UNIVERSITI PUTRA MALAYSIA

KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) ON COVID-19 PREVENTION AMONG HEALTH SCIENCE, ENGINEERING AND SOCIAL SCIENCE STUDENTS IN UNIVERSITI PUTRA MALAYSIA

NURUL SAMSIAH BINTI CHE ME

KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) ON COVID-19 PREVENTION AMONG HEALTH SCIENCE, ENGINEERING AND SOCIAL SCIENCE STUDENTS IN UNIVERSITI PUTRA MALAYSIA

NURUL SAMSIAH BINTI CHE ME

Thesis submitted in fulfillment of the requirement for the degree of Bachelor Science (Environmental and Occupational Health) from Faculty of Medicine and Health Sciences, Universiti Putra Malaysia

KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) ON COVID-19 PREVENTION AMONG HEALTH SCIENCE, ENGINEERING AND SOCIALSCIENCE STUDENTS IN UNIVERSITI PUTRA MALAYSIA

NURUL SAMSIAH CHE ME

ABSTRACT

Introduction: On 11 March 2020, the WHO characterized the spread of COVID-19 as a pandemic, and since early June 2021, COVID-19 cases in Malaysia reported averagely above than 5000 positive cases a day. Regarding the fluctuate of positive cases, it is important to consider the KAP on COVID-19 during the pandemic. Undergraduates student population had selected to provide an image of the their responses to pandemic. **Objective:** The aim of this study is to compare the score of the KAP on COVID-19 prevention among students in UPM. **Methodology:** A cross-sectional survey was conducted from 18 - 28 June 2021. 310 respondents participated in this study, who are undergraduate student in UPM and classified by 3 groups which are health science, engineering and social science. Purposive sampling used where the participants have same interest of classified groups. **Result and Discussion:** 95(30.6%) are male and 215(69.4%) are female. The average knowledge score was 10.8 (SD = 1.5, range 0-13). For attitude, 187 (60.3%) are not sure that the pandemic successfully controlled. 221 (71.3%) are confidence with government to control COVID-19. 203 (65.5%) confidence in the government's capacity dealing COVID-19 crisis. Data recorded 171 (55.2%) participants who avoided crowded area, 285 (95.2%) is showing the participants wear face mask when leaving the home. Lastly, 288 (93.9%) participants practiced of hand hygiene. There are also significant different of knowledge score on COVID-19 between different group students. For responses in attitude of whether that Covid-19 are successfully controlled, health sciences and engineering students contribute the most to the Chi-square statistic. (X^2= 72.136, p= 0.000). For responses in attitude toward confidence in the government to control COVID-19, there are statistically significant between the attitude and engineering and social science students (X^2= 10.653, p= 0.031). For responses in attitude about the government's capacity to dealing COVID-19 crisis, engineering and social science students contribute the most to the Chi-square statistic (X^2 = 52.383, p = 0.000). For responses in good practice in avoiding going to crowded, health sciences and engineering students produce the statistical significance association. (X^2 = 138.238, p = 0.000) **Conclusion:** The majority of undergraduate students were aware of the situation important facts, a good attitude, and a strong understanding practice of being proactive in pandemic COVID-19. **Keywords:** COVID-19, knowledge, attitude and practice, Undergraduates

PENGETAHUAN, SIKAP DAN AMALAN TENTANG COVID-19 DALAM KALANGAN PELAJAR SAINS KESIHATAN, KEJURUTERAAN DAN SAINS SOSIAL DI UNIVERSITI PUTRA MALAYSIA

NURUL SAMSIAH CHE ME

ABSTRAK

Pendahuluan: Pada 11 Mac 2020, WHO mengumumkan penyebaran COVID-19 sebagai wabak, dan sejak awal Jun 2021, kes COVID-19 di Malaysia dilaporkan rata-rata melebihi 5000 kes positif sehari. Berikutan turun naik kes positif, adalah penting untuk mempertimbangkan KAP pada COVID-19 semasa wabak. Populasi pelajar sarjana muda telah dipilih untuk memberikan gambaran mengenai tindak balas mereka terhadap wabak. **Objektif**: Tujuan kajian ini adalah untuk membandingkan skor KAP mengenai pencegahan COVID-19 di kalangan pelajar di UPM. **Metodologi**: Satu tinjauan dilakukan dari 18 - 28 Jun 2021. Sejumlah 310 orang responden mengambil bahagian dalam kajian ini, yang merupakan pelajar sarjana di UPM dan diklasifikasikan kepada 3 kumpulan iaitu sains kesihatan, kejuruteraan dan sains sosial. Persampelan Bertujuan digunakan dimana, kumpulan yang dikelaskan ialah para pelajar yang mempunyai minat yang sama. **Hasil dan Perbincangan**: Terdapat 95 (30.6%) adalah lelaki dan 215 (69.4%) adalah perempuan. Skor pengetahuan purata ialah 10.8 (SD = 1.5, julat 0-13). Untuk sikap, 187 (60.3%) tidak pasti bahawa wabak itu berjaya dikawal. 221 (71.3%) yakin dengan pemerintah untuk mengawal COVID-19. Selain, itu,203 (65.5%) yakin terhadap kemampuan pemerintah menangani krisis COVID-19. Data yang direkodkan 171 (55.2%) peserta yang menghindari kawasan sesak, 285 (95.2%) menunjukkan peserta memakai topeng muka ketika meninggalkan rumah. Terakhir, 288 (93.9%) peserta mengamalkan kebersihan tangan. Terdapat juga perbezaan skor pengetahuan yang signifikan mengenai COVID-19 antara pelajar kumpulan yang berbeza. Untuk maklum balas mengenai sikap sama ada Covid-19 berjaya dikendalikan, pelajar sains kesihatan dan kejuruteraan menyumbang paling banyak kepada statistik Chi-square. ($X2 = 72.136$, $p = 0.000$). Untuk tindak balas sikap terhadap keyakinan terhadap pemerintah untuk mengawal COVID-19, terdapat statistik yang signifikan antara sikap dan pelajar sains dan kejuruteraan ($X2 = 10.653$, $p = 0.031$). Untuk tindak balas dalam sikap mengenai keupayaan pemerintah untuk menangani krisis COVID-19, pelajar sains dan kejuruteraan menyumbang paling banyak kepada statistik Chi-square ($X2 = 52.383$, $p = 0.000$). Untuk maklum balas dalam amalan yang baik dalam mengelakkan orang ramai, pelajar sains kesihatan dan kejuruteraan menghasilkan perkaitan kepentingan statistik. ($X2 = 138.238$, $p = 0.000$) **Kesimpulan**: Majoriti pelajar sarjana menyedari keadaan fakta-fakta penting, sikap yang baik, dan amalan pemahaman yang kuat untuk menjadi proaktif dalam pandemik COVID-19. **Kata kunci**: COVID-19, pengetahuan, sikap dan amalan, Prasiswazah

ACKNOWLEDGEMENT

I sincerely thank you to Fatin Nur Izzati Mohd Suhaimi, Nor Natasya Abdullah, Che Wan Aisyah Azizah, and Fatin Humaira' for their guidance and encouragement in carrying out this project work. I also wish to express my gratitude to the colleagues and other staff members of UPM who rendered their help during the period of my project work.

I also thank my supervisor Assoc. Prof. Dr, Haliza Abd Rahman as my supervisor for providing me the opportunities to embark on this research.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1
INTRODUCTION

1.1 BACKGROUND OF STUDY

Coronavirus Disease 2019 (COVID-19) is a new form of pneumonia caused by extreme acute respiratory coronavirus-2 (SARS-CoV-2) infection. This case definiton involves other symptoms that are not as usual, such as sputum development, rhinorrhea, sore throat, chest tightness, fever, vomiting and diarrhea but in several other patients only showed mild fatigue, low fever, no pneumonia, or even no symptoms. Based on clinical diagnosis, the disease severity can be divided into light, common, moderate, and critical condition groups (Huang et al., 2020). Most critical condition patients had breathing difficulties and/or hypoxemia. Additionally, the high incidence of multiple organ dysfunctions is one of the characteristics of COVID-19 and in some severe cases, it can quickly progress into sepsis shock, acute respiratory distress syndrome, blood clotting dysfunction, and metabolic acidosis (Huang et al., 2020)

2020 is the most terrified years of people because of the pandemic COVID-19 affected all over the world in short period. Initially, COVID-19 is an emerging respiratory disease caused by a novel coronavirus and first detected in December 2019 in Wuhan, China.. (Tian et al., 2020) The ongoing COVID-19 epidemic has spread very quickly, and by February 15, 2020, the virus had reached 26 countries altogether, resulting in 51,857 laboratory-confirmed infections and 1669 deaths, with nearly all infections and deaths occurring in China (Tian et al., 2020). The first case of COVID-19 in Malaysia was traced on 25 January 2020 including three tourists from China. (Azlan et al, 2020). When it reached a huge religious gathering in Sri Petaling, the number of cases progressively rose until the nation's first two deaths were reported on March 17th. . On 20 April 2020, more than 5300 positive cases involving 89 deaths

have been recorded in Malaysia. Most of these cases have been traced back to a religious gathering that has now reached its fifth generation of infections. (Azlan et al, 2020). Regarding the fluctuate of positive cases, it is important to consider the public's understanding, tolerance, and reaction to COVID-19 during the epidemic in the general population to provide a clear image of the public's responses to curbing the widespread.

Several research among student population resulted such as Azlan et al (2020) stated when leaving the home, males, individuals between the ages of 18 and 49, students and those earning less than RM3,000 a month reported higher rates of wearing face masks while the average student knowledge score was significantly lower than that of other occupation groups. Out of 37 students in Sabah area had been assessed for knowledge, attitude and practice proved that COVID-19 is well-understood by Sabah students, who have found a reasonable response to the epidemic (Fatah et al., 2021). While in Korea and Bangladesh, there are study had been done among youth population who are undergraduates and aged around 18-30 years old. This show that student are also included in that range of practicing the preventive measure in public to help in breaking the transmisson widen. Hence, it is crucial to explore on KAP on COVID-19 prevention among student population to detail their other factors contributed of their scores.

1.2 PROBLEM STATEMENTS

On 16th March 2020, Malaysia had recorded the highest cases where diagnosed positive Covid-19 among Southern Asian country cause our government decided a drastic measure by placing the COVID-19 pandemic crisis under the control of the National Security Council (NSC), a national body that manages and administrates disaster crises. Thus, implementation of first Movement Control Order (MCO) had immediately announced started on 18th March 2020 as a preventive measure to isolate the source of virus and break the chain of the COVID-19 indirectly flatten the curve of positive cases. Until 9th June 2021, total cases of COVID-19 in Malaysia is 627,652 cases with 6,536 deaths. This become more worrying when cases are averagely above than 5000 positive cases a day since early June 2021. Movement control Order 3.0 had been implemented all over the country since 1st June until 28th June followed by a few recover phases in order to reduce the cases.

Several prevention measure implemented to contol the pandemic. On 1st August 2020, under the Prevention and Control of Infectious Diseases Act, Those who do not follow the new regulation may be fined up to RM1,000 as prevention steps of contagious COVID-19 ("Malaysia implements mandatory mask-wearing in crowded places from Aug 1," 2020). Ministry of health (MOH) also had build a platform to updates any information regarding COVID-29 through website named ("COVID-19 Malaysia Updates by MOH," 2020). It shows several information regarding COVID-19 in Malaysia such recent situation by presenting record of new positive cases, new recovered cases and death, list for health facilities for COVID-19, and many more. Wash, Wear and Warn where described by 3W is practised by routinely washing their hands with soap and water, wearing face masks, especially in public areas, and if symptomatic. Avoid handshakes to warn yourself and others, practise coughing and sneezing ethics, and seek early treatment if you develop COVID-19 symptoms (MOH,2020).

Regarding of vast information need to be distributed to public, it is important to consider the public's understanding, tolerance, and reaction to Covid-19 during the epidemic in the general population to provide a clear image of the public's responses to curbing the widespread COVID-19. Therefore, the purpose of this study was to measure people's knowledge, attitude and practice (KAP) of the pandemic, as well as what they needed or did not need to do during the MCO.

In research from Azlan et al (2020) analysed the average knowledge score of students were significantly lower than those of other occupation categories and those earning below RM3,000 per month showed significantly lower knowledge scores. Generally, people had different background potentially effects in delivering information regarding Covid-19 that distributed by ministry while MCO. Several factors observed effect their knowledge, attidudes and practices such as income, education level, area living and so on. Student population also one of the population that can be used in order to control their different background. In research from Fatah et al. (2021) asked for future research may look at further characteristics of KAP participants and expand the number of participants across Malaysia. In Universiti Putra Malaysia(UPM), there are 16 faculties, where have variety of core of study such as health science, engineering and social science. The course details have completely different syllibus that create different background groups. So, this study are focus to compare the KAP scores between few groups of different study background in UPM.

1.3 JUSTIFICATION OF STUDY

The aim of this study is to compare the knowledge, attitudes and practices on COVID-19 among selected final years students in UPM. This research is important as the amount of communicable disease rises dramatically and some genetic are evolved and resistant.

Firstly, the study is important in determining the knowledge level among students in COVID-19 prevention. This difference in knowledge levels may be a reflection of the country's present COVID-19 information environment. Although health officials have regularly disseminated COVID-19 information since the disease's discovery in Malaysia, there has also been an increase in misleading and incorrect material (Azlan et al., 2020). Findings from the study will also provide insight into managing risk communication among the student that have clearly different background..

On the other hand, the study may help in measuring the level of attitudes and practices among student. Academic activities on campus must be carried out in complete accordance with SOPs, with a focus on safety precautions and the adoption of new standards such as constantly wearing face masks, using disinfectant fluids, and physical isolation (FMT Reporters, 2021). Public health in UPM should be measured, from this study we can establish where the level of of attitudes and practices the information on COVID-19 among the student population. Plus point, the result can be used to find any gap occuring in of attitudes and practices regarding COVID-19 and will help to analyse risk communication in student population. In research from Fatah et al. (2021) future research may look at further characteristics of KAP participants and expand the number of participants across Malaysia, including the Borneo region, which includes Sabah and Sarawak.

Population of final year is the best choice because they are also most likely afftected as physical class begin the second semester. According to the Ministry of Higher Education,

admission to higher education institutions would continue as previously indicated throughout the execution of the MCO where international tests and professional organisations were permitted on campus (FMT Reporters, 2021). In UPM, it is premitted all final year students to come back to campus in proceeding their learning session. From research of Lee, Kang, and You (2021), in response to the COVID-19 epidemic, most undergraduates gained the requisite knowledge, positive attitude, and proactive practise; nevertheless, their KAP scores differed considerably by gender, major, and school type. Moreover, conducting this research publicly may have have other high risk factor possibilty such as cofounder such as level education and area of living. In research from Lee, Kang, and You (2021), future treatments and policies should likewise take a 'person-centered' approach, focusing on vulnerable populations, embracing them, and bridging the KAP-COVID-19 gap. This study may provide the outlook on necessity to review the management of contagious COVID-19 in delivering information of preventive measure around the UPM respectively.

.

1.4 RESEARCH QUESTIONS

The present study have several research questions that wants to be answered namely :

i. What is level of the knowledge, attitude, and practice regarding Covid-19 among selected final years students in Universiti Putra Malaysia?

ii. What is the difference in knowledge scores Covid-19 among selected final years students in Universiti Putra Malaysia?

iii. What is the difference in attitude scores regarding Covid-19 among selected final years students in Universiti Putra Malaysia?

iv. What is the difference in practice scores regarding Covid-19 among selected final years students in Universiti Putra Malaysia?

1.5 RESEARCH OBJECTIVES

1.5.1 GENERAL OBJECTIVE

The aim of this study is to compare the score of the knowledge, attitudes and practices on COVID-19 prevention among health science, engineering, and social science students in Universiti Putra Malaysia.

1.5.2 SPECIFIC OBJECTIVE

i. To determine the socio demographic characteristics of health science, engineering, and social science students in University Putra Malaysia.

ii. To determine the knowledge, attitude and practice on COVID-19 prevention among health science, engineering, and social science students in University Putra Malaysia.

iii. To compare the knowledge, attitude and practice on COVID-19 prevention among health science, engineering, and social science students in University Putra Malaysia.

1.6 HYPOTHESIS

i. There is significant difference in knowledge scores on COVID-19 prevention between groups of selected final year student in Universiti Putra Malaysia.

ii. There is significant difference in attitude scores on COVID-19 prevention between groups of selected final year student in Universiti Putra Malaysia

iii. There is significant difference in practice scores on COVID-19 prevention between groups of selected final year student in Universiti Putra Malaysia.

1.7 CONCEPTUAL FRAMEWORK

Figure 1.1 shows all variables that will be included in this study. The population that will be studied is under-graduates specifically final year students in Universiti Putra Malaysia, Serdang Selangor.

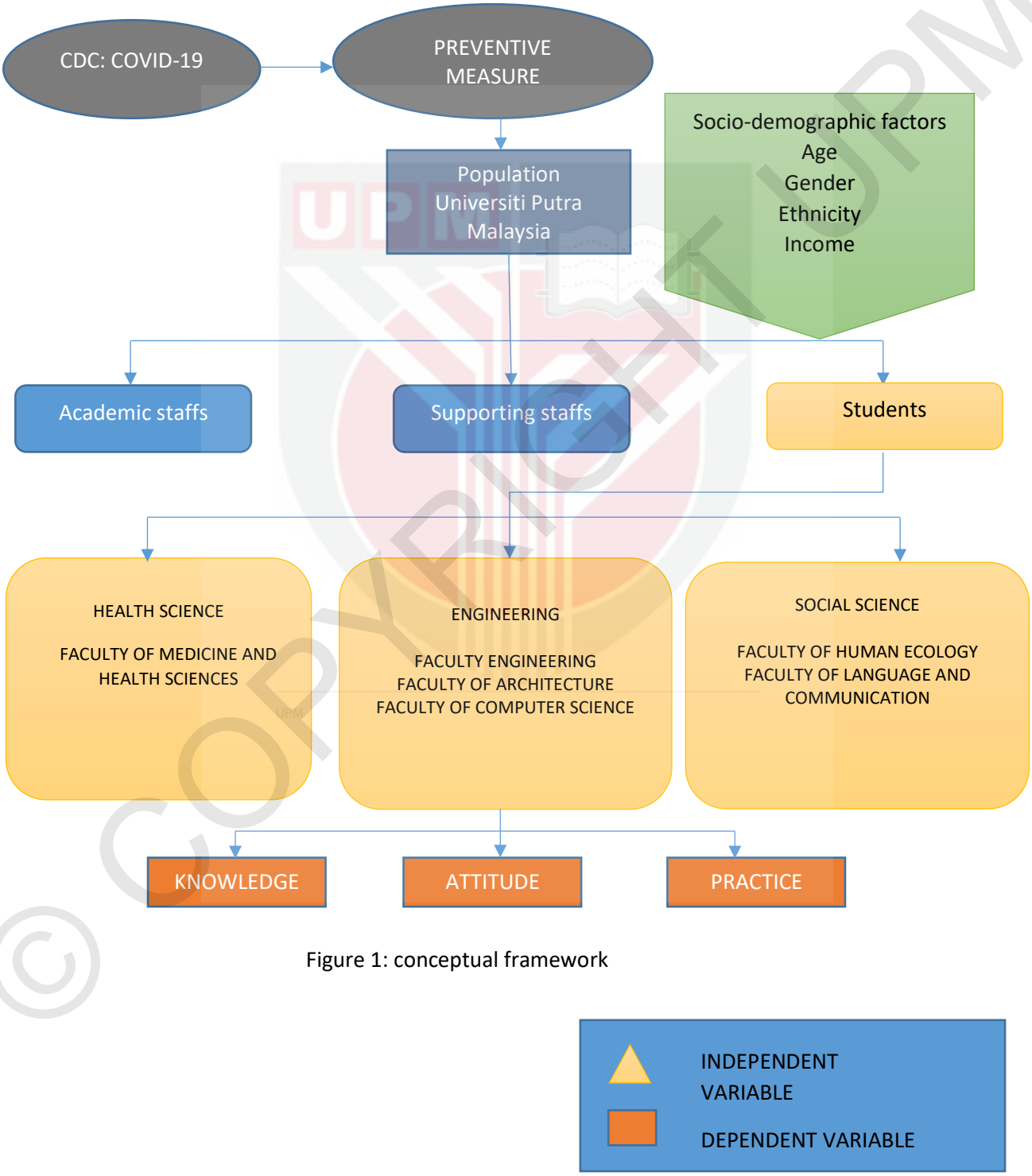


Figure 1: conceptual framework

UPM consists of several faculties have bachelor student with different background. Based their core of studies, it is classified by three main characteristics of their study which are health sciences, engineering and social science. In figure 1, there is listed faculties categorised under same core of studies. Purposive sampling method had been used to choose faculty where participants must be in same interest of classified groups above.

1.8 DEFINITION OF TERMS

1.8.1 Conceptual Definition

- **Knowledge**

  Understanding of or information about a subject that you get by experience or study, either known by one person or by people generally ("Cambridge English Dictionary: Meanings & Definitions," 2021)

- **Attitude**

  A feeling or opinion about something or someone, or a way of behaving that is caused by surround factors ("Cambridge English Dictionary: Meanings & Definitions," 2021).

- **Practice**

  The act of doing something regularly or repeatedly to improve your skill at doing it ("Cambridge English Dictionary: Meanings & Definitions," 2021).

- **Pandemic COVID-19**

  The COVID-19 pandemic, also known as the coronavirus pandemic, is a global pandemic of COVID-19, caused by severe acute respiratory syndrome coronavirus 2. (SARS-CoV-2). On 11 March 2020, the World Health Organization characterized the spread of COVID-19 as a pandemic, marking the first global pandemic. (WHO Headquarters (HQ), 2021)

- **Undergraduate student**

  A student at a college or university who has not yet received a bachelor's degree ("Cambridge English Dictionary: Meanings & Definitions," 2021).

1.8.2 Operational definition

- **Knowledge**

  Understanding of or information about COVID-19 prevention that obtain by experience or study, either known by public health or another platform. The knowledge level assessed through the knowledge on COVID-19 prevention included in the questionnaire.

- **Attitude**

  The attitude is defined as a feeling or opinion and how they respond towards certain conditions about COVID-19 status in Malaysia. Three questions had been asked toward the participants to determine their attitude regarding the COVID-19 situation currently.

- **Practice**

  Practice is described the act of doing something regularly or repeatedly to break contagion of COVID-19. In this situation, it is referring to the participants are regularly practicing COVID-19 prevention in public by answering questionnaire provided by this study.

- **COVID-19 prevention**

  Management of pandemic preparedness measures including steps to minimise the sources of COVID-19. For example, physical or social distancing, quarantining, ventilation of indoor spaces, covering coughs and sneezes, hand washing, and keeping unwashed hands away from the face.

- **Undergraduate student**

  Student population in UPM who has not yet received a bachelor's degree and meet the requirement for inclusion criteria of the study.

CHAPTER 2
LITERATURE REVIEW

2.1 INTRODUCTION

Based on Centre of Disease Control and Prevention (CDC) (2010) had stated in their definition of consideration where "Communicable disease" means illness from any direct or indirect transmission of the infectious agent or its products from an infected individual or via an animal, vector or the inanimate environment to a susceptible animal or human host caused by an infectious agent or its toxins. In where diseases for which biological agents or their products are the cause and which are transmissible from animal to man, from animal to animal, or from the environment such as water and air directly to man. Variety of communicable disease in the world such as influenza, measles, Norovirus, Pertussis and Ebola.

Currently, there is a new virus found which is the coronavirus disease 2019 (COVID-19). It is a new type of pneumonia caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection. COVID-19 is affecting millions of patients, and the infected number keeps increasing. SARS-CoV-2 is highly infectious, has a long incubation period, and causes a relatively high death rate, resulting in severe health problems all over the world (Huang et al., 2020). An initiative should be conduct in order to control this new contagious disease such as a KAP research and vaccine development in short time to prevent this become worst.

2.2 COVID-19 HISTORY

Year of 2020 is the one of catastrophic scenario occur in communicable disease which is COVID-19 that had been identified and categorised under influenza. Countries all around world had prisoned their people in order to break the transmission of the virus from become affected to one and another. COVID-19 is a very contagious zoonotic disease that had affected people. The first incidence is on December 31, 2019, in Wuhan City, Hubei Province of China, WHO China Country Office was notified of cases of pneumonia of unknown etiology (unknown cause) identified (Tian et al., 2020). There is reported a cluster of cases of pneumonia in Wuhan, Hubei Province where, a novel coronavirus was eventually identified. From that, the evolving COVID-19 outbreak spread very rapidly, and the virus had entered a total of 26 countries by February 15, 2020, resulting in 51,857 laboratory-confirmed infections and 1,669 deaths, with almost all infections and deaths occurring in China (Tian et al., 2020). Drastically recorded a total of 4,088,848 confirmed COVID-19 cases and 283,153 deaths have been reported globally by May 12, 2020("COVID-19 Malaysia Updates by MOH," 2020).

The first Malaysian was verified on February 4, 2020, with COVID-19. The 41-year-old man had recently returned from Singapore when he had a fever and a cough (Elengoe, 2020). He had placed at Sungai Buloh Hospital, Selangor for quarantine purpose. On the same day, a four-year-old Chinese national girl who had been separated since 29 January 2020 at Sultanah Maliha Hospital, Langkawi, was rescued, released and allowed to return to China (First case of Malaysian positive for coronavirus,2020).

2.3 COVID-19 PANDEMIC IN MALAYSIA

Next, the second wave began in early October 2020 where Malaysia's Director General of Ministry of Health (MOH) announced in his daily update press-conference, there is sudden increase of new cases recorded and the highest number compared with the first wave in February 2020. Regarding this wave, reported the latest cases on December 3, 2020, there were 69,095 COVID-19 cases including 376 deaths and 57,917 cases of recovery reported by MOH in Malaysia. Even though, it almost the end of the few phases of the quarantined of Malaysia government initiatives, the cases still fluctuate, and it had been reported contagiously in foreign workers.

The third wave would begin in September 2020 (Rampal & Boon Seng, 2021). Tan Sri Dato' Seri Dr Noor Hisham bin Abdullah, Director General (DG) Health, announced on 9 September 2020 that the rapid increase in cases was caused by the two major contributors, namely the Benteng LD cluster in Sabah and the Tembok cluster in Kedah. COVID-19 has been identified in healthcare professionals, including physicians, nurses, and other front-line personnel. Politicians, including Ministers, have also been discovered to be COVID-19 positive. The rising number of COVID-19 cases, along with overloaded healthcare, is putting a strain on the front lines. The difficulties that healthcare professionals and other frontline employees encountered were enormous (Rampal & Boon Seng, 2021). This become more worrying when cases until 9th June 2021, cumulative cases of COVID-19 in Malaysia are 633,891 cases with 3,611 deaths while averagely above than 5000 positive cases a day since early June 2021. However, the pandemic become more complicated when WHO had announced that the mutation occurred in the virus genome where there are more contagious, causing more severe illness, or resisting vaccination immunity.

On 2nd May 2021, New Straits Times announced that Malaysia has identified its first Covid-19 variation of the highly contagious 'Indian strain,' known as B.1.617.1. "We reported the first case of the Indian Variant with double mutations called B.1.617.1 in an Indian National screened at KLIA," Health Minister Datuk Seri Dr Adham Baba said in his statement at Kuala Lumpur International Airport (KLIA) following a whole-genome sequencing (WGS) that was done by the Institute of Medical Research (IMR) from April 24 to May 1.

There are two classification of variants which are Variant of Concern (VOC) and Variant of Interests (VOI). VOC include Alpha (B.1.1.7), Beta (B.1.351), Delta (B.1.617.2) while VOI are Kappa (B.1.617.1), Theta (P.3) and Eta (B.1525). From 11 to 19 June 2021, Ministry of Health (MOH) informed that genomic surveillance for SARS-CoV-2 virus is conducted ongoing basis. A total of 22 cases of new variants of Variant of Concern (VOC) SARS-CoV-2 virus were reported to the National CPRC. 14 cases of Beta variants (B.1.351) and 8 Delta variant cases (B.1.617.2). As of June 19, 2021, the cumulative number of cases infected with the SARS-CoV-2 virus categorized as VOCs and VOI was 183 cases. Of the total detected, 167 cases were VOC and 16 cases were VOI. The VOCs reported 137 cases were Beta variants (B.1.351), 21 cases of Delta variant (B.1.617.2) and 9 cases were Alpha variant (B.1.1.7). The VOIs reported 12 cases were variants of Theta (P.3), 3 cases were variants of Eta (B.1.525) and 1 Kappa (B.1.617.1) (“COVID-19 Malaysia Updates by MOH,” 2021).

2.4 CLINICAL SYMPTOMS AND MODES OF TRANSMISSION

It had been released an updated guideline to diagnose patient who infected with COVID-19 by MOH. Below are the categories of COVID-19 cases. There are groups by suspected cases, probable cases, confirm cases and person under surveillance.

Suspected cases mean as a person who meets the clinical and epidemiological criteria. Clinical criteria are acute onset of fever with cough. Moreover, a person had acute onset of any two or more relatable signs of fever cough, general weakness and fatigue, headache, myalgia, sore throat, coryza, dyspnea, anorexia/nausea/vomiting, diarrhea, altered mental status. Epidemiological criteria include who are staying or working in a high-risk area/location for viral transmission: closed residential settings, institutional settings such as jails, immigration detention depots (DTI); anytime during the 14 days previous to the beginning of signs and symptoms. Other than that, staying in travel to an area with community transmission anytime within the 14 days prior to sign & symptom onset. working in any health care setting including within the 14 days' prior of sign symptoms onset. Next, the patients with severe acute respiratory illness are also one of the categories with history of fever measured more than 37 with onset within the last 10 days and requires hospitalization.

For probable cases defines as a person with positive RTK-Ag. A suspected case with chest imaging showing finding suggestive of COVID-19 disease. A patient who meets clinical criteria above and is a contact of a probable or confirm case or linked to a COVID-19 cluster. A person with recent onset of anosmia (loss of smell) or argeusia(loss of taste). Death, not otherwise explained in adult with respiratory distress preceding death and was a contact of a probable or confirmed case or linked to a COVID-19 cluster.

For confirmed case claims as a person with positive RTK-Ag in pre-determined areas/locality with prevalence of COVID-19 more than 10%. a person positive molecular test RT-PCR or rapid molecular.

Then it is necessity to trace the person who contacted with positive person, who defined as Person Under Surveillance (PUS). They probable asymptomatic individual subjected to Home Surveillance Order. Close contact definition is health care associated exposure without appropriate PPE including providing direct care from COVID-19. Health care associated exposure without appropriate PPE (including providing direct care for COVID-19 patients, working with health care workers infected with COVID-19, visiting patients or staying in the same close environment of a COVID-19 patient):

- Working together in close proximity or sharing the same classroom environment with a COVID-19 patient
- Travelling together with COVID-19 patient in any kind of conveyance
- Living in the same household as a COVID-19 patient.

2.5 MITIGATION AND PREVENTION THE COVID-19 IMPACTS

2.5.1 MOVEMENT CONTROL ORDER

In order to minimize infection become wider and evolve, Malaysia take action by decided a drastic measure by placing the COVID-19 pandemic crisis under the control of the National Security Council (NSC), a national body that manages and administrates disaster crises (Asnarulkhadi, 2020). So, implementation of Movement Control Order (MCO) had immediately announced started on 18th March 2020 as a preventive measure to isolate the source of virus and break the chain of the Covid-19 indirectly flatten the curve of positive cases. Table 1 showing the MCO phases that had been implemented since March 2020.

In the MCO, ministry also distributed the information of preventive measure that can be taken by public to help this Covid-19 controlled. WHO has developed a strict guideline to adhere to during the pandemic. Wash Wear and Warn where described by 3W is practised by routinely washing their hands with soap and water, wearing face masks, especially in public areas, and if symptomatic. Avoid handshakes to warn yourself and others, practise coughing and sneezing ethics, and seek early treatment if you develop COVID-19 symptoms (MOH, 2020). Each state switch between MCO, CMCO, RMCO, EMCO, and semi-EMCO depending on the COVID-19 condition in each state.

Table 1. Movement Control Order (MCO) phases in Malaysia.

Movement Control Order (MCO)	**Period**
Phase 1	18 March 2020 - 31 March 2020
Phase 2	1 April 2020 - 14 April 2020
Phase 3	15 April 2020 - 28 April 2020
Phase 4	29 April 2020 - 3 May 2020
MCO by states	(11 January 2021 - 31 May 2021)
Conditional Movement Control Order (CMCO)	**Phase**
Phase 1	4 May 2020 - 12 May 2020
Phase 2	13 May 2020 - 9 June 2020
Recovery Movement Control Order (RMCO)	**Phase**
Phase 1	10 June 2020 - 31 August 2020
Phase 2	1 September 2020 - 31 December 2020
Phase 3	1 January 2021 - 31 March 2021
Total Lockdown	**Phase**
Phase 1	1 June 2021 - 14 June 2021
Phase 2	15 June 2021 - 28 June 2021

2.5.1 COVID-19 VACCINATION

Performing extensive genomic surveillance for SARS-CoV-2 virus, increasing COVID-19 screening tests, conducting contact detection and case isolation will be carried out widely by MOH to strengthen infectious disease control activities as well as other public health measures to curb the spread of these variants in the community ("COVID-19 Malaysia Updates by MOH," 2021). Moreover, MOH advised public to immediately register oneself and their family members for the vaccination in order to aid the nation in developing group protection. This is also one of the mechanisms in place to mitigate the adverse implications of variation transmission in the community. Pfizer, AstraZenaca and Sinovac are types of vaccines imported to Malaysia while other two brands Sputnik and CanSinoBIO are widely used among Russia and China. These three brands vaccine required twice doses to complete the herd immunity. Since February 2021, vaccination programmes are widely distributed. About 7,593,179 doses of COVID-19 vaccines administered recently. Considering that each individual requires two doses, that is sufficient to complete vaccinated. about 11.9% of the country's population. ("COVID-19 Malaysia Updates by MOH," 2021)

2.6 KAP REGARDING COVID-19 STUDY

Every KAP elements are crucial to be considered to ensure effective prevention and control of the pandemic. High in knowledge of COVID-19 could play an important role in improving the practice of public preventive behaviour, as evidenced by our findings that knowledge was related to attitudes and preventive actions (Lee, Kang, & You, 2021). Sabahan who are aware of COVID-19 have reported they are well-versed in COVID-19 and has devised a workable solution to the epidemic. They have reasonable awareness, a sensible attitude, and positive experience with COVID-19 during the pandemic (Fatah et al.,2021).

In China, undergraduate students discovered that the majority of them were well educated with COVID-19 related knowledge, had a positive attitude, and engaged in proactive practise throughout the epidemic, showing that huge public education campaigns offered decent health education (Peng et al., 2020). This shows that there is a need to conduct study among student population in Malaysia about factor that affecting their KAP to see the clear image of their respond towards the pandemic.

Moreover, the consensus that the Malaysian government handled the COVID-19 situation properly was significantly associated with gender, age group, region, and occupation. (Azlan et al., 2020). The information evaluations differed significantly between those who thought the government was doing a good job dealing with the problem and those who were unsure (Azlan et al., 2020). The study will provide about student level KAP on COVID-19 prevention.

Moreover, the study instrument is adapted from previous KAP on COVID-19 in Malaysia and China by Azlan et al. (2020) and Tian et al. (2020). The survey was converted in the English and Malay languages. There are four main themes: 1) demographics, which surveyed participants' socio-demographic information, including gender, age, state of residence, occupation, and household income; 2) knowledge about COVID-19; 3) attitudes toward COVID-19; and 4) practices relevant to COVID-19.

For knowledge score about COVID-19, 13 items were adapted from previous research. The items 1 until 4, it included the participant knowledge about clinical presentations, and from 5 until 8 is transmission routes and 9 until 13 prevention and control of Covid-19. Participants were given "true," or "false," response options to these items. A correct response to an item was assigned 1 point, while an incorrect response was assigned 0 points. The maximum total score ranged from 0 – 13, with a higher score indicating better knowledge about Covid-19.

For attitudes score towards COVID-19, surveyed participants were asked whether they agreed, disagreed or were not sure that the pandemic would be successfully controlled. They were also asked about their confidence towards the government in winning the battle against COVID-19 (yes or no) and about the ability of the government in handling the COVID-19 crisis (agree, disagree, or not sure).

For practices scores, participants were asked yes or no questions on whether they had avoided going to crowded places such as weddings; wore a face mask when leaving home; and whether they practiced proper hand hygiene in past two weeks.

CHAPTER 3

METHODOLOGY

3.1 STUDY DESIGN

This is a descriptive, cross-sectional study of knowledge, attitudes and practices regarding Covid-19 among undergraduate students in Universiti Putra Malaysia.

3.2 STUDY LOCATION

This study will be conducted at Universiti Putra Malaysia specifically three groups of finals year student grouped in different background of studies. In the situation of this pandemic, direct interview cannot be done but, it had been resolved by using online survey platform which is Google Form.

3.3 SUBJECT SELECTION

The population selected is undergraduate student in Universiti Putra Malaysia. Based on 16 faculties in UPM, where 15 faculties which offered undergraduate programmes had selected and had been categorised by different several core of study such health sciences, engineering, and social science students. Where in order to get same interest of classified groups and to reduce other risk factor, final year student had been selected groups.

3.3.1 SAMPLING PROCEDURE

Sampling method that will be used is non-random sampling. In this case these groups of among final year student will be selected by purposive sampling of several characteristics. Initially, department of the is selected non randomly. It does not have the probability involved, with say, simple random sampling, where the odds are the same for any particular participant being chosen. Rather, it had been categorised by it core of studies stated in Figure 1 such as health science, engineering, and social science students. Subsequently respondents are then selected on basic of referral. Next, the data of student will be obtained by administration office.

3.3.2 SAMPLE SIZE

The study was designed to estimate the prevalence of knowledge, attitudes and practices on Covid-19 among student in Universiti Putra Malaysia within 5% of the true prevalence with 95% confidence. The sample size calculation was determined based on the objectives of the study. The calculation of the sample size for prevalence of knowledge, attitudes and practices were based on previous studies conducted in Malaysia and China by Azlan et al. (2020) and Tian et al. (2020). The number of sample size for prevalence of attitudes was 87 and prevalence of practices 42. Below is the formula used to calculate the sample size.

$$n = \frac{(Z_{1-\alpha/2})^2 \times P(1-P)}{d^2,}$$

$(Z^2\ 1-\alpha/2)$ (confidence level of 95%, α is 0.05) = 1.96,

P = prevalence of previous study

σ^2 = standard deviation

d = mean difference

$$n = \frac{(1.96)^2 \times 0.940(1-0.940)}{0.05^2,}$$

= 87 for each group

The sample size for association between knowledge and attitude and was based on Azlan et al. (2020) and Tian et al. (2020). The sample size for association prevalence of knowledge. attitude and practice associated with income is 43. Based on the calculation, this is the minimum sample size that needed for each group to detect whether the stated difference exists between the two means with non-respondent rate 0.10: 1.10 x (87 x 3 different groups) = 294 students.

Therefore, the total sample size for this study will be 294 respondents required.

3.3.3 INCLUSION AND EXCLUSION CRITERIA

This study will include student in University Putra Malaysia at sample population. They need to fulfil the inclusive criteria. They will be a consent questions in questionnaires for the health research study purpose.

Inclusion criteria will be:

- Student undergraduates who are pursing in finals year student in Universiti Putra Malaysia in 2021.
- Must be Malaysian.
- Respondents who give their consent to participate in this study.
- Age below than 18 and more than 29.

Exclusion criteria will be:

- International student
- Students who did not pursuing the final semester because deferring process 2021

3.4 MATERIALS AND INSTRUMENTATION

The study instruments in this study included an adapted questionnaire (Azlan et al, 2020). An online questionnaire KAP regarding Covid-19 will be created based on previous authors' article and will be distributed through sample population respectively.

3.4.1 QUESTIONNAIRE

Data are collected using a validated questionnaire, which was adapted for use in this study from literature (Azlan et al, 2020). The questions were aimed at gathering information on the knowledge, attitudes and practice of the group about Covid-19. The questionnaires are available in English and Malay language using back-to-back translation method.

The questionnaire was composed of the following:

The first part consists of relevant details demographic data such as age, gender, family income, and ethnicity.

The second part consists of questions about Covid-19 knowledge. Thirteen questions will be evaluated, and the answer choice was 'yes' or 'no' where the wrong answer 1 score and 0 score was given a correct answer. Table 2 shows of score ranges from 0- 13 points and classified as follows into 3 levels (Azlan et al, 2020):

Table 2. Knowledge Score ranges into 3 level.

High level (80-100%)	**11-13 scores**
Moderate level (60-79%)	**8-10 scores**
Low levels (less than 59%)	**0-7 scores**

The third part measured attitudes to Covid-19, which included 3 questions. The rating scale corresponds whether they agreed, disagreed or were not confident that the pandemic would be successfully controlled. They will be asked about their confidence in the government to win the war against COVID-19 (agree, disagree, or not sure) and about the government's capacity to deal with the COVID-19 crisis (agree, disagree, or not sure).

The fourth section dealt with Covid-19 preventive action that were tested by asking yes/no questions about whether they had stopped going to busy areas such as weddings or mall, wear a face mask while leaving home; and whether they exercise good hand hygiene in the week before the latest MCO.

3.5 METHOD AND PROCEDURES

3.5.1 STUDY ETHICS

Approval of the study will be obtained from Ethics Committee for Research Involving Human Subjects Universiti Putra Malaysia (UPM) to obtain approval for the research. Informed the participants about the purpose and design of the study and assured that participation was voluntary and confidential. Written consent was obtained from those who agreed to participate. JKEUPM-2021-20. The ethical approval letter is shown in Appendix III.

3.6 DATA AND SAMPLE ANALYSIS

3.6.1 QUESTIONNAIRE

This questionnaire had been adapted from previous research (Azlan et al.,2020) where all the pre-test and reliability test had been done before. The Cronch Bach's alpha value for the pre-test is 0.7. For the distribution part, all the sample information will be collected by obtaining their information from the administration office. Next, the questionnaire will be distributed by emails or contact numbers. Next, recorded data from the questionnaire will be evaluated using the IBM Statistical Kit for Social Sciences (SPSS) Version 25. Statistical analyses will be performed to evaluate socio-demographic and other details in the questionnaires such as mean, standard deviation, median or frequency.

3.6.2 STATISTICAL ANALYSIS

Statistical Package for Social Science Version 25 (SPSS) will be selected as statistical analysis tool. The information gathered was entered into Excel sheet and interpreted using IBM SPSS Statistics 25. Presented the knowledge, attitudes, and practices questions and obtained the overall score for each part. The data analysis was used to summarize and explain the data including descriptive statistics (frequency, percentage, mean, and standard deviation). For analytical statistics, Chi square and Kruskal Wallis was used to compare the median and p-value to produce the relationship between variables. Table 3 are the statistical analysis used by each of objective.

Table 3. Statistical analysis

No.	Objectives	Statistical Analysis
1.	To determine the socio demographic characteristics of health science, engineering, and social science students in University Putra Malaysia	Descriptive analysis
2	To determine the knowledge, attitude and practice on Covid-19 prevention among health science, engineering, and social science students in University Putra Malaysia.	
3	To compare the knowledge score on Covid-19 between groups of selected final year students in Universiti Putra Malaysia.	Kruskal Wallis
4	To compare the attitude score on Covid-19 between groups of selected final year students in Universiti Putra Malaysia.	Chi square
5	To compare the practice score on Covid-19 between groups of selected final year students in Universiti Putra Malaysia.	

CHAPTER 4

RESULT

4.1 STUDY BACKGROUND

This cross-sectional aim to compare the knowledge, attitude and practice on COVID-19 prevention among students in UPM. It had been conducting among undergraduate programmes where they had been selected and categorised by different several core of study such health sciences, engineering, and social students. This is because to get same interest of classified groups and to reduce other risk factors. Moreover, it examines the public's knowledge, attitudes, and practices (KAP) related to COVID-19 and their relationships and identified the pandemic's vulnerable populations to provide recommendations for behavioral interventions and policies. All of these KAP components have been deemed essential to guarantee that the infection is effectively prevented and controlled pandemic.

4.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

The study population is under-graduate students in University Putra Malaysia where, a total of 310 participants participated in the study. Out of the total participants, 95(30.6%) are male and 215(69.4%) are female. 257 (82.9%) are Malay followed by Chinese 31(10.0%) and 22(7.1%) are Indian. For family income, 125(40.3%) students are come from family who have income range in RM1001-RM3001 per month.

Table 4. Socio-demographic Characteristics of participants.

Socio-demographic characteristics		Number	Percentages (%)
Gender	Male	95	30.6
	Female	215	69.4
Ethnicity	Malay	257	82.9
	Chinese	31	10.0
	Indian	22	7.1
Faculty	Health & Science	129	41.6
	Engineering	82	26.5
	Social Sciences	99	31.9
Family Income	Below RM1000	54	17.4
	RM1001 - RM3000	125	40.3
	RM3001 - RM6000	61	19.7
	RM6001 above	70	22.6

4.2 ASSESSMENT OF KNOWLEDGE

A set questions consist of thirteen questions were used to measure knowledge on the COVID-19 virus. The average knowledge score for participants was 10.8 (SD = 1.5, range 0-13). The overall rate of the knowledge questionnaire had been categorized for high level is 13-11, for moderate level is 10-8 and for low level is 7-0. About 54.5% (169) of participants were able to obtain scores above 11, representing an acceptable level of knowledge on COVID-19. While 44.2% (137) representing the moderate level and 1.3% (4) for low level of knowledge on COVID-19.

Table 5. Knowledge Score on COVID-19 of participants.

Level of knowledge score	N	(%)
High (13-11)	169	(54.5%)
Moderate (10-8)	137	(44.2%)
Low (7-0)	4	(1.3%)
Total N	**310**	**(100.0%)**

A set of thirteen questions had been distributed to measure the knowledge level for this study. The questions are adapted from previous study (Azlan et al.,2020). Based on the frequency participants, most participants knew that people who had main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and body aches (93.8%) and isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus and people who have contact with someone infected with the COVID-19 virus (96.3%). However, it reported that 37.0% participants are confused about common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.

Table 6. Knowledge questionnaires on COVID-19.

No.	Question	True	False
1	The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and body aches	**93.8%**	6.2%
2	Common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.	37.0%	**63.0%**
3	There currently is no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection	**88.9%**	11.1%
4	Not all persons with COVID-2019 will develop to severe cases. Only those who are elderly and have chronic illnesses are more likely to be severe cases	**82.5%**	17.5%
5	Eating or touching wild animals would result in the infection by the COVID-19 virus	17.5%	**82.5%**
6	Persons with COVID-19 cannot infect the virus to others if they do not have a fever.	2.5%	**97.5%**
7	The COVID-19 virus spreads via respiratory droplets of infected individuals	**85.2%**	14.8%
8	The COVID-19 virus is airborne	**75.3%**	24.7%
9	Ordinary residents can wear face masks to prevent the infection by the COVID-19 virus	**96.3%**	3.7%
10	It is not necessary for children and young adults to take measures to prevent the infection by the COVID-19 virus.	8.6%	**91.4%**
11	To prevent the infection by COVID-19, individuals should avoid going to crowded places and avoid taking public transportations.	**95.1%**	4.9%
12	Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.	**95.1%**	4.9%
13	People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the isolation period is 14 days.	**96.3%**	3.7%

4.3 ASSESSMENT OF ATTITUDES

The rating scale corresponds used to assess attitudes on COVID-19, so 66 (21.3%) are agreed that the pandemic would be successfully controlled while 57 (18.4%) are disagreed or 187 (60.3%) were not confident. They had been asked about their confidence in the government to win the war against COVID-19 and it showed 221 (71.3%) are agreed, 10 (3.2%) are disagree and 79 (25.5%) are not sure about it. Then, 203 (65.5%) are agree about the government's capacity to deal with the COVID-19 crisis, followed by 42 (13.5%) are disagree and 65 (21.0%) are not sure.

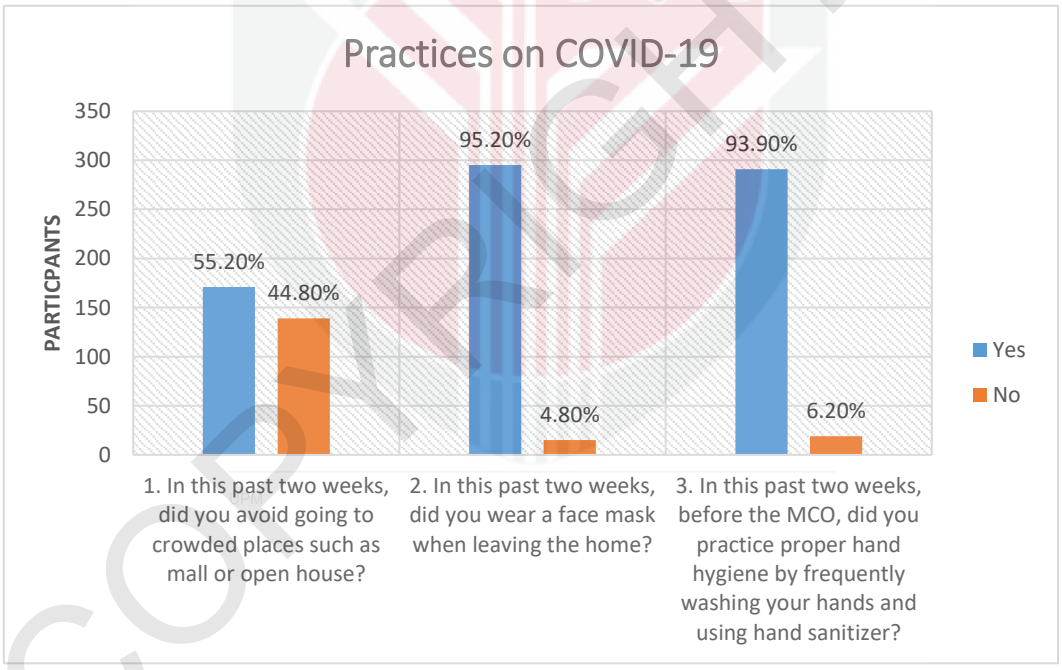
Table 7. Assessment of attitude on COVID-19.

Questions	Agree (n, %)	Disagree (n, %)	Not sure (n, %)
1. Are you agree that Covid-19 is successfully controlled?	66(21.3)	57(18.4)	187(60.3)
2. Do you confidence that Malaysia can win battle against the Covid-19 virus?	221(71.3)	10(3.2)	79(25.5)
3. The government of Malaysia is handling the Covid-19 health crisis very well?	203(65.5)	42(13.5)	65(21.0)

4.4 ASSESSMENT OF PRACTICE

The next assessment is practices on COVID-19 prevention. There were tested by asking yes/no questions. Data shows practicing in going to busy areas such as weddings to measure practices recorded 171 (55.2%) participants who avoided to go to crowded area and 139 (44.48%) went to crowded are. Next, 285 (95.2%) is showing almost all the participants practicing wore face mask when leaving the home. Lastly, 288 (93.9%) participants practiced of exercised good hand hygiene.

Figure 2. Assessment of practices on COVID-19.



4.5 ASSOCIATION OF KNOWLEDGE BETWEEN HEALTH SCIENCE, ENGINEERING AND SOCIAL SCIENCE STUDENT

The objective is to compare the knowledge score on COVID-19 between health science, engineering and social science students in Universiti Putra Malaysia. Out of 310 participants, they are 129 from health science students, 82 from engineering students and 99 from social science students. the data had observed and not normally distributed where the p-value are greater than significant value, 0.05. So, results are reported in median. Median for engineering students shows 10.0 (Interquartile = 2) which is lower than other two groups, while for health science and social science shows 11 (Interquartile(health sciences) = 2, Interquartile(socials) = 2). There are also significant different of knowledge score on COVID-19 between health science, engineering and social students in Universiti Putra Malaysia, where value of P is smaller than significant value which is 0.05.

Table 8. Association of knowledge between health sciences, engineering and social student.

Socio-demographic characteristics		Number of participants	Knowledge Score (Median/IQR)	Z-statistics	P
Faculty	Health Science Engineering Social science	129 82 99	11.0(2) 10.0(2) 11.0(1)	30.317	0.000

4.6 ASSOCIATION OF ATTITUDES BETWEEN HEALTH SCIENCE, ENGINEERING AND SOCIAL SCIENCE STUDENT

Chi square is the test used to associate the variable. Tables below are the contingency table for variables which contain of variables; health science, engineering and social science and responses; agree, disagree or not sure. The result reported value of Pearson Chi-Square, df and frequency. For responses in attitude of whether that Covid-19 are successfully controlled, there are significant different between the attitude and health science, engineering and social science students. The value of p is smaller than significant value 0.05 and the degree of freedom (df) value is 4. Health science and engineering students contribute the most to the Chi-square statistic and produce the statistical significance. (X^2 = 72.136, p = 0.000) For responses in attitude about their confidence in the government to win the war against COVID-19, there are significant different between the attitude and health science, engineering and social science student. The value of p is smaller than significant value 0.05 and the degree of freedom value is 4. (X^2 = 10.653, p = 0.031) For responses in attitude about the government's capacity to deal with the COVID-19 crisis, there are significant different between the attitude and health science, engineering and social science students. The value of p is smaller than significant value 0.05 and the degree of freedom value is 4. Students from engineering and social science contribute the most to the Chi-square statistic and produce the statistical significance. (X^2 = 52.383, p = 0.000)

Table 9. Association of attitudes between health science, engineering and social science student.

Variables	**Are you agree that Covid-19 are successfully controlled?**			**Test statistics**	
Groups	**Agree**	**Disagree**	**Not sure**	**X^2**	**p-value**
Health Science	24(23.3)	57(27.9)	48 (77.8)	72.136	0.000
Engineering	16(14.8)	5(17.7)	61 (21.4)		
Social Science	16(17.9)	5(21.4)	78(59.7)		
Variables	**Do you confidence that Malaysia can win battle against the Covid-19 virus?**			**Test statistics**	
Groups	**Agree**	**Disagree**	**Not sure**	**X^2**	**p-value**
Health Science	80(89.1)	8(8.7)	41(31.2)	10.653	0.031
Engineering	55(56.6)	8(5.6)	19(19.8)		
Social Science	79(68.3)	5(6.7)	15(24.0)		
Variables	**The government of Malaysia is handling the Covid-19 health crisis very well?**			**Test statistics**	
Groups	**Agree**	**Disagree**	**Not sure**	**X^2**	**p-value**
Health Science	53(80.3)	42(22.1)	34(26.6)	52.383	0.000
Engineering	59(51.1)	6(14.0)	17(16.9)		
Social Science	81(61.6)	5(16.9)	13(20.4)		

4.7 ASSOCIATION OF PRACTICES BETWEEN HEALTH SCIENCE, ENGINEERING AND SOCIAL SCIENCE STUDENTS

Same with attitude, Chi square is the test used to associate the variable. Tables below are the contingency tables for variables which contains of groups of students; health science, engineering and social science and responses; yes or no. The result reported value of Pearson Chi-Square, df and frequency. For responses in practice whether participants are avoiding going to crowded area, there are significant different between the attitude and health sciences, engineering, and social science students. The value of p is smaller than significant value 0.001 and the df value is 2. In these results, the expected count and the observed count are the largest for health science and engineering students. ($X^2 = 138.238$, $p = 0.000$) For responses in practice whether the participants are practicing face mask when leaving the home, there are no significant different between the attitude and health science, engineering, and social science students. The value of p is greater than significant value 0.001 and the df value is 2. ($X^2 = 1.541$, $p = 0.463$). For responses in practice whether the participants are practicing of exercised good hand hygiene, there are no significant different between the attitude and health sciences, engineering, and social science students. The value of p is greater than significant value 0.001 and the df value is 2. ($X^2 = 0.576$, $p = 0.750$)

Table 10. Association of practice between health sciences, engineering and social student.

Variables	**In past two weeks, did you avoid crowded places such as mall or open house?**		**Test statistical**	
Groups	**Yes**	**No**	**X^2**	**p-value**
Health Science	95(71.2)	34(57.8)	138.238	0.000
Engineering	69(45.2)	13(36.8)		
Social Science	7(54.6)	92(44.4)		
Variable	**In the past two weeks, did you wear a face mask when leaving home?**		**Test statistical**	
Groups	**Yes**	**No**	**X^2**	**p-value**
Health Science	121	8	1.541	0.463
Engineering	73	9		
Social Science	91	8		
Variable	**In past two weeks, did you practice proper hand hygiene by frequently washing hands and using hand sanitizer?**		**Test statistical**	
Groups	**Yes**	**No**	**X^2**	**p-value**
Health Science	118	11	0.576	0.750
Engineering	75	7		
Social Science	93	6		

CHAPTER 6
DISCUSSION, CONCLUSION, AND RECOMMENDATION

5.1 DISCUSSION

5.1.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

The target population is under-graduated students in University Putra Malaysia, all of the respondents enrolled in this study were male and female from ethnicity Malay, Chinese and Indian. It distributed for 95 male and 215 of female participants who are 82.9% are Malay, 10.0% are Chinese 7.1% are Indian. It observed that the highest frequency is 40.3% of student are come from family who earned RM1001-3000 monthly followed by 22.6% of student are come from family who earned above RM6000 monthly, 19.7% of student are come from family who earned RM3001-6000 monthly and 17.4% of student are come from family who earned below RM6000 monthly for below RM1001.

5.1.2 KNOWLEDGE ASSESSMENT

It found an overall correct score in high level on the knowledge questionnaire which is 10.8 equivalent to 83.1% and it is indicating that most respondents are knowledgeable about COVID-19. Out of 13 questions are given to the participants to measure their knowledge regarding COVID-19, 7 questions had reported more than 90% where it indicate in high level of knowledge on COVID-19. Since participants are come from final year students, it had been showed that students are aware about COVID-19 information that had distributed all over

university before the semester begin. It also consistent with previous study among Sabah student where it revealed they have a solid understanding of COVID-19 and a realistic solution to the outbreak (Fatah et al., 2021) and study among undergraduates in China show that the majority of Chinese undergraduate students have a basic understanding of COVID-19, although their performance may differ according on school type and major (Peng et al., 2020).

5.1.3 ATTITUDES ASSESSMENT

The rating scale corresponds used to assess attitudes on COVID-19, so 66 (21.3%) are agreed that the pandemic would be successfully controlled while 57 (18.4%) are disagreed or 187 (60.3%) were not confident. In research of third wave had been announced on January 6, 2021, the DG of Health of Malaysia's Ministry of Health (MOH) claimed that the Malaysian health system is under strain and is reaching breaking point since cases are rising every day and hospitals and low-risk isolation centres are nearly overcrowded (Rampal & Boon Seng, 2021). Until 10th June 2021, positive cases still more than 6000 new positive cases recorded daily, so it proved that the pandemic still unsuccessfully controlled yet. After that, they had been asked about their confidence in the government to win the war against COVID-19 and it showed 221 (71.3%) are agreed, 10 (3.2%) are disagree and 79 (25.5%) are not sure about it. Movement Control Order 3.0 had been implemented all over the country since 1st June until 28th June 2021 and there a few phases strategies had been planned by government to reduce the contagious COVID-19. Then, 203 (65.5%) are agree about the government's capacity to deal with the COVID-19 crisis, followed by 42 (13.5%) are disagree and 65 (21.0%) are not sure. In previous research, the related the positive opinions to the Chinese government's proactive steps to stop the virus from spreading (Peng et al., 2020). In Malaysia, the government's quick action in implementing the MCO may have contributed to these constructive opinions (Azlan et al.,2020).

In research of Lee, Kang, and You (2021) mentioned the efficacy beliefs showed a substantial and significant impact on performing preventive behaviours, indicating that encouraging preventive behaviours against COVID-19 would necessitate increasing both knowledge and efficacy beliefs among the general public.

5.1.4 PRACTICES ASSESSMENT

The next assessment is practices on COVID-19 prevention. There were tested by asking yes/no questions. Data recorded 171 (55.2%) participants who avoided to go to crowded area and 139 (44.48%) went to crowded area. Since the questionnaire are distributed before the MCO 3.0 had been implemented, so it can be seen that participants are likely to have normal live without avoiding crowded area. Among Sabah students, it shown that people had intermediate knowledge of COVID-19 where "Avoiding handshaking, embracing, and kissing helps prevent contracting and transmitting COVID-19," most participants admitted and only 2 out of 37 participants say "no" (Fatah et al., 2021). However, it had different time sampling frame between the study that might give different resulted. As in China, well-informed on COVID-19, had a positive attitude and proactive behaviour throughout the epidemic, showing that major public education efforts offered excellent health education (Peng et al., 2020).

Next, 285 (95.2%) is showing almost all the participants practicing wore face mask when leaving the home. It is crucial to maintain wearing a mask every time you leave the house since, according to mask instructions, masks are a basic barrier that helps prevent your respiratory droplets from reaching others. When worn across the nose and mouth, studies demonstrate that masks minimise the spray of droplets (“COVID-19 and Your Health,” 2020).

Lastly, 288 (93.9%) participants practiced of exercised good hand hygiene. Nowadays, hand sanitizers had be made as convenient as they can carry it in handbag and also it observed in

many stores prepared it on the table before entering their premises. Hence, it actually eases people in keeping their hand hygiene in clean condition most of the time.

5.1.5 ASSOCIATION OF KAP BETWEEN HEALTH SCIENCE, ENGINEERING AND SOCIAL SCIENCE STUDENT

The objective is to determine ethe association of the knowledge score between health sciences, engineering, and social science students. There is significant different between knowledge score between health science, engineering, and social science students. The median of knowledge score shows in health science and social science students are greater than engineering students. It also indicates that student who have science background tend to have higher median of knowledge score on COVID-19 compared to people who have engineering as study background. Research from China also indicates that medical students demonstrated a high level of knowledge, which might be attributed to their training in clinical medicine and public health (Peng et al., 2020).

For responses in attitude of whether that Covid-19 are successfully controlled, there are significant different between the attitude and health science, engineering and social science student. Health sciences and engineering have more confident that COVID-19 are successfully control compared to social students. For responses in attitude about the government's capacity to deal with the COVID-19 crisis, there are significant different between the attitude and health sciences, engineering and social science students. Students from engineering and social have positive regarding government’s capacity to deal with COVID-19 compared to health sciences student. Increasing the amount of comprehensive information on knowledge, attitudes, and behaviours about a certain health education will lead to a higher level of COVID-19 awareness. (Fatah et al., 2021).

For responses in practice whether participants are avoiding going to crowded area, there are significant different between the attitude and health sciences, engineering, and socials students. Next, health sciences and engineering students tend not to go to crowded are compared to social sciences students. It conveys that they understand about preventive measure of social distancing while in crowded very well. As in China, well-informed on COVID-19, had a positive attitude and proactive behaviour throughout the epidemic, showing that major public education efforts offered excellent health education (Peng et al., 2020).

5.2 CONCLUSION

5.2.1 LIMITATION

Limitation of study are the instruction and collecting sample are selection error. This might affect the study compared to face-to-face communication. It can be better if the communication can be done by physical interaction to increase representativeness and reliability of the findings, a more systematic, comprehensive sampling procedure.

Since the population had been purposively selected into final year groups, it had been limited to assess other intimidating factor that might cause of the knowledge score and response of attitude and practices. Even they were quarantined and separated in provinces and regions around the university at the time of the study. Hence, this may not accurately reflect the situation of overall undergraduate students at the institutions.

5.3 RECOMMENDATION

In conclusion, this study was able to give a thorough analysis of selected final years of knowledge, attitudes, and practises about COVID-19. It also highlights the need for more comprehensive education programmes that make decisions based on the consistency of information provided by the university and other authorities. COVID-19 education activities should be proactive, focusing on eliminating disinformation in the form of open-ended, old wives' tales, and erroneous information. In addition, there also a need of implementing awareness programmes to have good practices in wearing mask in public and practicing hand hygiene. Hopefully, with good knowledge, attitudes and practices regarding COVID-19 can lessen the contagious virus in future.

REFERENCES

Azlan, A. A., Hamzah, M. R., Sern, T. J., Ayub, S. H., & Mohamad, E. (2020). Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. PLOS ONE, 15(5), e0233668. https://doi.org/10.1371/journal.pone.0233668

Tian, S., Hu, N., Lou, J., Chen, K., Kang, X., Xiang, Z., Chen, H., Wang, D., Liu, N., Liu, D., Chen, G., Zhang, Y., Li, D., Li, J., Lian, H., Niu, S., Zhang, L., & Zhang, J. (2020). Characteristics of COVID-19 infection in Beijing. *Journal of Infection, 80(4)*, 401–406. https://doi.org/10.1016/j.jinf.2020.02.018

Huang, B., Ling, R., Cheng, Y., Wen, J., Dai, Y., Huang, W., … Jiang, Y.-Z. (2020). Characteristics of the Coronavirus Disease 2019 and related Therapeutic Options. *Molecular Therapy - Methods & Clinical Development, 18*, 367–375. https://doi.org/10.1016/j.omtm.2020.06.013

Al-Hanawi, M. K., Angawi, K., Alshareef, N., Qattan, A. M. N., Helmy, H. Z., Abudawood, Y., … Alsharqi, O. (2020). Knowledge, Attitude and Practice Toward COVID-19 Among the Public in the Kingdom of Saudi Arabia: A Cross-Sectional Study. Frontiers in Public Health, 8, 0. https://doi.org/10.3389/fpubh.2020.00217

Fatah, N. S. A., Nurhasim, M. F., Kaltes, I. A., Jaafar, A. S. I. A., Amran, I., & Baharum, A. (2021). Awareness KAP On COVID-19 among university students in Sabah. International Journal of Advanced Technology and Engineering Exploration, 8(74), 161–166. https://doi.org/10.19101/ijatee.2020.s1762135

Lee, M., Kang, B. A., & You, M. (2021). Knowledge, attitudes, and practices (KAP) toward COVID-19: a cross-sectional study in South Korea. BMC Public Health, 21(1). https://doi.org/10.1186/s12889-021-10285-y

Peng, Y., Pei, C., Zheng, Y., Wang, J., Zhang, K., Zheng, Z., & Zhu, P. (2020). A cross-sectional survey of knowledge, attitude and practice associated with COVID-19 among undergraduate students in China. BMC Public Health, 20(1). https://doi.org/10.1186/s12889-020-09392-z

Definitions for Consideration | State TB Prevention & Control Laws | TB Laws & Policies | Resources & Tools | TB | CDC. (n.d.). Retrieved December 5, 2020, from https://www.cdc.gov/tb/programs/laws/menu/definitions.htm#:%7E:text=%E2%80%9CCommunicable%20disease%E2%80%9D%20means%20an%20illness,susceptible%20animal%20or%20human%20host

Rosnr, B. (1999). *Fundamentals of Biostatistics 5th edition (5th edition).* Retrieved from https://www.openepi.com/PDFDocs/SSMeanDoc.pdf

L.R., & L.B.S. (2021). The Medical Journal of Malaysia. Malaysia's Third COVID-19 Wave – a Paradigm Shift Required. Published. Retrieved from http://www.e-mjm.org/2021/v76n1/third-COVID-19-wave.pdf

World Health Organization. Coronavirus disease 2019 (COVID-19): Situation report – 91. (2020) Available from: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200420-sitrep-91-covid-19.pdf?sfvrsn=fcf0670b_4

First case of Malaysian positive for coronavirus. (2020). BERNAMA. https://www.bernama.com/en/general/news_covid-19.php?id=1811373

COVID-19 Malaysia Updates by MOH. (2020). Retrieved December 4, 2020, from http://covid-19.moh.gov.my/terkini

Sullivan, D. M. A. K. G. (n.d.). OpenEpi - Toolkit Shell for Developing New Applications. Retrieved December 8, 2020, from https://www.openepi.com/SampleSize/SSMean.htm

COVID-19 transmission and protective measures. (2021). Retrieved June 10, 2021, from https://www.who.int/westernpacific/emergencies/covid-19/information/transmission-protective-measures

.

Appendix A
Respondents Information Sheet

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

FORM OF 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 :
Comparison Knowledge, Attitudes and Practices on Covid-19 Among Selected Final Year Student in Universiti Putra Malaysia.

2. INTRODUCTION:
Coronavirus Disease 2019 (Covid-19) is a new form of pneumonia caused by extreme acute respiratory coronavirus-2 (SARS-CoV-2) infection. In 2020, where the most terrified years of people because of the pandemic Covid-19 that had affected all over the world in short period. So, Malaysia's government decided a drastic measure by placing the Covid-19 pandemic crisis under the control of the National Security Council (NSC), a national body that manages and administrates disaster crises. So, implementation of Movement Control Order (MCO) had immediately announced started on 18th March 2020 as a preventive measure to isolate the source of virus and break the chain of the Covid-19 indirectly flatten the curve of positive cases.This show KAP study is the best ways to measure the practicing the preventive measure in public to help in breaking the transmisson from widen. Hence, it is crucial to evaluate on KAP among student population as to detail their other factors contributed of their scores.

3. WHAT WILL YOU HAVE TO DO?
A brief instruction and link will be given to participant personally through internet platform such as emails and WhatsApp. The link provided will assist to direct website of Google Form that had been created to ease the participant to access to the questionnaire. The questionnaire comprised of 4 parts which are sociodemographic information, knowledge, attitudes and practices regarding Covid-19. This questionnaire is self administered by the sample ownself.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?
Based on the sample poputalation selected, the exclusion criteria are below:
1) Students who are unwilling to participate in this study.
2) The respondent who cannot read, write and communicate in Bahasa Melayu and English.
3) Student who does not pursing in finals year student where Bachelor Science of Environmental and Occupational Health and Bachelor Science of Human Resource Development in Universiti Putra Malaysia.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

It helps subject to identify their level of KAP level regarding Covid-19. This also may alert themself to become more proactive in reducing transmission of the contagious Covid-19 and also prevent themselves from the disease.

(b) TO THE INVESTIGATOR?

The data will help in verify the study as the data come from validate student that pursuing their current studies in Universiti Putra Malaysia.

6. WHAT ARE THE POSSIBLE RISKS?

There is no human biological sample needed from subject. Hence, there is no high risk of health hazard in this study. The risk might cause from the study on subject could only be of identity information leaked however, this is will be covered by fully secured from the investigator while handling the data.

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

Yes because the data will be secured by the investigator as possible as can.

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

If you have any questions, you can directly contact Samsiah by email to samsiah8991@gmail.com or call 017-9424513.

*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 ……..…… (Respondent)

Date :……..

Signature ……..…… (Witness)

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)

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

BORANG PENERANGAN DAN PERSETUJUAN RESPONDEN

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

1.TAJUK KAJIAN
Perbandingan Pengetahuan, Sikap dan Amalan mengenai Covid-19 Antara Kalangan Pelajar Tahun Akhir yang Terpilih di Universiti Putra Malaysia

2. PENGENALAN
Penyakit Coronavirus 2019 (Covid-19) adalah penemuan baru radang paru-paru yang disebabkan oleh jangkitan Coronavirus-2 pernafasan yang melampau (SARS-CoV-2). Pada tahun 2020, di mana orang-orang bimbang tahun kerana pandemik Covid-19 yang telah mempengaruhi seluruh dunia dalam masa yang singkat. Oleh itu, kerajaan Malaysia memutuskan langkah drastik dengan meletakkan krisis pandemi Covid-19 di bawah kawalan Majlis Keselamatan Nasional (NSC), sebuah badan nasional yang mengurus dan mentadbir krisis bencana. Oleh itu, pelaksanaan Perintah Kawalan Pergerakan (MCO) segera diumumkan bermula pada 18 Mac 2020 sebagai langkah pencegahan untuk mengasingkan sumber virus dan memutuskan rantai Covid-19. Ini menunjukkan kajian KAP adalah kaedah terbaik untuk mempraktikkan kaedah pencegahan di khalayak ramai untuk membantu memutuskan transmisi. Oleh itu, sangat penting untuk menilai KAP di kalangan populasi pelajar untuk memperincikan faktor-faktor lain yang menyumbang kepada skor mereka.

3. APAKAH YANG PERLU ANDA LAKUKAN?
Arahan dan pautan ringkas akan diberikan kepada peserta secara peribadi melalui platform internet seperti e-mel dan WhatsApp. Pautan yang disediakan akan membantu mengarahkan laman web Google Form yang telah dibuat untuk memudahkan peserta mengakses soal selidik. Soal selidik ini terdiri daripada 4 bahagian iaitu maklumat diri, pengetahuan, sikap dan amalan sosiodemografi mengenai Covid-19. Soal selidik ini perlukan utuk diisiikan secara lengkap sendiri oleh sampel.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?
Berdasarkan sampel populasi yang dipilih, kriteria pengecualian adalah di bawah:
1) Pelajar yang tidak mahu mengambil bahagian dalam kajian ini.
2) Responden yang tidak dapat membaca, menulis dan berkomunikasi dalam Bahasa Melayu dan Bahasa Inggeris.
3) Pelajar yang tidak melanjutkan pelajaran ke tahun akhir di mana Sarjana Muda Sains Kesihatan Alam Sekitar dan Pekerjaan dan Sarjana Muda Pembangunan Sumber Manusia di Universiti Putra Malaysia.

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?
Ini membantu subjek untuk mengenal pasti tahap tahap KAP mereka mengenai Covid-19. Ini juga dapat menyedarkan diri mereka untuk menjadi lebih proaktif dalam mengurangkan penularan Covid-19 dan juga mencegah diri mereka dari penyakit ini.

b) KEPADA PENYELIDIK?
Data tersebut akan membantu mengesahkan kajian kerana data tersebut berasal dari pelajar yang sahih mengikuti pengajian semasa di Universiti Putra Malaysia.

6. ADAKAH IA BERISIKO?

Tidak ada sampel biologi manusia yang diperlukan dari subjek. Oleh itu, tidak ada risiko bahaya kesihatan yang tinggi dalam kajian ini. Risiko yang mungkin timbul dari kajian pada subjek hanya disebabkan oleh maklumat identiti yang bocor namun, ini akan dilindungi dengan dijamin sepenuhnya dari penyiasat ketika mengendalikan data.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Ya kerana data akan dijamin oleh penyiasat seboleh mungkin dengan tidak berkongsi tanpa keizinan pemunya data.

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

Jika mempunyai sebarang pertanyaan, boleh terus hubungi Samsiah menggunakan emel ke samsiah8991@gmail.com atau panggilan ke nombor 017-9424513.

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 B
Respondents Information Sheets

QUESTIONAIRRES

PART A: SOCIO-DEMOGRAPHICAL CHARACTERISTICS

Please circle and fill in the blanks of your socio demographical characteristics below.

GENDER:	Male/Female
AGE:	
CITIZENSHIP	Malaysian/Non-Malaysian
ETHNICITY:	Malay/Chinese/Indian/Others
REGISTERED OKU	Yes/No
FAKULTI:	**Tick (/)**
Faculty Medical and Health Sciences	
Faculty of Engineering	
of Science Computer	
Faculty of Human Ecology	
Faculty of Language and Communication	

PART B: KNOWLEDGE REGARDING COVID-19

Answer the question below.

No.	Questions	Yes	No
1	The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and body aches.		
2	Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus		
3	There currently is no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection.		
4	Not all persons with COVID-2019 will develop to severe cases. Only those who are elderly and have chronic illnesses are more likely to be severe cases.		
5	Eating or touching wild animals would result in the infection by the COVID-19 virus.		
6	Persons with COVID-19 cannot infect the virus to others if they do not have a fever.		
7	The COVID-19 virus spreads via respiratory droplets of infected individuals		
8	The COVID-19 virus is airborne.		
9	Ordinary residents can wear face masks to prevent the infection by the COVID-19 virus.		
10	It is not necessary for children and young adults to take measures to prevent the infection by the COVID-19 virus		
11	To prevent the infection by COVID-19, individuals should avoid going to crowded places and avoid taking public transportations.		
12	Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus		
13	People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the isolation period is 14 days		

PART C: ATTITUDES REGARDING COVID-19

Answer question below.

No	Question	Agree	Disagree	Not sure
1	Are you agree that Covid-19 are successfully controlled?			
2	Do you confidence that Malaysia can win battle against the Covid-19 virus?			
3	The government of Malaysia is handling the Covid-19 health crisis very well?			

PART D: PRACTICES REGARDING COVID-19

Answer question below.

No	Question	Yes	No
1	In past 2 weeks, did you avoid going to crowded places such as weddings?		
2	In past 2 weeks, did you wear a face mask when leaving the home?		
3	In past 2 weeks, did you practice proper hand hygiene by frequently washing your hands and using hand sanitizer?		

The end of questionnaires.

Thank you for your cooperation.

SOALAN (BAHASA MELAYU)

BAHAGIAN A: CIRI-CIRI SOSIO-DEMOGRAFI

Sila bulatkan dan isi tempat kosong di bawah.

JANTINA:	Lelaki/Perempuan
UMUR:	
WARGANEGARA:	Ya/Bukan
ETNIK:	Melayu/Cina/India/lain-lain
BERDAFTAR OKU:	Ya/Tidak
FAKULTI:	**TANDA (/)**
Fakulti Perubatan dan Sains Kesihatan	
Fakulti Kejuruteraan	
Fakulti Sains Komputer	
Fakulti Ekologi Manusia	
Fakulti Bahasa Moden dan Komunikasi	

BAHAGIAN B: PENGETAHUAN TENTANG COVID-19

Jawab soalan di bawah.

No.	Questions	Ya	Tidak
1	Gejala klinikal utama COVID-19 adalah demam, keletihan, batuk kering, dan sakit badan.		
2	Tidak seperti selesema, hidung tersumbat, hidung berair, dan bersin jarang berlaku pada orang yang dijangkiti virus COVID-19		
3	Tidak ada penawar yang berkesan untuk COVID-19, tetapi rawatan simptomatik dan sokongan awal dapat membantu kebanyakan pesakit pulih dari jangkitan.		
4	Tidak semua orang dengan COVID-2019 akan mengalami kes yang teruk. Hanya mereka yang berumur dan mempunyai penyakit kronik yang cenderung menjadi kes yang teruk.		
5	Makan atau menyentuh haiwan liar akan mengakibatkan jangkitan virus COVID-19.		
6	Orang dengan COVID-19 tidak boleh menjangkiti virus kepada orang lain jika mereka tidak demam.		
7	Orang dengan COVID-19 tidak dapat menjangkiti virus kepada orang lain jika mereka tidak demam. Virus COVID-19 merebak melalui titisan pernafasan individu yang dijangkiti		
8	Virus COVID-19 boleh berjangkit melalui udara.		
9	Penduduk biasa boleh memakai topeng muka untuk mencegah jangkitan virus COVID-19.		
10	Kanak-kanak dan orang dewasa muda tidak perlu mengambil langkah-langkah untuk mencegah jangkitan oleh virus COVID-19		
11	Untuk mengelakkan jangkitan oleh COVID-19, individu harus mengelak dari pergi ke tempat yang sesak dan tidak menggunakan pengangkutan awam.		
12	Pengasingan dan rawatan orang yang dijangkiti virus COVID-19 adalah kaedah berkesan untuk mengurangkan penyebaran virus		
13	Orang yang mempunyai hubungan dengan seseorang yang dijangkiti virus COVID-19 harus segera diasingkan di tempat yang betul. Secara amnya, tempoh pengasingan adalah 14 hari		

BAHAGIAN C: SIKAP TERHADAP COVID-19

Jawab soalan di bawah.

No	Soalan	Setuju	Tidak setuju	Tidak pasti
1	Adakah anda bersetuju bahawa Covid-19 berjaya dikawal?			
2	Adakah anda yakin bahawa Malaysia dapat memenangi pertempuran melawan virus Covid-19?			
3	Kerajaan Malaysia menangani krisis kesihatan Covid-19 dengan baik?			

BAHAGIAN D: AMALAN TENTANG COVID-19

Jawab soalan di bawah.

No	Question	Ya	Tidak
1	Pada 2 minggu sebelum, adakah anda mengelakkan pergi ke tempat-tempat yang sesak seperti majlis perkahwinan?		
2	Pada 2 minggu sebelum, adakah anda memakai topeng muka semasa meninggalkan rumah?		
3	Pada 2 minggu sebelum, adakah anda mengamalkan kebersihan tangan dengan kerap mencuci tangan dan menggunakan pembersih tangan?		

Soal selidik tamat.

Terima kasih atas kerjasama anda.

Appendix C
Ethical Approval

Ref. no: UPM/TNCPI/RMC/JKEUPM/1.4.18.2 (JKEUPM)
Date: 7 May 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, Attitude and Practice on COVID-19 Prevention among Health Sciences, Engineering, and Social Students in University Putra Malaysia'** 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-2021-020**

Thank you.

Yours faithfully,

Prof. Dr. Zamberi Sekawi

Chair

Ethics Committee for Research Involving Human Subjects

Universiti Putra Malaysia