KNOWLEDGE AND ATTITUDE ON CONTRACEPTION AMONG UNDERGRADUATE STUDENTS IN A PRIVATE UNIVERSITY IN KAJANG.

BY

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A research project submitted to the Department of Nursing

Faculty of Medicine and Health Sciences

Universiti Tunku Abdul Rahman

in partial fulfilment of the requirements for the degree of Bachelor of Nursing (Honours)

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ABSTRACT

BACKGROUND: Contraceptives play a vital role in maintaining the society's reproductive health where it helps to reduce chances of unintended pregnancy, baby dumping cases due to unintended pregnancy and sexually transmitted diseases among the young adults. Insufficient knowledge on contraception may predispose the young adults to the complications of unprotected sex.

OBJECTIVES: To determine the knowledge and attitude on contraception among undergraduate students in a private university in Kajang.

METHODOLOGY: A quantitative, cross-sectional study was conducted from 16th February to 9th March 2022 in a private university in Kajang. 468 participants were recruited via convenience sampling method. Data collected were analysed via SPSS version 22.0.

RESULTS: Majority of the participants had high knowledge (51.1%) and good attitude (50.6%) towards contraception. Independent t-test and ANOVA test illustrated that no statistically significant difference between knowledge on contraception with socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status), except faculty, year of study and relationship status. There is no statistically significant difference between attitude on contraception with socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status), except gender and relationship status. Pearson Correlation Test revealed a significant correlation between attitude and knowledge on contraception [$r=0.489$, $p<0.001$].

CONCLUSION: Knowledge and attitude of the undergraduate students on contraception were only at satisfactory level. Awareness campaign and sharing workshop should be held to increase students' knowledge on contraception and enhance awareness on the importance of contraceptive use in contributing to social growth.

KEYWORDS: Knowledge, attitude, contraception, undergraduate students.

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FACULTY OF MEDICINE AND HEALTH SCIENCES UNIVERSITI TUNKU ABDUL RAHMAN

Date: 9 May 2022

PERMISSION SHEET

It is hereby certified that WEI KAY SUEN (ID No: 18UMB06629) completed this research project titled 'KNOWLEDGE AND ATTITUDE ON CONTRACEPTION AMONG UNDERGRADUATE STUDENTS IN A PRIVATE UNIVERSITY IN KAJANG' under the supervision of Ms. Jagjit Kaur a/p Najar Singh (Supervisor) and Dr. Mohammed Abdulrazzaq Jabbar (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/dissertation/thesis* in pdf format into UTAR Institutional Repository, which may be accessible to UTAR community and public.

Yours truly,

_____

(WEI KAY SUEN)

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.

_____

(WEI KAY SUEN)

Date: 9 May 2022

APPROVAL SHEET

This research project entitled '**KNOWLEDGE AND ATTITUDE ON CONTRACEPTION AMONG UNDERGRADUATE STUDENTS IN A PRIVATE UNIVERSITY IN KAJANG**' is prepared by WEI KAY SUEN and submitted as partial fulfilment of the requirements for the degree of Bachelor of Nursing (Honours) at Universiti Tunku Abdul Rahman.

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LIST OF ABBREVIATIONS

CAS	Contraceptive Attitude Scale
CKA	Contraceptive Knowledge Assessment
GU	Genitor-urinary
HKL	Hospital Kuala Lumpur
SPSS	Statistical Package for the Social Sciences
STDs	Sexually transmitted diseases

CHAPTER 1: INTRODUCTION

CHAPTER 1: INTRODUCTION

1.0 CHAPTER OVERVIEW

The background, problem statement and significance of study will be described in this chapter, followed by research objectives, research questions, hypotheses, conceptual and operational definition.

1.1 BACKGROUND

Contraception, also known as birth control or family planning, is defined as the use of any devices, drugs, agents, sexual practices or surgery to prevent pregnancy (Brazier, 2018). It impacts the process of ovulation, fertilization of ovum and sperm and implantation embryos on endometrium wall to prevent a success pregnancy. There are various contraceptive methods available for both male and female at different point of period during the process. Contraceptive methods are classified based on how it works, such as condoms, a barrier method to prevent sperm from entering the female reproductive tract while contraceptive pills as a hormonal method to reduce or prevent ovum being released from ovary (National Health Service, 2019).

Unintended pregnancy and sexually transmitted diseases (STDs) are the negative outcome of unsafe sex (ESHRE Capri Workshop Group, 2014). Unintended pregnancy is an issue that faced by people all around the world with approximately 121 million of cases reported each year between 2015 -2019 (Bearak, et al., 2020) while the rate of unintended pregnancy ending in abortion is highest in East & Southeast Asia (74%) (Bearak, et al., 2020) where Malaysia is included. Meanwhile, sexually transmitted diseases (STDs) have globally reported more than 1 million cases acquired everyday (World Health

Organization (WHO), 2019). According to Mayo Clinic (2019), one of the biggest contributing factors of STDs is unprotected sex.

A high-quality family planning will potential benefits the maternal and child health, improves education, social and economic development as well as increase women's empowerment (World Health Organisation, 2019) as it aids in reduces unintended pregnancies and reduces abortion as well as preventing STDs, including HIV (WHO, 2019). This shows that it is important that every individual to have good knowledge in sex education and contraception. Thus, this research is to determine the knowledge and attitude on contraception among undergraduate students in a private university along with their social demographic status.

1.2 PROBLEM STATEMENT

The Malaysian police reported a total of 652 cases of baby dumping in Malaysia from 2015-2019. Baby dumping happened due to unplanned pregnancy, which might be the result of unprotected sexual intercourse. Unsafe sex happened is because individual has lack of sexual education and knowledge (Yuen, 2020). Furthermore, GU Medicine Clinic in HKL reported that young adults aged 20-29 are the majority of STIs cases with highest percentage of 48.1% (Hariyadurai, Syed Nong Chek and Johar, 2019). This shown that the young adults may not practicing the proper contraceptive use which results in high cases reported.

Malaysian Population and Family Survey (MPSF) (2014) revealed that 8.3% of adolescents (18-24 years) has engaged in sexual intercourse. However, only 39.5% of them have used contraceptives. Their level of contraceptive knowledge is only approximately half (53.8%) which is relatively low. The level of knowledge of contraceptive as well as sex education level among young adults are unclear as there was not much study done. Therefore, it is important to determine the young adult's knowledge and attitude towards contraception to improve the quality of living of the society.

1.3 RESEARCH OBJECTIVES

1.3.1 GENERAL OBJECTIVE

To determine the knowledge and attitude on contraception among undergraduate students in a private university in Kajang.

1.3.2 SPECIFIC OBJECTIVES

1.To determine the knowledge on contraception among undergraduate students in a private university in Kajang.

2. To determine the attitude on contraception among undergraduate students in a private university in Kajang.

3. To determine the differences between the knowledge on contraception with the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang.

4. To determine the differences between the attitude on contraception with the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang.

5. To determine the correlation between the knowledge on contraception and the attitude on contraception among undergraduate students in a private university in Kajang.

1.4 RESEARCH QUESTIONS

1.What is the knowledge on contraception among undergraduate students in a private university in Kajang?

2. What is the attitude on contraception among undergraduate students in a private university in Kajang?

3. What are the differences between the knowledge on contraception with the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang?

4. What are the differences between the attitude on contraception with the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang?

5. Is there any correlation between the attitude and knowledge on contraception among undergraduate students in a private university in Kajang?

1.5 HYPOTHESES

1.5.1 NULL HYPOTHESES

$H_0$1: There will be no statistically significant differences between knowledge on contraception with the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang.

$H_0$2: There will be no statistically significant differences between attitude on contraception with the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang.

$H_0$3: There will be no statistically significant correlation between attitude on contraception and knowledge on contraception among undergraduate students in a private university in Kajang.

1.5.2 ALTERNATIVE HYPOTHESES

H_a1: There will be statistically significant differences between knowledge on contraception with the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang.

H_a2: There will be statistically significant differences between attitude on contraception with the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang.

H_a3: There will be statistically significant correlation between attitude on contraception and knowledge on contraception among undergraduate students in a private university in Kajang.

1.6 CONCEPTUAL AND OPERATIONAL DEFINITIONS

1.6.1 CONTRACEPTION

Cambridge Dictionary (2022) defined contraception as intentional use of any methods to prevent pregnancy.

1.6.2 KNOWLEDGE

According to Oxford Learner's Dictionary (2021), knowledge on contraception is defined as the information, understanding and skills related to contraception that an individual obtains through education or experiences.

In this study, knowledge on contraception will be assessed using Contraceptive Knowledge Assessment (CKA) adapted from Haynes, et al. (2016). It consisted of 19 single best answer questions where 1 score will be allocated for each correct answer. Wrong answer or 'I don't know' will be 0 score. The score will then be being added up and the higher the scores indicate the better the respondent's knowledge on contraception.

1.6.3 ATTITUDE

Merriam-Webster (2021) defined attitude on contraception as an individual's feeling or emotion or mental position towards a fact or state related to contraceptive while psychologists define it as a learned tendency to evaluate things in certain ways. Evaluations may take place in people, issues, items or situations. These evaluations can be positive or negative or it can be uncertain at sometimes (Cherry, 2021).

Attitude on contraception is respondents' opinion towards contraception and will be measure by using Contraceptive Attitude Scale (CAS) that developed by Kelly Black Kyes (Black, 1998). There are 28 statements and 15 are positively worded and 13 are negatively worded statement. Calculation by using a 5-points Likert scale where 'strongly disagree' receives a score of 1 and 'strongly agree' receives a score of 5 for positively worded statement. Negatively worded statement is reverse scored where 'strongly disagree' will receives a score of 5 and 'strongly agree' receives a score of 1.

1.6.4 SOCIODEMOGRAPHIC CHARACTERISTICS

1.6.4.1 GENDER

WHO (2020) defined gender as the characteristics women and men that are socially constructed that includes norms, roles associated and behaviours of an individual. In this research, it will have male and female as selection.

1.6.4.2 ETHNICITY

Ethnicity is a particular racial group of people or cultural origins (Cambridge Dictionary, 2021). It will be categorised into Chinese and Non-Chinese in this study.

1.6.4.3 FACULTY

Faculty is known as a group of departments in a college or university that specialise in a subject or group of subjects (Cambridge Dictionary, 2021). This data will be categorized into "health sciences faculty" and "non-health sciences faculty" in this study.

1.6.4.4 YEAR OF STUDY

According to Collins Dictionary (2021), academic year is defined as the period or durations of year where an individual attended to school or university. In this study, academic year also known as year of study where it is an ordinal data which consist of Year 1, 2, 3 and final years. Final year may consist of participants who are studying Year 4 or Year 5 depending on their programme structure.

1.6.4.5 RELATIONSHIP STATUS

Relationship is defined as the way of two or more people are connected while status refers to the condition of a person with respect to circumstances (Cambridge Dictionary, 2021). In this study, it will be measured as single, consensual and married.

1.6.5 UNDERGRADUATE STUDENT

The individual who currently studying bachelor's degree program in a private university in Kajang, Malaysia.

1.7 SIGNIFICANCE OF THE STUDY

The findings of this study will be beneficial to both the university and students, especially to the students who are coupled or sexually active as they able to visualise the importance of contraception in the relationship. University and related departments will have an overview on students' knowledge and attitude on contraception from the study's findings and if necessary, the related department may organise more workshops to enhance students' knowledge on contraception use those aids in preventing various impact of unprotected sex. This study will enhance students' knowledge on contraception as a copy of questionnaire with correct answer will be sent back to the respondents.

1.8 SUMMARY

Current available studies have limited information on the university students' knowledge and attitude on contraception and this shows that there is a need to conduct a study to determine their knowledge and attitude on contraception to have implications to enhance the knowledge level towards contraceptive to ensure a healthy society.

CHAPTER 2:
LITERATURE REVIEW

CHAPTER 2: LITERATURE REVIEW

2.0 CHAPTER OVERVIEW

The search strategy and the literatures review of this study will be explained in detail in this chapter.

2.1 SEARCH STRATEGY

The literature search was conducted using Google Scholar, UTAR database and ResearchGate. Boolean search method with operators “AND” and “OR” were used along with the keywords such as knowledge on contraception OR knowledge of contraceptive use AND attitude on contraception OR attitude of contraceptive use AND university students OR undergraduate students. A total number of 30 articles were retrieved for this study. The flow chart of search strategy is shown in Diagram 2.1.

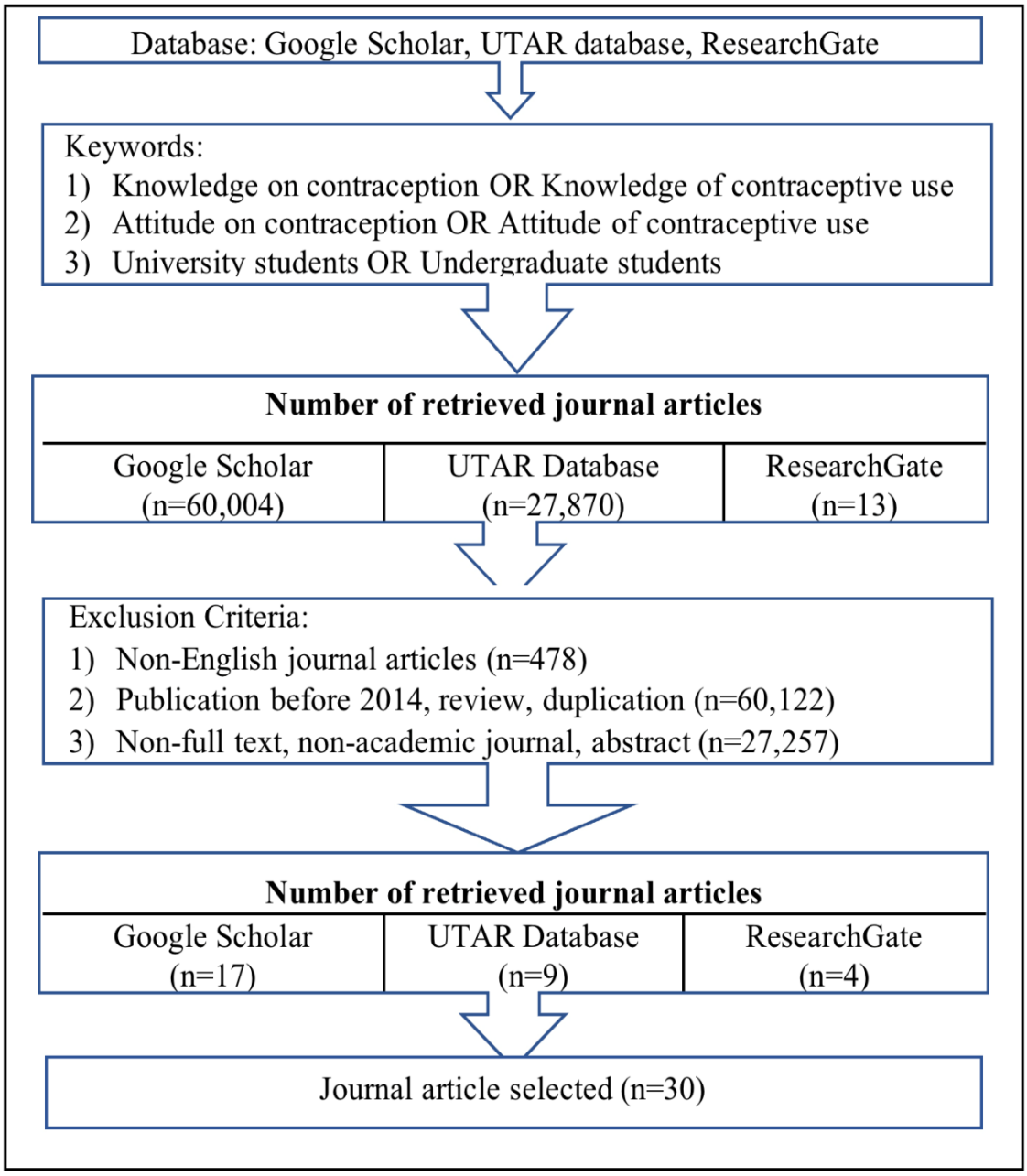


Diagram 2.1 Search strategy flowchart

2.2 REVIEW ON LITERATURE

A few themes revealed after literature review which are knowledge and attitude on contraception, as well as socio-demographic status that includes gender, ethnicity, faculty, year of study and relationship status will be discussed.

2.2.1 KNOWLEDGE ON CONTRACEPTION

In a cross-sectional study done among 278 medical students in Universiti Putra Malaysia (UPM) found that 56.1% of the respondents had poor knowledge towards contraceptive (Ma, et al., 2019). Another study done among 500 students in a Malaysian public university reported nearly half (52.0%) of the participants answered incorrectly for the statement of "it is safe to have sex during the infertile period" (Fatimah, 2019). According to Kyaw, et al. (2021), a study done among medical students in a medical university in Perak mentioned that there were no students had poor knowledge on contraception. another study done among 223 university students in a university in Korea reported there was moderate or poor contraceptive knowledge among students with the average score of 7.50 points out of 15 points (Kim, 2016).

Meanwhile, a study done in a Nigerian tertiary institution showed majority of the participants, 342 (87.67%), had high level of knowledge towards contraceptives (Ahmed, et al., 2017). The huge differences between the findings of few studies among similar population group provide a gap for researcher to determine the contraceptive's knowledge of similar interested population.

2.2.2 ATTITUDE ON CONTRACEPTION

Negative attitudes towards contraception and family planning were demonstrated by a study among medical students in Malaysia with the percentage of 59.2% (Ma, et al., 2019). A study in Nigeria among female students in Osun State College of Education obtained similar findings where there were less than half of the respondents had positive attitude towards contraceptives and 55.2% of the respondents agreed with the statement "contraceptives are ineffective" (Amu, Solomon and Odu, 2020).

Yet, a cross-sectional study on attitudes of contraception done by Mutsindikwa et al. (2019) among tertiary students in Namibia reported that high proportion of 91.7% of the participants had positive attitude towards contraceptives where they would consider the use of contraceptives in future. CAS was utilised in both Thao, et al. (2020) and Kajić, et al. (2015) but the results presented from both studies were different. This is a study gap to be determine whether the results of present study that used the same instrument will present any similar findings.

2.2.3 SOCIODEMOGRAPHIC

2.2.3.1 GENDER

A study done among medical students in Vietnam shows male achieved higher mean score (5.19) compared to female (5.17) (Nguyen and Vo, 2018). The finding is consistent with few other studies that shows male students having better contraceptive knowledge compared to female students (Perera and Abeysena, 2019; Jnag and Hong, 2017). Ma et al. (2019) also highlighted that male medical student in UPM have better contraception knowledge (53.4%) compared to female medical students (39.5%) but male students had less positive attitude (39.8%) on contraception compared to female (50.5%). Meanwhile, a cross-sectional survey study done among students in a university in Korea mentioned that a significance different where female students have better contraceptive knowledge compared to male (Kim, 2016). There is a gap from previous literatures whether which gender will have better knowledge on contraception.

2.2.3.2 ETHNICITY

A cross-sectional study considering only the three main races in Malaysia found that Chinese had higher percentage in good knowledge on contraception as compared to Indian (42.1%) and Malay (38.5). In term of attitude, the study discovered that more percentage of Indian (63.3%) had positive attitude towards contraception followed by Chinese (57.1%) and Malay (39.7) (Ma, et al., 2019). However, there is lack of study done in Malaysia to determine the association between ethnicity with knowledge and attitude on contraception.

2.2.3.3 FACULTY

According to Fatimah, et al. (2019), there were more undergraduate students from science faculty achieved good knowledge in contraceptives as compared to non-science faculty students. Similar findings found in a study done in Sri Lanka among undergraduates disclosed that students from Bioscience stream had highest good knowledge on contraception followed by Art stream, Mathematics steam and Commerce stream. Despite that, the undesirable attitude was considered high among bioscience, art, commerce and mathematics stream with percentage of 61.8%, 70.5%, 74.7% and 67.5% respectively (Perera and Abeysena, 2019). Researcher wish to determine whether the findings from a private university in Kajang will be similar or contradict with the reviewed literatures.

2.2.3.4 YEAR OF STUDY

A cross-sectional study done in Vietnam among 695 medical students shows that students from Year 1, 2 and 3 had scored lesser compared to Year 4, 5 and 6 students on contraceptive knowledge (Nguyen and Vo, 2018). Instead of year of study, most of the

studies were having age as the variables. Therefore, researcher intended to have insight on will year of study affects the students' knowledge and attitude on contraception.

There is significant association between student's year of study with the attitude on contraception. This had been shown in a study done in Bosnia and Herzegovina among 190 medical students shown that Year 5 and 6 students having better scores in attitude compared to Year 1 and 2 students (Kajic, et al., 2015).

2.2.3.5 RELATIONSHIP STATUS

Respondents who were married have higher knowledge of contraceptive compared to respondents who were single with percentage of 100% and 43.1% respectively. In the same study also shows that married respondents have positive attitude towards contraceptive as compared to single status respondents with percentage of 100% and 46.6% respectively (Ma, et al., 2019). These finding was contradictory with another study done among medical students in Vietnam demonstrated that participants who were single have higher mean score of contraceptive knowledge (5.18) as compared to married participants (5.04) (Nguyen and Vo, 2018).

A study done in Korea among university students shows that participants who were in a relationship will have higher mean score of contraceptive knowledge as compared to participants who were not in relationship. Participants who in relationship will have higher mean score of attitudes towards contraceptive (3.80) as compared to participants who not in relationship (3.68) (Kim, 2016).

2.2.4 CORRELATION BETWEEN KNOWLEDGE AND ATTITUDE ON CONTRACEPTION

Research in Korea among 134 students shows there is significant correlation between contraceptive knowledge and contraceptive attitude with the p=0.037 (Jnag and Hong, 2017). Besides this study, there is no other study that researcher could be able to obtain the same correlation testing for the same variables. Therefore, researcher wish to determine the study population will it portraits the similar findings as above.

2.3 CONCEPTUAL FRAMEWORK

The conceptual framework shows the difference between socio-demographic status, knowledge and attitude on contraception among undergraduate students. There were studies demonstrated that socio-demographic status where gender, ethnicity, faculty, year of study and relationship status are significantly associated with knowledge and attitude on contraception (Ma, et al., 2019; Jnag and Hong, 2017; Fatimah, 2019). Furthermore, in several studies found that there is significant positive correlation ($p<0.05$) between contraceptive knowledge and attitude towards it (Jnag and Hong, 2017; Kim, 2016) where the better the knowledge on contraception will results in more desirable attitude on contraception.

Based on the objective three and four, the knowledge and attitude towards contraception that depending on the variables in different socio-demographic characteristics will be analysed. The attitude on contraception was proposed to be affected by the knowledge on contraception where it will be analysed based on the fifth objectives.

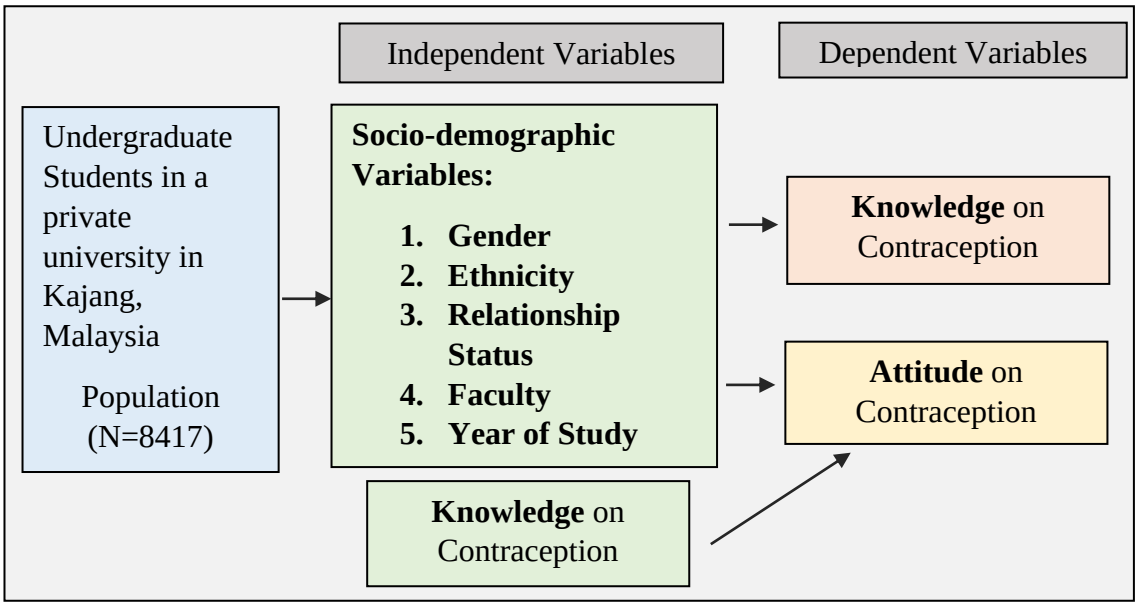


Diagram 2.2 A conceptual framework of knowledge and attitude on contraception among undergraduate students in a private university in Kajang.

2.4 SUMMARY

Literature review allows the researcher to identify the researcher gaps on related topic.

CHAPTER 3:

METHODOLOGY

CHAPTER 3: METHODOLOGY

3.0 CHAPTER OVERVIEW

Chapter 3 described the research design, study's settings, populations, sampling technique, sample size and sampling criteria, variables and instruments. Validity and reliability, pilot study, data collections, ethical considerations, data analysis, Gantt chart and budget also being described in this chapter.

3.1 RESEARCH DESIGN

A quantitative, cross-sectional survey study was conducted. This design was the most suitable to research's interest as cross-sectional study a type of observational study design that helps to investigate the relationship between characteristics of phenomenon of interest (Setia, 2016) and variables that exists naturally in a define population at a single point of time (Health Knowledge, 2021) while survey study allows data collection to be done with personal approach or via online in a large scale of sample information collection within a short period of time (DeCarlo, 2019).

3.1.1 RESEARCH SETTING

This study was conducted in a private university in Kajang. This non-profit tertiary university was founded in 2002 and it was one of the well-recognised higher institutions in Malaysia. It has been placed at 323 in QS World University Rankings 2022 where it offered more than 110 programmes over a variety of fields of study which have international recognition in both Kajang and Kampar campuses. Currently, there were 4 different faculties with approximately 10,000 students studying in this Kajang campus.

3.1.2 POPULATION

3.1.2.1 TARGET POPULATION

Undergraduate students in a private university in Kajang.

3.1.2.2 ACCESSIBLE POPULATION

All students who agreed to answer the questionnaire and are assessable during the data collection period in a private university in Kajang.

3.1.2.3 SAMPLE

The sample is the university students aged 18 and above, who are studying undergraduate programs in a private university in Kajang.

3.2 VARIABLES

3.2.1 INDEPENDENT VARIABLES

Independent variable is variable that stays stable and unaffected by other variables throughout the study. It is systematically manipulated by researcher to investigate the outcome (University of Southern California, 2018). For specific objective three and four, socio-demographic characteristics that included gender, ethnicity, faculty, year of study and relationship status will be the independent variables. Knowledge on contraception is the independent variable to assess the fifth specific research objective where it may influence attitude on contraception.

3.2.2 DEPENDENT VARIABLES

Dependent variable is the variable that is being measured or tested in a study and (McLeod, 2019) it is expected to change as an outcome of manipulation of the independent variable (University of Southern California, 2018). The dependent variables for the specific objective three is knowledge on contraception while attitude on contraception is the dependent variable for objective four and five.

3.3 SAMPLING

3.3.1 SAMPLING TECHNIQUE

Convenience sampling technique was utilised to obtain the sample in this study. Convenience sampling is the most common form of non-probability sampling technique where the sample located around a location or through internet services will be collected (Edgar and Manz, 2017). Advantages of convenience sampling are lesser techniques and time required for data collection (Gaille, 2020).

3.3.2 SAMPLE SIZE

Formula by Krejcie and Morgan (1970) is applied in sample size calculation, as shown as below:

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

S = Sample size required

X^2 = 3.841, for 0.95 confidence level

N = Population Size = 8417

P = Prevalence of previous study =0.561 (Ma, et al., 2019)

d = Degree of accuracy = 0.05

By using the prevalence 59.2% (0.592), from previous study on knowledge towards contraception among students in a public university into the formula,

$$S = \frac{(3.841)(8417)(0.592)(1-0.592)}{(0.05)^2(8417-1)+(3.841)(0.592)(1-0.592)}$$

$$S = 355.466$$

$$S = 356$$

$$N = 356 + 0.3(356)$$

$$N = 462.8$$

$$N = 463$$

An attrition rate of 30% is added into the calculation of sample size. High attrition rate is used for calculation as online survey may contribute to low response rate as it is a self-administered questionnaire (Krist, et al., 2016).

3.3.3 SAMPLING CRITERIA

3.3.3.1 INCLUSION CRITERIA

- Aged 18 years old and above.
- University students who are studying undergraduate programs in a private university in Kajang.

3.3.3.2 EXCLUSION CRITERIA

- Foundation students and postgraduate students (Master and PhD).
- Sample who refused to participate in the study.

3.4 RESEARCH INSTRUMENTS

Online questionnaire was used as the instrument to obtain the data. A questionnaire that consisted of 3 sections was created and distributed via Google Form and each section will be explained below.

3.4.1 SECTION A: SOCIODEMOGRAPHIC VARIABLES

Section A is socio-demographic variables of the respondents which are gender, ethnicity, faculty, year of study and relationship status.

3.4.2 SECTION B: CONTRACEPTIVE KNOWLEDGE ASSESSMENT

Section B questionnaire was adapted from Contraceptive Knowledge Assessment (CKA) (Haynas, et al., 2017). The respondents are required to select only one correct answer for each question. There will be a “I don’t know” selection in each question to reduce the chance of respondents guessing items. 1 point will be allocated for each correct answer. The total score will be the total sum of respondents’ score for all 19 questions. The higher the score indicate the better the knowledge of respondents on contraception. This continuous data will be presented in mean and standard deviation.

3.4.3 SECTION C: CONTRACEPTIVE ATTITUDE SCALE

Section C is statements on respondents' attitude towards contraceptive, which was adapted from Contraceptive Attitude Scale (CAS) Black (1998). CAS consists of a total of 28 statements where 15 statements are positively worded and 13 statements negatively worded. The respondents are required to answer according to their level of agreement or objection towards the statements by selecting from strongly disagree to strongly agree. All the statement will then be being scored by a 5-points Likert scale where positively worded statement, 'strongly disagree' receives a score of 1 and 'strongly agree' receives a score of 5 while negatively worded statement is reverse scored where 'strongly disagree' will receives a score of 5 and 'strongly agree' receives a score of 1.

The total score will be the total sum of respondents' scores to all 28 statements. The lower the score indicates the more negative attitude of respondents toward contraceptive use. This continuous data will be presented in mean and standard deviation.

3.4.4 VALIDITY AND RELIABILITY

Validity refers the extent to which the scores from a measure able to represent the intended variable (Prince, et al., 2017). Instruments validation is important to determine the accuracy, dependability and consistency in measurement of the related context. Both CKA and CAS has been validated by the original author. Present study questionnaire was validated by one internal expert from the faculty of medicine and health sciences and one external expert from another university (Appendix F). Recommendations were received and minor changes such as rewording and removal of repetition statements was done for both Section B and C of the questionnaire.

Test-retest reliability for CAS is good where $r(166)=0.88$, $p<0.001$. The closer the reliability coefficient is to 1.00, the more stable the measurement method over time (Gray, 2021). Reliability test for current study was done during pilot study for Section C which comprised a scale where the Cronbach's alpha coefficient was 0.90, which was stable across the samples.

3.5 PILOT STUDY

A pilot study is a small-scale, preliminary study done to determine the crucial components of the main study (Cadete, 2017). It aims to assist in planning, analyzing the feasibility and modifying instruments prior to the main study (In, 2017). The pilot study was done from 4th February to 6th February 2022 where 46 participants were recruited. These participants were excluded from the actual study to avoid duplication of data.

3.5.1 LESSON LEARNED FROM PILOT STUDY

Upon analysis from the pilot study, some sentences in Section B were rephrased as the questions were confusing. The relationship status 'married' was removed after pilot study as 'consensual' had already carried the meaning of 'in relationship'. This action was to ensure that participants will not be confusing between two similar selections.

3.6 DATA COLLECTION PROCEDURE

Data collection procedure was conducted from 16 February 2022 to 9 March 2022 where a Google Form link was sent through the university's mailmaster to all undergraduate students in the university twice in a week. All data was collected via online as the result of the study from home principle due to COVID-19 pandemic. The participants must

understand and agree to the consent form and PDPA statement on the first page of the questionnaire (Appendix A and H). The questions were set as compulsory to answer before submission to reduce the chances of collecting missing data. Data collected were then being analysed using SPSS version 22.0 and results were reported as below. The feedback and correct answers of CKA were sent to all the participants after the study was completed to achieve the significance of the study.

3.7 ETHICAL CONSIDERATION

3.7.1 UNIVERSITY ETHICAL BOARD AND COMMITTEE

Letter for approval to conduct research was sent to the university ethical board and committee prior to the data collection procedure. Brief description of the research objectives was stated also in the letter. Approval was granted on 24 January 2022 as shown as Appendix G.

3.7.2 PERMISSION TO USE CKA

A request email was sent to the author of CKA on 11 March 2021 for adapting the tool. The author had replied and permission was given via email on 21 March 2021 as shown as Appendix D.

3.7.3 PERMISSION TO USE CAS

A request to adapt CAS from the publisher was submitted to PLS Clear on 30 December 2021 and the free of charge licence document was received on the same day as shown as Appendix E.

3.7.4 CONSENT INFORMATION

On the first page of the online questionnaire, the researcher had provided a brief description on the research topic, objectives, recruitment requirement, consent form and personal data protection statement to the participants. All participants were agreed that this research is voluntary and they have the rights to withdraw from the research at any point of time. Researcher's contact information was provided to allow participants to ask questions prior joining the study. An informed consent was signed by all participants before starting of data collection procedure. Confidentiality and anonymity were maintained and all soft copy of data collected will be stored in encrypted file in researcher's laptop with passcode and will kept for 5-7 years prior disposal according to the policy.

3.8 SUMMARY

A cross-sectional study was conducted to assess the knowledge and attitude on contraception among undergraduate students in a private university in Kajang via convenience sampling method. Data collected was entered into SPSS version 22.0 for analysis and the detailed results were explained in Chapter 4.

CHAPTER 4:
DATA ANALYSIS
AND
RESULTS

CHAPTER 4: DATA ANALYSIS AND RESULTS

4.0 CHAPTER REVIEW

Elements that will be focused in this chapter are data distribution, descriptive and inferential analysis and results of the study.

4.1 DATA DISTRIBUTION

Normality test was done for both knowledge and attitude on contraception to ensure that data collected is normally distributed for analysis. Based on Figure 4.1 and Figure 4.2, a symmetrical bell-shaped curve was used over the histogram chart to examine normality of data for knowledge and attitude on contraception. As result, the total score of contraceptive knowledge and total score of attitudes toward contraception are both normally distributed.

Figure 4.1: Normal Distribution Graph of Knowledge on Contraception

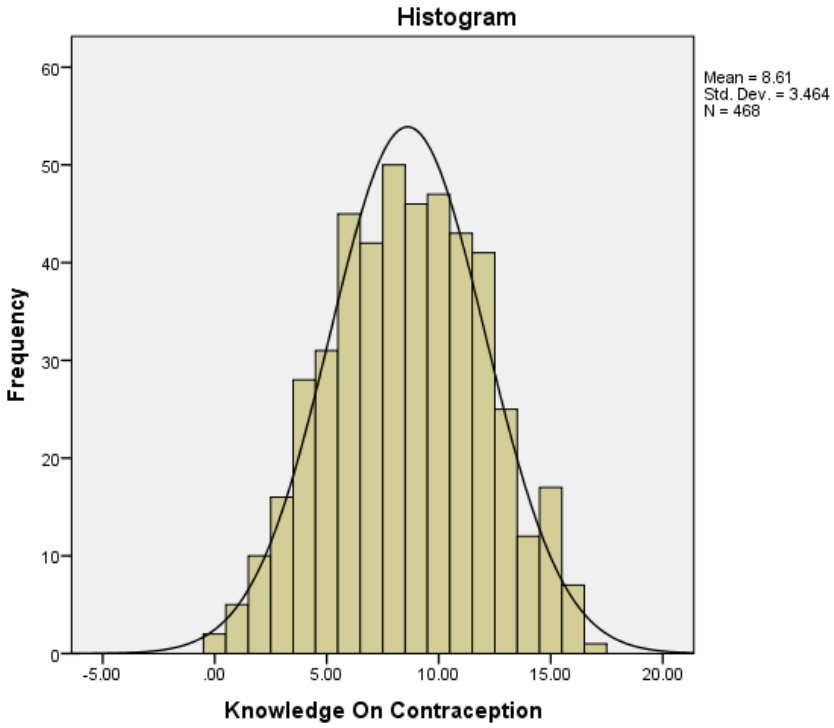
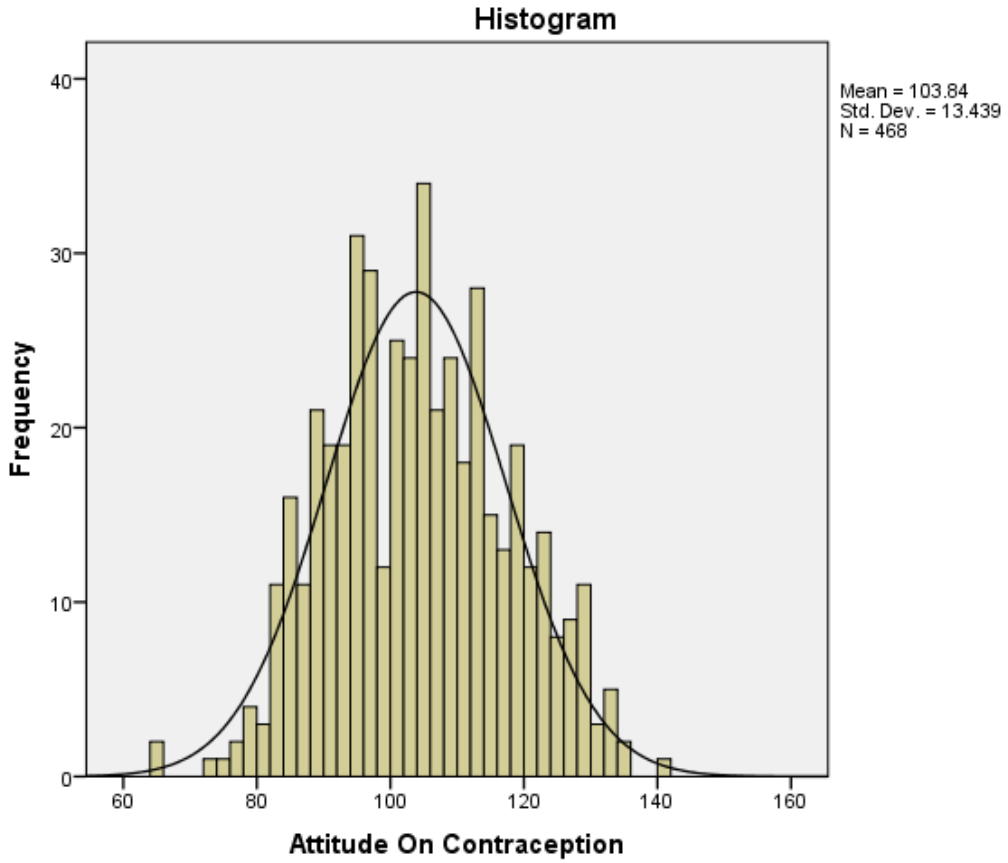


Figure 4.2: Normal Distribution Graph of Attitude on Contraception



4.2 DESCRIPTIVE AND INFERENTIAL ANALYSIS

Categorical data were presented in frequency and percentage while continuous data were presented in mean and standard deviation via descriptive analysis. In this study, socio-demographic data (gender, ethnicity, faculty, year of study and current relationship status) were tabulated with frequency and percentage. Knowledge and attitude on contraception were presented in mean and standard deviation to meet the first and second research objective.

Moreover, independent t-test and one-way ANOVA test were used to analyse research specific objective three and four, to determine the differences of knowledge on

contraception and attitude on contraception in relation to the socio-demographic variables. The results were presented in mean, standard deviation, t-value, F-value and p-value.

Lastly, Pearson correlation analysis was used to analyse research specific objective five, to determine the correlation between knowledge and attitude on contraception. The result was presented in mean, standard deviation, correlation coefficient and p-value.

4.3 STATISTICAL DATA PROCESSING ANS ANALYSIS

All data collected were manually entered into IBM SPSS Statistic version 22 by researcher. The questionnaire was disseminated using Google Form through the university mailmaster and 468 participants were recruited via convenience sampling method. The response rate was 100% with no missing data reported. Both descriptive and inferential analysis were performed and generated via SPSS version 22 with confidence interval of 95% with p-value being statistically significant when less than 0.05.

4.4 RESULTS

4.4.1 SOCIODEMOGRAPHIC CHARACTERISTIC

Gender, ethnicity, faculty, year of study and relationship status are the socio-demographic characteristics in this study. The data collected are presented in frequency and percentage.

Table 4.1 Frequency and percentage distribution of participants based on socio-demographic characteristics (n=468)

Socio-demographic Characteristics	Frequency (f)	Percentage (%)
Gender		
Male	202	43.2
Female	266	56.8
Ethnicity		
Chinese	432	92.3
Non-chinese	36	7.7
Faculty		
Health Sciences	87	18.6
Non-health sciences	381	81.4
Year of Study		
Year 1	143	30.6
Year 2	123	26.3
Year 3	130	27.8
Final Year	72	15.3
Relationship Status		
Single	384	82.1
Consensual	84	17.9

Table 4.1 demonstrate the socio-demographic characteristics of the participants in frequency and percentage. Gender was divided into two groups, male and female. Out of it, more than half of the participants, 266 (56.8%) were female. In term of ethnicity, most of the participants were from Chinese 432 (92.3%) and the remaining were non-chinese (n=36, 7.7%).

Faculty was categorized into two groups, health sciences and non-health sciences. More than three quarter of participants, 381 (81.4%) were from non-health sciences. Year of

study were grouped into five groups which were Year 1, 2, 3, 4 and 5. There were 143 (30.6%) participants were from Year 1, followed by Year 3 130 (27.8%), Year 2 123 (26.3%), Year 4 59 (12.6%) and Year 5 13 (2.8%). For current relationship status, majority of the participants were single 384 (82.1%).

4.4.2 KNOWLEDGE LEVEL ON CONTRACEPTION

The knowledge on contraception among undergraduate students was assessed using CKA which answered the first research question: 'What is the knowledge on contraception among undergraduate students in a private university in Kajang?' via descriptive analysis. Data were presented in frequency, percentage, mean and standard deviation.

Table 4.2 Frequency and percentage of correct and incorrect answers of participants to measure using CKA (n=468)

CKA questions	Frequency (Percentage) F (%)	
	Correct	**Incorrect**
1. When does a woman have the highest chance to become pregnant?	289 (61.8)	179 (38.2)
2. When is the safe period to have sex without getting pregnant?	259 (55.3)	209 (44.7)
3.How long sperm can stay alive in a woman's reproductive tract?	230 (49.1)	238 (50.9)
4. Which of the following choices is TRUE about pregnancy?	367 (78.4)	101 (21.6)
5.Which of the following choices is TRUE about withdrawal, or the "pull-out" method?	300 (64.1)	168 (35.9)
6.Which of the following contraceptives method guarantees a person will NOT become pregnant?	189 (40.4)	279 (59.6)
7. Which is the ONLY contraceptive method that helps prevent sexual transmitted infections? (i.e. Human papillomavirus (HPV), Human immunodeficiency virus (HIV), syphilis)?	317 (67.7)	151 (32.3)

8. Which of the following contraceptive methods may be reversed if you decide you want to become pregnant?	235 (50.2)	233 (49.8)
9. All the following are TRUE about using male condoms EXCEPT:	263 (56.2)	205 (43.8)
10. Hormonal birth control comes in which of the following forms?	128 (27.4)	340 (72.6)
11. Which of the followings is NOT a benefit of hormonal birth control?	170 (36.3)	298 (63.7)
12. Which of the following can make hormonal birth control less effective?	69 (14.7)	399 (85.3)
13. What is the main way that birth control pills work?	266 (56.8)	202 (43.2)
14. A woman should NOT use the birth control pill if you have any of the following:	78 (16.7)	390 (83.3)
15. How long after stop using birth control pill can a woman becomes pregnant?	52 (11.1)	416 (88.9)
16. If you forget to take one birth control pill and remember the next day, what should you do?	60 (12.8)	408 (87.2)
17. How soon after sex the “morning after pill” (emergency pill) should be used, to be effective?	189 (40.4)	279 (59.6)
18. What is the common side effect of birth control pills?	300 (64.1)	168 (35.9)
19. A doctor places an IUD (intrauterine device) in which part of the body?	269 (57.5)	199 (42.5)

As per Table 4., only significant results were stated. In a total of 19 questions, only 10 questions were answered correctly by over half of the participants. More than two-thirds of the participants, 317 (67.7%), aware that women can become pregnant when they first have sex, having sex standing up and even they did not have an orgasm during sex. About two-thirds of the participants, 317 (67.7%) knew that the only contraceptive method that helps prevent sexually transmitted diseases is male and female condoms.

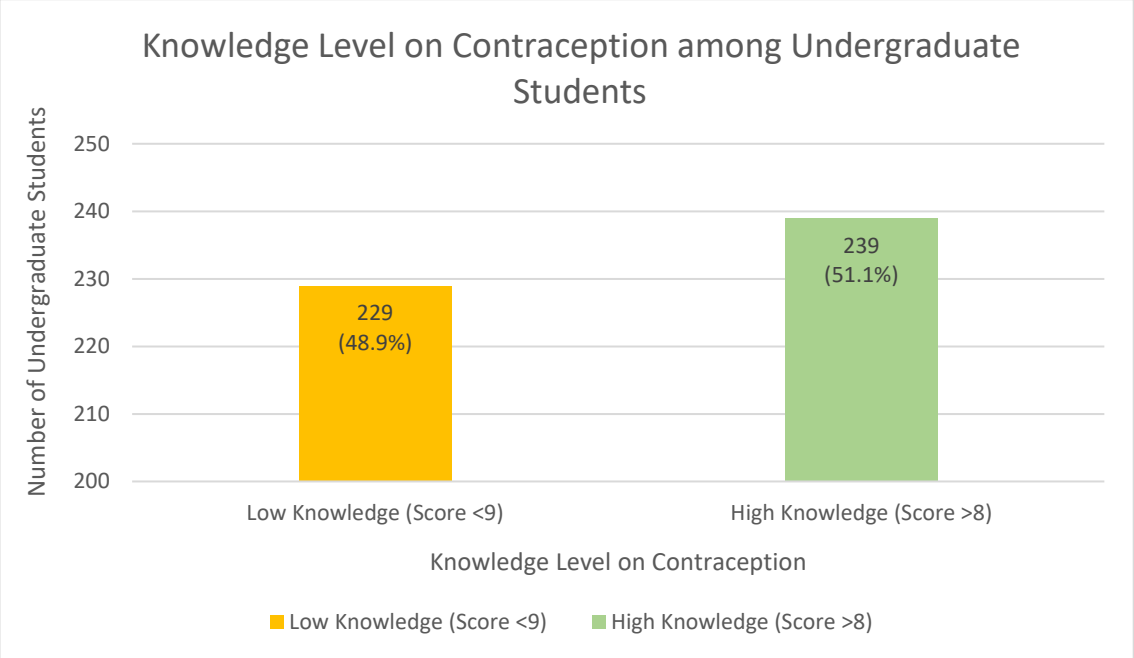
Questions 6, 10, 11, 12, 14, 15 and 16 received the most incorrect answers. More than half of the participants, 279 (59.6%), did not know there are no contraceptives that prevent pregnancy completely. 340 (76.2%) of participants did not know that hormonal birth control comes in various forms and 298 (63.7%) of participants did not know that hormonal birth control does not improve diabetes. Over four-fifths of the participants, 399 (85.3%), unaware that seizure medicine, HIV medicine and herbal supplements can cause hormonal birth control to be less effective. More than four-fifths of the participants, 390 (83.3%), did not know that it is safe to use birth control pills when a woman has fibroids, drinking alcohol or taking antibiotics. Majority the participants, 416 (88.9%), unaware that women may get pregnant immediately after they stopped using birth control pill. 408 (87.9%) of participants do not know what they should do if they forgot to take one birth control pill and remember it the next day.

Table 4.3 Mean, standard deviation, minimum and maximum score of knowledge on contraception assessed by CKA (n=468)

Variable	Mean (SD)	Minimum	Maximum
Knowledge on Contraception	8.61 (3.46)	0.00	19.00

Based on Table 4.3 shows the mean score of knowledge on contraception is 8.61 (SD3.464) in the range of minimum score of 0.00 and maximum score of 19.00. As per the table, the higher the score on CKA, the better the participants' knowledge in contraception. With the mean score obtained, knowledge on contraception was classified into high knowledge (score 9 and above) and low knowledge (score 8and below).

Figure 4.3 Frequency and percentage of knowledge level on contraception among undergraduate students measured by CKA (n=468)



Based on the further analysis shows in Figure 4.3, it can be concluded that only 239 students (51.1%) correctly answered 9 questions and above out of 19 questions, which was classified as high knowledge and almost half of the participants (n=229, 48.9%) obtained low knowledge on contraception.

4.4.3 ATTITUDE ON CONTRACEPTION

The attitude on contraception among undergraduate students was assessed using CAS, a 5-point Likert type scale, which answered the second research question: 'What is the attitude on contraception among undergraduate students in a private university in Kajang?' via descriptive analysis. Date was presented in frequency, percentage, mean and standard deviation.

Table 4.4 Frequency and percentage of participants responses on CAS used to assess attitude on contraception (n=468)

CAS questions	Frequency (Percentage) F (%)				
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. I believe that it is wrong to use contraceptive. (N)	181 (38.7)	154 (32.9)	93 (19.9)	34 (7.3)	6 (1.3)
2. I think using contraceptives is much more desirable than having an abortion. (P)	13 (2.8)	17 (3.6)	63 (13.5)	159 (34.0)	216 (46.2)
3. I think males who use contraceptives seem less masculine than males who do not. (N)	207 (44.2)	107 (22.9)	114 (24.4)	36 (7.7)	4 (0.9)
4. I encourage my friends to use contraceptives. (P)	12 (2.6)	26 (5.6)	156 (33.3)	136 (29.1)	138 (29.5)
5. I would not become sexually involved with a person who did not accept contraceptive responsibility. (P)	9 (1.9)	26 (5.6)	99 (21.2)	148 (31.6)	186 (39.7)
6. Teenagers should no need permission from their parents to get contraceptives. (N)	58 (12.4)	115 (24.6)	137 (29.3)	97 (20.7)	61 (13.0)
7. Contraceptives are not necessary unless a couple has engaged in intercourse with more than one partner. (N)	198 (42.3)	141 (30.1)	70 (15.0)	48 (10.3)	11 (2.4)
8. Contraceptives make sex seem less romantic. (N)	169 (36.1)	137 (29.3)	131 (28.0)	25 (5.3)	6 (1.3)

9. I do not believe that contraceptives prevent pregnancy. (N)	154 (32.9)	174 (37.2)	97 (20.7)	31 (6.6)	12 (2.6)
10. I think using contraceptives is a way of showing that you care about your partner. (P)	10 (2.1)	16 (3.4)	73 (15.6)	185 (39.5)	184 (39.3)
11. I do not talk about contraception with my friends as I feel embarrassed to discuss it. (N)	105 (22.4)	136 (29.1)	139 (29.7)	58 (12.4)	30 (6.4)
12. One should use contraceptives regardless of how long one has known his/her sexual partner. (P)	13 (2.8)	28 (6.0)	126 (26.9)	170 (36.3)	131 (28.0)
13. I feel contraceptive is difficult to obtain. (N)	99 (21.2)	179 (38.2)	142 (30.3)	44 (9.4)	4 (0.9)
14. I think using contraceptives can make intercourse seem more pleasurable. (P)	21 (4.5)	42 (9.0)	301 (64.3)	78 (16.7)	26 (5.6)
15. I feel that contraception is solely my partner's responsibility. (N)	141 (30.1)	142 (30.3)	111 (23.7)	57 (12.2)	17 (3.6)
16. I feel more relaxed during intercourse if a contraceptive method is used. (P)	7 (1.5)	20 (4.3)	226 (48.3)	134 (28.6)	81 (17.3)
17. I prefer to use contraceptives during intercourse. (P)	7 (1.5)	18 (3.8)	190 (40.6)	157 (33.5)	96 (20.5)
18. In the future, I plan to use contraceptives any time I have intercourse. (P)	9 (1.9)	29 (6.2)	165 (35.3)	162 (34.6)	103 (22.0)

19. I would practice contraception even if my partner did not want me to. (P)	15 (3.2)	28 (6.0)	154 (32.9)	170 (36.3)	101 (21.6)
20. I think there is no trouble to use contraceptives. (P)	8 (1.7)	41 (8.8)	123 (26.3)	189 (40.4)	107 (22.9)
21. I think using contraceptives makes a relationship seem too permanent. (N)	52 (11.1)	98 (20.9)	215 (45.9)	67 (14.3)	36 (7.7)
22. I feel sex is not fun if contraceptive is used. (N)	102 (21.8)	145 (31.0)	199 (42.5)	17 (3.6)	5 (1.1)
23. I feel contraceptives are worth using, even if the monetary cost is high. (P)	11 (2.4)	22 (4.7)	126 (26.9)	197 (42.1)	112 (23.9)
24. I think contraceptive use encourages people to have casual sexual relations. (N)	50 (10.7)	96 (20.5)	172 (36.8)	115 (24.6)	35 (7.5)
25. I think couples should talk about contraception before having intercourse. (P)	7 (1.5)	11 (2.4)	46 (9.8)	199 (42.5)	205 (43.8)
26. If I or my partner experienced negative side effects from a contraceptive method, we would use a different method. (P)	4 (0.9)	8 (1.7)	93 (19.9)	220 (47.0)	143 (30.6)
27. I feel contraceptives make intercourse seem too planned. (N)	58 (12.4)	112 (23.9)	206 (44.0)	76 (16.2)	16 (3.4)
28. I feel better about myself when I use contraceptives. (P)	5 (1.1)	24 (5.1)	231 (49.4)	126 (26.9)	82 (17.5)

P: Positive statement; N: Negative statement

Based on Table 4.only the main outcomes are highlighted. More than two-thirds of the participants 335 (71.6%), disagreed with the statement ‘I believe that it is wrong to use contraceptive’. Around four-fifths of participants, 375 (80.2%), agreed that using contraceptives is much more desirable than having an abortion. About two-thirds of the participants, 314 (67.1%), disagreed with the statement ‘I think makes who use contraceptives seem less masculine than males who do not’. More than half of the participants, 274 (58.6%), agreed to encourage their friends to use contraceptives. More than two-thirds of participants, 334 (71.3%), agreed with the statement ‘I would not become sexually involved with a person who did not accept contraceptive responsibility’. More than one-fifths of the participants, 137 (29.3%), undecided with the statement ‘Teenagers should no need permission from their parents to get contraceptives’. Over two-thirds of the participants, 339 (72.4%), disagreed to the statement ‘contraceptives are not necessary unless a couple has engaged in intercourse with more than one partner’. Nearly two-thirds of the participants, 306 (65.4%), disagreed that contraceptives make sex seem less romantic. Over two-thirds of the participants, 328 (70.1%), believed that contraceptives prevent pregnancy. Almost four-fifths of the participants, 369 (78.8%), agreed that using contraceptives is a way of showing care towards their partner. Only one-fifths of the participants, 88 (18.8%), felt embarrassed to discuss contraceptive related topic with friends. Almost two-third of the participants, 301 (64.3%), agreed to the statement ‘One should use contraceptives regardless of how long one has known his/her sexual partner’. About half of the participants, 278 (59.4%), disagreed that contraceptives is difficult to obtain. Nearly two-thirds of the participants, 301 (64.3%), undecided

on the statement ‘I think using contraceptives can make intercourse seem more pleasurable’.

There were 283 (60.4%) of the participants disagreed that contraception is sole partner’s responsibility. Almost half of the participants, 226 (48.3%), undecided with the statement ‘I feel more relaxed during intercourse if a contraceptive method is used’. Two-fifths of the participants, 190 (40.6%), undecided with the statement ‘I prefer to use contraceptives during intercourse’. More than half of the participants, 265 (56.6%), agreed that they plan to use contraceptives at any time when they have intercouse in future. 271 (57.9%) of the participants agreed to practice contraception even if their partner did not want them to. Nearly two-thirds of the participants, 296 (63.3%), think there is no trouble to use contraceptives. Just about half of the participants, 215 (45.9%), be undecided with the statement ‘I think using contraceptives makes a relationship seem too permanent’. Over two-fifths of the participants, 199 (42.5%), being undecided in the statement ‘I feel sex is not fun if contraceptive is used’. Two-thirds of the participants, 309 (66.0%), agreed that contraceptives are worth using despite the high monetary cost. About one-thirds of the participants, 172 (36.8%), undecided to the statement ‘I think contraceptive use encourages people to have casual sexual relations’. Over four-fifths of the participants, 404 (86.3%), agreed that couples should talk about contraception before having intercourse. Nearly four-fifths of the participants, 367 (77.6%), agreed with the statement ‘If I or my partner experienced negative side effects from a contraceptive method, we would use a different method’. Over two-fifths of the participants, 206 (44.0%), undecided with statement ‘I feel contraceptives make intercourse seem too

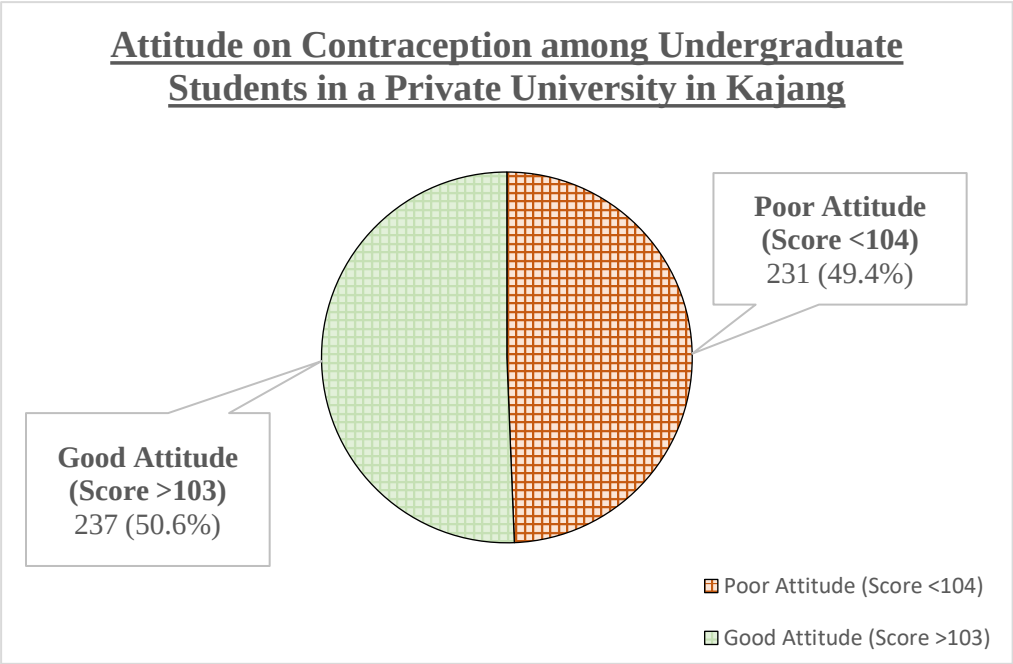
planned'. Almost half of the participants, 231 (49.4%), undecided on statement 'I feel better about myself when I use contraceptives.

Table 4.5 Mean, standard deviation, minimum and maximum score of attitude on contraception assessed by CKA (n=468)

Variable	Mean (SD)	Minimum	Maximum
Attitude on Contraception	103.84 (13.44)	28.00	140.00

Based on Table 4.5 demonstrated the mean score of attitude on contraception is 103.84 (SD 13.439) in the range of minimum 28.00 and maximum 140.00. As per the table, the higher the score on CAS, the better the participants' attitude towards contraception. Further classification was done based on the mean score where score of 104 and above was as good attitude and 103 and below was poor attitude.

Figure 4.4 Frequency and percentage for undergraduate students' attitude on contraception measured by CAS (n=468)



According to the further analysis shows in Figure 4.4, it can be concluded that only half of the students, 237 (50.6%) had good attitude on contraception while there were 231 (49.4%) of students had poor attitude towards contraception. The classification of attitude was based on the total mean score of CAS.

4.4.4 DIFFERENCE BETWEEN THE KNOWLEDGE ON CONTRACEPTION AND THE SOCIO-DEMOGRAPHIC CHARACTERISTICS

In this section, the third research question: 'what is difference between the knowledge on contraception and the socio-demographic characteristics (gender, ethnicity, faculty, year or study and relationship status) among undergraduate students in a private university in Kajang?' was examined. The data were analysed by using Chi-Square test. Results were then presented in cross-tabulation.

Table 4.6 The difference between the knowledge on contraception and the socio-demographic characteristics (gender, ethnicity, faculty and relationship status) analysed using independent t-test (n=468)

Socio-demographic Characteristics	Knowledge on Contraception Mean (SD)	df	t	p-value
Gender				
Male	8.63 (3.302)	466	0.096	0.924
Female	8.60 (3.588)			
Ethnicity				
Chinese	8.56 (3.475)	466	-1.002	0.317
Non-Chinese	9.17 (3.325)			
Faculty				
Health Sciences	10.92 (3.096)	466	7.261	<0.001*
Non-health Sciences	8.08 (3.328)			
Relationship Status				
Single	8.25 (3.313)	466	-4.941	<0.001*
Consensual	10.26 (3.674)			

** significant level at p<0.05*

Based on Table 4.6, the socio-demographic characteristics of the undergraduate students that have two groups included gender, ethnicity, faculty and relationship status. The mean score of knowledge on contraception for male and female were

8.63 (S.D 3.30) and 8.60 (SD 3.59) respectively. The result demonstrated that there is no statistically significant difference between the knowledge on contraception and gender [t (468)= 0.096, p= 0.924] as the p-value exceeded the tabulated value.

Moreover, Table 4.6 illustrated that non-Chinese participants scored better with the mean score of 9.17 (SD 3.325) as compared to Chinese participants, 8.56 (SD 3.475). However, the finding was not statistically significant as the p=0.317, which was higher than the tabulated value, $p<0.05$.

Table 4.6 also analysed the difference of knowledge on contraception with faculty. The mean score for health sciences students was 10.92 (SD 3.10), and non-health sciences was 8.08 (SD 3.33). As the p-value is less than 0.001, therefore there is statistically significant difference between knowledge on contraception and faculty [t (468) = 7.261, p = <0.001].

Besides, Table 4.6 showed the mean of knowledge on contraception with relationship status whereby single is 8.25 (SD 3.31) and consensual is 10.26 (SD 3.67). Independent t-test revealed that the p-value is less than 0.001 which is lower than the tabulated value. Hence, there is statistically significant difference between knowledge on contraception and current relationship status [t(468) = 4.941, p = <0.001].

Table 4.7 The difference between the knowledge on contraception and the socio-demographic characteristics (year of study) analysed using ANOVA test (n=468)

Socio-demographic Characteristics	Knowledge on Contraception Mean (SD)	df	F	p-value
Year of Study				
Year 1	8.50 (3.371)	3	3.763	0.011*
Year 2	8.21 (3.481)			
Year 3	8.43 (3.306)			
Final Year	9.83 (3.692)			

** significant level at p<0.05*

Table 4.7 demonstrated that final year students have the highest mean score for knowledge in contraception 9.83 (SD 3.692), followed by Year 1, 8.50 (SD 3.371), Year 3, 8.43 (SD 3.306) and Year 2, 8.21 (SD3.481). The result was statistically significant at $p<0.05$ which indicated that knowledge on contraception had differences with year of study.

Overall, there was no statistically significant differences between knowledge on contraception with socio-demographic variables, except faculty, year of study and relationship status. Therefore, the first null hypothesis 'there will be no statistically significant differences between knowledge on contraception with the socio-demographic variables (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang is failed to be rejected.

4.4.5 DIFFERENCE BETWEEN THE ATTITUDE ON CONTRACEPTION AND THE SOCIO-DEMOGRAPHIC CHARACTERISTICS

The fourth research question: 'what is difference between the attitude on contraception and the socio-demographic characteristics (gender, ethnicity, faculty, year or study and relationship status) among undergraduate students in a private university in Kajang?' was answered. For gender, ethnicity, faculty and relationship status, the data were analysed by independent t-test as the independent variables had only two categorical groups while the year of study consist of more than two categorical groups was analysed via one-way ANOVA test.

Table 4.8 The difference between the attitude on contraception and the sociology-demographic characteristics (gender, ethnicity, faculty and relationship status) analysed using independent t-test (n=468).

Socio-demographic Characteristics	Attitude on Contraception Mean (SD)	df	t	p-value
Gender				
Male	102.40 (13.299)	466	-2.031	0.043*
Female	104.94 (13.465)			
Ethnicity				
Chinese	103.69 (13.048)	38.3	-0.689	0.495
Non-Chinese	105.75 (17.581)			
Faculty				
Health Sciences	106.08 (12.887)	466	1.724	0.085
Non-health Sciences	103.33 (13.526)			
Relationship Status				
Single	102.73 (13.115)	466	-3.904	<0.001*
Consensual	108.95 (13.792)			

** significant level at p<0.05*

In Table 4.8 demonstrated the analysis of difference between attitude on contraception with gender. The mean score of attitudes on contraception for male was 102.40 (SD 13.299) while female was 104.94 (SD 13.465). The result showed that there is statistically significant difference between attitude on contraception and gender [t(468) = -2.031, p =0.043] as the p-value is less than 0.05, the tabulated value.

For ethnicity, Table 4.8 showed that non-Chinese participants had higher attitude score 105.75 (SD 17.581) as compared to Chinese participants 103.69 (SD 13.048). However, the result was not statistically significant at p>0.05 which indicated the participant's ethnicity had no difference with the attitude towards contraception.

Moreover, Table 4.8 displayed difference between the attitude on contraception with faculty. The mean score of attitude on contraception for health sciences and non-health sciences were 106.08 (SD 12.887) and 103.33 (SD 13.526) respectively. There is no statistically significant difference between attitude on contraception and faculty [t(468)=1.724, p=0.085] where the p=value is higher than the tabulated value p=0.05.

The difference between attitude on contraception and relationship status was also presented in Table 4.8. Single's mean score of attitude on contraception was 102.73 (SD 13.115) while the mean score for consensual was 108.95 (SD 13.792). After analysis with independent t-test, the finding shows that there is

statistically significant difference between attitude on contraception and relationship status with p-value less than 0.001 [t(468) = -3.904, p = <0.001].

Table 4.9 The difference between the attitude on contraception and the socio-demographic characteristics (year of study) analysed using ANOVA test (n=468)

Socio-demographic Characteristics	Attitude on Contraception Mean (SD)	df	F	p-value
Year of Study				
Year 1	103.90 (13.469)	3	1.945	0.122
Year 2	102.12 (13.811)			
Year 3	103.71 (13.426)			
Final Year	106.92 (12.449)			

** significant level at p<0.05*

Table 4.9 tabulated the difference between attitude on contraception with year of study. The mean score of attitude on contraception for Final year was 106.92 (SD 12.449) while the mean score for Year 1, 2 and 3 were 103.90 (SD 13.469), 102.12 (SD 13.811) and 103.71 (SD 13.426) respectively. ANOVA test was used for analysis and the result showed that there is no statistically significant difference between attitude on contraception and year of study as the p-value is higher than the tabulated value [F(3), 468 = 1.945, p = 0.122].

Overall, there was no statistically significant differences between attitude on contraception with socio-demographic variables, except gender and relationship status. Therefore, the second null hypothesis ‘there will be no statistically significant differences between attitude on contraception with the socio-demographic variables (gender, ethnicity, faculty, year of study and relationship status) among undergraduate students in a private university in Kajang is failed to be rejected.

4.4.6 CORRELATION BETWEEN THE ATTITUDE AND KNOWLEDGE ON CONTRACEPTION

In this section, the fifth research question, 'Is there any correlation between the attitude and knowledge on contraception among undergraduate students in a private university in Kajang?' was analysed. As both dependent and independent data were normally distributed continuous data, Pearson correlation test was used for analysis.

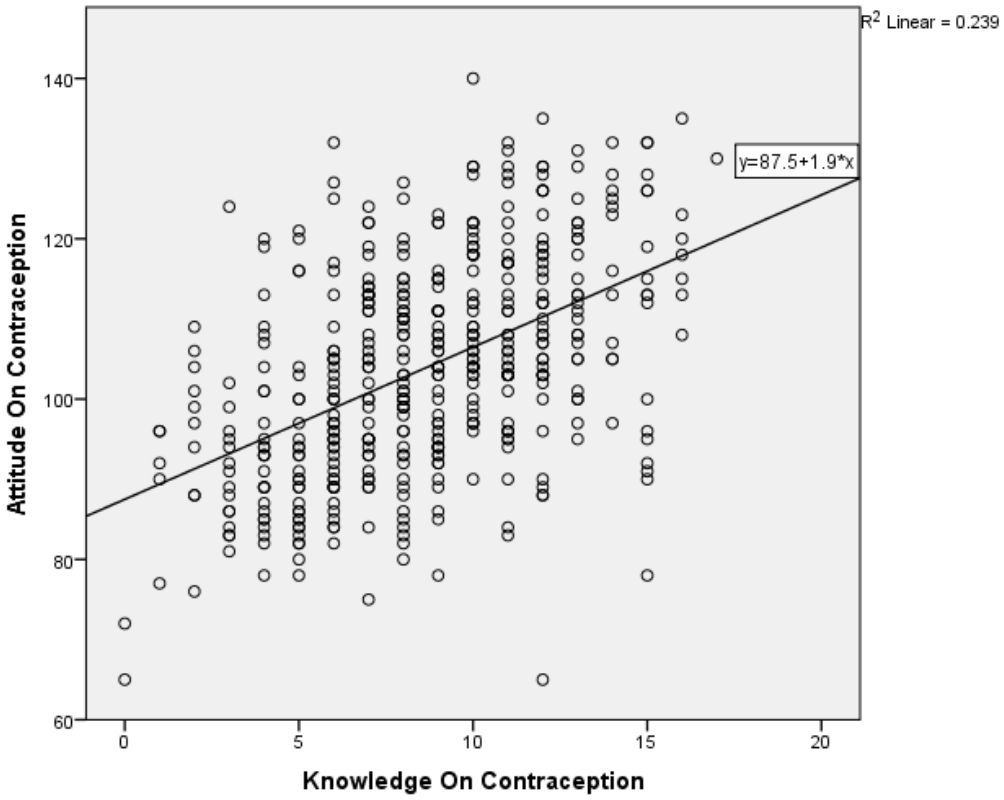
Table 4.10 The correlation between the attitude and knowledge on contraception among undergraduate students analysed using Pearson Correlation Test (n=468)

Variables	Mean (SD)	N	r	p-value
Knowledge on Contraception	8.61 (3.464)	468	0.489	<0.001*
Attitude on Contraception	103.84 (13.439)			

**significant level at p<0.05*

Table 4.10 presented the correlation between the attitude on contraception and knowledge on contraception. The correlation was determined via Pearson correlation test and result shows that there is statistically significant relationship between the knowledge on contraception and attitude on contraception with r-value = 0.489 and p-value<0.001. The strength of the relationship is moderate and the direction of the relationship is positive. Hence, attitude on contraception will increases when the knowledge on contraception increases.

Graph 4.3 Scatterplot of the correlation between attitude and knowledge on contraception (n=468)



Graph 4.3 shows the correlation between the knowledge on contraception and attitude on contraception, and it was presumed that knowledge on contraception is the independent variable and attitude on contraception is the dependent variable. The scatterplot illustrates that there is a positive linear correlation between knowledge and attitude on contraception. Therefore, as the knowledge on contraception increases, the attitude towards contraception better.

Both Table 4.10 and Graph 4.3 exhibit there is correlation between knowledge and attitude on contraception. Hence, it can be concluded that there is a correlation between knowledge and attitude on contraception. Therefore, the null hypothesis three ‘there will be no statistically significant correlation between

attitude on contraception and knowledge on contraception among undergraduate students' is rejected.

4.5 SUMMARY

The results of data analysis were presented in figures and tables to answer the research objectives and hypothesis.

CHAPTER 5: DISCUSSION

CHAPTER 5: DISCUSSION

5.0 CHAPTER OVERVIEW

The chapter discusses the findings of all the research specific objective with the implications in relevant with past literatures. Discussion will begin with knowledge on contraception, then attitude on contraception, followed by the differences between knowledge on contraception with socio-demographic characteristics; differences between attitude on contraception with socio-demographic characteristics and lastly the correlation between attitude and knowledge on contraception.

5.1 KNOWLEDGE ON CONTRACEPTION

The research objective was to identify the knowledge on contraception among undergraduate students in a private university in Kajang. Results of current study demonstrated 239 (51.1%) of participants, had high knowledge on contraception and almost half of the participants, 229 (48.9%), had low knowledge on contraception. The results were similar to the study done in a private medical university in Perak among 241 medical students revealed more than half of the participants, 158 (65.6%), obtained good knowledge level towards the usage of contraception (Kyaw, et al., 2021).

Findings in current study contradicted with a study done in a Nigerian tertiary institution showed majority of the participants, 342 (87.67%), had high level of knowledge towards contraceptives (Ahmed, et al., 2017). Lower results in

comparison may be due to the different cultural exposure towards contraception and difference in instruments used in the study.

Young adults in Malaysia had relatively low knowledge towards contraception mainly due to the lack of comprehensive sexuality education (CSE) that provides scientific accurate information about reproductive health, contraceptive and STD being taught in the school (Kaler, 2018).

5.2 ATTITUDE ON CONTRACEPTION

The second research objective was to determine the attitude of students toward contraception in a private university in Kajang. The finding of present study showed only 237 (50.6%) of students had good attitude and almost half of the participants, 231 (49.4%) of students had poor attitude towards contraception. The findings were consistent with the result of a cross-sectional study that involved 278 medical students in Universiti Putra Malaysia by Ma, et al. (2019) which revealed that only 47.1% of students showed positive attitude towards contraception. This could be contributed by the same population in both studies.

Yet, findings in present study were in contrast with a cross-sectional study in Namibia, South Africa, revealed that 202 (91%) of the tertiary students had positive attitude on contraceptive (Amu, Solomon and Odu, 2020). Findings were further supported by another cross-sectional study done among 223 students in a university in Korea by Kim (2016) revealed that students generally have positive attitude towards contraception with mean of 3.74 out of 5.00. It

could be attributed to the different exposure to contraceptive education, social and cultural factors in different countries.

In general, studies done in Malaysia revealed majority of the university students had poor attitude on contraception. This may be due to the Malaysian social stigma, cultural taboos and religious belief on the prohibition of unwed person to involve in sexual intercourse and usage of contraception (Chi, 2015).

5.3 DIFFERENCE BETWEEN THE KNOWLEDGE ON CONTRACEPTION AND THE SOCIO-DEMOGRAPHIC VARIABLES

Findings of present study revealed there is no statistically significant association between knowledge on contraception and socio-demographic characteristics except faculty, year of study and relationship status.

A cross-sectional study done among 695 medical students revealed no significant difference between knowledge on contraception and gender (Nguyen and Vo, 2018). The results were corresponded with current study. However, results from few studies done in Malaysia and Korea conflicted with present study where it revealed that there is significant association between contraceptive knowledge and gender with p-value less than 0.05 (Ma, et al., 2019; Kim, 2016). Different in findings may be due to difference in research instrument used.

Current study disclosed no association between knowledge on contraception and ethnicity which was contradicted with previous study. Ma, et al. (2019) disseminated a significant association between contraceptives knowledge and ethnicity ($p = 0.047$). There were not many literatures for comparison on ethnicity as similar studies were mostly done in other countries with different group of ethnicities.

Furthermore, a cross-sectional study done in a Malaysian Public university with purposive sampling illustrated significant association between knowledge and faculty ($p=0.02$) where students from science faculty was associated with good knowledge in contraception. Another study in Korea by Kim (2016) among 223 college students had also demonstrated the similar findings which corresponded with present study. The alike in results can be caused by the similar study population.

A cross-sectional study done among 695 medical students in Vietnam showed significant difference between knowledge on contraception and year of study ($p<0.001$) where Year 4, 5 and 6 students have higher knowledge towards contraceptives (Nguyen and Vo, 2018). Similar findings were also reported in present study.

Similar finding was found in a study in Malaysia established that good knowledge was significant with students who were married ($p=0.036$) (Ma, et al., 2019). Practice on the use of contraceptives may play a part in high

knowledge in those who in a relationship. The results were inconsistent with the study done in a Korean university among 223 university students (Kim, 2016). Difference in comparison may credited to different sample size involved.

5.4 ASSOCIATION BETWEEN THE ATTITUDE ON CONTRACEPTION AND THE SOCIO-DEMOGRAPHIC VARIABLES

The findings of current study to answer the second hypothesis, there is no statistically significant association between attitude on contraception and the socio-demographic characteristics except gender and relationship status.

The results of independent t-test by Jang and Hong (2017) demonstrated the differences between attitude on contraception and gender was significant (p=), where female have more positive attitude as compared to men. This was also supported by another study done in Central California, who used the same instruments, CAS as the study tool revealed statistically significant with p=0.001 (Thao, et al., 2020). However, the above findings conflicted with the results found in a study using CAS tool in University of Mostar showed no significant differences between attitude on contraception and gender (p=0.248) (Kajić, et al., 2015).

Previous study by Ma, et al. (2019) showed that attitude on contraception was statistically associated with ethnicity where Malays had more negative attitude as compared to other ethnicities with p-value 0.004, where the results were in contrast with present study.

A cross-sectional study done in a Korean university demonstrated significant difference between attitude on contraception and major of study where health sciences have more positive attitude towards contraceptive ($p=0.003$) (Kim, 2016). In contrast, a similar study also done in Korea among 5 universities students revealed that no difference between attitude and department of study which were in line with results from present findings (Jang and Hong, 2017). The differences in findings may be due to the different instrument tools used.

Present study portrayed no association between contraceptives attitude and year of study where it was in contradict with a study done in Bosnia and Herzegovina among 190 medical students revealed Year 4 and 5 were significant difference with better attitude on contraception compared to Year 1 and 2 with $p<0.001$ (Kajić, et al., 2015).

Ma, et al. (2019) emphasized there is significant association between attitude and relationship status where married students perceived more positive attitude towards contraception where the results were aligned with present study. Positive attitude may be attributed by the common usage of contraceptives in the relationship among students.

5.5 ASSOCIATION BETWEEN ATTITUDE ON CONTRACEPTION AND KNOWLEDGE ON CONTRACEPTION

Current study demonstrated a moderate positive association between attitude and knowledge on contraception where the higher the knowledge level contributed to better attitude towards contraception. The findings were in line with another cross-sectional study done in Korea by Kim (2016) revealed that adequate knowledge on contraception generally have favourable attitude towards contraceptives with significant correlation where r=0.23 (p=0.001). Jang and Hong (2017) supported that contraceptive behaviours and attitudes can be improved through educational programme on contraception topics during college years. Increase in knowledge and attitude of young adults on contraception may potentially reduce the consequences of unintended pregnancy and STDs (Ma, et al., 2019).

CHAPTER 6:
CONCLUSION
AND
RECOMMENDATION

CHAPTER 6: CONCLUSION & RECOMMENDATION

6.0 STRENGTH & LIMITATION

6.0.1 STRENGTHS

Excellent response rate with attainment of the calculated sample size is one of the strengths of the study. There was no duplicate of participate as the institution's email of participants was required and only one submission per email. Moreover, no missing data was found as all questions in the online questionnaire was set as compulsory to answer before submission. Findings of the study could be also useful in identifying misconceptions on contraceptives among undergraduate student to determine the specific contents related to contraceptives as the educational materials to be consider in delivering to the students in future. CKA's correct answers and feedback of the study that send to all participants after the study might have a positive impact on the knowledge and awareness on contraception among the undergraduate students in a private university in Kajang.

6.0.2 LIMITATION

The nature of this cross-sectional study unable to analyse and establish the casual relationship. The findings of this study unable to be generalised to students from other Malaysian universities as the participants was not randomly selected and the study was only done in one university which may then lead to social desirability bias. Moreover, there may be unclear effects on the results due to the uneven distribution of participants in some of the socio-demographic characteristics (ethnicity, faculty and relationship status). The classification of knowledge level and attitude in this study was solely based on the results and

researcher's logical reasoning without any support from previous literatures. Hence, it may have different definitions as compared to other similar studies.

6.1 IMPLICATION & RECOMMENDATION

6.1.1 IMPLICATION

This study provided an insightful understanding on university students' knowledge level and attitude towards contraception in a private university in Kajang. The findings revealed there is significant associations between knowledge level on contraception with faculty, year of study and relationship status as well as attitude on contraception with gender, therefore, a contraceptives awareness campaign can be organized in the university for the specific gender, faculty or year of study to enhance students' knowledge level on contraception. Besides, a sharing workshop can be held in a smaller scale to provide correct information on contraception and allow sharing of experiences on contraceptives use among the students, aiming for better acceptation and more supportive attitude towards contraceptives. This research had also contributed to preceding evidences and recommendation for future studies related to contraceptives.

6.1.2 RECOMMENDATION

As the recommendations for future study, stratified random sampling method can be used to have more equal distribution of participants from each category and reduce biases. Besides, cohort study is recommended to analyse the causality relationship between knowledge and attitude on contraception. Future researchers should be focused on more precise topics such as knowledge and perceptions on condom, hormonal control pills or emergency pills. Practices or usage of contraceptives can also be one of the aspects to be studied in future. In order to improve the generalisability of the research findings, involvement of larger sample size and multiple universities-based research should be considered.

6.2 CONCLUSION

As conclusion, the research attempted to determine the knowledge and attitude on contraception among undergraduate students in a private university in Kajang. Majority of the students (51.1%) obtained high knowledge in contraceptive. The results also revealed that only half of the students (50.6%) had good attitude on contraceptives while almost the other half of the students had poor attitude towards contraception. Both knowledge and attitude on contraception among the participants were considered at fair level where implications can be incurred to improve the outcomes.

The association between knowledge on contraception and the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) were not statistically significant, except faculty, year of study

and relationship status. On the contrary, the association between attitude on contraception and the socio-demographic characteristics (gender, ethnicity, faculty, year of study and relationship status) were not statistically significant, except gender and relationship status.

The study also demonstrated there was a statistically significant association between attitude and knowledge on contraception among the undergraduate students. This finding stressed the importance of sexual education especially in contraceptives to improve the knowledge and misconceptions towards contraceptives use in young adults. Awareness campaign and sharing workshop not only help to increase knowledge, but also reduce cultural stigma and closed attitude towards discussing topics related to contraception.

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APPENDICES

APPENDIX A: CONSENT DECLARATION FORM

PARTICIPANT CONSENT FORM

Research Title: Knowledge and Attitude on Contraception among Undergraduate Students in a Private University in Kajang.

- 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, risk 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 identity 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 to 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.

WEI KAY SUEN	_____	_____
Name of Researcher	Date	Signature

APPENDIX B: RESEARCH INSTRUMENT

Section A: Socio-demographic Data

1. **Gender:**
   Male ☐ Female ☐

2. **Ethnicity:**
   Malay ☐ Chinese ☐ India ☐ Others ☐

3. **Faculty:**
   Health Sciences (i.e. FMHS) ☐
   Non- Health Sciences (i.e. FAM, FCI, LKC FES, Others) ☐

4. **Year of Study:**
   Year 1 ☐
   Year 2 ☐
   Year 3 ☐
   Final Year ☐

5. **Relationship Status (Current):**
   Single ☐ Consensual (in relationship) ☐

Section B: Contraceptive Knowledge Assessment

1. When does a woman have the highest chance to become pregnant?
   a. During her period (start of cycle)
   b. 3 days after her period ends
   c. Two weeks before her next period starts
   d. 3 days before she gets her period (end of cycle)
   e. I don't know

2. When is the safe period to have sex without getting pregnant?
   a. Two weeks before her next period starts
   b. 3 days after her period ends
   c. During her period (start of cycle)
   d. There is no totally safe period
   e. I don't know

3. How long sperm can stay alive in a woman's reproductive tract?
   a. 1-3 hours
   b. 24 hours
   c. 3-5 days
   d. 7-10 days
   e. I don't know

4. Which of the following choices is **TRUE** about pregnancy?
   a. You cannot become pregnant the first time you have sex
   b. You cannot become pregnant if you have sex standing up
   c. You cannot become pregnant if you do not have an orgasm
   d. None of the above is true
   e. I don't know

5. Which of the following choices is **TRUE** about withdrawal, or the "pull-out" method?
   a. Semen may be released before ejaculation
   b. Withdrawal works as well as condoms at preventing pregnancy
   c. Withdrawal can protect against some sexually transmitted diseases (STDs)
   d. Withdrawal works as well as the birth control pill at preventing pregnancy
   e. I don't know

6. Which of the following contraceptives method guarantees a person will **NOT** become pregnant?
   a. Using a condom every time you have sex
   b. Douching, showering, or bathing immediately after sex
   c. "Pulling out" before ejaculation
   d. None of the above
   e. I don't know

7. Which is the only contraceptive method that helps prevent sexual transmitted infections (i.e. Human papillomavirus (HPV), Human immunodeficiency virus (HIV), syphilis) ?
   a. The birth control pill
   b. Male and female condoms
   c. Depo-Provera ("the shot")
   d. The IUD (intrauterine device, the "T")
   e. I don't know

8. Which of the following contraceptive methods may be reversed if you decide you want to become pregnant?
   a. Tubal ligation ("tying your tubes" or "cutting your tubes")
   b. Essure coils
   c. Vasectomy
   d. IUD (intrauterine device)
   e. I don't know

9. All the following are **TRUE** about using male condoms **EXCEPT**:
   a. You should use water-based lubricants with spermicide
   b. Wear two condoms to be extra safe
   c. Prevent air bubbles by holding the condom tip when putting it on
   d. Check the expiration date and keep them in a cool and dry environment (i.e. not in a wallet or in a car)
   e. I don't know

10. Hormonal birth control comes in which of the following forms?
   a. Pills taken by mouth
   b. Patch worn on the skin
   c. Ring placed in the vagina
   d. All of the above
   e. I don't know

11. Which one is **NOT** a benefit of hormonal birth control?
   a. Improvement of diabetes
   b. Improvement of acne
   c. Reduction in menstrual cramps and bleeding problems like anaemia
   d. Decreased risk of ovarian and uterine cancer
   e. I don't know

12. Which of the following can make hormonal birth control less effective?
   a. Seizure (epilepsy) medicine
   b. HIV medicine
   c. Herbal supplements
   d. All of the above
   e. I don't know

13. What is the main way that birth control pills work?
   a. It prevents the ovary from releasing the egg (ovulation)
   b. It prevents sperm from entering the uterus
   c. It prevents the fertilized egg from implanting in the uterus
   d. It prevents the embryo from growing past a certain size
   e. I don't know

14. A woman should **NOT** use the birth control pill if you have any of the following:
   a. Fibroids
   b. Drink alcohol
   c. Currently taking antibiotics
   d. None, it is safe to use birth control pill in all of these situations
   e. I don't know

15. How long after stop using birth control pill can a woman becomes pregnant?
   a. Immediately
   b. 1 month
   c. 3 months
   d. 6 months
   e. I don't know

16. If you forget to take one birth control pill and remember the next day, what should you do?
   a. Throw the missed pill away and then continue the following day from where you left off
   b. Take the rest of the week's pills at once and then start the placebo ("reminder") week
   c. Take two pills then continue
   d. Throw the missed pills away and wait 1 month to start a new pack
   e. I don't know

17. How soon after sex the "morning after pill" (emergency pill) should be used, to be effective?
    a. 1 hour
    b. 24 hours
    c. 5 days
    d. 20 days
    e. I don't know

18. What is the common side effect of birth control pills?
    a. Fever
    b. Diarrhoea
    c. Mood changes
    d. Hair loss
    e. I don't know

19. A doctor places an IUD (intrauterine device) in which part of the body?
    a. Fallopian tube
    b. Uterus
    c. Cervix
    d. Vagina
    e. I don't know

Section C: Contraceptive Attitude Scale

No.	Statements	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	I believe that it is wrong to use contraceptive.					
2	I think using contraceptives is much more desirable than having an abortion.					
3	I think males who use contraceptives seem less masculine than males who do not.					
4	I encourage my friends to use contraceptives.					
5	I would not become sexually involved with a person who did not accept contraceptive responsibility.					
6	Teenagers should no need permission from their parents to get contraceptives.					
7	Contraceptives are not necessary unless a couple has engaged in intercourse with more than one partner.					
8	Contraceptives make sex seem less romantic.					
9	I do not believe that contraceptives prevent pregnancy.					
10	I think using contraceptives is a way of showing that you care about your partner.					
11	I do not talk about contraception with my friends as I feel embarrassed to discuss it.					
12	One should use contraceptives regardless of how long one has known his/her sexual partner.					
13	I feel contraceptive is difficult to obtain.					
14	I think contraceptives can make intercourse seem more pleasurable.					
15	I feel that contraception is solely my partner's responsibility.					
16	I feel more relaxed during intercourse if a contraceptive method is used.					
17	I prefer to use contraceptives during intercourse.					
18	In the future, I plan to use contraceptives any time I have intercourse.					

19	I would practice contraception even if my partner did not want me to.					
20	I think there is no trouble to use contraceptives.					
21	I think using contraceptives makes a relationship seem too permanent.					
22	I feel sex is not fun if contraceptive is used.					
23	I feel contraceptives are worth using, even if the monetary cost is high.					
24	I think contraceptive use encourages people to have casual sexual relations.					
25	I think couples should talk about contraception before having intercourse.					
26	If I or my partner experienced negative side effects from a contraceptive method, we would use a different method.					
27	I feel contraceptives make intercourse seem too planned.					
28	I feel better about myself when I use contraceptives.					

APPENDIX C: COVER LETTER OF RECRUITMENT

COVER LETTER OF RECRUITMENT

Dear Participant:

My name is Wei Kay Suen, and I am a fourth-year student who are pursuing Bachelor of Nursing (Honours) at Universiti Tunku Abdul Rahman (UTAR), Sungai Long Campus. I am conducting a research study to determine the undergraduate students' knowledge and attitude on contraception in a private university in Kajang, Malaysia. This study is approved by the UTAR Scientific and Ethical Review Committee under the serial number U/SERC/12/2022.

If you are an undergraduate student in UTAR Sg. Long, aged 18 and above, consent and willing to participate in the study, you are invited to complete the attached questionnaire entitled: Knowledge and Attitude on Contraception among Undergraduate Students in a Private University in Kajang.

This questionnaire consists of 4 sections and should take around 10-15 minutes to complete. Your participation in this study is completely voluntary, and you are allowed to withdraw from this study at any time without consequences. The decision to withdraw will not influence your relationship with the researcher. Your personal information and data will be kept confidential. If you have decided to participate in this study, please answer all questions as honestly as possible.

The data collected will be useful for future research related to contraceptive and development of appropriate measures to improve and reinforce the existing knowledge and attitude on contraception among students in a private university in Kajang. Feedback and information will be provided to all research participants for educational purpose after the study. Your response is much appreciated.

Your sincerely,

Suan Wei

……..
(WEI KAY SUEN)

APPENDIX D: PERMISSION ON USAGE OF CONTRACEPTIVE KNOWLEDGE ASSESSMENT (CKA) FROM AUTHOR

KAY SUEN WEI <suanwei0412@1utar.my>

Request Permission to use of Research Questionnaire Tool

KAY SUEN WEI <suanwei0412@1utar.my> Thu, Mar 11, 2021 at 8:47 AM
To: Meagan.Campol@nyumc.org, Nessa.Ryan@nyumc.org, Mona.Saleh@med.nyu.edu, Veronica.Ades@nyumc.org

Dear Researchers,

Good day, my name is Wei Kay Suen. I am a Year 3 student currently studying Bachelor of Nursing (Honours) at University Tunku Abdul Rahman, Malaysia.

I am writing to obtain a written permission to use the questionnaire and a soft copy of the questionnaire, the Contraceptive Knowledge Assessment (CKA) tool that you developed. I would also like to have details on the scoring and classifying method for the questionnaire.

I am currently doing my research entitled "Knowledge, Attitude and Practice of Contraceptive among students in a private university in Kajang, Malaysia."

I would appreciate receiving a copy of the questionnaire form from you. And if I may ask your guidance on any methods to administer the questionnaire, analyze the results and the scoring of the questionnaire.

I would like to use the questionnaire under the following condition:
- I will use the tool only for my research study 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. (If you have a specific statement of attribution that you would like for me to include, please provide it in your response.)

If these are acceptable terms and conditions, please indicate so by replying to me through this email.

Please do not hesitate to contact me for more clarifications. Hope to hear from you soon. Thank you in advance.

Best regards,
Wei Kay Suen
Year 3 Trimester 2, Bachelor of Nursing (Hons)
Universiti Tunku Abdul Rahman,
Jalan Sungai Long, Bandar Sungai Long,
43000 Kajang, Selangor, Malaysia.
Tel No: +6010-2664918

KAY SUEN WEI <suanwei0412@1utar.my>

Request Permission to use of Research Questionnaire Tool

Saleh, Mona <Mona.Saleh@nyulangone.org> Sun, Mar 21, 2021 at 1:15 AM
To: KAY SUEN WEI <suanwei0412@1utar.my>

Hi Wei!

I apologize for this delay. Of course, you may use our tool in your study. We request that you please cite our work in any publications. I've attached a copy of the entire article with the questionnaire at the end. Regarding administration of the questionnaire, it is only validated in the English and Spanish languages, so if your population speaks English, it should be fine. We did not have rules for administration other than this. Regarding scoring, we just scored by adding the number of correct responses, I believe.

Good luck!

Mona Saleh

APPENDIX E: PERMISSION ON USAGE OF CONTRACEPTIVE ATTITUDE SCALE (CAS) FROM PUBLISHER

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ISBN:	9780415801751
publisher:	Taylor and Francis Group LLC (Books) US

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Number of words	450
Page numbers	179-180
Number of pages	2
Author of original work	Kelly J. Black
Are you requesting permission to reuse your own work?	No
Additional Information	To whom it may concern, Good day, my name is Wei Kay Suen. I am a Year 3 student currently studying Bachelor of Nursing (Honours) at University Tunku Abdul Rahman, Malaysia. I am writing to obtain a written permission from the publisher to use the

APPENDIX F: RESEARCH INSTRUMENT CONTENT VALIDATION

KAY SUEN WEI <suanwei0412@1utar.my>

Request for Research Instruments Content Validation

KAY SUEN WEI <suanwei0412@1utar.my> Fri, Dec 24, 2021 at 4:26 PM
To: Thavamalar a/p Paramasivam <thavamalarp@utar.edu.my>
Cc: Jagjit Kaur a/p Najar Singh <jagjitk@utar.edu.my>

Dear Dr Thavamalar,

Good day, my name is Wei Kay Suen, currently a Year 4 student who is studying Bachelor of Nursing (Honours) in University Tunku Abdul Rahman, Malaysia.

I am writing to request for content validation for my instrument used in my research entitled "Knowledge, Attitude and Practice of Contraceptive among students in a private university in Kajang, Malaysia." under supervision of Ms. Jagjit Kaur.

The objectives of this study is to:

1. To determine the knowledge on contraception among undergraduate students.

2. To determine the attitude on contraception among undergraduate students.

3. To determine the association between the socio-demographic variables (gender, ethnicity, faculty, year of study, relationship status) and the knowledge on contraception among undergraduate students.

4. To determine the association between the socio-demographic variables (gender, ethnicity, faculty, year of study, relationship status) and the attitude on contraception among undergraduate students.

5. To determine the correlation between the knowledge on contraception and the attitude on contraception among undergraduate students.

Please refer to the following document for the research instrument and please do not hesitate to contact me for further clarifications. Hope to hear from you soon. Thank you in advance.

Best regards,
Wei Kay Suen
Year 4 Trimester 1, Bachelor of Nursing (Hons)
SDC Nursing Representative 2021/2022
Universiti Tunku Abdul Rahman,
Jalan Sungai Long, Bandar Sungai Long,
43000 Kajang, Selangor, Malaysia.
Tel No: +6010-2664918

2 attachments

Reseach Questionnaire 13-4-2021.docx
54K

CKA answers.docx
20K

KAY SUEN WEI <suanwei0412@1utar.my>

Request for Research Instruments Content Validation

Thavamalar a/p Paramasivam <thavamalarp@utar.edu.my> Tue, Dec 28, 2021 at 1:01 AM
To: KAY SUEN WEI <suanwei0412@1utar.my>
Cc: Jagjit Kaur a/p Najar Singh <jagjitk@utar.edu.my>

Dear Suen,
Suggestion to change some of the wording as it is difficult to understand, I have highlighted and changed.
There are too many questions and participants might get irritated to answer all of them.
If you really look there are some repetition but worded differently.
Please try not to repeat the question with different words.

Regards,
Dr. Thavamalar Paramasivam,
Assistant Professor,
Department of Nursing,
Faculty of Medicine and Health Sciences.

[Quoted text hidden]

Reseach Questionnaire 13-4-2021.docx
54K

KAY SUEN WEI <suanwei0412@1utar.my>

Research Instruments Content Validation

KAY SUEN WEI <suanwei0412@1utar.my> Wed, Jan 5, 2022 at 12:15 PM
To: mcchong@ummc.edu.my
Cc: Jagjit Kaur a/p Najar Singh <jagjitk@utar.edu.my>

Dear Associate Professor Dr Chong Mei Chan,

Good day, my name is Wei Kay Suen, currently a Year 4 student who is studying Bachelor of Nursing (Honours) in University Tunku Abdul Rahman, Malaysia. Thank you for accepting the request on my research tool validation.

I am writing to request for content validation for my instrument used in my research entitled "Knowledge, Attitude and Practice of Contraceptive among students in a private university in Kajang, Malaysia."

The objectives of this study is to:

1. To determine the knowledge on contraception among undergraduate students.

2. To determine the attitude on contraception among undergraduate students.

3. To determine the association between the socio-demographic variables (gender, ethnicity, faculty, year of study, relationship status) and the knowledge on contraception among undergraduate students.

4. To determine the association between the socio-demographic variables (gender, ethnicity, faculty, year of study, relationship status) and the attitude on contraception among undergraduate students.

5. To determine the correlation between the knowledge on contraception and the attitude on contraception among undergraduate students.

Please refer to the following document for the research instrument and please do not hesitate to contact me for further clarifications. Hope to hear from you soon. Thank you in advance.

Best regards,
Wei Kay Suen
Year 4 Trimester 1, Bachelor of Nursing (Hons)
SDC Nursing Representative 2021/2022
Universiti Tunku Abdul Rahman,
Jalan Sungai Long, Bandar Sungai Long,
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KAY SUEN WEI <suanwei0412@1utar.my>

Research Instruments Content Validation

Mei Chan Chong <mcchong@ummc.edu.my> Wed, Jan 5, 2022 at 2:45 PM
To: KAY SUEN WEI <suanwei0412@1utar.my>
Cc: Jagjit Kaur a/p Najar Singh <jagjitk@utar.edu.my>

Dear Suen Wei

Thank you for inviting me to validate your questionnaire, all the questions are suitable to measure the expected outcome. with only very minor Comments , the knowledge tool may improve by having all questions with 5 choices of answer to make it more consistent.
For the attitude tool some items may need to be improved to make it more appropriate to measure attitude.
Please check the file attached for improvement. All the best.

Regards
Chong
[Quoted text hidden]
--

Dr. Chong Mei Chan (张美珍)
Ketua I *Head* / Profesor Madya I *Associate Professor*

Jabatan Sains Kejururawatan I *Department of Nursing Science*

Fakulti Perubatan I *Faculty of Medicine*

Universiti Malaya

50603, Kuala Lumpur, Malaysia

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APPENDIX G: ETHICAL CLEARANCE APPROVAL LETTER

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 Expedited Review.

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.

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

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

APPENDIX H: PERSONAL DATA PROTECTION STATEMENT

PERSONAL DATA PROTECTION STATEMENT

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.

Notice:

1. The purposes for which your personal data may be used are inclusive but not limited to:-
   - For assessment of any application to UTAR
   - For processing any benefits and services
   - For communication purposes
   - For advertorial and news
   - For general administration and record purposes
   - For enhancing the value of education
   - For educational and related purposes consequential to UTAR
   - For the purpose of our corporate governance
   - For consideration as a guarantor for UTAR staff/ student applying for his/her scholarship/ study loan

2. 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.

3. 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.

4. 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:

1. By submitting this form you hereby authorise and consent to us processing (including disclosing) your personal data and any updates of your information, for the purposes and/or for any other purposes related to the purpose.

2. 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.

3. You may access and update your personal data by writing to us at _____.

Acknowledgment of Notice

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

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

.....
Name:
Date:

APPENDIX I: GANTT CHART

TASK	2021							2022										
	MAC		APR		MAY			JAN		FEB		MAR		APR		MAY		
Research Proposal writing							2 TRIMESTERS BREAK											
Proposal Presentation & Submission																		
Ethics Approval																		
Pilot Study																		
Data Collection & Data Entry																		
Data Analysis																		
Results Interpretation																		
Report Writing																		
Presentation of Report																		
Final Report Writing																		
Thesis Submission																		

APPENDIX J: TURNITIN ORIGINALITY REPORT

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