KNOWLEDGE, ATTITUDE AND PRACTICE OF UNDERGRADUATE STUDENTS IN A PRIVATE UNIVERSITY IN KAJANG TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19.

By

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ABSTRACT

BACKGROUND: COVID-19 pandemic has caused significant impact to people around the world, including the university students. Reports showed that university students were the second highest group of individual infected with the disease. Therefore, it is important for student to have good knowledge level, attitude and level of practice (KAP) towards standard precautions.

OBJECTIVE: To determine student's KAP towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

METHODOLOGY: A cross-sectional study was conducted from 5th to 14th March 2022 among 293 undergraduate students in a private university in Kajang using online questionnaire. Participants were recruited via convenience sampling method. Data collected were analysed using SPSS Statistics 22.

RESULTS: Nearly all participants had good knowledge level (94.2%) and level of practice (99.3%) towards COVID-19 standard precaution. Participants had good attitude towards four of the five variables in attitude assessment (91.8% self-quarantine, 82.9% wearing facemask, 86.3% social distancing and 85.7% vaccines). 38.2% of them showed poor attitude towards consultation. There were no significant associations found between KAP with sociodemographic characteristics, except for attitude (self-quarantine) and gender (χ2=4.645, p=0.046). Significant association found between attitude (self-quarantine and

vaccines) with knowledge ($\chi2$=10.807, p=0.008 and $\chi2$=15.738, p=0.001) and practice with attitude (vaccines) ($\chi2$=12.035, p=0.020). No significant association discovered between practice and knowledge.

CONCLUSION: KAP towards COVID-19 standard precautions were relatively high among university students. Findings from this study proved that the university's infection control measures were well managed.

KEYWORDS: COVID-19, pandemic, undergraduate students, standard precautions, knowledge level, attitude, level of practice

ACKNOWLEDGEMENT

FACULTY OF MEDICINE AND HEALTH SCIENCES

UNIVERSITY TUNKU ABDUL RAHMAN

Date: 1 May 2022

PERMISSION SHEET

It is hereby certified that **YAP CHNG HUEI** (ID No.: 17UMB04227) completed this Research project titled "KNOWLEDGE, ATTITUDE AND PRACTICE OF UNDERGRADUATE STUDENTS IN A PRIVATE UNIVERSITY IN KAJANG TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19" under the supervision of <u>Ms. Choo Peak Yean</u> (supervisor) and <u>Dr. Mohammed Abdulrazzaq Jabbar</u> (co-supervisor) from the Faculty of Medicine and Health Sciences.

I hereby give permission to the university to upload softcopy of my final year project/dessertation/thesis* in PDF format into UTAR Institutional Repository, which may be accessible to UTAR community and public.

Yours truly,

_____

(YAP CHNG HUEI)

DECLARATION

I hereby declare that the Research project is based on my original work except
for quotations and citations which have been duly acknowledge. I also declare
that it has not been previously or concurrently submitted for any other degree at
UTAR or other institutions.

_____

(YAP CHNG HUEI)

Date: 1 May 2022

APPROVAL SHEET

This Research project entitled "**KNOWLEDGE, ATTITUDE AND PRACTICE OF UNDERGRADUATE STUDENTS IN A PRIVATE UNIVERSITY IN KAJANG TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19**" is prepared by YAP CHNG HUEI and submitted as partial fulfilment of the requirements for the degree of Bachelor of Nursing (Hons) at Universiti Tunku Abdul Rahman.

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LIST OF ABBREVIATIONS

KAP	Knowledge, attitude and practice
CDC	Centers for Disease Control and Prevention
COVID-19	Coronavirus disease 2019
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2
WHO	World Health Organization
MOH	Ministry of Health
UTAR	Universiti Tunku Abdul Rahman
SPSS	Statistical Package for the Social Sciences

CHAPTER 1: INTRODUCTION

1.0 CHAPTER OVERVIEW

Background, problem statement, significance of the study, study objectives, research questions, hypothesis, conceptual and operational definitions and conceptual framework of the research will be discussed in this chapter.

1.1 BACKGROUND

Coronavirus disease 2019 (COVID-19) is a respiratory disease caused by novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Cennimo, 2021). On March 11, 2020, the World Health Organization (WHO) has officially announced COVID-19 a pandemic from a classification of public health emergency of international concern (Hewings-Martin, 2020). The pandemic had a significant impact to the economy across the world (Pak, et al., 2020). Due to the travel restrictions in many countries, people have been facing mental health problems and increased amount of stress and physical discomfort (Cohut, 2020). Moreover, student's mode of study has been changing due to travel restrictions; their examinations and graduations have been postponed.

The common ways of spreading of the virus are by respiratory droplets and contact routes (WHO 2020). WHO (2021) has introduced a variety of preventive measures reduce the transmission: wearing a mask, performing hand hygiene with soap and water or hand sanitizer, avoid touching the eyes, nose and mouth before cleaning the hands, practicing respiratory etiquettes, maintaining social distancing for at least (1 meter), and avoiding crowded or closed space. On

February 24, 2021, Malaysia has received the first dose of COVID-19 vaccine. Subsequently, MOH Malaysia has opened registration for AstraZeneca vaccines for Malaysian aged between 18 to 60 on May 26, 2021.

1.2 PROBLEM STATEMENT

130 new cases of COVID-19 were reported one week after the reopening of a university in the United States among the university students (Yamey and Walensky, 2020). Within the same month, 756 new cases were reported within that university and at least 26000 new cases were reported among 750 colleges and universities in the United States. When the students get infected, there are high chance of spreading the infection to other vulnerable individuals in the campus (Mack and Yamey, 2020). As of 28th March 2021, there were 341,944 cases including 1255 deaths, 326,309 cases of recovery reported by the Ministry of Health (MOH) in Malaysia. Although the death rate in Malaysia is low (0.37% of total COVID-19 cases), preventive measures are still important to minimize transmission of the disease as people may develop long-term complications (such as lung and heart diseases, mental health problems) after recovering from the disease (Mack and Yamey, 2020). A study done in Hong Kong reported age group 15-24 had the highest incidence of positive cases (Cruz, et al., 2020). Similarly, WHO (2021) showed age group 15-24 has the second highest group of confirmed and probable cases of COVID-19 in Malaysia from January 2021 to March 2021. Lastly, 5 students in Kampar campus have tested positive for COVID-19 from 12th to 15th April 2021 (Universiti Tunku Abdul Rahman, 2021).

Student's high mobility is a contributing factor to COVID-19 infection and transmission to (Kraemer et al., 2020).

1.3 SIGNIFICANCE OF THE STUDY

Findings of the study can be used as a reference for future research related to COVID-19 and its standard precautions in university. Although Malaysia has declared to move into endemic phase on 1st April 2022 onwards, still there are chances of people getting infected with the disease especially when all economic sectors are allowed to open. In the coming trimesters, more students will be allowed to be back to campus to continue their studies. Furthermore, places such as lifts, campus lobbies, corridors, classrooms, shops and restaurants nearby the campus, etc. will be crowded with students. Therefore, it is needed to study the knowledge level, attitude and level of practice (KAP) of these students towards COVID-19 standard precautions in order for the university to plan for further action, such as awareness campaigns and disease control events.

1.4 GENERAL OBJECTIVE

To determine student's knowledge level, attitude and level of practice towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

1.5 SPECIFIC OBJECTIVES

1. To determine the student's knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

2. To determine the student's attitude towards standard precautions (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) in the prevention of COVID-19 in a private university in Kajang.

3. To determine the student's level of practice towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

4. To determine the association between student's knowledge level towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang.

5. To determine the association between student's attitude towards standard precautions (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang.

6. To determine the association between student's level of practice towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang.

7. To determine the association between student's attitude (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) and their knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

8. To determine the association between student's level of practice and their knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

9. To determine the association between student's level of practice and their attitude (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

1.6 RESEARCH QUESTIONS

1. What is the student's knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang?

2. What is the student's attitude towards standard precautions (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) in the prevention of COVID-19 in a private university in Kajang?

3. What is the student's level of practice towards standard precautions in the prevention of COVID-19 in a private university in Kajang?

4. What is the association between student's knowledge level towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang?

5. What is the association between student's attitude towards standard precautions (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang?

6. What is the association between student's level of practice towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang?

7. What is the association between student's attitude (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) and their knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang?

8. What is the association between student's level of practice and their knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang?

9. What is the association between student's level of practice and their attitude (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) towards standard precautions in the prevention of COVID-19 in a private university in Kajang?

1.7 HYPOTHESIS

1.7.1 NULL HYPOTHESIS

H01: There is no statistically significant association between student's knowledge level towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang.

H02: There is no statistically significant association between student's attitude towards standard precautions (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang.

H03: There is no statistically significant association between student's level of practice towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang.

HO4: There is no statistically significant association between student's attitude (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) and their knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

HO5: There is no statistically significant association between student's level of practice and their knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

HO6: There is no statistically significant association between student's level of practice and their attitude (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

1.7.2 ALTERNATIVE HYPOTHESIS

Ha1: There is statistically significant association between student's knowledge level towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang.

Ha2: There is statistically significant association between student's attitude towards standard precautions (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang.

Ha3: There is statistically significant association between student's level of practice towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang.

Ha4: There is statistically significant association between student's attitude (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) and their knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

Ha5: There is statistically significant association between student's level of practice and their knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

Ha6: There is statistically significant association between student's level of practice and their attitude (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) towards standard precautions in the prevention of COVID-19 in a private university in Kajang.

1.8 CONCEPTUAL AND OPERATIONAL DEFINITIONS

1.8.1 STANDARD PRECAUTIONS

Conceptual definition: MOH Malaysia (2020) defined standard precautions as "a set of infection control practices used to prevent transmission of disease that can be acquired by contact with blood, body fluids, non-intact skin and mucous membranes.".

Operational definition: WHO (2021) has introduced a variety of preventive measures to prevent the transmission of COVID-19, which include wearing a face mask, performing proper hand hygiene with soap and water or alcohol-based sanitizer, avoid touching the eyes, nose and mouth, practicing respiratory etiquettes, maintaining social distancing for at least (1 metre), getting COVID-19 vaccines and avoiding crowded or closed space.

1.8.2 KNOWLEDGE LEVEL

Conceptual definition: Cambridge Dictionary (2021) defined knowledge as an individual's understanding or information towards a subject by experiencing or studying, or known by other people.

Operational definition: In this study, knowledge level refers to participants' understanding or information towards COVID-19 standard precautions. Knowledge level of participants will be assessed using a questionnaire adapted

from Jabbar, et al., (n.d.), Alrubaiee, Hussien Al-Qalah and Al-Aawar (2020), WHO, MOH Malaysia and Centers for Disease Control and Prevention (CDC), measuring participants knowledge on the preventive measures of COVID-19. Score ranges from 0 to 12. Scoring is classified into three categories: Good knowledge (9-12 points), Moderate knowledge (5-8 points) and Poor knowledge (0-4 points).

1.8.3 ATTITUDE

Conceptual definition: Cambridge Dictionary (2021) defined attitude as opinion, feeling or behaviour towards an individual or an object.

Operational definition: Attitude of students towards COVID-19 standard precautions (healthcare consultation, self-quarantine, wearing face masks, social distancing and vaccines) will be assessed using the questionnaire adapted from Jabbar, et al., (n.d.), Alrubaiee, Hussien Al-Qalah and Al-Aawar (2020), WHO, MOH Malaysia and CDC. Each question will be interpreted separately into good and poor attitude. No cut-off value in this section.

1.8.4 LEVEL OF PRACTICE

Conceptual definition: Collins (2021) defined practice as doing something frequently to achieve better outcome.

Operational definition: Level of practice of students towards COVID-19 standard precautions will be assessed using the questionnaire adapted from Jabbar, et al., (n.d.), Alrubaiee, Hussien Al-Qalah and Al-Aawar (2020), WHO, MOH Malaysia and CDC. Scoring is classified into three categories: Good practice (30-52 points), Moderate practice (19-29 points) and Poor practice (0-18 points).

1.8.5 SOCIO-DEMOGRAPHIC CHARACTERISTICS

1.8.5.1 AGE

Cambridge Dictionary (2021) defined age as the duration of time lived by an individual. Data collected from participants will first be collected as continuous data and will be categorized as nominal data. Age categorizations used are 18 to 22 and 23 to 27 years old. Massachusetts Institute of Technology (2018) contemplated the general definition of young adulthood age category is 18 to 22 years old, followed by later adulthood age category which is generally defined as above 22 years old.

1.8.5.2 GENDER

Cambridge Dictionary (2021) defined gender as the physical and/or social state of being female or male. Nominal data will be used to measure as female and male.

1.8.5.3 MAJOR OF STUDY

Collins (2021) defined major as the main subject a college or university students is studying. Nominal data will be used to quantify the participants from health sciences and non-health sciences.

1.8.5.4 YEAR OF STUDY

Year of study refers to the year of university students they are currently studying in a program. Ordinal scale will be used to categorize the year of study as year 1, year 2, year 3, final year.

1.8.6 UNIVERSITY STUDENTS

Collins (2021) defined university students as students who enrolled in a university.

University students who aged 18 and above, studying undergraduate program in a private university in Kajang will be invited to participate in this study.

1.9 CONCEPTUAL FRAMEWORK
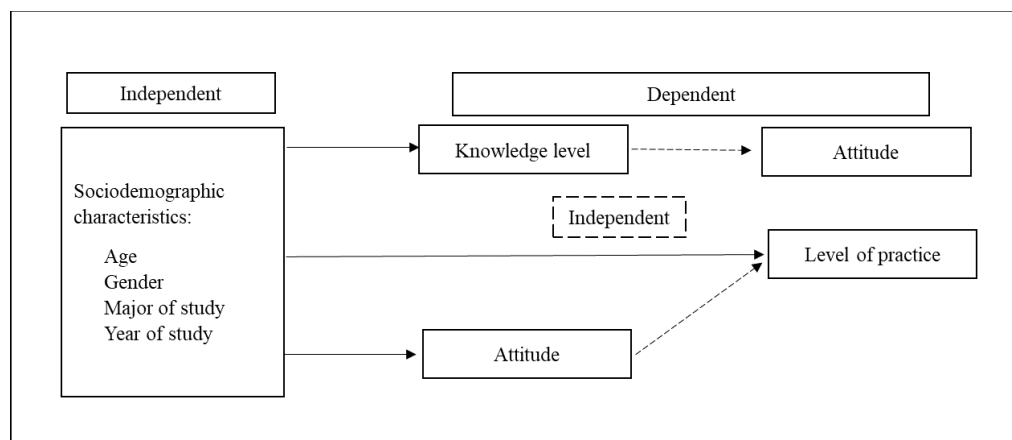
Figure 1.1 The conceptual framework of sociodemographic characteristics and knowledge, attitude and practice towards standard precautions in the prevention of COVID-19 among university students.

Conceptual framework shows the associations between the student's KAP towards standard precautions and their sociodemographic characteristics, and the associations between KAP. Demographic characteristics were identified as the independent variables to distinguish its influence on KAP (dependent variables) which answered research questions 4, 5 and 6.

Some studies showed that there are associations between student's KAP (Angelo, Alemayehu, and Dacho, 2020; Peng et al., 2020). However, some other studies showed no associations between KAP (Wadood, 2020; Alzoubi et al., 2020). Influence of knowledge (independent variable) on attitude (dependent variable) and practice (dependent variable) answered research question 7 and 8. Influence of attitude (independent variable) on practice (dependent variable) answered research question 9.

1.10 SUMMARY

The researcher is likely to study the undergraduates' KAP in a private university towards COVID-19 standard precautions considering the students' sociodemographic characteristics.

CHAPTER 2: LITERATURE REVIEW

2.0 CHAPTER OVERVIEW

Search strategy and literature review of this study will be explained in this chapter.

2.1 SEARCH STRATEGY

UTAR library database and Google Scholar were utilized in searching of literatures. Boolean Operators "AND" and "OR" were used together with keyword including 'knowledge', 'attitude', 'practice', 'COVID-19' OR 'coronavirus 2019' OR 'SARS-CoV-2', 'standard precautions' AND 'university students' OR 'undergraduate students' to narrow down the search. The inclusion criteria include articles published from 2015 to 2022, full text papers and articles in English language. The exclusion criteria are articles published before 2015, review papers, non-academic journals source type, other language other than English language and irrelevant journals. A total of 10772 journal articles were excluded. In total, 48 journal articles were selected. The flow chart of search strategy is shown in Diagram 2.1.

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┌─────────────────────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────────────────────┐  │
│  │                        DATABASES                          │  │
│  │              Google Scholar, UTAR database                │  │
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│                              ▼                                    │
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│  │                        KEYWORDS                           │  │
│  │     1.  Knowledge                                         │  │
│  │     2.  Attitude                                          │  │
│  │     3.  Practice                                          │  │
│  │     4.  COVID-19 OR coronavirus 2019 OR SARS-CoV-2        │  │
│  │     5.  Standard precautions                              │  │
│  │     6.  University students OR undergraduate students     │  │
│  └───────────────────────────────────────────────────────────┘  │
│                              ▼                                    │
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│  │            NUMBER OF ARTICLES RETRIEVED                    │  │
│  │     1.  Google scholar (n= 3399)                          │  │
│  │     2.  UTAR database (n= 6541)                           │  │
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│                              ▼                                    │
│  ┌───────────────────────────────────────────────────────────┐  │
│  │  1.  USE BOOLEAN OPERATORS: "AND" and "OR"                │  │
│  │  2.  EXCLUSION CRITERIA:                                  │  │
│  │   •  Before 2015, review, duplicate (n= 317)             │  │
│  │   •  Non-academic journals source type (n= 9420)         │  │
│  │   •  Language other than English, irrelevant journals    │  │
│  │      (n= 1035)                                            │  │
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│  │       NUMBER OF JOURNAL ARTICLES RETRIEVED                │  │
│  │     1.  Google scholar (n= 189)                           │  │
│  │     2.  UTAR database (n= 240)                            │  │
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│  │         JOURNAL ARTICLES SELECTED (n= 48)                 │  │
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Figure 2.1 Search strategy flow chart.

2.2 REVIEW OF LITERATURE

This section will integrate current literature on KAP towards COVID-19 standard precaution as well as sociodemographic characteristics comprising age, gender, major of study and year of study.

2.2.1 KNOWLEDGE TOWARDS COVID-19 STANDARD PRECAUTIONS

Florence, et al. (2021) has conducted a study among 248 medical students from a university in Sabah, Malaysia, with an instrument adapted from previous study. Findings showed that more than half of the students (65.7%) had good knowledge towards the disease. Another study done in Malaysia among 2061 undergraduate students showed higher knowledge score that 85% of them showed excellent knowledge level towards the disease (Ismail, et al., 2021). Odeyemi, et al. (2021) illustrated that 92.3% of the young adults in Nigerian had good to excellent knowledge score. However, there was no significant difference between knowledge and sociodemographic characteristics.

2.2.2 ATTITUDE TOWARDS COVID-19 STANDARD PRECAUTIONS

Ikhlaq, et al. (2020) stated that 90.4% of 384 medical students from healthcare institutions in Pakistan demonstrated positive attitude towards applying standard and isolation precautions given by WHO to prevent transmission of the disease. On the other hand, a study done in Malaysia among 524 university students

showed that 71.9% of the students had negative attitude (Sazali, et al., 2021). Berihun, et al. (2021) demonstrated that less than half (46.9%) of the participants agreed with visiting healthcare facilities for treatment if they are infected with COVID-19. A study done in China among 740 college students from 31 provinces showed that attitude is positively associated with knowledge (Jia, et al., 2021). This finding was inconsistent with a study done in Jordan among 592 undergraduate students that there was no significant difference between attitude and knowledge (Alzoubi, et al., 2020).

2.2.3 PRACTICE TOWARDS COVID-19 STANDARD PRECAUTIONS

Taghrir, Borazjani and Shiraly (2020) found that 94.2% of medical students in Iran showed high level of performance in the prevention of COVID-19. A lower performance found in Florence, et al. (2021) that 65.7% of 248 medical students from Sabah demonstrated good practice. Berihun, et al (2021) discovered that only 56.8% of 407 university students in Ethiopian Higher Education Institutions had good preventive practices in COVID-19. In China, Jia et al. (2021) found that practice is positively associated with knowledge and attitude. Findings were consistent with another study done in China among 2136 residents from 30 provinces (Gao, et al., 2021). In contrast, Alzoubi, et al. (2020) found that there was no significant difference between attitude and knowledge among 592 undergraduate students in Jordan.

2.2.4 SOCIODEMOGRAPHIC CHARACTERISTICS

2.2.4.1 AGE

Berihun, et al. (2021) showed that students from Ethiopian Higher Education Institutions who were 30 years old and above were more knowledgeable than students who were 20 to 24 years old. In contrast, Florence, et al. (2021) found that students from a younger age group had better knowledge comparing to the older age group students. However, the study showed no significant association between knowledge and age. A study done by Odeyemi, et al. (2021) among 925 Nigerian young adults found that there was a very strong significant association between practice towards COVID-19 and age.

2.2.4.2 GENDER

Florence, et al. (2021) stated that female medical students has slightly better knowledge towards the disease comparing to male students. Conversely, the same study found that male students had more positive attitude comparing to the female students. However, the study showed no significant association between knowledge and attitude with gender. A study done among 925 Nigerian young adults found that there was significant association between practice towards COVID-19 and gender (Odeyemi, et al., 2021). Saefi, et al. (2020) found that gender is associated with student's attitude and practice. The study was done in Indonesia among 6249 undergraduate students, findings showed that female students showed more positive attitude (93.18%) and better practice (87.71%) towards COVID-19.

2.2.4.3 MAJOR OF STUDY

Saefi, et al. (2020) found that there were significant associations between knowledge and practice with majors of education. Among 6249 Indonesian undergraduate students, students from medicines and public health studies were found to have better knowledge and practice. Berihun, et al., (2021) discovered that students in Ethiopian Higher Education Institutions who were studying health sciences had more knowledge and positive attitudes towards COVID-19 preventive measures than the non-health sciences students. Saefi, et al. (2020) found that among Indonesian undergraduate students, students who were studying medicines and public health had better knowledge.

2.2.4.4 YEAR OF STUDY

Ar, et al. (2021) conducted a study showed that there was significant difference between knowledge and student's year of study. Students in year 4 and year 5 had higher knowledge score compared to the students of year 1 to year 3. This is probably contributed by the clinical experiences with better understanding of the disease. This is similar to a study done among students in Ethiopian Higher Education Institutions, showed that fourth year students were more knowledgeable and exhibited positive attitude towards COVID-19 prevention (Berihun, et al., 2021). Conversely, Saefi, et al. (2020) found that there were no significant associations between KAP with year of study among 6249 Indonesian undergraduate students. Similar findings were found in Shabadi, et al. (2020), a

study conducted in India among 256 college students. There was no statistically significance between attitude and practice with year of study, except for knowledge.

2.3 SUMMARY

The literature review showed the need of conducting further research on university student's KAP towards COVID-19 standard precautions.

CHAPTER 3: METHODOLOGY

3.0 CHAPTER OVERVIEW

Research design, setting of the study, population, sampling method, instrument, validity and reliability, pilot study, data collection procedure, ethical consideration, consent information were explained in this chapter.

3.1 RESEARCH DESIGN

A cross-sectional study was conducted. This study design was chosen as it is fast to conduct since data are only collected at one point of time, inexpensive as it is done through questionnaires and ethical issues is minimum (Wang and Cheng, 2020).

3.2 SETTING OF THE STUDY

This study was conducted in Universiti Tunku Abdul Rahman (UTAR), Kajang, Malaysia. The university has two campuses, located in Kampar, Perak, and Sungai Long, Kajang. The study will be conducted in Sungai Long campus. The university offers programmes for foundations (foundation in science/arts), undergraduates (sciences and non-sciences) and postgraduate students (masters and doctors of philosophy). Sungai Long campus consists of around 10,000 students. Around 7900 of them are undergraduates.

3.3 POPULATION

3.3.1 TARGET POPULATION

All students studying in UTAR Sungai Long, Kajang campus.

3.3.2 ACESSIBLE POPULATION

Students aged 18 and above who are pursuing undergraduate program in UTAR Sungai Long, Kajang, consented and accessible during the time of study.

3.4 SAMPLE

Undergraduate students aged 18 and above who are studying health sciences and non-health sciences from year 1 to final year in a private university in Kajang, agreed and consented to answer the e-questionnaire during the time of study.

3.5 SAMPLING

3.5.1 METHOD

Convenience sampling method was used to recruit participant as it is non time consuming and cost effective (McCombes, 2019).

3.5.2 SAMPLE SIZE

The sample size is calculated using the formula (Krejcie and Morgan, 1970) as follow:

$$S = \frac{x^2 N P (1 - P)}{d^2 (N - 1) + x^2 (1 - P)}$$

S = sample size

χ^2 = Chi-square = 3.841 for 0.95 confidence level

N = Known population size = 7900

P = prevalence = 0.215 (Zubir, et al., 2021)

d = degree of accuracy = 5% = 0.05

By applying the formula (Krejcie and Morgan, 1970),

$$S = \frac{(3.841)(7900)(0.215)(1 - 0.215)}{(0.05)^2(7900 - 1) + (3.841)(1 - 0.215)}$$

$$= 225$$

$$Total\ sample\ size = 225 + 0.3(225)$$

$$= 293$$

The estimated sample size for this study was 225. Total sample size calculated was 293 with a higher attrition rate of 30%. An attrition rate is due to the lower response rate in online research (Hochheimer, et al., 2016).

3.5.3 SAMPLING CRITERIA

3.5.3.1 INCLUSION CRITERIA

- Undergraduate students from a private university in Kajang.

- Aged 18 years and above.

- Consent and able to participate in the research.

3.5.3.2 EXCLUSION CRITERIA

- Foundation and postgraduate students.

- Aged below 18 years.

- Refuse or unable to participate in this research.

3.6 VARIABLES

3.6.1 INDEPENDENT VARIABLES

Independent variables for objectives 4, 5 and 6 were sociodemographic characteristics comprising age, gender, major of study and year of study.

Knowledge level was independent variable for objectives 7 and 8 while attitude for objective 9.

3.6.2 DEPENDENT VARIABLES

Dependent variables for objectives 4, 5 and 6 were knowledge level, attitude and level of practice towards COVID-19 standard precautions, respectively. Dependent variable for objective 7 was attitude while level of practice was for objectives 8 and 9.

3.7 INSTRUMENTS

Questionnaire was sent out via Google Form. All items in the questionnaire were set as compulsory to answer to minimize sampling error caused by unfinished questionnaires. The research instrument was adapted from Jabbar et al. (n.d.), Alrubaiee, Hussien Al-Qalah and Al-Aawar (2020), MOH Malaysia, WHO and CDC. The research instrument consists of four sections categorized as section A, B, C and D (as shown in **Appendix B**).

Section A consists of sociodemographic characteristics including age, gender, year of study and major of study.

Section B consists of 12 items assessing knowledge level of undergraduate students towards COVID-19 standard precautions. Each item is given three options: "Yes", "No" and "Not sure". 1 point will be given for each correct answer and 0 point will be given for wrong answer and option "Not sure". Score ranges from 0 to 12. Scoring is classified into three categories: Good knowledge (9-12 points), Moderate knowledge (5-8 points) and Poor knowledge (0-4 points).

Section C consists of 5 items assessing attitude of students towards COVID-19 standard precautions. Each item is given three options: "Yes", "No" and "Not sure". Each question will be interpreted separately into good and poor attitude. No cut-off value in this section.

Section D consists of 13 items assessing practice done in the prevention of COVID-19. Each item is measured with Likert scale with options: "Never", "Rarely", "Sometimes" and "Always". 1 point will be given to option "Never", 2 points to option "Rarely", 3 points to option "Sometimes" and 4 points to option "Always". Score ranges from 0 to 52. Scoring is classified into three categories: Good practice (30-52 points), Moderate practice (19-29 points) and Poor practice (0-18 points).

3.8 VALIDITY AND RELIABILITY

The instrument was sent to one nursing lecturer and one doctor from the university's Faculty of Medicine and Health Sciences for content validation. These lecturers are experts in the field of infectious diseases. Recommendations were given by the lecturers to improve specificity of the questions, such as to state the percentage of alcohol sanitizer and duration of hand washing. Questions were amended accordingly.

Reliability test for the present study was done after pilot study for Section D, which was the only section using Likert Scale. Cronbach Alpha of 0.734 was obtained in the present study. According to Gliem and Gliem (2003), the instrument has an acceptable internal consistency as the Cronbach Alpha value obtained was above 0.70.

3.9 PILOT STUDY

Pilot study was conducted from 17th to 22nd February 2022 after ethical approval was approved by the university's ethical committee. 30 participants were recruited to conduct the pilot study (about 10% of sample size or 293 participants). These participants were excluded from the actual study to avoid duplication of results. The google form was set to limit to one response from each participant.

No changes to the instrument were done in the present study as the pilot study was uneventful.

3.10 DATA COLLECTION PROCEDURE

Data collection was conducted from 5th to 14th March 2022. The questionnaire was disseminated using Google Form and the link of Google Form was distributed to all undergraduate students in this university through UTAR Mailmaster. First page of the Google Form showed introduction of the researcher, the general objective of this research and the inclusion criteria of participants. Participants were required to fill in their digital signature to indicate that they have been notified regarding the university's Personal Data Protection Notice (as shown in **Appendix G**) before answering the questionnaire.

3.11 ETHICAL CONSIDERATION

Researcher has applied to the university's ethical committee for ethical approval to conduct the research project in the early January 2022. On 24th January 2022, the application has been approved by the university's Scientific and Ethical Review Committee (as shown in **Appendix E**). Informed consent of participants has been obtained prior to data collection. The names of the participants were not shown in the study to maintain their confidentiality. Data in the computer was encrypted with password and it will be kept for 7 years before disposal.

On 30th March 2021, the researcher has applied to use questionnaires through emails. Approvals were obtained on 30th and 31st March 2021 from the authors Jabbar et al. (n.d.), and Alrubaiee, Hussien Al-Qalah and Al-Aawar (2020) (as shown in **Appendix J**).

3.15 SUMMARY

Methodology provided a clear process of conducting the research to the researcher.

CHAPTER 4: DATA ANALYSIS AND RESULTS

4.0 CHAPTER OVER VIEW

This chapter explained descriptive and inferential analysis, statistical data processing and analysis, and results of the study.

4.1 DESCRIPTION AND INFERENTIAL ANALYSIS

4.1.1 DESCRIPTIVE ANALYSIS

Categorical data were presented in frequency and percentage via descriptive analysis. Sociodemographic characteristics (age, gender, major of study and year of study) were displayed in frequency and percentage. KAP towards standard precautions in the prevention of COVID-19 were presented in frequency and percentage to answer research questions 1, 2 and 3.

4.1.2 INFERENTIAL ANALYSIS

All variables collected in this study were categorical. To test the hypotheses, Chi-square tests were used to determine the associations between KAP towards COVID-19 standard precautions, and sociodemographic characteristics (age, gender, major of study and year of study). Data were presented in cross tabulation with frequency, percentage, Chi-square value and p values.

4.2 STATISTICAL DATA PROCESSING AND ANALYSIS

293 participants were recruited via convenience sampling method. All Google forms sent were answered. Response rate was 100%. No missing data was found. Descriptive statistics and Chi-square tests were performed to generate research outcomes using SPSS version 22.0. Confidence interval chosen was 95% with p value being statistically significant when less than 0.05.

4.3 RESULTS

4.3.1 SOCIODEMOGRAPHIC CHARACTERISTICS OF PARTISIPANTS

Sociodemographic characteristics of the participants included age, gender, major of study and year of study. Findings were reported in frequency and percentage in Table 4.1.

Table 4.1: Frequency and percentage distribution of study samples
according to sociodemographic characteristics (n=293).

Sociodemographic characteristics	Frequency (N)	Percentage (%)
Age		
18-22	211	72.0
23-26	82	28.0
Gender		
Male	111	37.9
Female	182	62.1
Major of study		
Health sciences	72	24.6
Non-health sciences	221	75.4
Year of study		
Year 1	88	30.0
Year 2	68	23.2
Year 3	84	28.7
Final year	53	18.1

Table 4.1 demonstrated findings of sociodemographic characteristics. Major findings will be explained. Age was categorized into two groups, namely 18 to 22 and 23 to 26. Lowest age group was 18 and highest was 26. Around three quarters of the participants, 211 (72.0%), aged between 18 to 22. Gender was divided into male and female. Nearly two third of the participants, 182 (62.1%), were female. Major of study was divided into health sciences and non-health sciences. More than three quarters of the participants, 221 (75.4%), were studying non-health sciences program. Year of study consisted of year 1, 2, 3 and final year. Nearly one quarter of the participants, 88 (30.0%), were from year 1, and year 3, 84 (28.7%). The remaining findings were as shown in Table 4.1.

4.3.2 KNOWLEDGE LEVEL TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19

This section answered research question 1: 'What is the student's knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang?'.

4.3.2.1 FREQUENCY AND PERCENTAGE OF PARTICIPANTS' RESPONSES AND THE CORRECT AND INCORRECT ANSWERS IN KNOWLEDGE ASSESSMENT

Participants' responses in knowledge assessment, 'Yes', 'No' and 'Not sure' were presented in frequency and percentage in Table 4.2. Frequency and percentage of the correct and incorrect answers for each item in knowledge assessment were also presented in the same table. Significant findings from this table were explained.

Table 4.2: Frequency and percentage of participants' responses and the correct and incorrect answers in knowledge assessment (n=293)

Items	Frequency (Percentage) f (%)				
	Yes	No	Not sure	Correct	Incorrect
1. The use of facemasks can reduce the transmission of COVID-19.	281 (95.9)	4 (1.4)	8 (2.7)	281 (95.9)	12 (4.1)
2. Face masks are more effective when used properly, such as covering the entire nose and mouth.	290 (99.0)	2 (0.7)	1 (0.3)	290 (99.0)	3 (1.0)
3. Cover coughs and sneezes helps to reduce the spread of COVID-19.	274 (93.5)	10 (3.4)	9 (3.1)	274 (93.5)	19 (6.5)
4. Practicing social distancing helps to slow the spread of COVID-19.	285 (97.3)	2 (0.7)	6 (2.0)	285 (97.3)	8 (2.7)
5. The recommended social distance according to MOH is 1 metre.	266 (90.8)	13 (4.4)	14 (4.8)	266 (90.8)	27 (9.2)
6. Keeping car windows open while traveling with passengers helps to slow the spread of COVID-19.	144 (38.9)	69 (23.5)	110 (37.5)	144 (38.9)	179 (61.1)
7. Avoiding crowded places, close-contact settings and confined and enclosed spaces is one of the preventive measures.	285 (97.3)	2 (0.7)	6 (2.0)	285 (97.3)	8 (2.7)
8. Washing hands frequently helps to prevent COVID-19.	284 (96.9)	4 (1.4)	5 (1.7)	284 (96.9)	9 (3.1)
9. Washing hands using water with or without soap gives the same effect.	21 (7.2)	255 (87.0)	17 (5.8)	255 (87.0)	38 (13.0)
10. Avoiding close contacts such as handshakes or kissing and not attending physical meetings helps to prevent COVID-19.	284 (96.9)	6 (2.0)	3 (1.0)	284 (96.9)	9 (3.1)
11. PCR test on samples collected from nasopharyngeal and oropharyngeal discharge helps to diagnose COVID-19.	244 (83.3)	8 (2.7)	41 (14.0)	244 (83.3)	49 (16.7)
12. COVID-19 vaccines are 100% effective in preventing the disease.	13 (4.4)	261 (89.1)	19 (6.5)	261 (89.1)	32 (10.9)

Based on Table 4.2, 95.9% of the participants agreed that the use of facemasks can reduce the transmission of COVID-19. Nearly all participants (99.0%) agreed that facemasks are more effective when used properly, such as covering the entire nose and mouth. 93.5% and 97.3% of the participants agreed that cover coughs and sneezes, and practicing social distancing helps to slow the spread of COVID-19, respectively. 90.8% of the participants were aware that the recommended social distance according to MOH is 1 metre. Only 38.9% of the participants were aware that keeping car windows open while traveling with passengers helps to slow the spread of COVID-19. Nearly all (97.3%) of the participants agreed that avoiding crowded places, close-contact settings and confined and enclosed spaces is one of the preventive measures. 96.9% of the participants agreed that washing hands frequently helps to prevent COVID-19 but only 87.0% of them were aware that 'washing hands using water with or without soap gives the same effect' was false. Majority of the participants (96.9%) agreed that avoiding close contacts such as handshakes or kissing and not attending physical meetings helps to prevent COVID-19. 83.3% of the participants were aware that PCR test on samples collected from nasopharyngeal and oropharyngeal discharge helps to diagnose COVID-19. Only 89.1% of the participants were aware that 'COVID-19 vaccines are 100% effective in preventing the disease' was false. The remaining findings were shown in Table 4.2.

8 out of 12 items were answered correctly by over 90% of participants. Nearly all of the participants (99.0%) had correctly answered item 2 'Face masks are more effective when used properly, such as covering the entire nose and mouth.'. Only 38.9% of the participants agreed that keeping car windows open while traveling with passengers helps to slow the spread of COVID-19. More than half of the participants (61.1%) had incorrectly answered this item.

97.3% of the participants agreed that practicing social distancing helps to slow the spread of COVID-19 and avoiding crowded places, close-contact settings and confined and enclosed spaces is one of the preventive measures. More than 10.0% of the participants as incorrectly answered items 6, 9, 11 and 12. 13.0% of the participants thought that washing hands using water with or without soap gives the same effect. 16.7% of the participants did not know that PCR test on samples collected from nasopharyngeal and oropharyngeal discharge helps to diagnose COVID-19.10.9% of the participants thought that COVID-19 vaccines are 100% effective in preventing the disease. The remaining findings were shown in Table 4.2.

4.3.2.3 FREQUENCY AND PERCENTAGE OF KNOWLEDGE LEVEL OF STUDENTS TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19

This section answered research question 1 by using descriptive analysis. 1 point given for correct answer while 0 point given for incorrect answer. Knowledge level of participants was categorized into three categories: Good (9-12 points), Moderate (5-8 points) and Poor (0-4 points) with frequency and percentage, as shown in Figure 4.1.
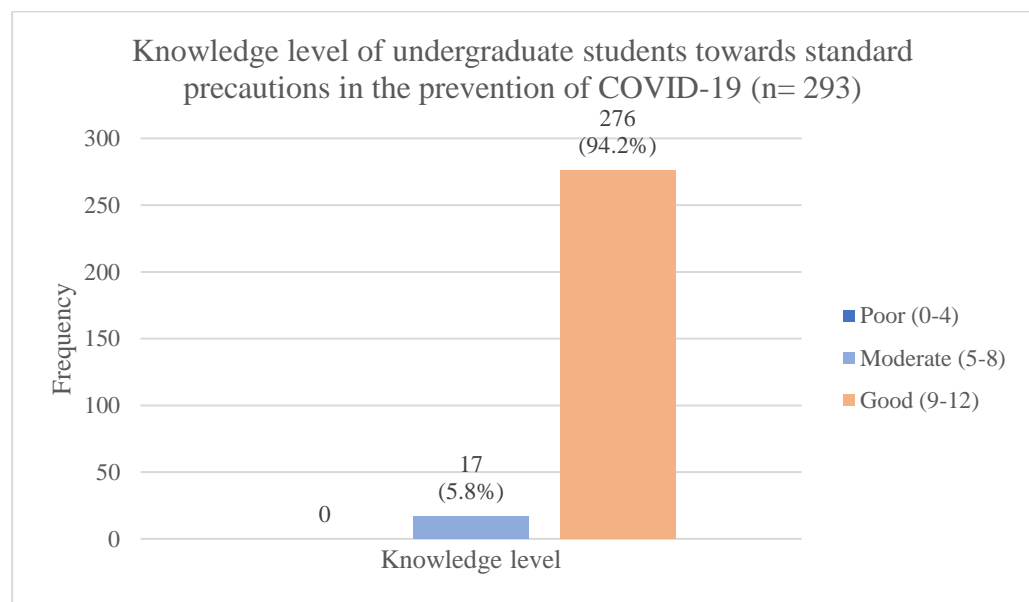
Figure 4.1: Frequency and percentage of knowledge level of undergraduate students towards standard precautions in the prevention of COVID-19 (n= 293).

Findings in Figure 4.1 has answered research question 1. Almost all participants (94.2%) had good knowledge towards standard precautions in the prevention of COVID-19, while 5.8% of the participants had moderate knowledge. No participants had poor knowledge.

4.3.3 ATTITUDE TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19

This section answered research question 2: 'What is the student's attitude towards standard precautions in the prevention of COVID-19 in a private university in Kajang?'.

4.3.3.1 FREQUENCY AND PERCENTAGE OF PARTICIPANTS' RESPONSES IN ATTITUDE ASSESSMENT

Participants' responses in attitude assessment, 'Yes', 'No' and 'Not sure' were presented in frequency and percentage in Table 4.3.

Table 4.3: Frequency and percentage of participants' responses in attitude assessment (n=293)

Items	Frequency (Percentage) f (%)				
	Yes	No	Not sure	Positive	Negative
1. Will you visit the hospital for COVID-19 if you show flu-like symptoms?	112 (38.2)	122 (41.6)	59 (20.1)	112 (38.2)	181 (61.7)
2. Will you accept the 14-day quarantine if you are suspected with COVID-19?	269 (91.8)	12 (4.1)	12 (4.1)	269 (91.8)	24 (8.2)
3. I only wear a face mask because I want to avoid a fine.	37 (12.6)	243 (82.9)	13 (4.4)	243 (82.9)	50 (17.0)
4. Do you agree that social distancing is effective in reducing the spread of COVID-19?	253 (86.3)	18 (6.1)	22 (7.5)	253 (86.3)	40 (13.6)
5. Do you agree that getting COVID-19 vaccines protects you from getting serious illness and dying due to the disease?	251 (85.7)	19 (6.5)	23 (7.8)	251 (85.7)	42 (14.3)

Based on Table 4.3, only 38.2% of the participants were willing to visit the hospital for COVID-19 if they show flu-like symptoms. Majority of the participants (91.8%) of the participants were willing to accept the 14-day quarantine if they are suspected with COVID-19. 12.6% of the participants stated that they only wear a facemask because they wanted to avoid a fine. 86.3% of the participants agreed that social distancing is effective in reducing the spread of COVID-19. 85.7% of the participants agreed that getting COVID-19 vaccines protects them from getting serious illness and dying due to the disease. The remaining findings were shown in Table 4.3.

4.3.3.3 FREQUENCY AND PERCENTAGE OF ATTITUDE OF STUDENTS TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19

This section answered research question 2 by using descriptive analysis. Each item was categorized into 'Good' and 'Poor' attitude. Findings of each item was explained individually.
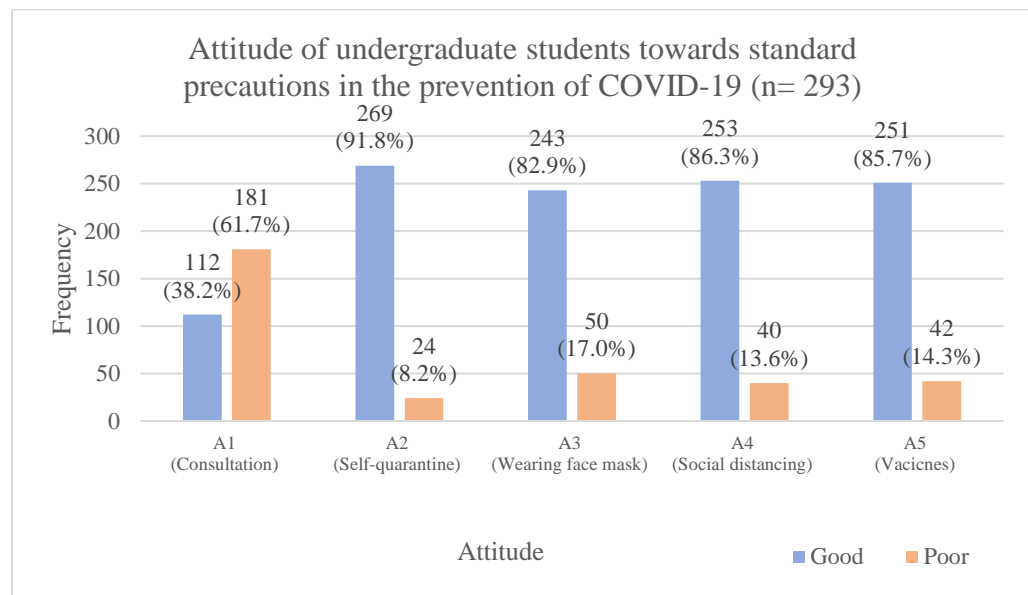
Figure 4.2: Frequency and percentage of attitude of undergraduate students towards standard precautions in the prevention of COVID-19 (n= 293).

Figured 4.2 has answered research question 2. Based on figure 4.2, only 38.2% of the participants have good attitude towards the question 'Will you visit the hospital for COVID-19 if you show flu-like symptoms?'. 91.8% of the participants have good attitude towards self-quarantine if they are suspected with COVID-19. 17.0% of the participants claimed that their purpose of wearing face masks is to avoid fine. 86.3% of the participants had good attitude towards social

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distancing in the prevention of the disease. 85.7% of the participants agreed had good attitude towards COVID-19 vaccines in protecting them from getting serious illness and dying due to the disease.

Out of five items in the attitude assessment, participants showed good attitudes in four items, which were toward self-quarantine, wearing face mask, social distancing and vaccination.

4.3.4 PRACTICE TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19

This section answered research question 3: 'What is the student's level of practice towards standard precautions in the prevention of COVID-19 in a private university in Kajang?'.

4.3.4.1 FREQUENCY AND PERCENTAGE OF PARTICIPANTS' RESPONSES IN PRACTICE ASSESSMENT

Frequency and percentage of participants' responses in practice assessment were presented in Table 4.4.

Table 4.4: Frequency and percentage of participants' responses in practice assessment (n=293)

Items	Frequency (Percentage) f (%)			
	Never	Rarely	Sometimes	Always
1. Avoid spaces that are closed, crowded or involve close contact.	0	8 (2.7)	105 (35.8)	180 (61.4)
2. Wear a face mask when leaving the house.	1 (0.3)	0	12 (4.1)	280 (95.6)
3. Ensure that face mask cover the entire nose and mouth area.	1 (0.3)	1 (0.3)	9 (3.1)	282 (96.2)
7. Avoid pulling down face mask or tying to elbow while eating.	31 (10.6)	44 (15.0)	81 (27.6)	137 (46.8)
8. Change mask daily or after used once.	3 (1.0)	24 (8.2)	64 (21.8)	202 (68.9)
9. Only leave the house when absolutely necessary.	1 (0.3)	29 (9.9)	115 (39.2)	148 (50.5)
10. Practice social distancing whenever outside.	1 (0.3)	14 (4.8)	94 (32.1)	184 (62.8)
11. Wash hands with soap and water for at least 20 seconds.	11 (3.8)	55 (18.8)	119 (40.6)	108 (36.9)
12. Sanitize regularly touched surfaces, such as door knobs, smartphones, tables, etc.	11 (3.8)	58 (19.8)	90 (30.7)	134 (45.7)
13. When outside, sanitize hands with hand sanitizer that contains at least 60% alcohol.	8 (2.7)	22 (7.5)	81 (27.6)	182 (62.1)
14. Stay at home or seek medical advice when sick.	3 (1.0)	12 (4.1)	72 (24.6)	206 (70.3)
15. Get vaccinated as soon as it is your turn.	1 (0.3)	4 (1.4)	24 (8.2)	264 (90.1)
16. Continue to take precautions even after vaccination.	0	2 (0.7)	32 (10.9)	259 (88.4)

Table 4.4 showed that the highest practices that were always performed by participants were 'wear a face mask when leaving the house', 95.6%, and 'ensure face mask covers the entire nose and mouth area', 96.2%. More than nine over ten, (90.1%), of the participants claimed that they always get their COVID-19 vaccines on time.

The lowest practices that were always performed by participants were 'wash hands with soap and water for at least 20 seconds', 36,9%, 'sanitize regularly touched surfaces', 45.7%, and 'avoid pulling down face mask or tying to elbow while eating', 46.8%.

Only half of the participants (50.5%) always leave their house when necessary. 61.4% of the participants avoid spaces that are closed, crowded or involve close contact. 62.1% of the participants always wash their hands with sanitizer that contains at least 60% of alcohol. 62.8% of the participants always practices social distancing. More than one third of the participants (68.9%) always change their mask daily or after used once. 70.3% of the participants always stay at home or seek medical advice when they fall sick. More than three quarter (88.4%) of the participants always continue to take precaution measures after they have been vaccinated.

Table 4.5: Lowest and highest scores of participants' responses for practice assessment

Variable	Lowest Score	Highest Score
Level of Practice	27	52

Table 4.5 showed the lowest and highest scores of participants in the practice assessment. Lowest score obtained was 27 and highest score was 52. Score for practice assessment ranges from 0 to 52. 10.6% of the participants have obtained 52 points.

4.3.4.2 FREQUENCY AND PERCENTAGE OF LEVEL OF PRACTICE OF STUDENTS TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19

This section assessed to level of practice of undergraduate students towards standard precautions in the prevention of COVID-19. Each item is measured with a 4 points Likert Scale where 'Never' = 1 point, 'Rarely' = 2 points, 'Sometimes' = 3 points and 'Always' = 4 points. Level of practice was categorized into 3 groups: Good (30-52), Moderate (19-29) and Poor (0-18).
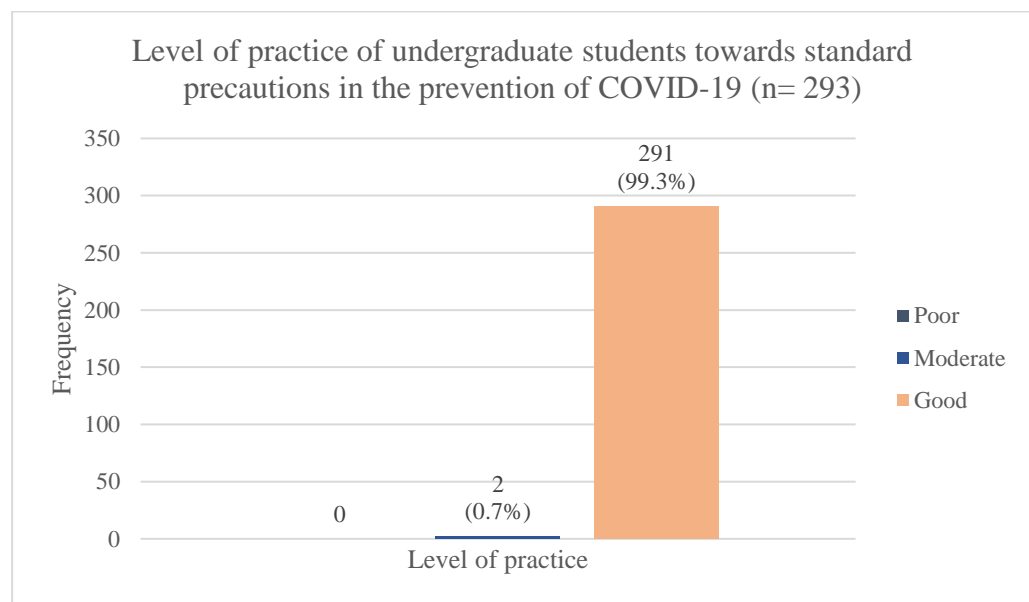
Figure 4.3: Frequency and percentage of level of practice of undergraduate students towards standard precautions in the prevention of COVID-19 (n= 293).

Figure 4.3 has answered research question 3. Nearly all participants, (99.3%), had good level of practice towards standard precautions in the prevention of COVID-19. Findings showed only 0.7% of the participants had moderate level of practice.

4.3.5 ASSOCIATION BETWEEN KNOWLEDGE LEVEL AND SOCIODEMOGRAPHIC CHARACTERISTICS

This section answered research question 4: 'What is the association between student's knowledge level towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang?'. Data were analysed via Chi-Square test and presented in cross-tabulation.

Table 4.6: Association between knowledge level and sociodemographic characteristics (n=293)

Sociodemographic characteristics	Knowledge Level		Chi-Square value
	Moderate f (%)	Good f (%)	
Age			
18-22	11 (5.2)	200 (94.8)	0.478
23-26	6 (7.3)	76 (92.7)	p = 0.578
Gender			
Male	7 (6.3)	104 (93.7)	0.083
Female	10 (5.5)	172 (94.5)	p = 0.800
Major of study			
Health sciences	1 (1.4)	71 (98.6)	3.402 p = 0.081
Non-health sciences	16 (7.2)	205 (92.8)	
Year of study			
Year 1	5 (5.7)	83 (94.3)	2.362
Year 2	4 (5.9)	64 (94.1)	p = 0.503
Year 3	7 (8.3)	77 (91.7)	
Final year	1 (1.9)	52 (98.1)	

significant level at p<0.05

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Table 4.6 showed the findings of research question 4. Chi-Square test demonstrated that 94.8% of the participants in age group 18 to 22 had high knowledge towards standard precautions in the prevention of COVID-19, while 5.2% from the same age group had moderate knowledge. 92.7% of the participants from age group 23 to 26 had good knowledge, while 7.3% from the same age group had moderate knowledge. There was no statistically significant association between knowledge level and age [χ^2 (1, n=293) = 0.478, p = 0.578].

Findings showed that 93.7% of male participants had good knowledge, while the remaining 6.3% had moderate knowledge. More female participants (94.5%) had good knowledge, and lesser of them (5.5%) had moderate knowledge as compared to male participants. There was no statistically significant association between knowledge level and gender [χ^2 (1, n=293) = 0.083, p = 0.800].

Most of the participants (98.6%) who were studying health sciences courses showed good knowledge towards standard precautions in the prevention of COVID-19. Only 1 participant (1.4%) had moderate knowledge. 92.8% of participants from non-health sciences field had good knowledge, while 7.2% of them had moderate knowledge. There was no statistically significant association between knowledge level and major of study [χ^2 (1, n=293) = 3.402, p = 0.081].

94.3% of the year 1 participants had good knowledge level, while the remaining 5.7% had moderate knowledge. Similar to year 1, 94.1% of the year 2 participants had good knowledge, while the balance 5.9% of them had moderate

knowledge. Only 91.7% of the participant from year 3 had good knowledge. 8.3% of the year 3 participants had moderate knowledge. Nearly all participants (98.1%) from the final year had good knowledge, only 1 of them (1.9%) had moderate knowledge. There was no statistically significant association between knowledge level and year of study [χ^2 (1, n=293) = 2.362, p = 0.503].

The first null hypothesis was failed to be rejected as there was no statistically significant association between student's knowledge level towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study).

4.3.6   ASSOCIATION   BETWEEN   ATTITUDE   AND SOCIODEMOGRAPHIC CHARACTERISTICS

This section answered research question 5: 'What is the association between student's attitude towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang?'. Data were analysed via Chi-Square test and presented in cross-tabulation.

Table 4.7: Association between attitude (consultation) and sociodemographic characteristics (n=293)

Sociodemographic characteristics	Attitude (A1)		Chi-Square value
	Good f (%)	Poor f (%)	
Age			
18-22	86 (40.8)	125 (59.2)	2.049
23-26	26 (31.7)	56 (68.3)	p = 0.181
Gender			
Male	40 (36.0)	71 (64.0)	0.363
Female	72 (39.6)	110 (60.4)	p = 0.620
Major of study			
Health sciences	29 (40.3)	43 (59.7)	0.170 p = 0.678
Non-health sciences	83 (37.6)	138 (62.4)	
Year of study			
Year 1	35 (39.8)	53 (60.2)	1.328
Year 2	22 (32.4)	46 (67.6)	p = 0.731
Year 3	34 (40.5)	50 (59.5)	
Final year	21 (39.6)	32 (60.4)	

significant level at p<0.05

Based on table 4.7, more than half of the participants (59.2%) from age group 18 to 22 had poor attitude towards medical consultation when they show flu-like symptoms. The balance 40.8% of them had good attitude towards medical consultation. Only 31.7% of the participants from age group 23 to 26 had good attitude towards medical consultation, while more than one third of them (68.3%) had poor attitude. There was no statistically significant association between attitude (consultation) and age [χ^2 (1, n=293) = 2.049, p = 0.181].

Only 36.0% of the male participants had good attitude towards medical consultation, while nearly two third of the male participants had poor attitude. Similarly, only 39.6% of the female participants had good attitude towards medical consultation, while almost two third (60.4%) of the female participants had poor attitude. There was no statistically significant association between attitude (consultation) and gender [χ^2 (1, n=293) = 0.363, p = 0.620].

Only 40.3% of the participants from health sciences courses had good attitude towards medical consultation, while more than half of them (59.7%) had poor attitude. Similarly, more than one third of the participants (37.6%) from non-health sciences courses had good attitude towards medical consultation. The remaining 62.4% of them had poor attitude. There was no statistically significant association between attitude (consultation) and major of study [χ^2 (1, n=293) = 0.170, p = 0.678].

Less than half of the participants from year 1 (39.8%), year 2 (32.4%), year 3 (40.5%) and final year (39.6%), had good attitude towards medical consultation when they show flu-like symptoms. The remaining participants from year 1 (60.2%), year 2 (67.6%), year 3 (59.5%) and final year (60.4%) had poor attitude towards medical consultation. There was no statistically significant association between attitude (consultation) and year of study [χ^2 (1, n=293) = 1.328, p = 0.731].

Table 4.8: Association between attitude (self-quarantine) and sociodemographic characteristics (n=293)

Sociodemographic characteristics	Attitude (A2)		Chi-Square value
	Good f (%)	Poor f (%)	
Age			
18-22	197 (93.4)	14 (6.6)	2.427
23-26	72 (87.8)	10 (12.2)	p = 0.153
Gender			
Male	97 (87.4)	14 (12.6)	4.645
Female	172 (94.5)	10 (5.5)	p = 0.046*
Major of study			
Health sciences	69 (95.8)	3 (4.2)	2.056
			p = 0.216
Non-health sciences	200 (90.5)	21 (9.5)	
Year of study			
Year 1	80 (90.9)	8 (9.1)	0.733
Year 2	64 (94.1)	4 (5.9)	p = 0.873
Year 3	77 (91.7)	7 (8.3)	
Final year	48 (90.6)	5 (9.4)	

significant level at p<0.05

Based on table 4.8, nearly all participants from age group 18 to 22 showed good attitude towards self-quarantine if they are suspected with COVID-19. The remaining 6.6% of them had poor attitude. Similarly, nearly nine over ten (87.8%) of the participants from age group 23 to 26 had good attitude towards self-quarantine, while 12.2% of them had poor attitude. There was no statistically significant association between attitude (self-quarantine) and age [χ^2 (1, n=293) = 2.427, p = 0.153].

Nearly nine over ten of the male participants (87.4%) had good attitude towards self-quarantine, while the balance 12.6% of them had poor attitude. over nine over ten (94.5%) of the female participants had good attitude towards self-quarantine, while only 5.5% of them had poor attitude. There was statistically significant association between attitude (self-quarantine) and gender [χ^2 (1, n=293) = 4.645, p = 0.046].

Over than nine over ten of the participants from health sciences courses (95.8%) and non-health sciences courses (90.5%) had good attitude towards self-quarantine. The balance 4.2% of them from health sciences and 9.5% from non-health sciences showed poor attitude. There was no statistically significant association between attitude (self-quarantine) and major of study [χ^2 (1, n=293) = 2.056, p = 0.216].

Over nine over ten of the participants from year 1 (90.9%), year 2 (94.1%), year 3 (91.7%) and final year (90.6%) showed good attitude towards self-quarantine.

The remaining 9.1% of them from year 1, 5.9% from year 2, 8.3% from year 3 and 9.4% from final showed poor attitude. There was no statistically significant association between attitude (self-quarantine) and year of study [χ^2 (1, n=293) = 0.733, p = 0.873].

Table 4.9: Association between attitude (wearing face mask) and sociodemographic characteristics (n=293)

Sociodemographic characteristics	Attitude (A3) Good f (%)	Poor f (%)	Chi-Square value
Age			
18-22	173 (82.0)	38 (18.0)	0.475
23-26	70 (85.4)	12 (14.6)	p = 0.604
Gender			
Male	94 (84.7)	17 (15.3)	0.386
Female	149 (81.9)	33 (18.1)	p = 0.632
Major of study			
Health sciences	64 (88.9)	8 (11.1)	2.391 p = 0.150
Non-health sciences	179 (81.0)	41 (19.0)	
Year of study			
Year 1	70 (79.5)	18 (20.5)	3.019
Year 2	56 (82.4)	12 (17.6)	p = 0.390
Year 3	69 (82.1)	15 (17.9)	
Final year	48 (90.6)	5 (9.4)	

significant level at p<0.05

Based on table 4.9, more than four over five of the participants from age groups 18 to 22 (82%) and 23 to 26 (85.4%) showed good attitude towards wearing face masks to protect themselves from COVID-19. The remaining 18% from age group 18 to 22 and 14.6% from 23 to 26 had poor attitude. There was no

statistically significant association between attitude (wearing face masks) and age [χ^2 (1, n=293) = 0.475, p = 0.604].

Over four over five of the male participants (84.7%) and female participants (81.9%) showed good attitude towards wearing face masks. 15.3% of the male participants and 18.1% of the female participants showed poor attitude. There was no statistically significant association between attitude (wearing face masks) and gender [χ^2 (1, n=293) = 0.386, p = 0.632].

Similarly, over four over five of the participants from health sciences (88.9%) and non-health sciences (81.0%) had good attitude towards wearing face masks. The remaining 11.1% participants from health sciences and 19.0% from non-health sciences had poor attitude. There was no statistically significant association between attitude (wearing face masks) and major of study [χ^2 (1, n=293) = 2.391, p = 0.150].

79.5% of the participants from year 1 showed good attitude towards wearing face masks, while the other 20.5% of them showed poor attitude. 82.4% of the participants from year 2 and 82.1% of them from year 3 showed good attitude towards wearing face masks. The balance 17.6% from year 2 and 17.9% from year 3 showed poor attitude. More than nine over ten of the final year participants (90.6%) showed good attitude, while the balance 9.4% showed poor attitude . There was no statistically significant association between attitude (wearing face masks) and year of study [χ^2 (1, n=293) = 0.475, p = 0.604].

Table 4.10: Association between attitude (social distancing) and sociodemographic characteristics (n=293)

Sociodemographic characteristics	Attitude (A4) Good f (%)	Poor f (%)	Chi-Square value
Age			
18-22	182 (86.3)	29 (13.7)	0.005
23-26	71 (86.6)	11 (13.4)	p = 1.000
Gender			
Male	90 (81.1)	21 (18.9)	4.205
Female	163 (89.6)	19 (10.4)	p = 0.053
Major of study			
Health sciences	68 (94.4)	4 (5.6)	5.308 p = 0.280
Non-health sciences	185 (83.7)	36 (16.3)	
Year of study			
Year 1	75 (85.2)	13 (14.8)	0.745
Year 2	60 (88.2)	8 (11.8)	p = 0.879
Year 3	71 (84.5)	13 (15.5)	
Final year	47 (88.7)	6 (11.3)	

significant level at p<0.05

Based on table 4.10, 86.3% of the participants from age group 18 to 22 and 86.6% of the participants from age group 23 to 26 showed good attitude towards social distancing in reducing the spread of COVID-19. Only 13.7% of them from age group 18 to 22 and 13.4% of them from age group 23 to 26 showed poor attitude. There was no statistically significant association between attitude (social distancing) and age [χ^2 (1, n=293) = 0.005, p = 1.000].

81.1% of the male participants and 89.6% of the female participants had good attitude towards social distancing. The remaining 18.9% of male participants and 10.4% of female participants had poor attitude. There was no statistically significant association between attitude (wearing face masks) and gender [χ^2 (1, n=293) = 4.205, p = 0.053].

Nearly all the health sciences participants (94.4%) had good attitude towards social distancing, while only 4 of them (5.6%) showed poor attitude. 83.7% of the non-health sciences participants showed good attitude towards social distancing and the remaining 16.3% of them showed poor attitude. There was no statistically significant association between attitude (wearing face masks) and major of study [χ^2 (1, n=293) = 5.308, p = 0.280].

Over 80% of the participants from all years (85.2% of year 1, 88.2% of year 2, 84.5% of year 3 and 88.7% of final year) showed good attitude towards social distancing. The remaining 14.8% of year 1, 11.8% of year 2, 15.5% of year 3 and 11.3% of final year participants showed poor attitude. There was no statistically significant association between attitude (wearing face masks) and year of study [χ^2 (1, n=293) = 0.745, p = 0.879].

Table 4.11: Association between attitude (vaccines) and sociodemographic characteristics (n=293)

Sociodemographic characteristics	Attitude (A5)		Chi-Square value
	Good f (%)	Poor f (%)	
Age			
18-22	186 (88.2)	25 (11.8)	3.795
23-26	65 (79.3)	17 (20.7)	p = 0.063
Gender			
Male	96 (86.5)	15 (13.5)	0.098
Female	155 (85.2)	27 (14.8)	p = 0.864
Major of study			
Health sciences	66 (91.7)	6 (8.3)	2.800
			p = 0.121
Non-health sciences	185 (83.7)	36 (16.3)	
Year of study			
Year 1	79 (89.8)	83 (10.2)	2.412
Year 2	57 (83.8)	64 (16.2)	p = 0.501
Year 3	72 (85.7)	77 (14.3)	
Final year	43 (81.1)	52 (18.9)	

significant level at p<0.05

Based on table 4.11, nearly nine over ten of the participants (88.2%) from age group 18 to 22 showed good attitude towards COVID-19 vaccines in protecting them from getting serious illness and dying due to the disease. 11.8% of them showed poor attitude. 79.3% of the participants from age group 23 to 26 had good attitude towards COVID-19 vaccines, while the balance 20.7% of them had poor attitude. There was no statistically significant association between attitude (vaccines) and age [χ^2 (1, n=293) = 3.795, p = 0.063].

More than four over five of the male participants (86.5%) and female participants (85.2%) showed good attitude towards COVID-19 vaccines. The remaining 13.5%

male participants and 14.8% female participants had poor attitude. There was no statistically significant association between attitude (vaccines) and gender [χ^2 (1, n=293) = 0.098, p = 0.864].

91.7% of the health sciences participants and 83.7% of the non-health sciences participants showed good attitude towards COVID-19 vaccines. The balance 8.3% of health sciences and 16.3% of non-health sciences participants showed poor attitude. There was no statistically significant association between attitude (vaccines) and major of study [χ^2 (1, n=293) = 2.800, p = 0.121].

Over 80% of the participants from all years of study (89.8% year 1, 83.8% year 2, 85.7% year 3 and 81.1% final year) had good attitude towards COVID-19 vaccines. The remaining 10.2% year 1, 16.2% year 2, 14.3% year 3 and 18.9% final year participants showed poor attitude. There was no statistically significant association between attitude (vaccines) and year of study [χ^2 (1, n=293) = 2.412, p = 0.501].

Only one (gender) out of four sociodemographic characteristics showed significant association with attitude (self-quarantine). There were no statistically significant associations between attitude and sociodemographic characteristics. Therefore, the second null hypothesis was failed to be rejected.

4.3.7 ASSOCIATION BETWEEN LEVEL OF PRACTICE AND SOCIODEMOGRAPHIC CHARACTERISTICS

This section answered research question 6: 'What is the association between student's level of practice towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study) in a private university in Kajang?'. Data were analysed via Chi-Square test and presented in cross-tabulation.

Table 4.12: Association between level of practice and sociodemographic characteristics (n=293)

Sociodemographic characteristics	Level of Practice		Chi-Square value
	Moderate f (%)	Good f (%)	
Age			
18-22	1 (0.5)	210 (99.5)	0.484
23-26	1 (1.2)	81 (98.8)	p = 0.482
Gender			
Male	1 (0.9)	110 (99.1)	0.126
Female	1 (0.5)	181 (99.5)	p = 1.000
Major of study			
Health sciences	0 (0.0)	72 (100.00)	0.656
			p = 1.000
Non-health sciences	2 (0.9)	219 (99.1)	
Year of study			
Year 1	1 (1.1)	87 (98.9)	2.483
Year 2	0 (0.0)	68 (100.00)	p = 0.554
Year 3	0 (0.0)	84 (100.00)	
Final year	1 (1.9)	52 (98.1)	

significant level at p<0.05

Based on Table 4.12, almost all participants (99.5%) from age group 18-22 and 98.8% from age group 23-26 showed good practice towards COVID-19 standard precaution. Only 0.5% of the participant from age group 18-22 and 1.2% from age group 23-26 had moderate practice. There was no statistically significant association between level of practice and age [χ^2 (1, n=293) = 0.484, p = 0.482].

Similarly, nearly all participants, 99.1% of female and 99.5% of male had good practice towards COVID-19 standard precaution. Only one participant from both female (0.5%) and male (0/9%) groups had moderate practice. There was no statistically significant association between level of practice and gender [χ^2 (1, n=293) = 0.126, p = 1.000].

All the participants (100.0%) from health science studies had good practice. 99.5% of the participants from non-health sciences studies demonstrated good practice. Only two of them (0.9%) had moderate practice. There was no statistically significant association between level of practice and major of study [χ^2 (1, n=293) = 0.656, p = 1.000].

All participants (100.0%) from year 2 and year 3 demonstrated good practice. Nearly all participants from year 1 (98.9%) and final year (98.1%) showed good practice. Very few of them (1.1% from year 1 and 1.9% from final year) had moderate practice. There was no statistically significant association between level of practice and year of study [χ^2 (1, n=293) = 2.483, p = 0.554].

The third null hypothesis was failed to be rejected as there was no statistically significant association between student's level of practice towards standard precautions in the prevention of COVID-19 and sociodemographic characteristics (age, gender, major of study and year of study).

4.3.8 ASSOCIATION BETWEEN ATTITUDE AND KNOWLEDGE LEVEL

This section answered research question 8: 'What is the association between student's attitude and knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang?'. Data were analysed via Chi-Square test and presented in cross-tabulation.

Table 4.13: Association between attitude (consultation) and knowledge level (n=293)

Knowledge Level	Attitude (A1)		Chi-Square value
	Good f (%)	Poor f (%)	
Moderate	5 (29.4)	12 (70.6)	0.594
Good	107 (38.8)	169 (61.2)	p = 0.609

significant level at p<0.05

Based on table 4.14, only 29.4% of the participants who had moderate knowledge level showed good attitude towards consultation. More than half of them (70.6%) demonstrated poor attitude towards consultation. 38.8% of the participants with good knowledge level showed good attitude towards consultation while 61.2% of them had poor attitude. There was no statistically significant association between attitude (consultation) and knowledge level [χ^2 (1, n=293) = 0.594, p = 0.609].

Table 4.14: Association between attitude (self-quarantine) and knowledge level (n=293)

Knowledge Level	Attitude (A2)		Chi-Square value
	Good	Poor	

	f (%)	f (%)	
Moderate	12 (70.6)	5 (29.4)	10.807
Good	257 (93.1)	19 (6.9)	p = 0.008*

significant level at p<0.05

Based on table 4.15, 70.6% of the participants who had moderate knowledge level showed good attitude towards self-quarantine. Less than half of them (29.4%) demonstrated poor attitude towards self-quarantine. 93.1% of the participants with good knowledge level showed good attitude towards self-quarantine while 6.9% of them had poor attitude. There was statistically significant association between attitude (self-quarantine) and knowledge level [χ^2 (1, n=293) = 10.807, p = 0.008].

Table 4.15: Association between attitude (wearing facemask) and knowledge level (n=293)

Knowledge Level	Attitude (A3)		Chi-Square value
	Good	Poor	
	f (%)	f (%)	
Moderate	11 (64.7)	6 (35.3)	4.237
Good	232 (84.1)	44 (15.9)	p = 0.050

significant level at p<0.05

Based on table 4.16, 64.7% of the participants who had moderate knowledge level showed good attitude towards wearing facemask. Less than half of them (35.3%%) demonstrated poor attitude towards wearing facemask. 84.1% of the participants with good knowledge level showed good attitude towards wearing facemask while only 15.9% of them had poor attitude. There was no statistically

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significant association between attitude (wearing facemask) and knowledge level [χ^2 (1, n=293) = 4.237, p = 0.050].

Table 4.16: Association between attitude (social distancing) and knowledge level (n=293)

| Knowledge Level | Attitude (A4) | | Chi-Square value |
| | Good | Poor | |
	f (%)	f (%)	
Moderate	12 (70.6)	5 (29.4)	3.802
Good	241 (87.3)	35 (12.7)	p = 0.065

*significant level at p<0.05

Based on table 4.17, 70.6% of the participants who had moderate knowledge level showed good attitude towards social distancing. Less than half of them (29.4%%) demonstrated poor attitude towards social distancing. 87.3% of the participants with good knowledge level showed good attitude towards social distancing while only 12.7% of them had poor attitude. There was no statistically significant association between attitude (social distancing) and knowledge level [χ^2 (1, n=293) = 3.802, p = 0.065].

Table 4.17: Association between attitude (vaccines) and knowledge level (n=293)

| Knowledge Level | Attitude (A5) | | Chi-Square value |
| | Good | Poor | |
	f (%)	f (%)	
Moderate	9 (52.9)	8 (47.1)	15.738
Good	242 (87.7)	34 (12.3)	p = 0.001*

*significant level at p<0.05

Based on table 4.18, around half of the participants (52.9%) who had moderate knowledge level showed good attitude towards vaccination. Less than half of them (47.1%%) demonstrated poor attitude towards vaccination. 87.7% of the participants with good knowledge level showed good attitude towards vaccination while only 12.3% of them had poor attitude. There was statistically significant association between attitude (vaccines) and knowledge level [χ^2 (1, n=293) = 15.738, p = 0.001].

Two out of five variables of attitude assessment (self-quarantine and vaccines) were found statistically significant associated with knowledge level. Therefore, the fourth null hypothesis was failed to be rejected.

4.3.9 ASSOCIATION BETWEEN LEVEL OF PRACTICE AND KNOWLEDGE LEVEL

This section answered research question 7: 'What is the association between student's level of practice and knowledge level towards standard precautions in the prevention of COVID-19 in a private university in Kajang?'. Data were analysed via Chi-Square test and presented in cross-tabulation.

Table 4.18: Association between level of practice and knowledge level (n=293)

Knowledge Level	Level of Practice		Chi-Square value
	Moderate f (%)	Good f (%)	
Moderate	1 (5.9)	16 (94.1)	7.198
Good	1 (0.4)	275 (99.6)	p = 0.113

significant level at p<0.05

Based on table 4.13, 94.1% of the participants who had moderate knowledge level demonstrated good practice. Only 5.9% of them had moderate practice. Almost all participants (99.6%) who had good knowledge level demonstrated good practice. Only one of them (0.4%) had moderate practice. There was no statistically significant association between level of practice and knowledge level [χ^2 (1, n=293) = 7.198, p = 0.113].

The fifth null hypothesis was failed to be rejected as there was no statistically significant association between student's level of practice and knowledge level toward standard precautions in the prevention of COVID-19.

4.3.10 ASSOCIATION BETWEEN LEVEL OF PRACTICE AND ATTITUDE

This section answered research question 9: 'What is the association between student's level of practice and attitude towards standard precautions in the prevention of COVID-19 in a private university in Kajang?'. Data were analysed via Chi-Square test and presented in cross-tabulation.

Table 4.19: Association between level of practice and attitude (n=293)

Attitude	Level of Practice		Chi-Square value
	Moderate f (%)	Good f (%)	
A1			
Good	0 (0.0)	112 (100.00)	1.246

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	Poor	2 (1.1)	179 (98.9)	p = 0.526

A2				
	Good	1 (0.4)	268 (99.6)	4.681
	Poor	1 (4.2)	23 (95.8)	p = 0.157

A3				
	Good	1 (0.4)	242 (99.6)	1.543
	Poor	1 (2.0)	49 (98.0)	p = 0.313

A4				
	Good	1 (0.4)	252 (99.6)	2.257
	Poor	1 (2.5)	39 (97.5)	p = 0.255

A5				
	Good	0 (0.0)	251 (100.00)	12.035
	Poor	2 (4.8)	40 (95.2)	p = 0.020*

significant level at p<0.05

Based on table 4.19, all participants (100.0%) who had good attitude towards consultation demonstrated good level of practice. Nearly all participants (98.9%) who had poor attitude towards consultation showed good level of practice. Only 1.1% of them had moderate level of practice. There was no statistically significant association between level of practice and attitude (consultation) [χ^2 (1, n=293) = 1.246, p = 0.526].

99.6% of the participants who had good attitude towards self-quarantine, wearing facemask and social distancing demonstrated good level of practice. Only 0.4% of them had moderate level of practice. More than 95% of the participants who had poor attitude towards self-quarantine (95.8%), wearing facemask (98.0%) and social distancing (97.5%) showed good level of practice. Less than 5% of the participants who had poor attitude towards self-quarantine (4.2%), wearing facemasks (2.0%) and social distancing (2.5%) showed

moderate level of practice. There were no statistically significant associations between level of practice and attitude (self-quarantine) [χ^2 (1, n=293) = 4.681, p = 0.157], (wearing facemask) [χ^2 (1, n=293) = 1.543, p = 0.313], and (social distancing) [χ^2 (1, n=293) = 2.257, p = 0.225].

All the participants (100.0%) who had good attitude towards vaccination demonstrated good level of practice. Nearly all participants (95.2%) who had poor attitude towards vaccination showed good level of practice. Only 4.8% of them had moderate level of practice. There was statistically significant association between level of practice and attitude (vaccination) [χ^2 (1, n=293) = 12.035, p = 0.020].

Level of practice was found statistically significant associated with only one variable of the attitude assessment (vaccines). Therefore, the sixth null hypothesis was failed to be rejected.

4.4 SUMMARY

Findings of the study were explained and displayed in tables according to research questions. Overall, the students showed good KAP towards COVID-19 standard precautions. No statistically significant associations were found between student's knowledge level and level of practice with sociodemographic characteristics. There was statistically significant association between attitude (self-quarantine) and gender, attitude was found to have no significant associations with other sociodemographic characteristics. There were statistically significant associations between attitude (self-quarantine and vaccines) and knowledge level. No significant association found between student's level of practice and knowledge level. Other than attitude (vaccines), level of practice was found no statistically significant associations with the attitudes (consultation, self-quarantine, wearing facemask and social distancing).

CHAPTER 5: DISCUSSION

5.0 CHAPTER OVERVIEW

This chapter discussed the main findings of each research objectives with the implications of its relevance together with previous studies.

5.1 DISCUSSION OF MAJOR FINDINGS (ACCORDING TO RESEARCH OBJECTIVES)

5.1.1 KNOWLEDGE LEVEL TOWARDS COVID-19 STANDARD PRECAUTION

Findings of the current study showed 94.2% of the university student had good knowledge level and only 5.8% of them had moderate knowledge level towards COVID-19 standard precaution. Nearly all the participants (>97.0%) had correct knowledge regarding the proper way of wearing facemask, social distancing and avoiding crowded areas. The results could be contributed by the standard precaution notices provided by the government and relating authorities in the public areas and social media.

Current study showed better results comparing to the findings of two other studies done in Malaysia. A cross-sectional study done in Negeri Sembilan among 2061 undergraduate students. 85.0% of the students were found to have excellent knowledge level, 14.9% had moderate knowledge level and 0.1% of them had poor knowledge level (Ismail, et al., 2021). Similarly, a cross-sectional study done in Sabah among 248 undergraduate students found that 85.1% of

them had good knowledge level and 14.9% had poor knowledge level (Florence, et al., 2021). Improvement in the findings from previous studies to current study could be due to the timeframe when the studies were carried out. Participants from the current study were exposed to the pandemic in a longer period of time as compared to those from the previous studies.

5.1.2 ATTITUDE TOWARDS COVID-19 STANDARD PRECAUTION

Findings of current study showed more than half of the participants (61.7%) poor attitude towards visiting hospital for COVID-19 if they show flu-like symptoms. Other than that, more than three quarter of the participants had good attitude towards 14-days quarantine (91.8%), wearing facemask (82.9%), social distancing (86.3%) and COVID-19 vaccines (85.7%). Enforcing MCO by the Government of Malaysia and the academic programme may have contributed to the positive attitudes (Ar, et al., 2021). The current quarantine duration is 7 days for fully vaccinated and asymptomatic people who had tested positive for COVID-19 while 10 days for people who are unvaccinated or partially vaccinated with symptoms of the disease. If question on the current study was based on the latest quarantine period, the finding may be better comparing to finding of current study.

Findings from current study were similar with a study done in Ethiopia among students from higher education institutions. Berihun, et al. (2021) found that less than half of the students (46.9%) agreed that they will visit healthcare facilities for treatment if they are infected with COVID-19. The same study found that

95.6% of the students agreed that wearing facemask is effective in preventing the disease. Ikhlaq, et al. (2020) stated that 90.4% of 384 medical students from healthcare institutions in Pakistan showed positive attitude towards applying standard and isolation precautions given by WHO to prevent transmission of the disease.

5.1.3 PRACTICE TOWARDS COVID-19 STANDARD PRECAUTION

Current study found that nearly all participants (99.3%) had good level of practice and only 0.7% of them had moderate level of practice. The three items that were practiced most by the participants included wearing a facemask when leaving the room (95.6%), ensure that the facemask covers the entire nose and mouth area (96.2%), and getting COVID-19 vaccines as soon as it is available for them (90.1%). Wearing facemask is a compulsory in all places therefore it had become a habit to the people. A study done among Malaysian public stated that Malaysian, especially the youth, were less likely to take up COVID-19 vaccination when the immunization campaign was newly launched (Soo, 2021). Hence, Malaysia government had put in effort in building trust and acceptance and addressing the people's concerns to yield a successful COVID-19 vaccination campaign (Lo and Almarhum Sultan Abdul Halim Mu'adzam Shah, 2021).

Taghrir, Borazjani and Shiraly (2020) found that 94.2% of medical students in Iran showed high level of performance in the prevention of COVID-19. Current study showed similar findings with the previous study. The similar outcomes by

both the countries may be contributed by the government had focused on preventive education towards the disease in a wide range. In addition, Malaysian has gone through more than two years of COVID-19 pandemic and they have adapted to the norm of COVID-19 standard precautions which needed to be performed in all the places.

In contrast, Florence, et al. (2021) 65.7% of the medical students in a university in Sabah showed good practice towards the disease. The result is lower as compared to results of current study. The author explained that most of the students were aware with the pandemic and practicing good fundamental preventive measures to stop the transmission of the disease. However, there were quite a few participants that willing to take the risk in the crowded places. The author further explained that it was the requirement for the students to go outside for necessities which makes it almost difficult to avoid crowded places all the time. Shabadi, et al. (2020) explained that there has also been a surge in false and inaccurate information regarding the disease and this information could have caused confusion and lead to low performance of the students.

5.1.4 ASSOCIATION BETWEEN KNOWLEDGE TOWARDS COVID-19 STANDARD PRECAUTION AND SOCIODEMOGRAPHIC CHARACTERISTICS

Findings of current study showed no statistically significant association between knowledge level and sociodemographic characteristics. Students who were taking health sciences studies were found to have higher knowledge level as

compared to those who were from non-health sciences studies. Good knowledge level was found highest in students who were studying in the final year.

Florence, et al. (2021) found that students from a younger age group and female students had better knowledge comparing to male students and the older age group students. However, the study showed there were no statistically significant associations between knowledge and age, gender, and year of study.

Saefi, et al. (2020) found that there was statistically significant association between student's knowledge and major of education. The study was conducted among Indonesian undergraduate students and showed that students who were studying medicines and public health had better knowledge. The reason could be due to health sciences students had the basic knowledge regarding the disease (Ismail, et al., 2021).

Ar, et al. (2021) conducted a study in Pahang among medical students showed that there was statistically significant difference between knowledge and year of study. The study illustrated that students who were studying year 4 and 5 showed higher knowledge score comparing to those who were studying year 1, 2 and 3. Similar finding was found in a study conducted in Uganda (Olum, et al., 2020). The difference between findings of current study and previous studies could be due to the target students involved in the current study included students from both health sciences and non-health sciences majors.

5.1.5 ASSOCIATION BETWEEN ATTITUDE TOWARDS COVID-19 STANDARD PRECAUTION AND SOCIODEMOGRAPHIC CHARACTERISTICS

Current study showed no significant associations between attitude and sociodemographic characteristics, except for self-quarantine and gender. More of the female students were willing to accept the 14-days self-quarantine comparing to male students. This may be due to female are more cautious about personal risk than male (Soo, 2021).

Findings by Saefi, et al. (2020) was consistent with current study that there was no significant association between Indonesian undergraduate student's attitude with major of education and spent year in the university.

Ar, et al. (2021) found that there was no statistically significant association between medical student's attitude and gender. The finding was similar to another study done in Nigeria among 925 young adults (Odeyemi, et al., 2021). However, the usage of different questionnaires in the previous and current studies may contribute to different results (Florence, et al., 2021).

5.1.6 ASSOCIATION BETWEEN PRACTICE TOWARDS COVID-19 STANDARD PRECAUTION AND SOCIODEMOGRAPHIC CHARACTERISTICS

Current study showed no statistically significant association between level of practice and sociodemographic characteristics. 100.0% of the health science students had good level of practice. This may be contributed by their experience of clinical attachments.

A study done in India among 256 college students showed that there was no statistically significant difference between student's practice and gender and scholastic year (Shabadi, et al., 2020). Ar, rt al. (2021) found that among 438 medical students in Malaysia, there was no statistically significant association between medical student's practice and sociodemographic characteristics (age, gender and year of study).

Olum, et al. (2020) conducted a study among medical students from nine universities in Uganda found that there was statistically significant association between student's practice and age. Students aged above 24 were found to have better practice. Similar findings were found in a study conducted in China among 2136 residents from 30 provinces and a study done in Malaysia among 4850 residents (Gao, et al., 2020; Azlan, et al., 2020). Difference between findings of current study and previous studies could be due to the sample size in current study is smaller and only university students were included.

5.1.7 ASSOCIATION BETWEEN ATTITUDE AND KNOWLEDGE TOWARDS COVID-19 STANDARD PRECAUTION

Current study showed no statistically significant association between attitude and knowledge level, except for self-quarantine and vaccines.

Wong, et al. (2021) conducted a study showed that students who had accepted COVID-19 owned good knowledge level. However, there was no significant association between student's attitude and knowledge. The author stated that COVID-19 vaccination educational programmes were useful in building student's knowledge on immunization and cultivating positive attitude. similar to the current study, Ismail, et al. (2021) found that there was no statistically significant relationship between student's attitude and knowledge.

In contrast, a study done in China among 740 college students from 31 provinces showed that student's attitude is significantly positively correlated with knowledge (Jia, et al., 2021). This could be due to the heightened awareness among China's residents as they were the first population being affected by the disease (Florence, et al., 2021). This result strengthened the conclusion from earlier study that there is positive association between high level of knowledge with confidence and positive attitude in health crisis (Ar, et al., 2021).

5.1.8 ASSOCIATION BETWEEN PRACTICE AND KNOWLEDGE TOWARDS COVID-19 STANDARD PRECAUTION

Current study showed no statistically significant association between level of practice and knowledge level. Saefi, et al. (2020) supported that despite having a good knowledge on the disease, student's reluctancy and ignorance may influence their preventive practice.

A study done in Malaysia among 219 clinical year veterinary and medical students demonstrated no statistically significant association between student's practice and knowledge with Spearman's correlation test (Zubir, et al., 2021).

Conversely, Ismail, et al. (2021) stated there was relationship between student's practice and knowledge, a case study conducted in Nilai among 2061 undergraduate students. The finding was consistent with another study done in Indonesia and China (Saefi, et al., 2020; Jia, et al., 2021). Although finding of current study shows no significant association, it was consistent with previous studies that students who had good level of practice owned higher level of knowledge.

5.1.9 ASSOCIATION BETWEEN PRACTICE AND ATTITUDE TOWARDS COVID-19 STANDARD PRECAUTION

Current study showed no statistically significant association between level of practice and attitude, except for vaccines.

Zubir, et al. (2021) found that among 219 clinical year veterinary and medical students, there was statistically significant association between student's practice and attitude with Spearman's correlation test. Finding was consistent with previous studies done in China, and Malaysia (Gao, et al., 2020; Jia, et al., 2021; Saefi, et al., 2020). The positive correlations between KAP indicating that knowledge regarding COVID-19 may improve the transformation of health behaviour (Jia, et al., 2021). Findings of current study showed no significant association; however, it was consistent with previous studies that students who had good level of practice owned positive attitudes. Factors contributing to variant results may be the difference in questionnaire usage, cut-off point values used to categorize variables, and the timeframe when the studies were being carried out (Ar, et al., 2021).

5.2 SUMMARY

Findings showed that current study found a higher KAP score in the university comparing to previous studies. This may be due to the timeframe of study conducted where the students had adapted to COVID-19 standard precautions with a longer period comparing to previous studies. Current study found that most of the KAP were not significantly associated with sociodemographic

characteristics. KAP were not significantly associated to each other except for practice and attitude (vaccines) while significance was found in many of the previous studies between KAP and sociodemographic characteristics. The variant findings may be due to many factors, including timeframe and setting when the study was conducted, different sociodemographic information obtained, target population, usage of different instruments and the cut-off values of the variables.

CHAPTER 6: CONCLUSION AND RECOMMENDATION

6.0 STRENGTH AND LIMITATION OF THE STUDY

Strength of the study Researcher was able to achieve satisfactory response rate with the calculated sample size. Participants of pilot study was successfully excluded from the actual study to avoid overlapping of data. The researcher was able to maintain participant's anonymity and confidentiality throughout the study. This action may encourage honest self-disclosure from the participants when they were participating in the study. Researcher was able to achieve all research objectives and answered all research questions.

Major limitation of the study was timeframe when the study was conducted. The research proposal was submitted in April 2021 when Malaysia was still in the pandemic phase. However, the current study was conducted in March 2022 where the students had been adapting to the situation for more than two years. Addition to the instrument used, MOH Malaysia had made changes on the standard precautions after the researcher had prepared and done validation for the instrument. Therefore, there may be variant findings comparing the different instruments. Findings of the study could be more useful in the pandemic situation in order for the university to manage infection control protocol. Besides, the study was conducted in only one university and the participants were not randomly selected. Therefore, findings of the study cannot be generalized to students from other universities in Malaysia. Variables such as sources of information regarding COVID-19 and health background relating to the disease were not included in the current study.

6.1 IMPLICATIONS OF STUDY

Current study has provided a clear finding on students KAP towards COVID-19 standard precautions and the associating factors in a private university in Kajang. The excellent results could be influenced by the university's effort on the strict infection control management throughout the two years where the university had utilized hybrid mode of study, social distancing within the campus, compulsory of wearing facemasks, hand sanitizers available at nearly all places, such as the lift. Although Malaysia has entered a 'relax mode towards COVID-19 standard precautions, findings showed that the university may plan to organize awareness campaign on the disease that is gender specific to the students. This is to enhance student's knowledge and attitude, especially for male students.

6.2 RECOMMENDATIONS FOR FUTURE RESEARCH

Researcher may conduct cohort study to analyze and draw conclusions on causality between KAP towards COVID-19 standard precautions. Besides, researcher may improve the sample size and recruit students from other universities in Malaysia to improve generalizability of the findings. With the wider setting of the study, the researcher may also include students from different educational level which was not assessed in the current study. In addition, the researcher is encouraged to include variables such as sources of information regarding COVID-19, health background relating to COVID-19, area of living, and household income in the sociodemographic information. This information allows researcher to better understand the factors influencing KAP.

6.3 CONCLUSION

Researcher was able to determine the KAP of students towards COVID-19 standard precautions. Overall, the students showed good KAP towards COVID-19 standard precautions. No statistically significant associations were found between student's KAP with sociodemographic characteristics, except for attitude (self-quarantine) and gender. Female students showed better attitude towards self-quarantine comparing to the male students. This could be due to the difference in gender when it comes to personal risk as female was found to be more cautious than male. The university may need to focus on gender specific awareness programs especially in self-quarantine. This may improve understandings of students towards preventive measures of the disease.

Current study also found that there were statistically significant associations between attitude (self-quarantine and vaccines) and knowledge level. No significant association found between student's level of practice and knowledge level. Other than attitude (vaccines), level of practice was found no statistically significant associations with the attitudes (consultation, self-quarantine, wearing facemask and social distancing). Findings of current proved that KAP were positively associated with each other. The university may continue to provide information regarding the disease and infection control protocol especially on latest information regarding vaccinations and quarantine using the same platform as the university will be opened soon to more students. Even though Malaysia has declared moving into endemic phase, it is still important to take

precautions when some of them are no longer compulsory to protect every individual around the university and prevent resurge of cases in the future.

Word count: 10773

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APPENDICES

APPENDIX A: CONSENT DECLARATION FORM

<div style="border:1px solid black">

PARTICIPANT CONSENT FORM

Research title: Knowledge, Attitude and Practice of Undergraduate Students in A Private University in Kajang Towards Standard Precautions in The Prevention of COVID-19.

- I confirm that I have read and understand the information and cover letter of recruitment explaining the above research.
- I confirm that the purpose of the research, risks and benefits have been explained to me.
- I understand my participation is strictly voluntary and I am free to withdraw at any time without consequence.
- I understand my identify will be maintained anonymous and my responses will be kept private and confidential.
- I understand I am entitled to ask questions and to receive information and feedback for educational purpose after the study.
- I agree the data collected from me will be used in future research.
- I permit members of the research team access my responses.
- I hereby give my consent to participate in the above research.

| Name of participant | Date | Signature |

I hereby believe the participant agree to participate in the research study.

YAP CHNG HUEI
| Name of researcher | Date | Signature |

</div>

APPENDIX B: RESEARCH INSTUMENT

KNOWLEDGE, ATTITUDE AND PRACTICE OF UNDERGRADUATE STUDENTS IN A PRIVATE UNIVERSITY IN KAJANG TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19.

chnghuei99@1utar.my Switch account

Your email will be recorded when you submit this form

* Required

Section A: Sociodemographic information

This section consists of 4 items.

Age (in years, eg: 18) *

Your answer

Gender *

◯ Male

◯ Female

Major of study *

◯ Health science

◯ Non-health science

Year of study *

○ Year 1

○ Year 2

○ Year 3

○ Final Year

Section B: Knowledge Assessment

This section consists of 12 statements.

---

1. The use of facemasks can reduce the transmission of COVID-19. *

○ Yes

○ No

○ Not sure

---

2. Face masks are more effective when used properly, such as covering the entire nose and mouth. *

○ Yes

○ No

○ Not sure

3. Cover coughs and sneezes helps to reduce the spread of COVID-19. *

○ Yes

○ No

○ Not sure

4. Practicing social distancing helps to slow the spread of COVID-19. *

○ Yes

○ No

○ Not sure

5. The recommended social distance according to MOH is 1 metre. *

○ Yes

○ No

○ Not sure

6. Keeping car windows open while traveling with passengers helps to slow the spread of COVID-19. *

○ Yes

○ No

○ Not sure

7. Avoiding crowded places, close-contact settings and confined and enclosed spaces is one of the preventive measures. *

○ Yes

○ No

○ Not sure

8. Washing hands frequently helps to prevent COVID-19. *

○ Yes

○ No

○ Not sure

9. Washing hands using water with or without soap gives the same effect. *

○ Yes

○ No

○ Not sure

10. Avoiding close contacts such as handshakes or kissing and not attending physical meetings helps to prevent COVID-19. *

○ Yes

○ No

○ Not sure

11. PCR test on samples collected from nasopharyngeal and oropharyngeal discharge helps to diagnose COVID-19. *

○ Yes

○ No

○ Not sure

12. COVID-19 vaccines are 100% effective in preventing the disease. *

○ Yes

○ No

○ Not sure

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Section C: Attitude Assessment

This section consists of 5 questions.

1. Will you visit the hospital for COVID-19 if you show flu-like symptoms? *

○ Yes

○ No

○ Not sure

2. Will you accept the 14-day quarantine if you are suspected with COVID-19? *

○ Yes

○ No

○ Not sure

3. I only wear a face mask because I want to avoid a fine. *

○ Yes

○ No

○ Not sure

4. Do you agree that social distancing is effective in reducing the spread of COVID-19? *

○ Yes

○ No

○ Not sure

5. Do you agree that getting COVID-19 vaccines protects you from getting serious illness and dying due to the disease? *

○ Yes

○ No

○ Not sure

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Section D: Practice Assessment

This section consists of 13 statements.
Select whether you 'Never', 'Rarely', 'Sometimes' or 'Always' practice the following statements.

1. Avoid spaces that are closed, crowded or involve close contact. *
1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

2. Wear a face mask when leaving the house. *
1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

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3. Ensure that face mask covers the entire nose and mouth area. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

4. Avoid pulling down face mask or tying to elbow while eating. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

5. Change mask daily or after used once. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

6. Only leave the house when absolutely necessary. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

7. Practice social distancing whenever outside. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

8. Wash hands with soap and water for at least 20 seconds. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

9. Sanitize regularly touched surfaces, such as door knobs, smartphones, tables, etc. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

10. When outside, sanitize hands with hand sanitizer that contains at least 60% alcohol. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

11. Stay at home or seek medical advice when sick. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

12. Get vaccinated as soon as it is your turn. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

13. Continue to take precautions even after vaccination. *

1- Never, 2- Rarely, 3- Sometimes, 4- Always

	1	2	3	4	
Never	○	○	○	○	Always

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APPENDIX C: COVER LETTER OF RECRUITMENT

COVER LETTER OF RECRUITMENT

Dear participant:

My name is Yap Chng Huei. Currently I am in the fourth year of Nursing degree from Faculty of Medicine and Health Sciences in Universiti Tunku Abdul Rahman, Sungai Long Campus. I would like to invite you to participate in my research study titled "Knowledge, Attitude and Practice of Undergraduate Students in A Private University in Kajang Towards Standard Precautions in The Prevention of COVID-19".

My research objective is to determine student's knowledge level, attitude and level of practice towards standard precautions in the prevention of COVID-19 in a private university in Kajang. Findings of this study may be a reference for the university to organize awareness campaigns and implement preventive measures so that both the students and university can help to reduce the spreading of this disease around the campus.

This study will take less than 10 minutes. Undergraduate students from health sciences and non-health sciences programs who are 18 years old and above, consent and able to participate in this study are considered eligible in this study. Participation is strictly voluntary. You may choose to withdraw at any time. If you have decided to participate in this study, please answer all the questions with honest. All data collected will be kept private and confidential.

Thank you for spending your time to assist me in my research study. Your participation is greatly appreciated.

Yours sincerely,

Huei

…………………..

YAP CHNG HUEI

(17UMB04227)

APPENDIX D: LETTER OF PERMISSION TO CONDUCT RESEARCH

Yap Chng Huei,

Nursing Undergraduate Student,

Universiti Tunku Abdul Rahman

Sungai Long Campus, Jalan Sungai Long,

Bandar Sungai Long, Cheras, 43000,

Kajang, Selangor, Malaysia

Ms. Liew Siew Fun,

Head of Department of Nursing,

Faculty of Medicine and Health Science

Nursing Department

Universiti Tunku Abdul Rahman

Sungai Long Campus, Jalan Sungai Long,

Bandar Sungai Long, Cheras, 43000,

Kajang, Selangor, Malaysia   14 January 2022

Letter to Seek Permission to Conduct Research Project

Dear Ms. Liew,

Good morning. I am Yap Chng Huei (1704227), from Nursing cohort October 2018. I am writing this letter to request for permission to conduct my research project titled 'KNOWLEDGE, ATTITUDE AND PRACTICE OF UNDERGRADUATE STUDENTS IN A PRIVATE UNIVERSITY IN KAJANG TOWARDS STANDARD PRECAUTIONS IN THE PREVENTION OF COVID-19'. The general objective of the research project is to determine student's knowledge level, attitude and level of practice towards standard precautions in the prevention of COVID-19 in a private university in Kajang. A cross-sectional study of 293 participants will be carried out.

The research project is a partial requirement for the degree of Bachelor of Nursing (Hons). The supervisor for this research project is Ms. Choo Peak Yean.

Yours Sincerely,

Yap Chng Huei

APPENDIX E: ETHICAL CLEARANCE APPROVAL LETTER

UTAR **UNIVERSITI TUNKU ABDUL RAHMAN**
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Re: U/SERC/12/2022

24 January 2022

Ms Liew Siew Fun
Head, Department of Nursing
Faculty of Medicine and Health Sciences
Universiti Tunku Abdul Rahman
Jalan Sungai Long
Bandar Sungai Long
43000 Kajang, Selangor

Dear Ms Liew,

Ethical Approval For Research Project/Protocol

We refer to your application for ethical approval for your students' research project from Bachelor of Nursing (Hons) programme enrolled in course UMNB4024. We are pleased to inform you that the application has been approved under <u>Expedited Review</u>.

The details of the research projects are as follows:

	Research Title	Student's Name	Supervisor's Name	Approval Validity
1.	Knowledge, Attitude and Practice Towards Healthy Eating Among Undergraduate Students in a Private University in Kajang	Wai Zhi Ying	Ms Magesvary a/p Maruthiah	24 January 2022 – 23 January 2023
2.	Knowledge, Attitude and Practice of Undergraduate Students in a Private University in Kajang Towards Standard Precautions in the Prevention of Covid-19	Yap Ch'ng Huei	Ms Choo Peak Yean	
3.	A Survey on Thoughts and Behaviours of Eating Disorders Among Undergraduate Students in a Private University in Kajang	June Lam Yun Kei	Ms Shamala a/p Baskaran	
4.	Knowledge and Attitude on Contraception Among Undergraduate Students in a Private University in Kajang	Wei Kay Suen	Ms Jagjit Kaur a/p Najar Singh	

The conduct of this research is subject to the following:

(1) The participants' informed consent be obtained prior to the commencement of the research;

(2) Confidentiality of participants' personal data must be maintained; and

(3) Compliance with procedures set out in related policies of UTAR such as the UTAR Research Ethics and Code of Conduct, Code of Practice for Research Involving Humans and other related policies/guidelines.

(4) Written consent be obtained from the institution(s)/company(ies) in which the physical or/and online survey will be carried out, prior to the commencement of the research.

Should the students collect personal data of participants in their studies, please have the participants sign the attached Personal Data Protection Statement for records.

Thank you.

Yours sincerely,

Professor Ts Dr Faidz bin Abd Rahman
Chairman
UTAR Scientific and Ethical Review Committee

c.c   Dean, Faculty of Medicine and Health Sciences
        Director, Institute of Postgraduate Studies and Research

Kampar Campus : Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia
Tel: (605) 468 8888 **Fax**: (605) 466 1313
Sungai Long Campus : Jalan Sungai Long, Bandar Sungai Long, Cheras, 43000 Kajang, Selangor Darul Ehsan, Malaysia
Tel: (603) 9086 0288 **Fax**: (603) 9019 8868
Website: www.utar.edu.my

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APPENDIX F: PERSONAL DATA PROTECTION STATEMENT

PERSONAL DATA PROTECTION NOTICE

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

1. Personal data refers to any information which may directly or indirectly identify a person which could include sensitive personal data and expression of opinion. Among others it includes:

   a) Name
   b) Identity card
   c) Place of Birth
   d) Address
   e) Education History
   f) Employment History
   g) Medical History
   h) Blood type
   i) Race
   j) Religion
   k) Photo
   l) Personal Information and Associated Research Data

2. The purposes for which your personal data may be used are inclusive but not limited to:

   a) For assessment of any application to UTAR
   b) For processing any benefits and services
   c) For communication purposes
   d) For advertorial and news
   e) For general administration and record purposes
   f) For enhancing the value of education
   g) For educational and related purposes consequential to UTAR
   h) For replying any responds to complaints and enquiries
   i) For the purpose of our corporate governance
   j) For the purposes of conducting research/ collaboration

3. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

4. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.

5. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

6. By submitting or providing your personal data to UTAR, you had consented and agreed for your personal data to be used in accordance to the terms and conditions in the Notice and our relevant policy.

7. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

8. You may access and update your personal data by writing to us at_____.

Acknowledgment of Notice

[   ] I have been notified and that I hereby understood, consented and agreed per UTAR above notice.

[   ] I disagree, my personal data will not be processed.

…………………………
Name:
Date:

TASK	2021						TRIMESTER BREAK	2022									
	MAR		APR		MAY			JAN		FEB		MAR		APR		MAY	
Research proposal writing	▓	▓	▓	▓													
Proposal presentation & submission				▓	▓	▓											
Ethics approval								▓	▓								
Pilot study										▓							
Data collection & data entry										▓	▓						
Data analysis											▓	▓					
Results interpretation												▓	▓				
Report writing													▓	▓			
Report presentation														▓	▓		
Final report writing															▓	▓	
Thesis submission																▓	

APPENDIX H: TURNITIN ORIGINALITY REPORT

6	Submitted to University of Public Health Student Paper	<1%
7	www.voacambodia.com Internet Source	<1%
8	Gashaw Binega Mekonnen, Alemante Tafese Beyna. "Pharmacists' Knowledge and Practice of Issues Related to Using Psychotropic Medication in Elderly People in Ethiopia: A Prospective Cross-Sectional Study", BioMed Research International, 2020 Publication	<1%
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12	Ali Hassan A. Alnasser, Jaffar A. Al-Tawfiq, Mohammed Sheker H. Al-Kalif, Rubayyi Faris B. Shahadah et al. "Public Knowledge, Attitudes, and Practice towards COVID-19 Pandemic in Saudi Arabia: A Web-Based	<1%

Cross-Sectional Survey", Medical Sciences, 2021
Publication

| 13 | etd.uum.edu.my
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Student Paper | <1% |

| 15 | Marja Ilona Kinnunen, Johanna Suihko, Nelli Hankonen, Pilvikki Absetz, Piia Jallinoja. "Self-Control is Associated with Physical Activity and Fitness among Young Males", Behavioral Medicine, 2012
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| 20 | Hayley F. North, Jason Bruggemann, Vanessa Cropley, Vaidy Swaminathan et al. "Increased peripheral inflammation in schizophrenia is associated with worse cognitive performance and related cortical thickness reductions", | <1% |

European Archives of Psychiatry and Clinical
Neuroscience, 2021
Publication

21   Xiang, H.. "Behavioral Risk Factors and
      Unintentional Injuries Among U.S. Immigrant
      Adults", Annals of Epidemiology, 200711
      Publication

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22   scholarship.shu.edu
      Internet Source

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23   Murray, J. C., A. M. Riazi, and J. L. Cross. "Test
      candidates' attitudes and their relationship to
      demographic and experiential variables: The
      case of overseas trained teachers in NSW,
      Australia", Language Testing, 2012.
      Publication

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Exclude bibliography   Off

APPENDIX I: PERMISSION TO USE INSTRUMENT

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CHNG HUEI YAP <chnghuei99@1utar.my>

COIVD 19 KAP - Questionnaire
1 message

Mohammed Abdulrazzaq Jabbar <jabbar@utar.edu.my>   Wed, Mar 31, 2021 at 10:38 AM
To: CHNG HUEI YAP <chnghuei99@1utar.my>
Cc: Magesvary Maruthiah <magesvary@utar.edu.my>

Dear Student

As discussed yesterday, please, find the COVID 19 KAP questionnaire attached to this email. This research was conducted by MBBS students among UTAR students in Kampar. The results are not published yet but based on Harvard referencing style you can use not published research. UTAR library document regarding Harvard referencing is attached also to this email.

Best Regards

Dr Mohammed Abdulrazzaq Jabbar MD, PhD
MMC 60671
Clinical Assistant Professor, Department of Population Medicine
PhD Occupational Health and Safety University Putra Malaysia-UPM
MCHSc (Occupational Health) National University of Malaysia- UKM
M.B.Ch.B University of Baghdad-IRAQ
Phone: +6 (0) 14 732 0740

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2 attachments

📄 **Jabbar et al (2021) - COVID 19 KAP Questionnaire..docx**
36K

📄 **Harvard Style Referencing.pdf**
231K

125

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CHNG HUEI YAP <chnghuei99@1utar.my>

Request Permission to Use Questionnaire for Research.
2 messages

CHNG HUEI YAP <chnghuei99@1utar.my>   Tue, Mar 30, 2021 at 12:38 PM
To: alrubaiee73@gmail.com

Dear sir/madam,

My name is Yap Chng Huei. I am a third year nursing student from Universiti Tunku Abdul Rahman, Sungai Long Campus (UTAR, SLC). I am writing to request the permission to use the questionnaire in your research titled: Knowledge, attitudes, anxiety and preventive behaviours towards COVID-19 among health care providers in Yemen: an online cross-sectional survey in my research study.

I am currently doing research topic "Knowledge, attitude and practice of undergraduate students in a private university in Kajang towards standard precaution during Covid-19 pandemic." in partial fulfilment of the requirements for the degree of Bachelor of Nursing (Hons). I would like to ask for your permission to use the questionnaire instrument and adapt it into my research proposal as my research objective is to determine knowledge, attitude and practice on the standard precaution during Covid-19 pandemic, which can be reflected with some parts of your questionnaire content.

Thus, I would like to use your questionnaire under the following conditions:

- I will use the questionnaire for the purpose of my research study only and will not sell or use it for any other purpose.
- I will include a statement of attribution and copyright on all copies of the instrument.
- I will send a copy of my completed research study to your attention upon completion of study.

If the above statements are acceptable, please indicate your reply to this e-mail. In addition, I would like to request a soft copy of your questionnaire.

Please do not hesitate to contact me for further clarification. Your response is much anticipated and appreciated.

Thank you in advance.

Stay safe and healthy.

Yours sincerely,

Yap Chng Huei

17UMB04227

Nursing student

Universiti Tunku Abdul Rahman

Gamil Alrubaiee <alrubaiee73@gmail.com>　　　　　　　　Tue, Mar 30, 2021 at 2:24 PM
To: CHNG HUEI YAP <chnghuei99@1utar.my>

Dear Yap Chng Huei,
Greeting and have a nice day.
I hope this email finds you well.
Thanks for your interest in using the COVID-19 Questionnaire.
Yes, you have my approval to use or modify the
items/concepts/instrument of the COVID-19 Questionnaire.
Please find the questionnaire attached.
Please do not hesitate to ask me any further questions you need.
Wish you success in your research
Sincerely,
Dr. Gamil Ghaleb Al-Rubaiee
[Quoted text hidden]

---

2 attachments

📄 **Covid 19 Questionnaire (2).doc**
　　148K

📄 **Covid 19 Questionnaire (2).pdf**
　　208K