondents had good knowledge (44.4%, n=188) of hand hygiene, while (38.7%, n=94) had moderate knowledge and only (16.9%, n=41) had poor knowledge of hand hygiene.

For question when hand wash should be done, the highest number of respondents respond to after coughing or sneezing or after blowing the nose (95.9, n=233) followed by after visiting the toilet (92.6%, n=225) and before, during and after you prepare food (91.8%, n=223). Most of respondents answered hand should be wash after handling animals or animal wastes (88.1%, n=214) followed by after visiting markets and using public transport (85.2%, n=207) and when caring for the sick (82.7%, n=201). The statement of hand should be wash after touching surfaces like money give the least number of responds (66.3%, n=161).

In this study almost all of the respondents know about alcohol based hand rub (93.4%, n=227). Meanwhile, more than half of the respondents answered hand rubbing is more effective against germs than hand washing correctly (58%, n=141) . Majority of the respondents (62.2%, n=151) in this study does not aware regarding the minimum time needed for alcohol based hand rub to kill most germs on your hands.

Most of the respondents use social media platform as their main source of information about COVID-19 prevention (95.9%, n=233) followed by television (69.5%, n=169) and family and friends (49.8%, n=121). Meanwhile, only (30.5%, n=74) respondents get the information from radio and (23.5%, n=57) of respondents get information from newspaper.

4.4 Attitude of Hand Hygiene during COVID-19 among Community in Sepang, Selangor

Table 4.4.1: Distribution of answer to questions in attitude of hand hygiene during COVID-19 among community in Sepang, Selangor. (n=243)

Questions	n (%)				
	1 Strongly Disagree	2 Disagree	3 Not Sure	4 Agree	5 Strongly Agree
I adhere to correct hand hygiene	9 (3.7)	1 (0.4)	16 (6.6)	107 (44.0)	110 (45.3)
I practices hand hygiene at all times	9 (3.7)	4 (1.6)	11 (4.5)	100 (41.2)	119 (49.0)
I have sufficient knowledge about hand hygiene	7 (2.9)	4 (1.6)	29 (11.9)	119 (49.0)	84 (34.6)
Sometime I have more important things to do than hand hygiene*	47 (19.3)	80 (32.9)	36 (14.8)	54 (22.2)	26 (10.7)
I feel frustrated when others omit hand hygiene	14 (5.8)	16 (6.6)	31 (12.8)	112 (46.1)	70 (28.8)
I am reluctant to ask others to engage in hand hygiene*	49 (20.2)	72 (29.6)	52 (21.4)	52 (21.4)	18 (7.4)
I feel guilty if I omit hand hygiene*	16 (6.6)	9 (3.7)	25 (10.3)	102 (42.0)	91 (37.4)
Adhering to hand hygiene practices in the current setup	11 (4.5)	5 (2.1)	18 (7.4)	103 (42.4)	106 (43.6)

*Negative statement

Table 4.4.2: Category of attitude on hand hygiene during COVID-19 among community in Sepang, Selangor (n=243)

Variable	Category, N(%)			Mean ± SD
	Poor (0-49)	Moderate (50-74)	Good (75-100)	75.93±22.22
Attitude of hand hygiene during COVID-19	23 (9.5)	35 (14.4)	185 (76.1)	

The attitude of hand hygiene score for each respondent was transformed into a percentage score. The total score of attitude of hand hygiene for each respondents were classified into three groups, which were poor, moderate and good attitude (Table 4.6). Majority of the respondents had good attitude (76.1%) of hand hygiene.

The mean score for Attitude of Hand Hygiene among Community in Sepang,, Selangor is 2.67 ± 0.64. Based on analysis done, 110 (45.3%) of the respondents strongly agree that they adhere to correct hand hygiene and practices hand hygiene at all times" (49.0%, n=119). Majority of the respondents agree that they have sufficient knowledge about hand hygiene (49.0, n=119). Most of the respondents disagree that they have more important things to do than hand hygiene (32.9%, n=80). Other than that, most of the respondents agree they feel frustrated when others omit hand hygiene (46.1%, n=112). About 18 (7.4%) of the respondents are not reluctant to ask others to engage in hand hygiene. In the same time, most of the respondents agree that they feel guilty if I omit hand hygiene (42.0%, n=102). Lastly, most respondents agree that they adhere to hand hygiene practices in the current setup (43.6%, n=106).

4.5 Relationship between Level of Knowledge and Attitude of Hand Hygiene during COVID-19 among Community in Sepang, Selangor

Table 4.5.1: Correlation between level of knowledge and attitude of hand hygiene during COVID-19 among community in Sepang, Selangor, (n=243).

Variable	Attitude			
	Pearson correlation		Linear regression	
	r-value	p-value	ß	p-value
Knowledge	0.18	0.005	2.10	0.005

A Pearson correlation (r) was used to assess the correlation between level of knowledge and attitude of hand hygiene and it shows that both of them were positively correlated as p-value<0.05, (r=0.18, p=0.005). The predictor variable was found to be statistically significant (p=0.005). The slope coefficient for knowledge was (ß=2.10), so the attitude of hand hygiene increased by 2.10 times. Therefore, the null hypotheses is rejected.

4.6 Association between Socio-demographic Characteristics and the Level of Knowledge and Attitude of Hand Hygiene during COVID-19 Among Community in Sepang, Selangor

Table 4.6.2: Distribution of association between socio-demographic characteristics and the level of knowledge of hand hygiene during COVID-19 among community in Sepang, Selangor, (n=243)

Socio-demographic characteristics	Mean±SD	Mean (95% Confidence Interval for Mean)	p-value
Age	28.88±9.50		0.78[a]
Gender			0.28[b]
Male	6.58±1.92		
Female	6.89±1.89		
Ethnicity			0.296[c]
Malay		6.83(6.58-7.08)	
Chinese		7.43(6.70-8.16)	
Indian		5.40(2.98-7.82)	

Others	7.20(5.58-8.82)	
Education Level		0.82[c]
No formal education	5.50(-13.56-24.56)	
Secondary school	6.71(6.17-7.25)	
Certificate (STPM/Matriculation/Foundation/Others)	7.08(6.42-7.73)	
Diploma	6.67(6.05-7.30)	
Bachelor	6.88(6.53-7.24)	
Master	7.60(5.72-9.48)	
Doctor of Philosophy (PhD)	6.50(0.15-12.85)	

* $p \leq 0.05$ considered as statistically significant

a. Pearson correlation
b. Independent t-test
c. One Way Independent ANOVA

Since it is normally distributed, a parametric test had been conducted to rule out the association between socio-demographic characteristics of respondents and knowledge of hand hygiene. Pearson correlation result had shown that there is no significant relationship between age and knowledge. The relationship between gender and knowledge also shown that there is no significant relationship between them by using independent t-test. Besides that, one way independent ANOVA result also shown that there is no significant relationship between ethnicity and knowledge and also level of education and knowledge.

Table 4.6.3: Distribution of association between socio-demographic characteristics and the attitude of hand hygiene during COVID-19 among community in Sepang, Selangor, (n=243)

Socio-demographic characteristics	Mean±SD	Mean (95% Confidence Interval for Mean)	p-value
Age	28.88±9.50		0.35[a]
Gender			0.17[b]
Male	72.27±23.65		
Female	76.99±21.73		
Ethnicity			0.116[c]
Malay		76.83(73.94-79.71)	
Chinese		66.07(39.61-92.53)	
Indian		57.50(31.53-83.47)	
Others		67.50(46.68-88.32)	
Education Level			0.06[c]
No formal education		43.75(-512.15-599.65)	
Secondary school		72.66(64.43-80.88)	
Certificate (STPM/Matriculation/Foundation/Others)		77.40(69.85-84.96)	
Diploma		77.30(71.78-82.82)	
Bachelor		78.04(74.48-81.60)	
Master		65.00(24.83-105.18)	
Doctor of Philosophy (PhD)		43.75(-353.32-440.82)	

*** p≤0.05 considered as statistically significant**

a. Pearson correlation

b. Independent t-test

c. One Way Independent ANOVA

Since it is normally distributed, a parametric test had been conducted to rule out the association between socio-demographic characteristics of respondents and attitude of hand hygiene. Pearson correlation is used to determine the relationship between both variables. The result had shown that there is no significant relationship between age and attitude of hand hygiene (p=0.35). Besides that, independent t-test also had been done and the result shown that there is no significant relationship between gender and attitude (p=0.17). Meanwhile, one way independent ANOVA result had shown that there is no significant relationship between ethnicity and attitude (p=0.116) and also level of education and attitude (p=0.06).

CHAPTER 5

DISCUSSION

5.1 Introduction

This chapter was presented to discuss the result of the study. The relationship between level of knowledge and attitude of hand hygiene among community in Sepang, Selangor and its relationship between socio-demographic characteristics were discussed further in this chapter.

5.2 Socio-demographic Characteristics

A total of 243 respondents had involved in this study which contribute to 61.36% of response rate. The age range of the respondents were 18 to 65 years old. Majority of the respondents participating in this study were female (77.4%, n=188), Malay (93%, n=226) and had bachelor (45.7%, n=111). All of them were selected based on inclusive criteria which are Malaysian citizen and aged 18 years old and above. However, the result from another study done by Sultana, Mahumud, Sarker and Hossain (2016) shown a different in which, more than half of respondents were male (65.8%) and only (31.5%) were female. Similar findings from study done by Nuwagaba et al. (2020), it showed that 67.69% were male and 32.31% were female.

5.3 Level of Knowledge and Attitude of Hand Hygiene during COVID-19 among Community in Sepang, Selangor

The overall knowledge towards hand hygiene among community is Sepang, Selangor was good which give a positive findings in this study. Majority of the respondents know when they should perform hand hygiene and responds well to the situation given in the

questionnaire (6.83±1.90). This good finding among the current study population could be explained by the different resources of information about the disease and prevention method from media news, social media, official government websites as well as family and friends. Another explanation could be related the characteristics of the sample with the majority holding a bachelor degree or higher.

However, in this study, most of the respondents did not aware the minimal time needed for alcohol based hand rub to kill most germs on their hands (62.2%, n=151). This findings were similar to a study carried out by Maheshwari et al. (2014) at Bhopal City where they found that only some of the residents and nurses (35% and 25% respectively) were aware about the minimum time needed for effective hand hygiene. According to Centers for Disease Control and Prevention (CDC) (2021), they stated that minimal time to rub the gel over all the surfaces of your hands and fingers until your hands are dry should take around 20 seconds.

The overall attitude towards hand hygiene in this study was good. The result was similar with Nawab et al. (2015) in India found that mostly of their respondent 104 out of 130 (80%) achieved positive attitude toward hand hygiene, in which was stated that if students have better understanding on hand hygiene, they will have more comprehension towards positive attitude and the fully understood the importance of hand hygiene in preventing infection disease. Same goes with Arthi et al. (2016), resulted that, nearly 83 out of 140 (59%) of nursing respondent score better attitude.

5.4 Relationship between Knowledge and Attitude of Hand Hygiene during COVID-19 among Community in Sepang, Selangor

The result obtained in this study shows that there is significant relationship between knowledge and attitude of hand hygiene among community in Sepang, Selangor as the p-value is less than 0.05. Similar results from a study done by Mohamed et al. (2016) where they found that there were significant correlation between knowledge and attitude, as well as attitude and practice. Thus, this result indicated that attitude can be influenced by knowledge, and good attitude may result in good practices. However, Maheshwari et al. in 2014 which were done among residents and nursing staff in a tertiary health care setting in Bhopal City, they found that the knowledge of hand hygiene and attitude regarding correct hand hygiene practices was good in nurses as against residents which was not statistically significant. This finding was similar with a study done by Arthi et al. (2016) where they found that the knowledge does not affect the attitude towards hand hygiene. The result shown that their respondents had moderate knowledge where medical and nursing students gives 64% and 63.1% respectively.

5.5 Association between Socio-demographic Characteristics and the Level of Knowledge of Hand Hygiene among Community in Sepang, Selangor

In this study, it was found that there was no association relationship between the entire socio-demographic characteristics which are age (p=0.78), gender (p=0.28), ethnicity (p=0.296) and level of education (p=0.82). A different result obtained from a previous study done by Dwipayanti, Lubis and Harjana (2021) where they found that there was a significant association between gender and level of knowledge of hand hygiene. Female respondents reported more hand washing frequencies before eating, when

arriving home, after using the toilet, before preparing food, after working, after coming in contact with a sick person and after coughing or sneezing compared to male respondents during the COVID-19 pandemic. Meanwhile, there was also a difference in hand washing practices based on the education level of respondents. Respondents with a higher education level practiced hand washing more frequently than those with a lower education level ($p<0.05$). Similar findings found in Natnael et al. (2021) in their study where they found that educational level was found to have a direct association with good hand hygiene practices. In their study, a high proportion of good hand hygiene practices was observed among drivers with higher educational level. The possible reason for the association of higher educational level with good hand hygiene practice was that education is an important tool to improve knowledge and to create a condition to search for the knowledge on different issues including knowledge about COVID-19.

5.6 Association between Socio-demographic Characteristics and the Attitude of Hand Hygiene during COVID-19 among Community in Sepang, Selangor

The result obtained in this study shown that there was no significant association between socio-demographic characteristics and the attitude of hand hygiene ($p>0.05$). However, this finding is in contrast to a study done in Saudi Arabia by Wutayd et al. (2021). They found that there was a significant association ($p<0.05$) with negative attitude. The result from the study shows that highest educational level were associated with positive attitude. This may be explained by more education being correlated with a greater attitude towards the preventive measure as the respondents believed hand hygiene reduces the risk of infection. Another findings shows that there is significant

association between gender and attitude. Female respondents had more appropriate attitudes towards hand hygiene.

CHAPTER 6

LIMITATIONS AND RECOMMENDATIONS

6.1 Limitations

There were several limitations that researcher had found in this study. Firstly, the duration to complete this study is short. The timeframe for every student to complete the research is only one semester and it quiet challenging during this conditional movement control order (CMCO) as researcher cannot went to the site of study to approach participants. This effect the number of sample size that was initially targeted for this study. Second, this study majority participated by Malay. Only 7 participants were Chinese while Indian and others ethic only had 5 participants respectively. This were due to limited approach towards this group. The findings from this study may not represent the general population as it only involved quiet low number of certain races.

Besides, online questionnaire also could be one of the major limitation for respondents to participate in this study. Participants aged 40 years old and above seems not familiar with the Google form thus, make the participation rate from this age group is low. Other limitations such as connection internet and device that participants used could be an influencer on how the respondents answering the questionnaire.

6.2 Recommendations

In the future studies, it is recommended to include more socio-demographic factors such as involvement in hand hygiene training program, residential area either it is urban or rural, barriers to perform hand hygiene, occupation and income. Besides, steps of hand washing and hand rubbing according to WHO should be included in the study so,

people will know the correct ways to practise a good and effective hand hygiene. Meanwhile, public health care workers should play their roles by organising a health promotion event or health education regarding hand hygiene which involve the community. In that event, they can emphasis the hand hygiene recommendation by WHO as a step of prevention of COVID-19 infection as well as the spreading of the virus in the community. Thus, indirect community involvement in that such event may reduce the spread of COVID-19 as well as other diseases that caused by unclean hands.

6.3 Conclusion

The result obtained in this study showed that majority respondents had good knowledge and attitude of hand hygiene during this pandemic. Although it seems that community in Sepang, Selangor are aware regarding the COVID-19 prevention, continuous health education campaign regarding hand hygiene should done among them.

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APPENDIX

Appendix 1: Questionnaire

BORANG SOAL SELIDIK *(QUESTIONNAIRE FORM)*

Pengetahuan dan Sikap terhadap Kebersihan Tangan semasa COVID-19 dalam Kominiti di Sepang

Knowledge and Attitude of Hand Hygiene during COVID-19 among Community in Sepang

BAHAGIAN A *(PART A)*:

MAKLUMAT SOCIO-DEMOGRAFIK

(SOCIO-DEMOGRAPHIC INFORMATION)

Arahan: Sila jawab semua soalan dengan menandakan (✓) atau menulis jawapan yang sesuai.

Instructions: Please answer all questions by marking (✓) or write appropriate answer)

NO.	PERKARA *(ITEM)*	
1	**Umur** *(Age)*	
2	**Jantina** *(Gender)*	**( ) Lelaki** *(Male)* **( ) Perempuan** *(Female)*
3	**Etnik** *(Ethnicity)*	**( ) Melayu** *(Malay)* **( ) Cina** *(Chinese)* **( ) Indian** *(India)* **Lain-lain. Sila nyatakan** *(Others. Please state)***:** _____
4	**Tahap pendidikan** *(Level of education)*	**( ) Tidak bersekolah** *(No formal education)* **( ) Sekolah rendah** *(Primary school)* **( ) Sekolah menengah** *(Secondary school)* **( ) Sijil (STPM/Matrikulasi/Asasi/lain-lain)** *Certificate (STPM/Matriculation?Foundation/etc)*

		( ) Diploma *(Diploma)* **( ) Ijazah (Sarjana Muda/Sarjana/Doktor Falsafah)** *(Bachelor/Master/Doctor of Philosophy)*

BAHAGIAN B *(Part B)*

PENGETAHUAN TENTANG KEBERSIHAN TANGAN

(Knowledge of hand hygiene)

Arahan: Sila jawab semua soalan dengan menandakan (✓) pada jawapan yang sesuai.

(Instructions: Please answer all questions by marking (✓) for appropriate answer)

NO.	**PERKARA** *(ITEM)*		
1.	**Bilakah basuh tangan perlu dilakukan** (*When should hand washing be done)*	**Selepas batuk atau bersin atau** *(After coughing or Sneezing or after blowing the nose)*	
		Sebelum, semasa dan selepas penyediaan makanan *(Before, during and after you prepare food)*	
		Bila menjaga orang sakit *(When caring for the sick)*	
		Selepas menguruskan haiwan atau najisnya *(After handling animals or animal wastes)*	
		Selepas menyentuh permukaan sesuatu seperti duit *(After touching surfaces like money)*	
		Selepas ke pasar, menggunakan pengangkutan awam *(After visiting markets, using public transport)*	

		Selepas ke tandas *(After visiting the toilet)*	
2.	**Adakah anda tahu mengenai pembersih tangan berasaskan alcohol?** *(Do you know about the alcohol-based hand rub?)*	**Ya** *(Yes)*	
		Tidak *(No)*	
3.	**Pembersihan tangan menggunakan alkohol lebih berkesan berbanding membasuh tangan.** *(Hand rubbing is more effective against germs than hand washing)*	**Betul** *(True)*	
		Salah *(False)*	
4.	**Berapakah masa minimum yang diperlukan untuk pembersihan tangan menggunakan alkohol untuk membunuh kebanyakan kuman di tangan anda?** *(What is the minimum time needed for alcohol based hand rub to kill most germs on your hands?)*	**5 saat** *(5 seconds)*	
		20 saat *(20 seconds)*	
		1 minit *(1 minute)*	
		Tidak tahu *(I don't know)*	

5.	**Apakah sumber maklumat utama anda mengenai pencegahan COVID19?** *(What is your main source of information about COVID19 prevention?)*	**Surat khabar** *(Newspapers)*	
		Televisyen *(Television)*	
		Media social *(Social media)*	
		Radio *(Radio)*	
		Rakan dan keluarga *(Friends and Family)*	
		Lain-lain *(Others)*	

BAHAGIAN C *(Part C)*

SIKAP TERHADAP KEBERSIHAN TANGAN

(Attitude of Hand Hygiene)

1	2	3	4	5
Sangat tidak bersetuju ***(****Strongly disagree)*	**Tidak bersetuju** *(Disagree)*	**Tidak pasti** *(Not sure)*	**Setuju** *(Agree)*	**Sangat bersetuju** ***(****Strongly agree)*

No.	Soalan *(Question)*	1	2	3	4	5
1.	**Saya mematuhi kebersihan tangan dengan betul** *(I adhere to correct hand hygiene)*					
2.	**Mengamalkan kebersihan tangan pada setiap masa** *(Practices hand hygiene at all times)*					
3.	**Saya mempunyai pengetahuan yang cukup berkaitan kebersihan tangan** *(I have sufficient knowledge about hand hygiene)*					
4.	**Kadangkala saya mempunyai perkara penting yang perlu dilakukan berbanding kebersihan tangan** *(Sometime I have more important things to do than hand hygiene)*					
5.	**Saya berasa kecewa apabila tidak melakukan kebersihan tangan**					

	(I feel frustrated when others omit hand hygiene)					
6.	**Saya enggan bertanya orang lain mengenai kebersihan tangan** *(I am reluctant to ask others to engage in hand hygiene)*					
7.	**Saya rasa bersalah jika saya tidak mencuci tangan** *(I feel guilty if I omit hand hygiene)*					
8.	**Saya mematuhi amalan kebersihan tangan yang terkini** *(Adhering to hand hygiene practices is easy in the current setup)*					

Appendix 2: Respondent's Information Sheet and Informed Consent Form

JAWATANKUASA ETIKA UNIVERSITI UNTUK PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG, SELANGOR, MALAYSIA

FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE :
Knowledge and Attitude of Hand Hygiene during COVID-19 among Community in Sepang

2. INTRODUCTION:
Hand hygiene is a general term referring to any action of hand cleansing such as antiseptic hand wash, hand rub or surgical hand antisepsis. Effective hand hygiene can reduce the direct and indirect spread of coronaviruses between people that is currently unknown. The aim of this study is to determine the level of knowledge and attitude of hand hygiene during COVID-19 among community in Sepang.

3. WHAT WILL YOU HAVE TO DO?
You are required to answer a given online questionnaire regarding knowledge and attitude of hand hygiene. The questionnaire consists of three parts, Part A, Part B and Part C. You are required to answer all the questions in each sections and it take approximately 15-20 minutes. Your response to all the questions is greatly appreciated.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?
People who are not a Malaysian citizen, unable to understand and converse in English and/or Malay languages and not willing to participate in this study.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

Your cooperation in participation in this research can help in determining knowledge and attitude of hand hygiene during this COVID-19 pandemic. This research is conducted by a student. Therefore, participation is voluntary with no payment given to participants, also, participants are allowed to withdraw anytime without any penalty.

(b) TO THE INVESTIGATOR?

The data and information from this study will contribute to the improvement of knowledge regarding hand hygiene among community in Sepang.

6. WHAT ARE THE POSSIBLE RISKS?

There is no risk in doing this study as it only use questionnaire to assess participant's knowledge and attitude on hand hygiene

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

All information of the participant will be kept confidential. Only the researcher and the supervisor are allowed to assess the information that is collected.

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

If you have any inquiries or want to know further development of the research, you can contact me or my suppervisor.

Student Researcher

Intan Shahira Hanis binti Atan Mohamad

Phone: 014-8089869

Email: 192949@student.edu.my

Supervisor

Dr. Ruthpackiavathy A/P Rajen Durai

Phone: 012-2688275

Email: ruthpackiavaty@upm.edu.my

*Please initial here if you have read and understood the contents of this page*_____

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 reason 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

Signature ……..…… Signature ……..…….
(Respondent) (Witness)

Date :…….. Name :…….…..

I/C No. :…….…..

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

Date ……..…… Signature ……..…….
(Researcher)

Appendix 3: Penerangan dan Persetujuan Responden

JAWATANKUASA ETIKA UNIVERSITI UNTUK PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG, SELANGOR, MALAYSIA

BORANG 2.4: PENERANGAN DAN PERSETUJUAN RESPONDEN

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

1.TAJUK KAJIAN
Pengetahuan dan Sikap terhadap Kebersihan Tangan semasa COVID-19 dalam Komuniti di Sepang

2. PENGENALAN
Pembersihan tangan adalah secara umumnya merujuk kepada semua tindakan mencuci tangan seperti mencuci tangan menggunakan sabun, alkohol dan surgikal. Pembersihan tangan yang berkesan boleh mengurangkan penyebaran virus korona secara langsung atau tidak antara orang yang tidak diketahuai. Tujuan kajian ini adalah untuk menentukan tahap pengetahuan dan sikap terhadap kebersihan tangan semasa COVID-19 dalam komuniti di Sepang.

3. APAKAH YANG PERLU ANDA LAKUKAN?
Anda dikehendaki untuk menjawab satu soalan soal selidik yang diberikan secara atas talian mengenai pengetahuan dan sikap terhadap kebersihan tangan. Soal selidik ini mengandungi tiga bahagian: Bahagian A, Bahagian B dan Bahagian C. Anda dikehendaki menjawab kesemua soalan dalam setiap bahagian dan ia mengambil kira-kira 15 ke 20 minit. Kesudian anda menjawab kesemua soalan amatlah dihargai.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?
Bukan warganegara Malaysia, tidak boleh memahami dan bertutur dalam Bahasa Inggeris dan/atau Bahasa Melayu dan tidak rela untuk menyertai kajian ini.

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?
Kerjasama anda mengambil bahagian dalam kajian ini dapat membantu menentukan pengetahuan dan sikap terhadap kebersihan tangan semasa pandemic COVID-19. Penyelidikan ini adalah penyelidikan yang dijalankan oleh mahasiswa. Oleh itu, penyertaan merupakan secara sukarela tanpa bayaran yang akan diberikan kepada peserta, serta, peserta dibenarkan menarik diri bila-bila masa tanpa sebarang penalti.

b) KEPADA PENYELIDIK?

Data dan maklumat daripada kajian ini akan meningkatkan pengetahuan terhadap kebersihan tangan dalam kalangan komuniti di Sepang.

6. ADAKAH IA BERISIKO?

Kajian ini tidak melibatkan sebarang risiko, ia hanya melibatkan soal selidik untuk menilai pengetahuan dan sikap terhadap pembersihan tangan.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Semua maklumat adalah rahsia. Hanya penyelidik dan penyelia sahaja yang mempunyai akses terhadap maklumat ini.

8. SIAPA YANG SAYA PERLU HUBUNGI SEKIRANYA SAYA MEMPUNYAI SOALAN TAMBAHAN SEMASA MENGIKUTI PENYELIDIKAN INI?

Sekiranya anda mempunyai sebarang pertanyaan atau ingin mengetahui lebih lanjut mengenai

kajian ini, anda boleh menghubungi saya atau penyelia.

Penyelidik

Intan Shahira Hanis binti Atan Mohamad

Phone: 014-8089869

E-mel: 192949@student.upm.edu.my

Penyelia

Dr. Ruthpackiavathy A/P Rajen Durai

Telefon: 012-2688275

E-mel: ruthpackiavaty@upm.edu.my

Sila tandatangan di sini sekiranya anda telah membaca dan memahami kandungan halaman ini

_____

9. PERSETUJUAN

Saya…… No Kad Pengenalan. …… beralamat…… ……..dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam penyelidikan yang tersebut di atas *(kajian klinikal/percubaan ubat-ubatan/rakaman video/kumpulan sasaran/temuduga/ soal selidik).

Saya telah diberi penjelasan secara menyeluruh mengenai penyelidikan ini dari segi metodologi, risiko dan komplikasi (seperti tertulis pada Helaian Penerangan Responden). Saya memahami bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi sebarang alasan.Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang melibatkan saya.

I setuju/tidak bersetuju untuk imei/gambar/rakaman video/ rakaman suara digunakan dalam apa jua bentuk penerbitan atau pembentangan. (sekiranya berkaitan).

*potong yang tidak berkenaan

Tandatangan ……..…… Tandatangan ……..……
(*Responden*) (*Saksi*)

Tarikh :…….. Nama :…….…..

No. K/P: ……..…..

Saya mengesahkan bahawa saya telah menerangkan kepada responden ini sifat dan tujuan penyelidikan yang tersebut di atas.

Tarikh ……..…… Tandatangan ……..…….
(*Penyelidik*)

Appendix 4: Approval Letter from JKEUPM

Ref. no: UPM/TNCPI/RMC/JKEUPM/1.4.18.2 (JKEUPM)
Date: 14 April 2021

Dear Prof./Dr./Mr./Ms.,

APPLICATION FOR JKEUPM ETHICAL CLEARANCE: APPROVED

With reference to the above, I am pleased to inform you that your application for ethical clearance for the research project entitled **'Knowledge and Attitude of Hand Hygiene during COVID-19 among Community in Sepang'** has been approved.

Please note that the official letter of approval will be issued as soon as possible. However, the ethical clearance is considered effective from the date of this email, and you may now proceed with your research.

Kindly remind the ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

Researchers should also complete a Study Final Report upon study completion. The form can be obtained from the Ethics Committee for Research Involving Human Subjects (JKEUPM) website (http://www.tncpi.upm.edu.my/faildokumen).

If you have any enquiries, please contact Ms. Nurulhasanah Ishak (03-97691605) or Ms. Nor Ellia Abd Ajis (03-97691244).

Note: Please use this reference number for any transaction.

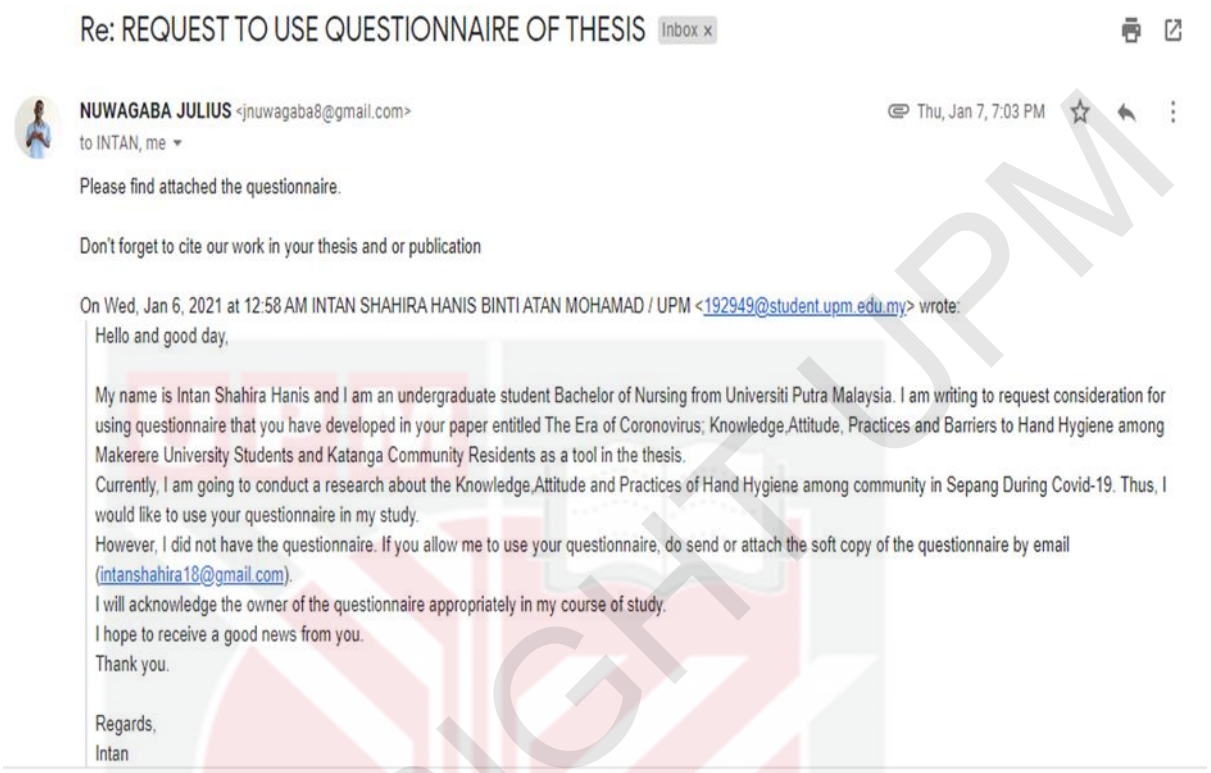
- JKEUPM-2021-087

Thank you.

Yours faithfully,

Prof. Dr. Zamberi Sekawi
Chair
Ethics Committee for Research Involving Human Subjects
Universiti Putra Malaysia

Appendix 5: Approval for Using Instrument



Re: REQUEST TO USE QUESTIONNAIRE OF THESIS Inbox x

NUWAGABA JULIUS <jnuwagaba8@gmail.com> Thu, Jan 7, 7:03 PM

to INTAN, me

Please find attached the questionnaire.

Don't forget to cite our work in your thesis and or publication

On Wed, Jan 6, 2021 at 12:58 AM INTAN SHAHIRA HANIS BINTI ATAN MOHAMAD / UPM <192949@student.upm.edu.my> wrote:

> Hello and good day,
>
> My name is Intan Shahira Hanis and I am an undergraduate student Bachelor of Nursing from Universiti Putra Malaysia. I am writing to request consideration for using questionnaire that you have developed in your paper entitled The Era of Coronovirus; Knowledge,Attitude, Practices and Barriers to Hand Hygiene among Makerere University Students and Katanga Community Residents as a tool in the thesis.
> Currently, I am going to conduct a research about the Knowledge,Attitude and Practices of Hand Hygiene among community in Sepang During Covid-19. Thus, I would like to use your questionnaire in my study.
> However, I did not have the questionnaire. If you allow me to use your questionnaire, do send or attach the soft copy of the questionnaire by email (intanshahira18@gmail.com).
> I will acknowledge the owner of the questionnaire appropriately in my course of study.
> I hope to receive a good news from you.
> Thank you.
>
> Regards,
> Intan

Appendix 6: Gantt Chart and Milestone

No.	Year	2020			2021									
	Project Activities	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**O**	**S**	**O**
1.	Gather and review relevant information													
2.	Preparing draft research proposal													
3.	Proposal correction with supervisor													
4.	Proposal presentation													
5.	Submit proposal for ethical approval from JKEUPM													
6.	Data collection													
7.	Meeting and writing for thesis													
8.	FYP presentation													
9.	Correction and submission final													

Appendix 7: Research Budget

No.	Item	Price per month (RM)	Quantity
1.	Monthly internet	35	35 X 5
		TOTAL	**RM175**