UNIVERSITI PUTRA MALAYSIA

KNOWLEDGE, ATTITUDE AND PERCEPTION TOWARDS CAESAREAN SECTION AMONG MALAYSIAN WOMEN

GROUP 13

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1. EXECUTIVE SUMMARY

Caesarean section is a surgery performed for the delivery of a fetus and it is performed when vaginal delivery is not possible or may result in complications. Studies have suggested that the rate of caesarean sections have risen. However, acceptance towards caesarean delivery among women is still low and many of them still lack knowledge about the caesarean section. Our study aims to assess the knowledge, attitude and perception towards the caesarean section among Malaysian women. Besides that, this study also investigated the extent of knowledge towards the caesarean section among Malaysian women during COVID-19 pandemic. Factors [i.e., age, ethnicity, marital status, education level, state, residency, occupation, household income] that are associated with the level of knowledge, attitude and perception towards caesarean section among Malaysian women are being assessed. A cross-sectional study was conducted on 422 Malaysian women aged from 18 to 50 years old. An open and closed-ended questionnaire consisting of four sections; socio-demographic and obstetric history, knowledge and awareness, perception and attitude was used. This study found that the majority of women in Malaysia have adequate knowledge and are aware of the caesarean section. We received results of a good level of attitude and perceptions towards the caesarean section among Malaysian women despite their variation in socio-demographic characteristics.

2. ABSTRACT

INTRODUCTION: Caesarean section is a surgery performed to deliver a baby when vaginal delivery is not possible. Over the years, the caesarean section has been accepted in the community, however, the acceptance rate is growing slowly. One of the reasons may be due to a lack of knowledge on the caesarean section itself. This study aims to assess the knowledge, attitude and perception towards the caesarean section among Malaysian women. Following that, this study also wants to observe the attitude of Malaysian women towards caesarean section during the COVID-19 pandemic. This study also investigates the association factors [i.e., age, ethnicity, marital status, education level, state, residency, occupation, household income] with the level of knowledge, attitude and perception towards the caesarean section among Malaysian women.

METHODOLOGY: A cross-sectional study was conducted in Malaysia on 422 women aged 18 to 50 years old. An open and closed-ended questionnaire consisting of four sections; socio-demographic and obstetric history, knowledge and awareness, attitude and perception towards the caesarean section were distributed via an online platform. The validated and reliable questionnaire was distributed publicly via social media (Twitter and Facebook). The data was analysed using the IBM SPSS version 26.0. The knowledge was grouped into good and poor using the median score as baseline whereas the attitude and perception were analysed by grouping it into positive and negative.

RESULTS: The study found that the majority of women in Malaysia have good knowledge and are aware of the caesarean section. Most of Malaysian women also have positive attitude and perception towards the caesarean section despite their socio-demographic characteristics variation.

Keywords: caesarean section, Malaysia, women, knowledge, attitude, perception

3. CHAPTER 1

1 INTRODUCTION

1.1 BACKGROUND

Caesarean section is defined as a surgical incision of the abdomen and uterus for the delivery of fetus (Merriam Webster Medical Dictionary). It is performed when vaginal delivery is not possible or may result in complications. This surgery is commonly used as an intervention for obstetric complications.

The World Health Organization (WHO) has set the standard rate for caesarean sections to be between 10% and 15%. In 2014, a study by Betran et al. found that caesarean sections saved maternal and infant lives, when only performed for medically indicated reasons (Betran et al., 2016; Betrán et al., 2014). Another finding found from this study was in certain populations, caesarean section rates above 10% were not related to reductions in maternal and new-born mortality rates (Betran et al., 2016; Betrán et al., 2014). According to the 5th Report of National Obstetric Registry, the rate of caesarean section in Malaysia in the year 2016 was 27.37% (Ravichandran & Shamala, 2020). Based on the same report, it is stated that in the year 2017, the rate of caesarean section in Malaysia increased to 29% (Ravichandran & Shamala, 2020).

Even though caesarean section rates have increased tremendously throughout the year all over the world, many women still hold a negative perception and attitude towards caesarean section. Study performed in South Western Nigeria concluded that the rate of caesarean section has risen throughout the years but the acceptance of pregnant women towards it seems to be low (Faremi et al., 2014). Our study focuses on analyzing the attitude and perception of Malaysian women towards caesarean section and also to study the factors affecting their attitude and perception. Nevertheless, this study does not intend on encouraging the increase in caesarean section rates in Malaysia.

From a different study done in Nagpur, India, 53% of the pregnant women who had undergone caesarean expressed their dissatisfaction towards being provided less information on the reason why they had to undergo the caesarean delivery previously (Ravichandran & Muniswaran, 2021). Another observation made was that even though a huge part of the community opted for vaginal delivery, they did agree to accept a

caesarean section if it had to be done in order to save the mother or the child's life (Ajeet et al., 2011).

WHO has proposed the use of Robson classification system to standardise a universal classification system for caesarean section in the year of 2001 (Betran et al., 2014; Betrán et al., 2016). It was found to be more suitable as a global standard for inspecting, supervising and analysing caesarean section rates within healthcare facilities (Betran et al., 2014; Betrán et al., 2016).

Since the appearance of COVID-19, the Ministry of Health of Malaysia has released a guideline on management of COVID-19 in pregnancy according to this guideline, patients in labour are offered caesarean section as mode of delivery until more evidence on safety of vaginal deliveries is established (Ravichandran & Muniswaran, 2021). This means that more women will have to undergo caesarean section. Hence, women need to be aware about the caesarean section, have a more positive attitude and perception towards the caesarean section, especially during this pandemic.

1.2 PROBLEM STATEMENT

Previous studies showed that most women were not well informed about the caesarean section (Ajeet et al., 2011; Shazwani H. et al., 2017). It was found that some women might have a misunderstanding of the caesarean section due to myths spread (Pastorino, 2018). There were still women who have wrong knowledge and perception towards the caesarean section, thus this could affect the woman's attitude in undergoing a caesarean section. Apart from that, different sources of knowledge received by women on caesarean section may affect women's attitude in undergoing caesarean section (A. Al-Timari, 2018). This may lead to wrong perception of the caesarean section among women.

In addition, the increasing rate of home birth in Malaysia also brought us the interest to conduct this study (Leong, 2014). A study done in Cross River State, Nigeria found that most women chose traditional midwives over hospitals when it comes to labour due to fear of surgery apart from other reasons such as time consuming and complicated hospital procedures (James et al., 2016). This happened probably due to lack of knowledge regarding the caesarean section which then led to wrong understanding and perception towards the caesarean section. In Malaysia, there was an increase of

homebirth deaths from 7 in 2008 to 13 in 2014 (Ahmad Tajuddin et al., 2020). This occurred partly due to refusal to seek treatment in the hospitals as women refused intervention from the professional (James et al., 2016). Equipping women with knowledge of the caesarean section may help to lower down the statistics of death.

With the current global issue of pandemic COVID-19, there may be fear that certain mode of delivery may increase the risk of transmission. The Ministry of Health Malaysia has produced guidelines on management of Coronavirus Disease 2019 (COVID-19) in pregnancy stating that caesarean section should be offered as mode of delivery for COVID-19 patients in labour (Ravichandran & Muniswaran, 2021). This has caught our attention to determine whether Malaysian women are aware of this.

1.3 SIGNIFICANCE OF STUDY

As literature that explores the knowledge, attitudes, and perception of caesarean section are limited, the findings from this study can be added to the existing literature and can be used in developing interventions to improve the knowledge of pregnant women. Subsequently, this can reduce negative attitudes and perception against it. Women eventually have a better understanding about caesarean section, and they understand the importance of it as an obstetric intervention. This study hopes to raise the awareness of the caesarean section during COVID-19 as according to the Ministry of Health, it is the best preventive measure from transmission of the virus from mother to baby and to healthcare workers.

1.4 RESEARCH QUESTIONS

1. What are the socio-demographic data (i.e., age, ethnicity, marital status, education level, state, residency, occupation, household income) of Malaysian women?
2. What is the level of knowledge and awareness towards caesarean section among Malaysian women?
3. What is the level of knowledge among Malaysian women towards the caesarean section during COVID-19 pandemic era?
4. What is the level of attitude towards the caesarean section among Malaysian women?
5. What is the level of perception towards the caesarean section among Malaysian women?
6. What are the factors that are associated (i.e., age, ethnicity, marital status, education level, state, residency, occupation, household income) with the level of knowledge, attitude and perception towards caesarean section among Malaysian women?

1.5 OBJECTIVES

1.5.1 GENERAL OBJECTIVES

To determine the level of knowledge, attitude and perception towards caesarean section among Malaysian women.

1.5.2 SPECIFIC OBJECTIVES

1 To describe the socio-demographic characteristics (i.e., age, ethnicity, marital status, education level, state, residency, occupation, household income) of Malaysian women.

2 To determine the level of knowledge and awareness towards the caesarean section among Malaysian women.

3 To determine the level of knowledge among Malaysian women towards the caesarean section during COVID-19 pandemic era?

4 To determine the level of attitude towards caesarean section among Malaysian women.

5 To determine the level of perception towards the caesarean section among Malaysian women.

6 To determine the association between socio-demographic characteristics among Malaysian women and the level of knowledge, attitude and perception towards caesarean section.

1.6 HYPOTHESIS

There is an association between the sociodemographic factors and the level of knowledge, attitude, and perception towards caesarean section among Malaysian women.

1.7 LIMITATION OF STUDY

As this study involved reproductive age women only, the study outcome may not be representative of all women in Malaysia as a whole.

The second limitation was that researchers could only evaluate the knowledge, perception and attitude of Malaysian women who have access to the internet, mostly women living in urban and suburban areas. This leads to bias as some Malaysian women do not have access to the internet which means they were unable to participate in this study, thus it may not represent the population as whole.

Moreover, it would be ideal to have a face-to-face questionnaire rather than an online questionnaire as the respondents can clarify any misunderstanding of the question when the data collection process was conducted.

4. CHAPTER 2

2 LITERATURE REVIEW

2.1 DEFINITION OF CAESAREAN SECTION

Caesarean section, also known as Caesarean birth or C-section is defined as a surgical incision of the abdomen and uterus to deliver the fetus (Merriam Webster Medical Dictionary). There are several indications for the obstetrician to recommend caesarean delivery, including abnormal fetal heart rate, abnormal position of fetus, failure of labour to progress, fetal macrosomia, placenta previa, certain maternal conditions such as heart disease in pregnancy, HIV infection and active herpes simplex.

2.2 PREVALENCE OF CAESAREAN SECTION

In a study conducted by Faremi et al. in 2014 among 203 pregnant women in South Western Nigeria, it was observed that only 5.9% of the pregnant women had undergone a caesarean section before. The authors concluded that, although the rate of caesarean birth has increased, less than 50% of the pregnant mothers were positive towards it. Study conducted by Ajeet et al. in 2011 among 247 pregnant women at Nagpur, India, produced similar observations with the study by Faremi et al. (2014). Majority agreed to accept a caesarean section to protect their babies or their own health. The study concluded that once the women were educated as to any risks arising during pregnancy or labour, they were capable of making informed decision to have a caesarean section. All of these mentioned studies concluded that, majority of the women preferred vaginal delivery over caesarean birth. (Ajeet et al., 2011; Faremi et al., 2014).

According to the 5th Report of National Obstetric Registry, the rate of caesarean section in Malaysia at the year 2016 was 27.37% (Ravichandran & Shamala, 2020). In the year 2017, the rate of caesarean section in Malaysia increased to 29% (Ravichandran & Shamala, 2020). A similar study was performed in the east coast of Peninsular Malaysia among primigravida mothers to assess the knowledge and attitude of primigravida mothers towards vaginal delivery and caesarean section. Even though this study did not investigate the mother's preferred mode of delivery, it was observed that

51.4% of the primigravida mothers have good knowledge on both vaginal and caesarean delivery (Shazwani et al., 2017). This differs from the studies by Ajeet et al. (2011) and Faremi et al. (2014) where the rate of caesarean section in Malaysia was noticed to rise fast and more Malaysian mothers were aware about caesarean delivery.

2.3 FACTORS ASSOCIATED WITH KNOWLEDGE TOWARDS CAESAREAN SECTION.

A cross-sectional study of pregnant women who attended the antenatal clinics of University of Maiduguri Teaching Hospital and Federal Medical Centre, Yola has been conducted to report the maternal knowledge, perception and attitude about caesarean section (Bukar et al., 2014). The results reported that the majority of their respondents (80.3%) have a good knowledge about caesarean section. The knowledge and level of awareness of the respondent towards caesarean delivery was impressive. This may be due to the level of education of the respondents where the majority of them have completed secondary and tertiary level, 45.7% and 41.7% respectively. The source of information they obtained about the caesarean section mostly were from friends (44.1%), followed by health care workers (32.4%) and 17.6 % from the clinic they attended (Bukar et al., 2014).

Similar to the research done in Ogbomoso, Southwest Nigeria among 410 women by Ogunlaja et al. (2018), their study revealed that the majority of the respondents (63.2%) had a good knowledge of the caesarean section. This may be due to most of the respondents having some form of education, with the percentage of (68.5%) of the respondents having a tertiary level of education. The study also demonstrated that the higher the level of education, the better the inclination of women to accept caesarean section as compared to lower educational levels group (Ogunlaja et al., 2018).

A study among 2,389 women who attended the obstetric caesarean section and gynaecology clinic was performed in Kasr Al Ainy Hospital, Cairo University, Egypt in order to assess the awareness of Egyptian women about the indication of caesarean section (Wali et al., 2020). The result revealed that 19% of surveyed women did not know or were not told about their indication of caesarean section. Another 15% said failure to progress to normal delivery, 9% said cephalopelvic disproportion and another

9% was by maternal request. It showed that no more than half of the respondents knew the indication of caesarean section. (Wali et al., 2020).

On the other hand, a study by (Hadush, 2017) about community awareness toward the caesarean section in, Tigray, Ethiopia showed that the majority (95.2%) of pregnant mothers were aware of the caesarean section.366 pregnant women have participated in this study and the results revealed that prolonged labour, macrosomic fetus, bleeding per vagina delivery were recognised as the major indications for caesarean section (Hadush, 2017). Majority of the respondents (70.4%) knew that vaginal delivery is possible after a caesarean section. The fear of subsequent infertility and fear of death were some of the reasons for refusing caesarean section (Hadush, 2017).

Based on a study conducted by A. Al-Timari (2018) in Basrah City, all 242 respondents aged from 15 to 45 years old were aware of caesarean section. This study also found that these women received the information regarding caesarean section through relatives and neighbours who had gone for caesarean section (77.7%), compared to doctors (10.7%) and social media (2.1%). This finding corresponded to another study reported by (Ashimi et al., 2013) in Northwest Nigeria Connaissances, which mentioned that majority respondents (93.8%) aged 15 to 45 years old were aware of the caesarean section with about 8.5% of them have experienced it. Based on this study, it was stated that women who are less than 30 years old have a better knowledge about caesarean section (81.9%) compared to women above 30 years old (18.1%). However, in this study, the respondents' age was not equally distributed since they received more respondents from those less than 30 years old compared to more than 30 years old.

Based on previous studies, there were consistent findings which stated that educational level influences the knowledge and awareness towards caesarean section as a method of delivery. The education level of at least secondary level in Malaysia may contribute to a better understanding of health information (Shazwani et al., 2017). These findings corresponded to another study among 366 pregnant women in Enderta Woreda, which stated that individuals with secondary education status have 12 times higher awareness than the illiterate individuals (Hadush, 2017). The awareness of individuals also explained the preferences on their delivery method.

A study by Verma et al. (2020) among ever-married women of nine developing countries of South and South-East Asia found that the urban areas have higher rates of

caesarean section compared to rural areas. This finding is similar to a study by Bukar et al. (2014) where they concluded that the low rate of caesarean section among rural areas women is due to smaller family size demand.

Study by Shazwani et al. in 2017 among primigravida mother attending tertiary teaching hospital in Malaysia revealed 51.4% out of 105 primigravida mothers attending tertiary teaching hospital in the east coast of Peninsular Malaysia have a good knowledge toward vaginal delivery and caesarean section. They found that primigravida mothers have a positive attitude towards both vaginal delivery and caesarean section with prevalence of 62.3% and 43.6% respectively (Shazwani et al., 2017).

There is limited literature reporting on the association of employment and the knowledge, attitude and perception towards the caesarean section among women. Study done by Ghotbi et al. in 2014 among mothers from selected six hospitals in Tehran, Iran revealed that there was a significant association between employment and knowledge and attitude towards the caesarean section. The respondents have a good mean knowledge score (P=0.005) and have a positive attitude towards natural vaginal delivery (Ghotbi et al., 2014).

2.4 FACTOR ASSOCIATED WITH ATTITUDE AND PERCEPTION TOWARDS CAESAREAN SECTION.

In a study of 203 pregnant women that was conducted in Akure Ondo State Hospital in South Western Nigeria to determine the attitude towards caesarean section, Faremi et al. (2014) reported that 62.1 % of the respondents agreed that vaginal delivery creates more mother-baby relationships than caesarean section. However, 69.5% women think that the caesarean section was safer for the mother and the baby. Three out of every five women said the caesarean section prevents bladder problems in the future and prevents future sexual problems for the mother (Faremi et al. 2014).

On the other hand, a study done by Ogunlaja et al. (2018) in Southwest Nigeria concluded that in the form of attitude, about one third of the respondents were unwilling to have a caesarean section irrespective of the indication and the circumstance that may necessitate it. Common reasons for this were that the caesarean section was perceived to be for the rich and considered as very unsafe; others felt that delivery via caesarean section would make them unfulfilled as women. From the observations, one in four women refused caesarean section when indicated (Ogunlaja et al.,2018).

Faremi et al. (2014) reported that most pregnant (93.1%) women in South Western Nigeria have positive perception towards vaginal delivery rather than caesarean section delivery. They believed that vaginal delivery is natural and more acceptable. In addition, mothers will recover faster after vaginal delivery. Majority of the respondents (65.5%) also believed that vaginal delivery has more pleasant outcomes and gave women confidence in their ability to give birth. The study concluded that mothers' perceived factors that promote the increased rate of caesarean section include advancing maternal age, socio-economic factors, reduced parity and improvement in surgical technique (Faremi et al., 2014).

Similarly, Ajeet et al. (2011) concluded that more than 70% of women in their study preferred vaginal delivery because they think caesarean section is dangerous. When asked regarding perception of pain associated with the caesarean section, 68.5% of women who favoured caesarean section believed it was less painful. In the form of which mode of delivery they will prefer if cost for both the modes is similar, there was no change in women's favoring caesarean section, whereas 3.9% of the respondent

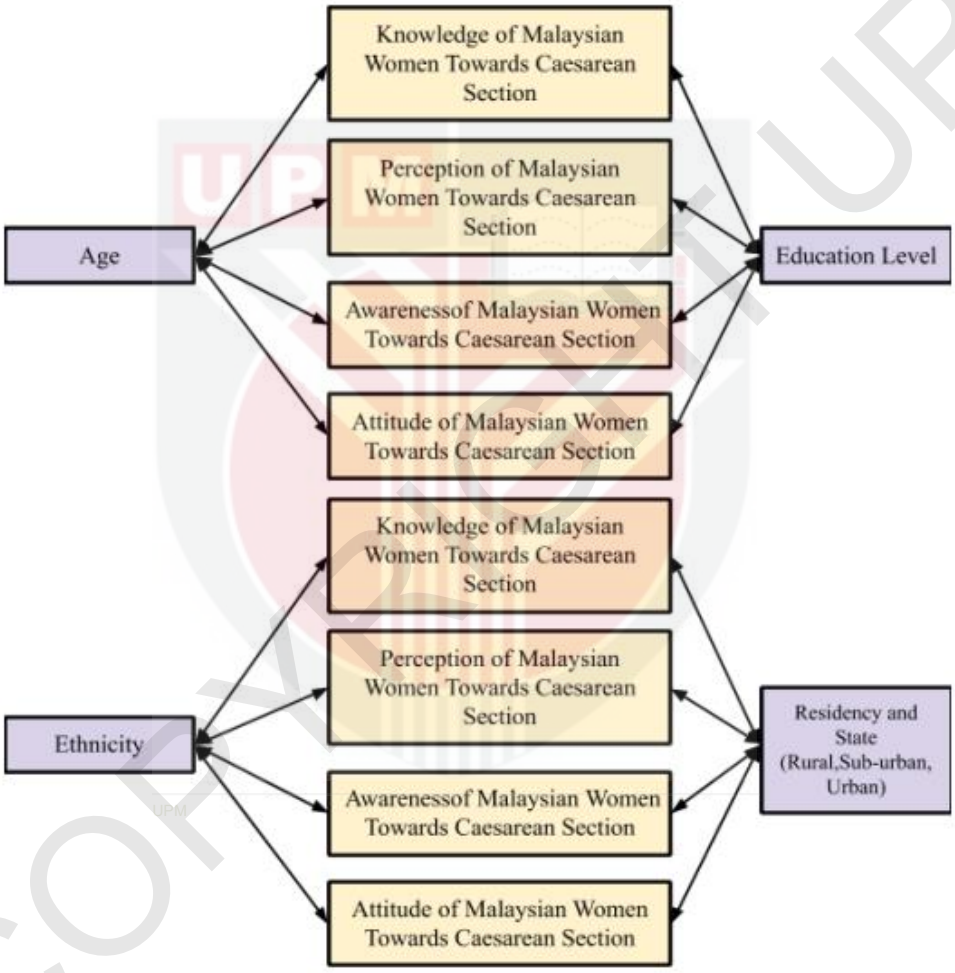
favoring vaginal delivery changed their opinion towards caesarean section (Ajeet et al., 2011).

In a study done by Ajeet et al. in 2011, they found that women with higher income status are more likely to accept a caesarean section than women with lower income. Preference for vaginal delivery might be due to the inability of women to afford a caesarean section (Ajeet et al., 2011).

Faremi et al. (2014) found almost half of their studied women (45.8%) agreed that reduced parity promotes the caesarean section rate. This showed that there was correlation between the parity and the attitude towards the caesarean section among women. However, this finding differs from another study done in Turkey which found that the caesarean section was more preferred as the parity increases (Yıldız et al., 2015).

2.5 CONCEPTUAL FRAMEWORK

In this study, the independent variables are sociodemographic factors (i.e., age, ethnicity, marital status, education level, state, residency, occupation, household income). The dependent variables include the knowledge, attitude and perception towards the caesarean section among Malaysian women. The relationship between the independent variables and dependent variables are assessed.



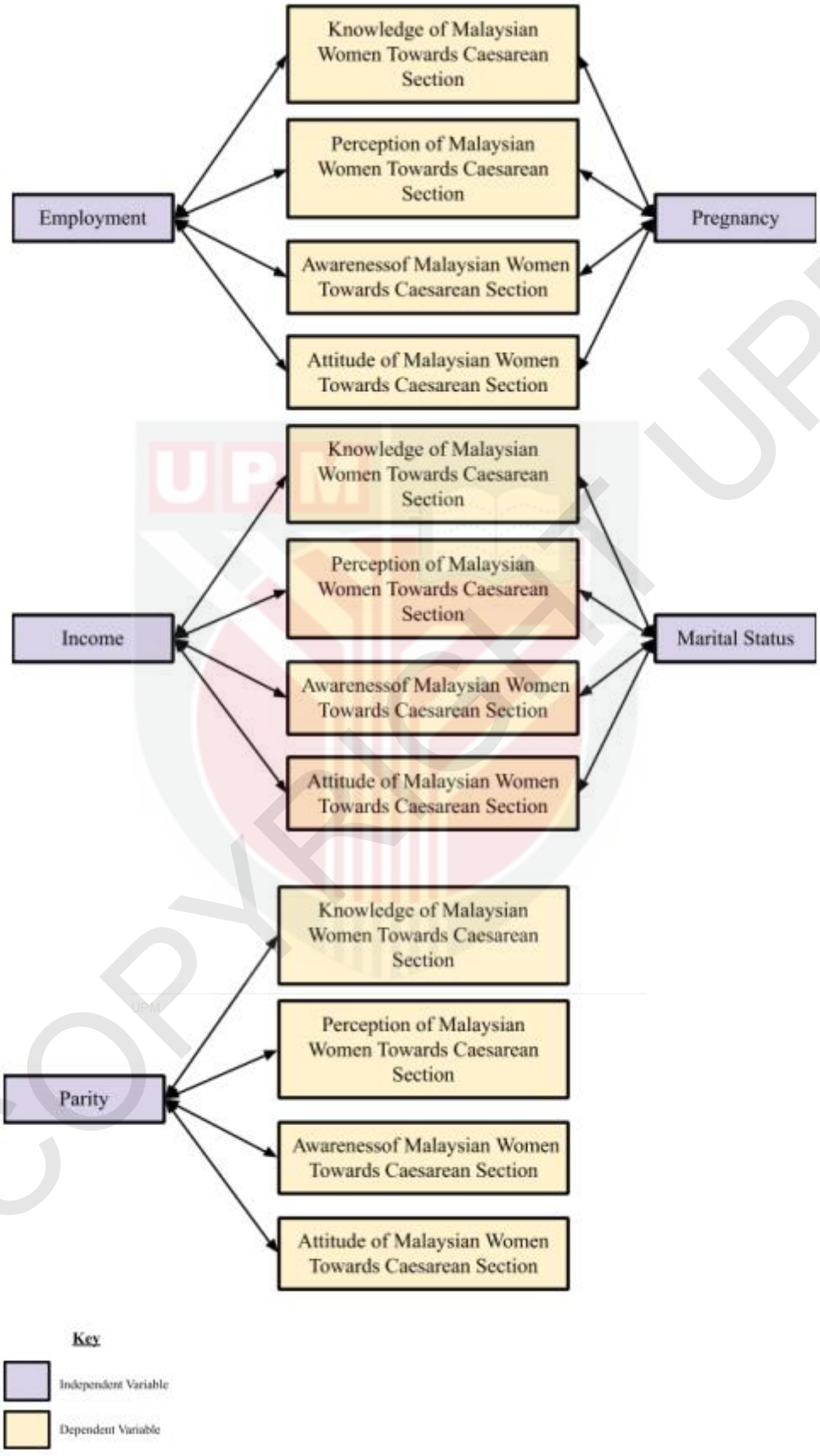


Figure 1 Conceptual Framework

5. CHAPTER 3

3 METHODOLOGY

3.1 STUDY LOCATION

Malaysia

3.2 STUDY DESIGN

This is a cross-sectional study.

3.3 STUDY DURATION

The study duration was from 29th January 2021 to 30th May 2021.

3.4 SAMPLING

3.4.1 Study Population

The population of women in Malaysia.

3.4.2 Sampling population

Malaysian women.

3.4.3 Sampling Frame

Malaysian women aged from 18 until 50 years old.

3.4.4 Sampling Unit

A woman.

3.4.5 Sampling Method

Convenient sampling.

3.4.6 Sample Size Estimation

The sample size is calculated based on the objectives of this study. The formula used was as below:

$$n = \frac{Z^2_{1-\alpha/2} \times p(1-p)}{d^2}$$

$$Where,$$

$$Z_{1-\frac{\alpha}{2}} = Critical\ value\ to\ desired\ confidence\ level$$

$$p = Prevalence\ value$$

$$d = Precision\ value$$

Sample size calculation based on objective 2

To determine the level of knowledge and awareness towards the caesarean section among Malaysian women. Based on a study by Shazwani et al. (2017) on Primigravida Mothers' Knowledge and Attitude Towards Vaginal Delivery and Caesarean Section, the prevalence value was taken as 0.514. Hence the estimated sample size for this study is as follows:

Calculations

$$Z_{1-\alpha/2} = Critical\ value\ to\ desired\ confidence\ level\ (95\%) = 1.96$$

$$p = Prevalence\ of\ good\ knowledge\ towards\ caesarean\ section\ among\ primigravida\ mother = 0.514\ (51.4\%)$$

$$d = Precision\ value = 0.05\ (5\%)$$

$$n = \frac{Z^2_{1-\alpha/2} \times p(1-p)}{d^2}$$

$$= \frac{1.96^2(0.514)(1-0.514)}{0.05^2}$$

$$= 383$$

Sample size calculation based on objective 4

To determine the level of attitude towards the caesarean section among Malaysian women. Based on study by Shazwani et al. (2017) on Primigravida Mothers' Knowledge and Attitude Towards Vaginal Delivery and Caesarean Section, the prevalence value was taken as 0.505, hence, the estimated sample size for this study is as follows:

$$Z_{1-\alpha/2} = Critical\ value\ to\ desired\ confidence\ level\ (95\%) = 1.96$$

$$p = Prevalence\ of\ positive\ attitude\ towards\ caesarean\ section\ among\ primigravida\ mother = 0.505\ (50.5\%)$$

$$d = Precision\ value = 0.05\ (5\%)$$

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

$$= \frac{1.96^2(0.505)(1-0.505)}{0.05^2}$$

$$= 384$$

Sample size calculation based on objective 5

To determine the level of perception towards the caesarean section among Malaysian women. Based on research titled Perception of pregnant women towards caesarean section in Nigeria: a case study of missionary hospital in EDO, Nigeria, done by Amiegheme et al. (2016), the prevalence value was taken as 0.21. Hence, the estimated sample size for this study is as follows;

$$Z_{1-\alpha/2} = Critical\ value\ to\ desired\ confidence\ level\ (95\%) = 1.96$$

$$p = Prevalence\ of\ perception\ towards\ caesarean\ section\ among\ women = 0.21\ (21\%)$$

$$d = Precision\ value = 0.05\ (5\%)$$

$$n = \frac{Z^2_{1-\alpha/2} \times p(1-p)}{d^2}$$

$$= \frac{1.96^2(0.21)(1-0.21)}{0.05^2}$$

$$= 254$$

Sample size calculation based on objective 6

To determine the association between socio-demographic characteristics among Malaysian women and the level of knowledge, attitude and perception towards caesarean section. Based on a study by Ashimi et al. (2013) titled Knowledge and Attitude or Pregnant Women to Caesarean Section in a Semi-urban Community in Northwest Nigeria, the prevalence value was taken as 0.083, the estimated sample size for this study is as follows;

$$n = \frac{\{\left[Z_{\left(1-\frac{\alpha}{2}\right)} \times \sqrt{2P(1-P)}\right] + \left[Z_{(1-\beta)} \times \sqrt{P_1(1-P_1)} + P_2(1-P_2)\right]\}^2}{(P_1 - P_2)^2}$$

Where,

$Z_{\left(1-\frac{\alpha}{2}\right)}$ = Standard error associated with 95% confidence level = 1.96

$Z_{(1-\beta)}$= Standard error associated with 80% = power = 0.84

$P_1 = Proportion\ of\ good\ knowledge\ on\ caesarean\ section\ in\ people\ age\ 15 = 0.054$

$P_2 = Proportion\ of\ good\ knowledge\ on\ caesarean\ section\ in\ people\ age\ 40 = 0.112$

$$P = \frac{P_1 + P_2}{2} = 0.083$$

Calculations

$$n = \frac{\{\left[1.96 \times \sqrt{2(0.083)(1-0.083)}\right] + \left[0.84 \times \sqrt{0.054(1-0.054)} + 0.112(1-0.112)\right]\}^2}{(0.054-0.112)^2}$$

$$= 352$$

Taking account of the highest number of sample sizes, it is estimated that the sample size for this study is 384. Assuming there were about 10% of dropout rate, incomplete feedback, and not feasible respondents, we aim to have a sample size of 422.

$$n = (384 \times 10\%) + 384 = 422$$

Therefore, we estimated a sample size of 384 to have a 95% CI and 50% precision (d). With this number, we aim to have a sample size of 422 to include 10% of the dropout rate, incomplete feedback, and not feasible respondents.

3.5 Selection Criteria

3.5.1 Inclusion criteria

Women who understood English or Malay

3.5.2 Exclusion criteria

Women with underlying psychiatric and psychological problems

3.6 VARIABLE

3.6.1 Dependent Variable

The dependent variables for this study were knowledge, attitude and perception towards the caesarean section among Malaysian women.

3.6.2 Independent Variable

The independent variables for this study include age, ethnicity, marital status, education level, state and residency, occupation and household income, pregnancy and parity.

3.7 INSTRUMENT AND DATA COLLECTION

3.7.1 Instrument

The research data was collected by conducting self-administered questionnaires distributed via Google Form online. The questionnaire includes four sections: socio-demographic and obstetric history, knowledge and awareness, attitude and perception. The questionnaire used both opened and closed ended questions.

Both English and Malay versions were provided. Respondents were free to choose either languages they are more familiar with to answer the questionnaire.

Section I: Sociodemographic factors

This section asked for the background information of the respondents. The questions included age, ethnicity, residency and states, education level, employment status, pregnancy, income, marital status and parity. This section consists of 17 questions.

Section II: Knowledge and Awareness

The questionnaire used in this section was adapted from research by Bashir (2018) on the article of Knowledge, Attitude and Perception of Somali Pregnant Women towards caesarean section delivery in Berbera S.L and Ghotbi et al. (2014) in the article of Women's knowledge and attitude towards mode of delivery and frequency of caesarean section on mother's request in six public and private hospitals in Tehran, Iran. Permission to use the questionnaire has been granted by both authors of the original articles. This section consists of 13 questions for knowledge and 3 questions for awareness.

Section III & IV: Attitude and Perception

The questionnaire used in these sections were adapted from research carried out by Ashimi et al. (2013) titled Knowledge and Attitude of Pregnant Women to Caesarean Section in a Semi-Urban Community in Northwest Nigeria and Abah and Umoh (2015) in the article titled Perception and Attitude towards Caesarean Section - The Views Are

Changing. Permission to use the questionnaire has been granted by both authors of the original articles. This section consists of 18 questions: 10 questions for attitude and 8 questions for perception.

3.7.2 Data Collection Technique

The respondent's data were collected using Google Form questionnaires, which were distributed to women across Malaysia via social media platforms such as WhatsApp, Facebook, and other social media platforms. The participants willingly included their email address once they agreed to participate in this project.

Consent from the participants was achieved as soon as they entered a valid email address and started answering the questionnaires after exposing the participants to the introduction of the study that was attached in the first page of the questionnaire (Google Form).

The participant's response was automatically recorded by Google Form and the data was used for data analysis.

The data collection was conducted online to ensure most of the women in Malaysia could access the questionnaire and the participants could fill up the form at any place and time.

3.7.3 Validity and Reliability

Online validity was performed on 42 women who matched the selection criteria (10% of calculated sample size) to ensure the respondents understood and also to measure reliability of the questionnaire. To be more accurate, the questionnaire forms were sent to women who are not in the medical field by distributing the questionnaire to family members and friends. This was done to ensure that even women who do not have medical knowledge could understand the questionnaire. Besides, content validity has been done by the supervisors and public health specialists. The instruments were reviewed and finalised based on the feedback received.

The questionnaire reliability was tested using the alpha Cronbach's value. A number of 42 women have been selected according to the inclusion criteria to undergo

the reliability test using the questionnaire. The questionnaire, which was in the form of Google Form, was distributed via WhatsApp and Facebook. From the data collected, the alpha Cronbach's value was 0.719, therefore, the questionnaire was reliable.

3.8 OPERATIONAL DEFINITION

3.8.1 Dependant Variables

3.8.1.1 Caesarean section

Caesarean section is fetal delivery through an open abdominal incision (laparotomy) through an incision on the uterus.

3.8.1.2 Knowledge

Concerns the understanding of a woman regarding the mode of delivery during childbirth. It is an awareness of women toward caesarean section as a mode of delivery.

3.8.1.3 Awareness

Understanding toward caesarean section at the present time based on information or experience.

3.8.1.4 Attitude

The way the respondents think, feel, and behave towards the caesarean section. The level of attitude was measured using 10 questions that assessed the respondent's attitude about caesarean section.

3.8.1.5 Perception

Individuals' judgement of the woman in reproductive age about the caesarean section. The level of perception was measured using 8 questions that assessed the respondent's perception about the caesarean section.

3.8.2 Independent variable

3.8.2.1 Age

The respondents categorised from 18 to 50 years old based on the date of birth on identification card (IC).

3.8.2.2 Ethnicity

A large group of people who have the same national, racial, or cultural origins, or the state of belonging to such a group. The ethnicity of the respondents was classified into 4 groups, either Malay, Chinese, Indian or others based on self-report by the respondents.

3.8.2.3 Marital status

Marital status was either single, married or divorced based on self-report by the respondents.

3.8.2.4 Education level

The highest level of education of the respondents. The respondents were divided into seven groups; Primary school, Secondary school, Diploma, Degree, Master, PHD or others.

3.8.2.5 States

The states of the respondents were classified into Wilayah Persekutuan, Selangor, Perak, Melaka, Pahang, Johor, Kelantan, Terengganu, Perlis, Sarawak, Sabah, Kedah, Pulau Pinang and Negeri Sembilan.

3.8.2.6 Residency

The residency of the respondents was classified into three groups, either urban, sub-urban or rural based on self-report by the respondent. The urban areas can be metropolitan areas or a city with a population over 10,000 people while suburban is a

residential area on the outskirts of a city. Rural areas are settled places outside towns and cities.

3.8.2.7 Occupation

The employment of the respondents was divided into housewife, student, professional, private business and others.

3.8.2.8 Household Income

The income of the respondents was classified into four groups, Less than RM 1,000, B40 (RM 4,849 and below), M40 (RM 4,850 - RM 10,959) and T20 (More than RM 10,960).

3.8.2.9 Pregnancy

The state of carrying a developing embryo or fetus within the female body. The respondents were divided into pregnant / has been through pregnancy or not pregnant.

3.8.2.10 Parity

The number of times that a woman has given birth to a fetus with a gestational age of 24 weeks or more, regardless of whether the child was born alive or was stillborn. The respondents were divided into four groups, either never, one to two, three to five and more than five.

3.9 STUDY FLOW CHART

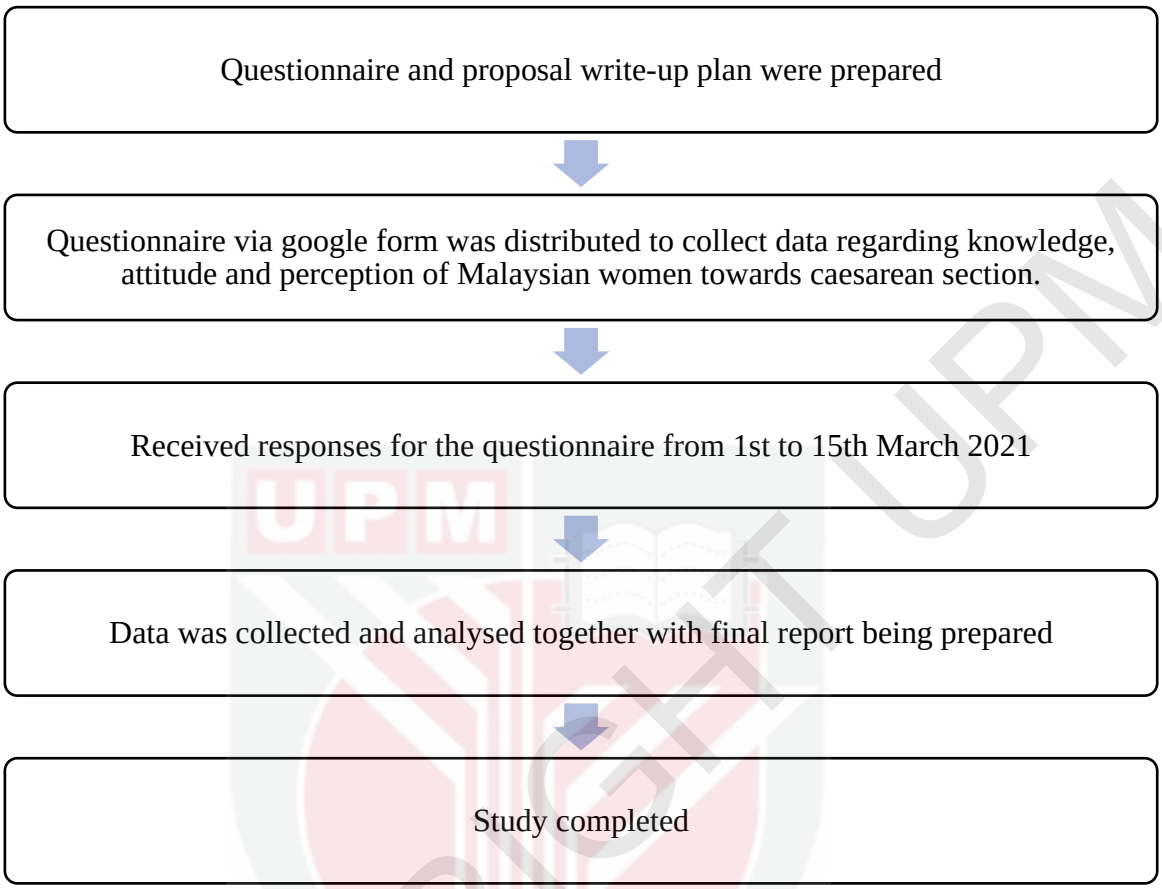


Figure 2 Study Flow Chart

3.10 DATA ANALYSIS

The collected data was analysed using the IBM Statistical Package for Social Science (SPSS) version 26.0. Normality, median and interquartile range of the data was calculated. The tests that have been carried out are the Pearson's Chi-Square test, Mann-Whitney U test and Kruskal-Wallis test.

The Pearson's Chi-Square test was used to test for associations between sociodemographic factors and perception, and associations between sociodemographic factors and attitude toward caesarean section respectively. Mann-Whitney U test was used to test for associations between independent variables with 2 groups (pregnancy) and knowledge towards caesarean section whereas Kruskal-Wallis test were used to test for association between independent variables with more than 2 groups (age, ethnicity, marital status, education level, states, residency, occupation, household income and parity) and knowledge towards caesarean section. P-value of less than 0.05, was taken as significant association between the variables that are being tested. Post-Hoc Test was conducted if there is significant association between two variables that have been tested. In this method, the significant level is divided with the number of pairwise comparisons between two groups. If the p-value of the Post-Hoc Test using Mann-Whitney U is less than the new p-value, hence, there is a significant association of the particular groups with the dependent variable.

A scoring system was developed and adapted from Ogunlaja et al. (2018) in their article of Knowledge, Attitude and Willingness to Accept Caesarean Section among women in Ogbomoso, Southwest Nigeria for the level of knowledge of the respondents. 2 points were given for each correct response, and 1 point was given for each incorrect response. The minimum score was 13 out of 26 and the maximum score was 26 over 26. By totalling the score in each domain, the median total knowledge score was obtained. The results were expressed as above or below the median score. The total score was categorized as good knowledge is 76% and above while poor knowledge is less than 76%.

Attitude and perception of the respondents are categorical data. It was categorized by positive attitude or perception and negative attitude or perception. For every answer that the respondent gave, completely agree attracted 5 marks, agree attracted 4 marks, neutral attracted 3 marks, disagree attracted 2 marks and completely disagree attracted 1

mark. The total score was categorized as positive attitude or perception when the score is greater or equal to 50% and negative attitude or perception when the score is lower than 50%.

3.11 OUTCOMES

The socio-demographic characteristics of Malaysian women were described. The level of knowledge, awareness, attitude and perception towards the caesarean section among Malaysian women were determined. The knowledge on caesarean section among women during COVID-19 pandemic era was also determined. This study also determined the association between socio-demographic characteristics among Malaysian women and the level of knowledge, attitude and perception towards caesarean section.

3.12 DECLARATION OF CONFLICT OF INTEREST

We declared that there is no conflict of interest.

3.13 HONORARIUM AND INCENTIVES TO RESPONDENTS

Participation of the respondents in this study was voluntary, and by that, the participants may withdraw anytime without penalty or loss of benefit. Respondents were not paid for their participation in this study since it was a voluntary work.

3.14 ETHICAL ASPECTS

Approval from the Ethic Committee for Research Involving Human Subject Universiti Putra Malaysia (JKEUPM) was obtained to carry out the study (Reference no: JKEUPM-2021-095). All data collected from the respondents was dealt with confidentiality and was not identified throughout the study duration. Consent was considered given by the respondents once they filled up the questionnaire.

6. CHAPTER 4

4 RESULTS

4.1 RESPONSE

A cross-sectional study with sample size aimed to be 422 has been conducted using Google Form. The questionnaire has also been distributed publicly in social media platforms (Twitter and Facebook) in order to gain more responses. A total of 424 respondents were received.

4.2 NORMALITY TEST AND OTHER STATISTICAL TEST

The IBM Statistical Package for the Social Science (SPSS) version 26.00 was used for data entry, normality testing, and data analysis. For descriptive statistics, categorical data like age, ethnicity, marital status, education level, states, residency, occupation, household income, pregnancy, parity, attitude and perception were analysed into frequency and percentage, while knowledge score which is numerical data was analysed using mean and standard deviation as the knowledge score was normally distributed. For analytical statistics, the associations between knowledge, attitude, and perception toward caesarean section among Malaysian women were analysed using Pearson Chi-Square test, Fisher's Exact test, Mann Whitney U test and Kruskal-Wallis test.

The Pearson's Chi-Square test was used to test for associations between sociodemographic factors with attitude and perception toward caesarean section among Malaysian women. In fulfilling the assumptions in these statistical tests, the Chi Square Test was chosen when no more than 20% of expected count with less than 5 , while the Fisher's Exact Test was chosen when more than 20% of expected count with less than 5. Mann-Whitney U test was used to test for associations between independent variables with 2 groups (pregnancy) with knowledge towards caesarean section among Malaysian women whereas Kruskal-Wallis test used to test for association between independent variables with more than 2 groups (age, ethnicity, marital status, education level, states, residency, occupation, household income and parity) and knowledge towards caesarean section among Malaysian women.

4.3 SOCIODEMOGRAPHIC AND DESCRIPTIVE DATA ANALYSIS

Table 1 shows the distribution of socioeconomic characteristics of the respondents. Majority of the respondents were aged between 18 - 24 years old (53.1%), Malay (69.7%), Single (58.5%), education level at degree (66.8%), from Selangor (48.6%), living in urban area (81.3%), students (53.8%) and came from M40 (38.9%). 60.4% respondents have not been pregnant and 60.4% of them have zero parity.

Out of 422 respondents, 53.1% of respondents were between 18-24 years old, followed by 25-29 years old (7.8%), 30-34 years old (8.3%), then 35-39 years old with 14.0% and 40-50 years old with 16.8%. Most of the respondents are Malay (69.7%), followed by Indian (14.2%) and Chinese (13.5%), while some respondents (2.6%) are Gujarati, Sino-Kadazan, Sungai, Dusun, Eurasian, Arab and Sikh.

Regarding marital status, 58.5% of the respondents are single, followed by 40.3% have been married and another 1.2% in divorced status. If we look at the educational level, most of the respondents in degree level with the percentage of 66.8%, followed by masters education level (12.3%), secondary school (4.5%), Foundation (2.1%) and PhD with the percentage of 3.1%.

Most of the respondent are from Selangor (48.6%) followed with Wilayah Persekutuan (12.1%), Johor (8.5%), Pulau Pinang (4.7%), Melaka and Johor with percentage of 4.5%, Perak and Negeri Sembilan with the percentage of 4.3%, Sarawak with 0.9%, Sabah (0.2%) and Perlis with 0%. From the residency perspective, majority of the respondents are from rural areas (81.3%), followed by suburban (17.8%) and then rural areas with a percentage of 0.9%.

Furthermore, most of the respondents in terms of occupation are students (53.8%), followed by professional field (30.1%), housewife (7.8%), private business (4.7%) and others with a percentage of 3.6%. In the household income section, most of the respondents (38.9%) are from the M40 , followed by T20 (27.5%) and B40 (26.8%) and lastly 6.9% of respondents with an income less than RM 1,000.

To add on, 60.4% of the respondents have never been pregnant before and another 39.6% of the respondents have been pregnant before. In parity section, most of the respondent with zero parity (60.4%), followed by two parity (13.0%), three parity (9.5%),

then one parity (8.8%), next with four parity (4.5%), five parity (2.4), and 7 parity (0.7%), 6 parity (0.5%) then eight parity (0.2%) respectively.

Table 1 Sociodemographic Characteristics of Respondents

Characteristics	Frequency, n	Percentage (%)
Age		
18 - 24	224	53.1
25 - 29	33	7.8
30 - 34	35	8.3
35 - 39	59	14.0
40 - 50	71	16.8
Ethnicity		
Malay	294	69.7
Chinese	57	13.5
Indian	60	14.2
Others	11	2.6
Marital Status		
Single	247	58.5
Married	170	40.3
Divorced	5	1.2

Characteristics	Frequency, n	Percentage (%)
Educational level		
Primary school	0	0
Secondary school	19	4.5
Diploma	47	11.1
Degree	282	66.8
Master	52	12.3
PHD	13	3.1
Others	9	2.1
State		
WP (Kuala Lumpur, Putrajaya, Labuan)	51	12.1
Selangor	205	48.6
Perak	18	4.3
Melaka	19	4.5
Pahang	19	4.5
Johor	36	8.5
Kelantan	13	3.1
Terengganu	4	0.9
Perlis	0	0
Sarawak	4	0.9
Sabah	1	0.2
Kedah	14	3.3
Pulau Pinang	20	4.7
Negeri Sembilan	18	4.3

Characteristics	Frequency, n	Percentage (%)
Residency		
Rural	4	0.9
Suburban	75	17.8
Urban	343	81.3
Occupation		
Housewife	33	7.8
Student	227	53.8
Professional	127	30.1
Private business	20	4.7
Others	15	3.6
Household income		
<RM1,000	29	6.9
B40 (RM4,850 and below)	113	26.8
M40 (RM4,850 - RM10,959)	164	38.9
T20 (More than RM10,960	116	27.5
Pregnancy		
Yes	167	39.6
No	255	60.4

Characteristics	Frequency, n	Percentage (%)
Parity		
0	255	60.4
1	37	8.8
2	55	13.0
3	40	9.5
4	19	4.5
5	10	2.4
6	2	0.5
7	3	0.7
8	1	0.2

4.4 KNOWLEDGE OF CAESAREAN SECTION AND SOCIO-DEMOGRAPHIC FACTORS

Knowledge score of the respondents was calculated in percentage form and graded on the level of good or poor knowledge. The knowledge score was normally distributed, with both mean and median having the similar values and the histogram shows symmetrical normal curve. Mean score and median score was 76.48 and 76.92 respectively while the standard deviation was 8.605. The number of respondents with more than median score is 245 respondents while 177 respondents with the knowledge score less than median score. Figure 3 shows the number of respondents and knowledge scores. The minimum score is 50% with the frequency of 2 respondents while the maximum score is 100% with the frequency of 1 respondent and the average score is 76% with the frequency of 84 respondents.

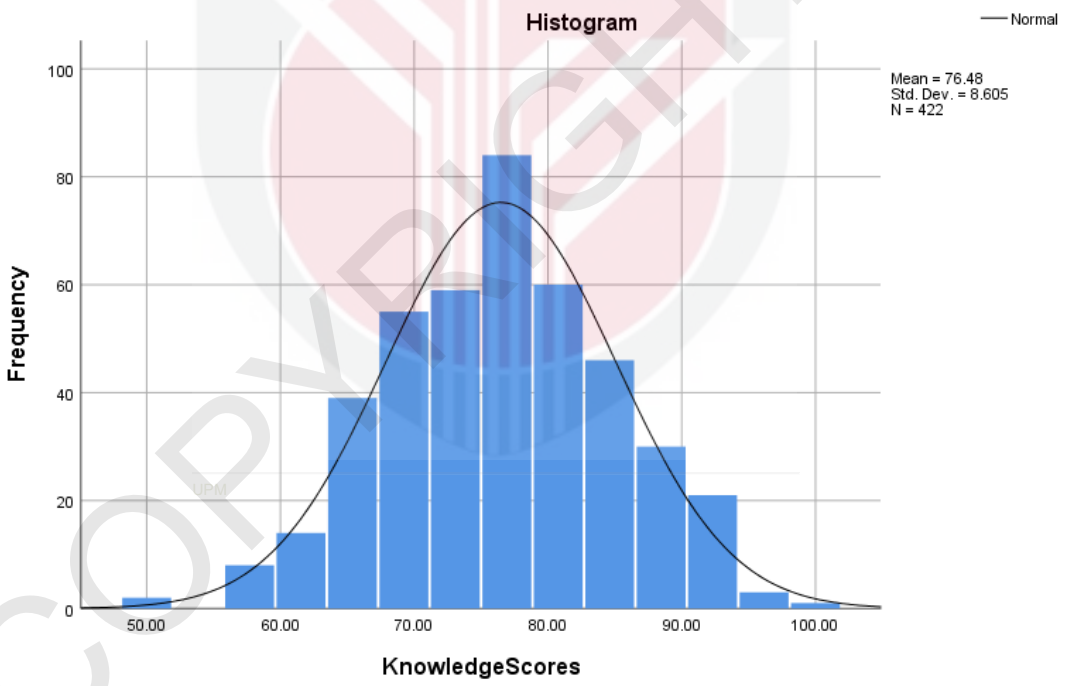


Figure 3

Figure 4 shows the level of knowledge that was classified as good or poor knowledge. The respondents with good knowledge are 245 respondents (58.1%) while respondents with poor knowledge are 177 respondents (41.9%).

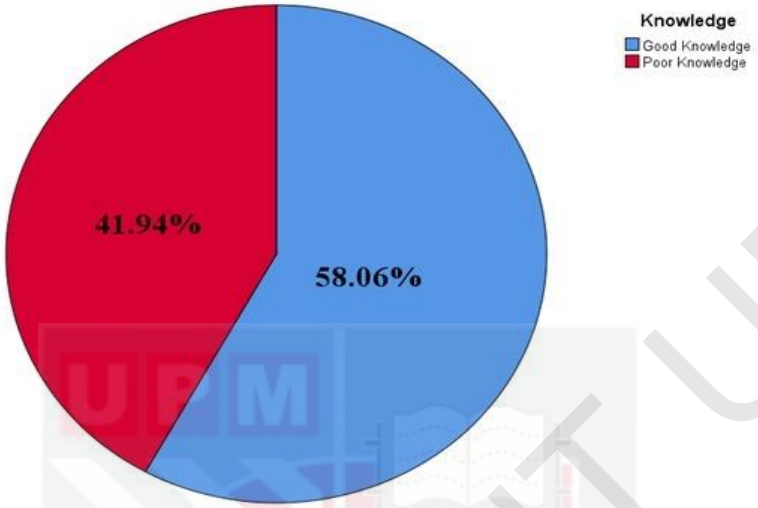


Figure 4

ii. Figure 5 shows the pie chart of the status of the respondent in terms of caesarean section. It was noted that 90 respondents (21.3%) have undergone caesarean section and the rest 332 respondents (78.7%) never undergo caesarean section. Among 90 respondents that have undergone caesarean section, most of them (78.9%) are aware about the indication for the caesarean section. The indications for the caesarean sections are poor cervical dilation, existing medical conditions such as appendix, precious pregnancy, breech position of the fetus, placenta previa, tubal ligation, fetal distress and twins fetus.

iii.

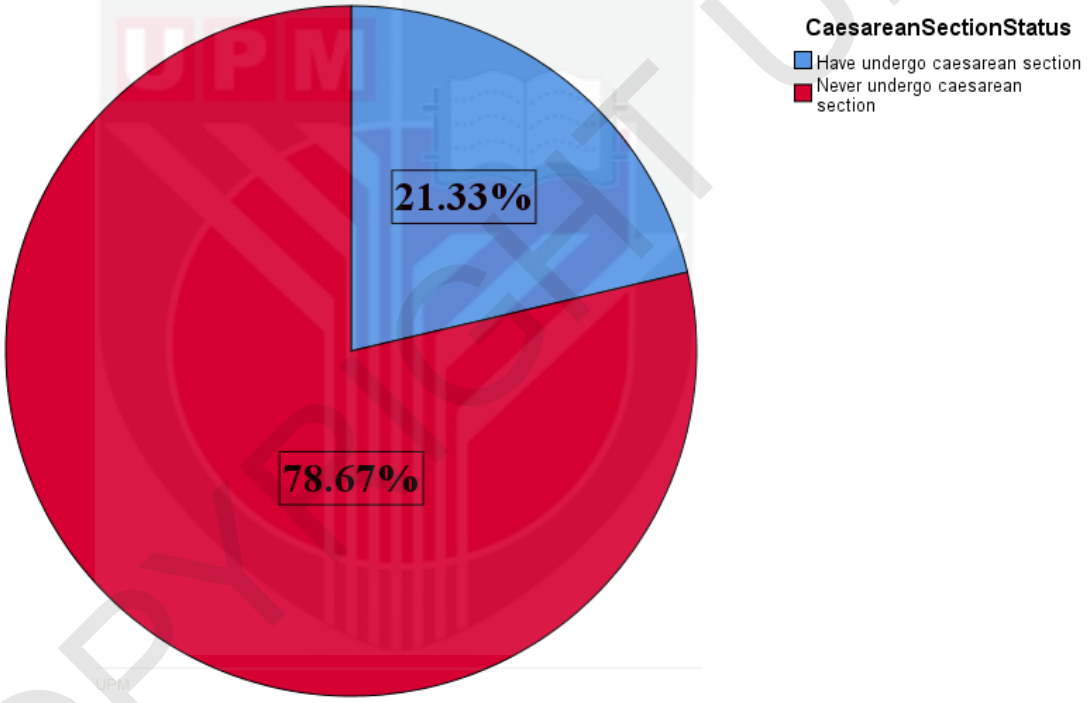


Figure 5

4.4.1 Age

Table 2 shows there is significant association between age and the knowledge towards caesarean section among Malaysian women.

In this method, the significant level is divided with the number of pairwise comparisons between two groups. When p-value of Post-Hoc Test using Mann-Whitney U is less than 0.005, this is considered as significantly associated between the particular groups with knowledge score.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= 0.05 / 10$$

$$= 0.005$$

Table 3 Kruskal-Wallis Test - Post Hoc

Age Group 1	Age Group 2	p-value
18-24	25-29	0.002*
18-24	30-34	0.000*
18-24	35-39	0.000*
18-24	40-50	0.022
25-29	30-34	0.097
25-29	35-39	0.064
25-29	40-50	0.214
30-34	35-39	0.871
30-34	40-50	0.004*
35-39	40-50	0.001*

* Show significant difference between the compared two groups, P < 0.005

4.4.2 Ethnicity

Table 2 shows there is no significant association between ethnicity and the knowledge towards caesarean section among Malaysian women.

4.4.3 Marital status

Table 2 shows there is significant association between marital status and the knowledge towards caesarean section among Malaysian women.

In the post-hoc test, the significant level is divided with the number of pairwise comparisons between two groups. If the p-value of Post-Hoc Test using Mann-Whitney U is less than 0.017, this is considered as significantly associated between the particular groups with knowledge score.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= (0.05 / 3)$$
$$= 0.017$$

Table 4 Kruskal-Wallis Test - Post Hoc

Marital Status Group 1	Marital Status Group 2	p-value
Single	Married	0.000*
Single	Divorced	0.122
Married	Divorced	0.595

* Show significant difference between the compared two groups, P < 0.017

4.4.4 Education level

Table 2 shows there is significant association between education level and the knowledge towards caesarean section among Malaysian women.

In the post-hoc test, the significant level is divided with the number of pairwise comparisons between two groups. If the p-value of Post-Hoc Test using Mann-Whitney U is less than 0.003, this is considered as significantly associated between the particular groups with knowledge score.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= (0.05 / 15)$$
$$= 0.003$$

Table 5 Kruskal-Wallis Test - Post Hoc

Education Level 1	Education Level 2	p-value
Secondary school	Diploma	0.310
Secondary school	Degree	0.208
Secondary school	Master	0.000*
Secondary school	PhD	0.004
Secondary school	Others	0.427
Diploma	Degree	0.667
Diploma	Master	0.000*
Diploma	PhD	0.002*
Diploma	Others	0.482
Degree	Master	0.000*
Degree	PhD	0.001*
Degree	Others	0.675
Master	PhD	0.862
Master	Others	0.036
PhD	Others	0.037

* Show significant difference between the compared two groups, P < 0.003

4.4.5 State

Table 2 shows there is no significant association between states and the knowledge towards caesarean section among Malaysian women.

4.4.6 Residency

Table 2 shows there is no significant association between residency and the knowledge towards caesarean section among Malaysian women.

4.4.7 Occupation

Table 2 shows there is significant association between occupation and the knowledge towards caesarean section among Malaysian women.

In the post-hoc test, the significant level is divided with the number of pairwise comparisons between two groups. If the p-value of Post-Hoc Test using Mann-Whitney U is less than 0.005, this is considered as significantly associated between the particular groups with knowledge score.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= 0.05 / 10$$

$$= 0.005$$

Table 6 Kruskal-Wallis Test - Post Hoc

Occupation 1	Occupation 2	p-value
Housewife	Student	0.028
Housewife	Professional	0.056
Housewife	Private business	0.384
Housewife	Others	0.946
Student	Professional	0.000*
Student	Private business	0.528
Student	Others	0.073
Professional	Private business	0.017
Professional	Others	0.138
Private business	Others	0.341

* Show significant difference between the compared two groups, P < 0.005

4.4.8 Household income

Table 2 shows there is significant association between household income and the knowledge towards caesarean section among Malaysian women.

In the post-hoc test, the significant level is divided with the number of pairwise comparisons between two groups. If the p-value of Post-Hoc Test using Mann-Whitney U is less than 0.008, this is considered as significantly associated between the particular groups with knowledge score.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= (0.05 / 6)$$
$$= 0.008$$

Table 7 Kruskal-Wallis Test - Post Hoc

Household Income 1	Household Income 2	p-value
< RM1,000	B40	0.141
< RM1,000	M40	0.066
< RM1,000	T20	0.001*
B40	M40	0.504
B40	T20	0.001*
M40	T20	0.004*

* Show significant difference between the compared two groups, P < 0.008

4.4.9 Pregnancy

Table 2 shows there is significant association between pregnancy and the knowledge towards caesarean section among Malaysian women.

In the post-hoc test, the significant level is divided with the number of pairwise comparisons between two groups. If the p-value of Post-Hoc Test using Mann-Whitney U is less than 0.025, this is considered as significantly associated between the particular groups with knowledge score.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= (0.05 / 2)$$
$$= 0.025$$

Table 8 Kruskal-Wallis Test - Post Hoc

Pregnancy Class 1	Pregnancy Class 2	p-value
Pregnant	Never Pregnant	0.000*

* Show significant difference between the compared two groups, P < 0.025

4.4.10 Parity

Table 2 shows there is significant association between number of parity and the knowledge towards caesarean section among Malaysian women.

In the post-hoc test, the significant level is divided with the number of pairwise comparisons between two groups. If the p-value of Post-Hoc Test using Mann-Whitney U is less than 0.017, this is considered as significantly associated between the particular groups with knowledge score.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= (0.05 / 3)$$
$$= 0.017$$

Table 9 Kruskal-Wallis Test - Post Hoc

Parity Group 1	Parity Group 2	p-value
Zero	1 - 4	0.141
Zero	More than 5	0.066
1 - 4	More than 5	0.001*

* Show significant difference between the compared two groups, P < 0.017

Table 2 Association between Sociodemographic Factors with Knowledge toward Caesarean Section.

Variable	Knowledge Level		
	Kruskal-Wallis H	df	p-value
Age	56.740	4	0.000
Ethnicity	6.659	3	0.084
Marital Status	36.889	2	0.000
Education Level	44.094	5	0.000
State	15.690	12	0.206
Residency	5.488	2	0.064
Occupation	47.460	4	0.000
Household Income	18.048	3	0.000
Parity	45.071	8	0.000
	Mann-Whitney U	Z	p-value
Pregnancy	14091.50	-5.925	0.000

4.5 ATTITUDE OF CAESAREAN SECTION AND SOCIO-DEMOGRAPHIC FACTORS

Figure 6 shows the attitude towards caesarean section among Malaysian women. Majority (90.05%) of the respondents have a positive attitude towards the caesarean section. Meanwhile, the rest of the respondents (9.95%) have a negative attitude towards the caesarean section.

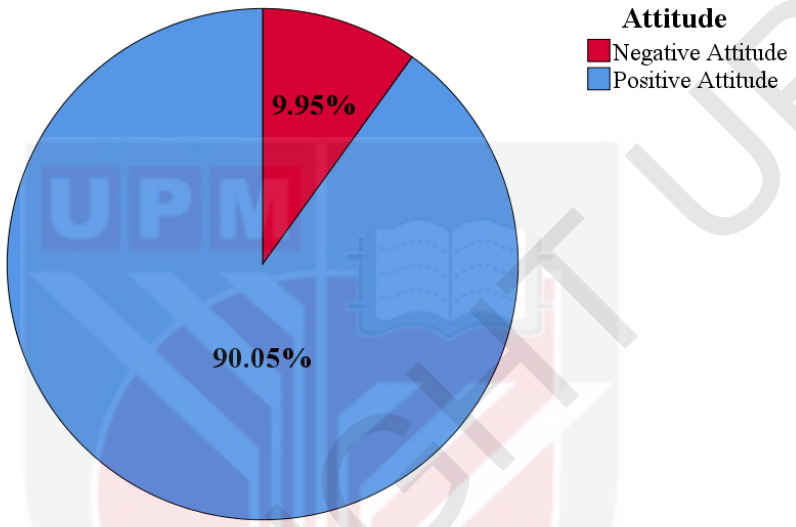


Figure 6

4.5.1 Age

Table 10 shows there is significant association between age and the attitude towards caesarean section among Malaysian women.

The post-hoc test shows a significant association of the young age group (18-24) and the old age group (40-50).

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= 0.05 / 10$$

$$= 0.005$$

Table 11 Post Hoc Test

Age Group 1	Age Group 2	p-value
18-24	25-29	0.023
18-24	30-34	0.007
18-24	35-39	0.006
18-24	40-50	0.003*
25-29	30-34	0.825
25-29	35-39	0.990
25-29	40-50	0.964
30-34	35-39	0.810
30-34	40-50	0.828
35-39	40-50	0.970

* Show significant difference between the compared two groups, P < 0.005

4.5.2 Ethnicity

Table 10 shows there is no significant association between ethnicity and the attitude towards caesarean section among Malaysian women.

4.5.3 Marital status

Table 10 shows there is significant association between marital status and the attitude towards caesarean section among Malaysian women.

The post-hoc test shows a significant association of single women and married women.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= (0.05 / 3)$$
$$= 0.017$$

Table 12 Post Hoc Test

Marital Status Group 1	Marital Status Group 2	p-value
Single	Married	0.000*
Single	Divorced	0.614
Married	Divorced	0.303

* Show significant difference between the compared two groups, P < 0.017

4.5.4 Education level

Table 10 shows there is a significant association between education level and the attitude towards caesarean section among Malaysian women.

The post-hoc test shows a significant association of women with degrees and women with masters.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= (0.05 / 15)$$
$$= 0.003$$

Table 13 Post Hoc Test

Education Level 1	Education Level 2	p-value
Secondary school	Diploma	0.105
Secondary school	Degree	0.207
Secondary school	Master	0.030
Secondary school	PhD	0.030
Secondary school	Others	0.999
Diploma	Degree	0.260
Diploma	Master	0.272
Diploma	PhD	0.361
Diploma	Others	0.261
Degree	Master	0.002*
Degree	PhD	0.054
Degree	Others	0.384
Master	PhD	0.881
Master	Others	0.131
PhD	Others	0.130

* Show significant difference between the compared two groups, P < 0.003

4.5.5 State

Table 10 shows there is no significant association between state and the attitude towards caesarean section among Malaysian women.

4.5.6 Residency

Table 10 shows there is no significant association between residency and the attitude towards caesarean section among Malaysian women.

4.5.7 Occupation

Table 10 shows there is a significant association between occupation and the attitude towards caesarean section among Malaysian women.

The post-hoc test shows a significant association of the housewife and student as well as student and the professional.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= 0.05 / 10$$

$$= 0.005$$

Table 14 Post Hoc Test

Occupation 1	Occupation 2	p-value
Housewife	Student	0.004*
Housewife	Professional	0.823
Housewife	Private business	0.424
Housewife	Others	0.679
Student	Professional	0.000*
Student	Private business	0.323
Student	Others	0.159
Professional	Private business	0.456
Professional	Others	0.751
Private business	Others	0.762

* Show significant difference between the compared two groups, P < 0.005

4.5.8 Household income

Table 10 shows there is no significant association between income and the attitude towards caesarean section among Malaysian women.

4.5.9 Pregnancy

Table 10 shows there is significant association between pregnancy and the attitude towards caesarean section among Malaysian women.

The post-hoc test shows a significant association of women who had undergone pregnancy and never been pregnant.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= (0.05 / 1)$$
$$= 0.05$$

Table 15 Post Hoc Test

Pregnancy Group 1	Pregnancy Group 2	p-value
Pregnant	Never Pregnant	0.000*

* Show significant difference between the compared two groups, P < 0.05

4.5.10 Parity

Table 10 shows there is significant association between parity and the attitude towards caesarean section among Malaysian women.

The post-hoc test shows a significant association of the women with zero parity and women with 1 - 4 parity.

$$\text{Post Hoc Test p-value} = \frac{Level\ of\ significance}{Number\ of\ pair\ wise\ comparison\ between\ two\ groups}$$

$$= (0.05 / 3)$$
$$= 0.017$$

Table 16 Post Hoc Test

Parity Group 1	Parity Group 2	p-value
Zero	1 - 4	0.000*
Zero	More than 5	0.035
1 - 4	More than 5	0.824

* Show significant difference between the compared two groups, $P < 0.017$

Table 10 Association between Sociodemographic Factors with Attitude toward Caesarean Section.

Variable		Attitude Level						
		Positive	Negative	X^2	df	p-value	Fisher's Exact	p-value
Age	18-24	213	11	13.65	4	0.008	15.00	0.003
	25-29	28	5					
	30-34	29	6					
	35-39	50	9					
	40-50	60	11					
Ethnicity	Malay	269	25	3.687	3	0.297	4.180	0.220
	Chinese	48	9					
	Indian	54	6					
	Others	9	2					
Marital Status	Single	235	12	18.94	2	0.001	17.86	0.001
	Married	140	30					
	Divorced	5	0					
Education Level	Primary School	0	0	14.74	5	0.012	12.82	0.015
	Secondary School	19	0					
	Diploma	41	6					
	Degree	260	22					

	Master	**41**	**11**					
	PhD	**10**	**3**					
	Others	**9**	**0**					
States	**Wilayah Persekutuan**	**49**	**2**					
	Selangor	**177**	**28**					
	Perak	**18**	**0**					
	Melaka	**17**	**2**					
	Pahang	**17**	**2**	**11.55**	**12**	**0.483**	**10.84**	**0.468**
	Johor	**33**	**3**					
	Kelantan	**13**	**0**					
	Terengganu	**3**	**1**					
	Sabah	**1**	**0**					
	Sarawak	**4**	**0**					
	Kedah	**12**	**2**					
	Pulau Pinang	**19**	**1**					
	Negeri Sembilan	**17**	**1**					
Residency	**Rural**	**4**	**0**					
	Suburban	**69**	**6**	**0.874**	**2**	**0.646**	**0.356**	**0.785**

	Urban	**307**	**36**					
Occupation	**Housewife**	**27**	**6**	**15.43**	**4**	**0.004**	**16.20**	**0.002**
	Student	**216**	**11**					
	Professional	**106**	**21**					
	Private Business	**18**	**2**					
	Others	**13**	**2**					
Household Income	**<RM 1,000**	**29**	**0**	**7.970**	**3**	**0.047**	**7.770**	**0.044**
	B40	**102**	**11**					
	M40	**151**	**13**					
	T20	**98**	**18**					
Pregnancy	**Yes**	**137**	**29**	**17.25**	**1**	**0.001**	**-**	**-**
	No	**243**	**13**					
Parity	**0**	**241**	**14**	**18.08**	**8**	**0.021**	**20.18**	**0.006**
	1	**30**	**7**					
	2	**47**	**8**					
	3	**32**	**8**					
	4	**17**	**2**					
	5	**8**	**2**					
	6	**2**	**0**					

	7	**2**	**1**					
	8	**1**	**0**					

4.6 PERCEPTION OF CAESAREAN SECTION AND SOCIO-DEMOGRAPHIC FACTORS

Figure 7 shows the perception towards caesarean section among Malaysian Women. Most of the respondents have positive perception (94.5%) towards caesarean section. Only 5.5% of the respondents have a negative perception towards caesarean section. However, none of the socio-demographic factors had significant association with perception.

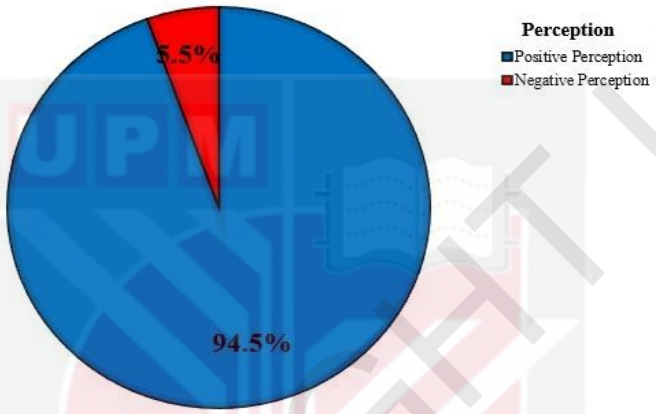


Figure 7

4.6.1 Age

Table 17 shows there is no significant association between age and perception towards caesarean section among Malaysian Women.

4.6.2 Ethnicity

Table 17 shows there is no significant association between ethnicity and perception towards caesarean section among Malaysian Women.

4.6.3 Marital status

Table 17 shows there is no significant association between marital status and perception towards caesarean section among Malaysian Women.

4.6.4 Education level

Table 17 shows there is no significant association between education level and perception towards caesarean section among Malaysian Women.

4.6.5 State

Table 17 shows there is no significant association between state and perception towards caesarean section among Malaysian Women.

4.6.6 Residency

Table 17 shows there is no significant association between residency and perception towards caesarean section among Malaysian Women.

4.6.7 Occupation

Table 17 shows there is no significant association between occupation and perception towards caesarean section among Malaysian Women.

4.6.8 Household income

Table 17 shows the results of the Pearson's Chi-Square tests and Fisher's Exact test. The p-value is more than 0.05, hence there is no significant association between household income and perception towards caesarean section among Malaysian Women.

4.6.9 Pregnancy

Table 17 shows there is no significant association between pregnancy status and perception towards caesarean section among Malaysian Women.

4.6.10 Parity

Table 17 shows there is no significant association between parity and perception towards caesarean section among Malaysian Women.

Table 17 **Association between Sociodemographic Factors with Perception toward Caesarean Section.**

Variable		Perception Level						
		Positive	Negative	c.^{2}	df	p-value	Fisher's Exact	p-value
Age	18-24	214	10	1.153	4	0.326	4.777	0.272
	25-29	31	2					
	30-34	32	3					
	35-39	53	6					
	40-50	69	2					
Ethnicity	Malay	276	18	0.858	3	0.441	1.808	0.556
	Chinese	56	1					
	Indian	56	4					
	Others	11	0					
Marital Status	Single	235	12	0.400	2	0.635	0.652	0.635
	Married	159	11					
	Divorced	5	0					
Education Level	Primary School	0	0	0.373	5	0.901	1.175	0.936
	Secondary School	18	1					
	Diploma	44	3					
	Degree	267	15					

	Master	**48**	**4**					
	PhD	**13**	**0**					
	Others	**9**	**0**					
States	**Wilayah Persekutuan**	**46**	**5**	**1.166**	**12**	**0.262**	**12.713**	**0.278**
	Selangor	**197**	**8**					
	Perak	**17**	**1**					
	Melaka	**18**	**1**					
	Pahang	**19**	**0**					
	Johor	**33**	**3**					
	Kelantan	**10**	**3**					
	Terengganu	**4**	**0**					
	Sabah	**1**	**0**					
	Sarawak	**4**	**0**					
	Kedah	**13**	**1**					
	Pulau Pinang	**19**	**1**					
	Negeri Sembilan	**18**	**0**					
Residency	**Rural**	**4**	**0**	**0.830**	**2**	**0.426**	**.363**	**0.520**
	Suburban	**73**	**2**					

	Urban	**322**	**21**					
Occupation	**Housewife**	**31**	**2**	**0.510**	**4**	**0.752**	**1.904**	**1.708**
	Student	**216**	**11**					
	Professional	**118**	**9**					
	Private Business	**20**	**0**					
	Others	**14**	**1**					
Household Income	**<RM 1,000**	**27**	**2**	**1.783**	**3**	**0.142**	**5.786**	**0.102**
	B40	**111**	**2**					
	M40	**155**	**9**					
	T20	**106**	**10**					
Pregnancy	**Yes**	**159**	**10**	**0.119**	**1**	**0.828**	**-**	**-**
	No	**240**	**13**					
Parity	**0**	**242**	**13**	**0.928**	**8**	**0.397**	**7.495**	**0.492**
	1	**32**	**5**					
	2	**53**	**2**					
	3	**37**	**3**					
	4	**19**	**0**					
	5	**10**	**0**					
	6	**2**	**0**					

	7	**3**	**0**					
	8	**1**	**0**					

d.

e.

7. CHAPTER 5

5 DISCUSSION

5.1 SOCIODEMOGRAPHIC

As shown in Table 1, a total of 422 respondents from all over Malaysia have participated in this study. Majority of respondents were from the age group of 18 - 24 years old (53.1%). This could be the case as the main platform for the questionnaire distribution is via online platforms like Twitter, Instagram and Facebook that are mainly dominated by the younger generation. More than half of the respondents were Malay ethnicity (69.7%) and in single status (58.5%). The highest educational level was at degree level with the percentage of 66.8%. This may be due to the distribution of the questionnaire mostly reaching university students on social media. The highest percentage of the respondents in terms of state were from Selangor (48.6%) and Urban residency (81.3%). The reason behind this is because the research project originated in Selangor itself and in urban areas, the respondents have a good internet connection to have access to the questionnaire compared to suburban and rural areas. In terms of occupation household income, most of the respondents are students (53.8%) and in the category of M40 (RM4,850 - RM10,959) with the percentage of 38.9%. For the obstetric and gynaecology history, about 60.4% of the respondents were not pregnant before and 60.4% with zero history of parity. This may be due to most of the respondents being students and in a young age group.

f.

5.2 FACTOR ASSOCIATED WITH KNOWLEDGE OF CAESAREAN SECTION AMONG WOMEN IN MALAYSIA

5.2.1 GENERAL KNOWLEDGE TOWARD CAESAREAN SECTION

It was noted that 58.1% of the respondents recorded to have good knowledge towards caesarean section and another 41.9% of the respondent have poor knowledge that sum up to 100% of the respondent rate. Both mean scores and standard deviation were 76.48 and 8.605 respectively. Minimum score obtained by the two respondents are 50% while the maximum score is 100% with the frequency of 1 respondent. The average score is 76% with the frequency of 84 respondents. This is because majority respondents have a formal education and an access to the resources on the internet that can help them increase their understanding about caesarean section. This finding is consistent with the

research done by Bukar et al. (2014) where most of the respondents have a good knowledge about caesarean section in a cross-sectional study done in Nigeria.

Correlation of age with knowledge toward caesarean section showed there is significant association. The result revealed that the younger age group (18-24) is significantly different from the middle age group (30-39) in terms of knowledge towards caesarean section. This may be due to the information and knowledge about caesarean section that can be easily accessed from the internet that is dominated by the younger age group generation. This is supported by a study done by A. Al-Timari (2018), stating that respondents aged from 15 to 45 years old are aware of caesarean section.

Ethnicity and states had no significant association with knowledge toward caesarean section. Ethnicity is not related with the knowledge toward caesarean section as the distribution of ethnicity in this study are not equally distributed and it may disturb the significant value. There was a lack of literature to support these findings in terms of ethnicity and states with knowledge toward the caesarean section. There is also no significant association between residency and knowledge towards caesarean section. These results may be explained by the unequal proportion of respondents in this study where most of the respondents were from Selangor and more than 70% of the respondent resides in urban areas.

There was a significant association between marital status and knowledge toward the caesarean section where the respondents who are single are significantly different from respondents who have married in terms of knowledge. married women have better knowledge in terms of caesarean section as compared to single respondents. This is because married respondents may have experienced and undergo a caesarean section procedure that gives them more information about the caesarean section.

This study also found that there was a significant association between education level and knowledge toward caesarean section. It shows here that education level plays an important determinant toward knowledge of caesarean section. We found that there is a significant difference in terms of knowledge toward the caesarean section between respondents who have secondary school education and respondents who have master's education. This can be explained when the higher the education level is, the more knowledge and experience the woman has. This finding is supported by a study done

by Ogulanja et al. (2018) who reported that the higher the level of education, the better the understanding and acceptance towards caesarean section rather than low level of understanding and acceptance in lower educational levels groups.

The significant association between occupation and knowledge towards caesarean section in this study is supported by a study done by Ghotbi et al. (2014) who reported that there was a significant association between employment and knowledge toward caesarean section. Our results show that there was a difference in the level of knowledge between student and professional sectors. This is because most of the students are still not married or experience pregnancy or caesarean section compared to respondents who have started their career mostly married and experienced pregnancy or caesarean section.

Household income had a significant association with knowledge towards caesarean section. respondents with lower household income may have less understanding towards caesarean section as they perceived that caesarean section to be for the rich, concluded by a study done by Ogulanja et al. (2018).

Our study revealed there is a significant difference between respondents who have ever been pregnant and respondents that have never been pregnant. It shows that the knowledge of respondents who have experienced pregnancy is higher than the respondent that has never been pregnant. However, there was a lack of literature to support these findings.

This study also found out there is significant association between number of parity and knowledge towards caesarean section. There is a significant difference in terms of knowledge toward caesarean section between respondents who gave birth one to four times and respondents who gave birth more than five times. This may be due to the increasing number of parities giving more information to the mother about caesarean section during the deliveries, thus contributing to the higher knowledge level.

5.2.2 KNOWLEDGE TOWARD CAESAREAN SECTION IN COVID-19 PANDEMIC

From the perspective of the caesarean section in COVID-19 pandemic, about eighty percent of the respondents did not agree that COVID-19 positive mothers should be offered a caesarean section as the mode of delivery. Most of them also thought that

mothers who had close contact to COVID-19 positive patients should not be offered a caesarean section. The respondents may think that caesarean section can increase the risk transmission of COVID-19 as the virus can be transmitted via air droplets (Lotfi et al., 2020). They might be unaware that the risk of transmission is the same as standard vaginal delivery and it can be even worse as longer time might be needed in order to monitor the patient in labour. Furthermore, the caesarean section involves more healthcare workers that are exposed to the patient.

On the other hand, the majority of the respondents thought that caesarean section can reduce the risk of COVID-19 transmission to the fetus. In contrast to this finding, a systematic review evaluating the preferable mode of delivery for pregnant women with COVID-19 in preventing vertical transmission mentioned that neither vaginal delivery nor the caesarean section may reduce the risk of transmission from the mother to the fetus (Cai et al., 2021). This is consistent with another study which reported zero cases of positive COVID-19 babies that relate to vertical transmission from the mother (Mullins et al., 2020). Nevertheless, it is too early to conclude that a caesarean section can reduce the risk of transmission for COVID-19 from the mother to the fetus as there is still insufficient evidence to support this (Cai et al., 2021).

Based on this study, most of Malaysian women still believe that the transmission of COVID-19 can be reduced by caesarean section despite the disagreement in offering a caesarean section to deliver the fetus. This contradict finding shows that the knowledge of Malaysian women towards caesarean section in COVID-19 pandemic is poor. This is because the disease is new and there is a lack of information and evidence regarding caesarean section in COVID-19 pandemic.

5.3 FACTOR ASSOCIATED WITH ATTITUDE OF CAESAREAN SECTION AMONG WOMEN IN MALAYSIA

This study found that the majority of the respondents have a positive attitude towards the caesarean section among women in Malaysia. This may indicate that Malaysian women are not against practising caesarean section as one of their delivery methods.

Based on the study, there is an association between the age and the attitude of caesarean section among women in Malaysia. It shows that the younger age group (18-24) is significantly different from the older age group (40-50) in terms of attitude in caesarean section. This shows that younger women in Malaysia are comfortable in choosing caesarean section if they are required to as compared to the older women.

There is no significant association noted from the study between the ethnicity and the attitude on the caesarean section among women. There is a lack of literature discussing the relationship between ethnicity and the attitude towards the caesarean section from the previous study. However, the result obtained from this study may be due to the unequal distribution of ethnicity involved in this study.

Our study found that there is a significant association between the marital status and the attitude towards the caesarean section among women in Malaysia. This is consistent with previous study findings which mentioned primigravida mothers have a good attitude towards the caesarean section (Shazwani et al., 2017). There is a significant difference between single women and married women in their attitudes towards the caesarean section. This study finding may suggest the reason single women have a better attitude towards caesarean compared to married women is because they lack experience in dealing with caesarean section. However, there is a lack of literature which discusses the association of marital status with the attitude towards the caesarean section among women in Malaysia to support this finding.

Education level does have a significant association with the attitude towards the caesarean section among women in Malaysia. This shows that the education level plays an important role in developing a positive attitude towards the caesarean section. Women with a degree show to have a significant difference in attitude towards the caesarean section with women with a master. This finding may be supported by the study done on primigravida mothers in Malaysia which mentioned that the education level of at least secondary school level in Malaysia contributes to a better understanding

of any health information (Shazwani et al., 2017). However, our study is unable to elaborate more on the reason for better attitudes among degree level women compared to women with masters. Unequal distribution among the education level of the respondents might be one of the reasons.

There is no significant association between the state and the attitude towards the caesarean section of women in Malaysia. This shows that different background of state does not affect the attitude towards the caesarean section but other sociodemographic might do. Together with the state, the residency also does not show any significant association with the attitude towards the caesarean section. This finding is contrary to a study done in South and South-East Asia which mentioned the different types of residency affects the rate of caesarean section (Verma et al., 2020). However, in this case, it is believed that there might be bias due to unequal distribution of both states and residency among the respondents, the same concern as previously mentioned in the knowledge section.

Occupation was also significantly associated with the attitude towards caesarean section among women in Malaysia. This shows that the women's occupation affects their choices in choosing caesarean section as one of the delivery methods. There are significant differences between the housewife and the student as well as the student and the professional. We believed that even though there might be bias in respondents occupation distribution whereby, as majority of the respondents were students, this study shows that majority of students have a positive attitude towards the caesarean section.

However, there seems to be no association between the household income and the attitude towards the caesarean section among women in Malaysia. Unlike the study findings, another study in Nagpur, Maharashtra mentioned that higher income status is more likely to have a positive attitude towards the caesarean section (Ajeet et al., 2012) . The main reason for such a contrary finding from our study is that most of the respondents were from a high-income group of people, which has more than RM4,850 income monthly; M40 and T20. Therefore, the study results may be biased to the higher income groups' positive attitude towards but not to the lower income groups.

There is an association between the pregnancy and the attitude towards the caesarean section among women in Malaysia. This shows that having an experience in

the pregnancy itself leads to a positive attitude in accepting caesarean section. There is a significant difference between those who had been in pregnancy and those who never went through pregnancy. Experienced women who had undergone the caesarean section from their previous pregnancy may have a better view of the advantages and disadvantages of the caesarean section as they faced a consultation from a professional before undergoing the surgery. As mentioned from the previous study in Basrah City, 10.7% women were said to have received information about the caesarean section from their doctors (A. Al-Timari, 2018).

The parity has an association with the attitude towards the caesarean section among women in Malaysia. It reveals that zero parity women have a significant difference to those who are in group parity of one to four. This finding is consistent with the previous study finding where it mentioned the rising of caesarean section rate in the lower parity group (Fatemi et al., 2014).

5.4 FACTOR ASSOCIATED WITH PERCEPTION OF CAESAREAN SECTION AMONG WOMEN IN MALAYSIA

Majority of the respondents have a positive (82.2%) perception towards caesarean section while only 17.8% of the respondents have negative perception towards caesarean section. This contradicts with the findings of the study conducted by Faremi et al. (2014) where most pregnant (93.1%) women in South Western Nigeria have positive perception towards vaginal delivery rather than caesarean section. These women believed that vaginal delivery is natural and more acceptable.

None of the sociodemographic factor had significant association with perception of caesarean section among women in Malaysia. This includes age, ethnicity, marital status, education level, state, residency, occupation, household income, parity and pregnancy. However, there was no adequate literature related to or to support the findings of our study for all the factors, except age and parity.

According to our study, age showed no significant association towards perception of caesarean section. However, in the study performed by Panti et al. (2018), there was significant association between age and caesarean section where younger women had positive perception. This is because younger women were believed to have

more exposure to modern delivery procedures hence the positive perception towards caesarean section. The finding of this study differs from our study findings and this could be due to unequal distribution of respondents from different age categories in our study.

Based on our study, there was no significant association between parity and perception towards caesarean section. However, according to a study performed by Yildiz et al. (2018) among Turkish women, there was a significant association between the number of previous pregnancies and perception towards caesarean section where women who have had no previous pregnancies had a much more positive perception towards caesarean section. They mentioned that vaginal delivery was much less painful and comfortable.

8. CHAPTER 6

6 CONCLUSION

6.1 RECOMMENDATIONS

The results obtained were affected by several limitations, and there are some possible ways to overcome these limitations in future work.

I. This study is distributed freely on social media (Twitter, Instagram and Facebook), so the proportion of age, states, and residency may differ largely between groups. Random sampling is the preferred method of sampling instead of convenience sampling to ensure an unbiased representation of the total sample population.

II. Longer duration for data collection and data analysis will allow a larger sample size, for an ideal portrayal of the whole sample population.

III. Further studies need to be explored more to support the outcome of the research.

6.2 STUDY STRENGTH

The study conducted is one of the few studies that investigate the knowledge, attitude and perception of caesarean section among women in Malaysia. The study was easily conducted without the need of financial burden and huge amount of time in order to receive the participation. Apart from setting up baseline information regarding caesarean section in the candidates, this study also has shown the level of knowledge level, women's attitude and their perception towards caesarean section. This can help the authority in planning for programmes to enhance awareness and advocate women in caesarean section.

6.3 CLINICAL IMPLICATIONS

This study findings show that the knowledge about caesarean section among Malaysian women was generally satisfying. It was proven that knowledge was associated with age, marital status, education level, occupation, household income, pregnancy, and parity. Majority of the Malaysian women have a positive attitude towards caesarean section. All the factors that were associated with knowledge were also associated with attitude except for household income. A majority of the Malaysian women also had a positive perception towards caesarean section. Based on our study, Malaysian women can outweigh the risk from the benefit if they were to undergo a caesarean section if indicated. It potentially can increase the outcome of caesarean section as they are more physically and mentally prepared.

6.4 LIMITATIONS

There were few limitations faced while conducting this research. The first limitation is there are limited studies performed on this topic, especially studies that in Malaysia. There were quite a number of studies from other countries about caesarean section, but we only managed to find two studies about caesarean section in Malaysia. This made the literature review insufficient and we were lacking adequate literature to support our findings.

Secondly, time constraint for data collection was limited due to late ethical approval. Our study had to be corrected twice which in turn delayed the ethical approval and we had much less time to collect data. As a result, the study had an unequal distribution of respondents. We had to send the survey to mostly people from our own faculty who were somehow related to medical studies in order to find an adequate number of respondents within the due date. Hence most of our results had no significant association between the independent and dependent variable due to unequal distribution of respondents.

The last limitation was nonresponse bias. As this study was conducted online and the questionnaire was distributed via email and social media, there is a high possibility that the recipients missed the notification, or the email was recognised as spam. Researchers could not directly meet and distribute the questionnaires face to face as this

study was performed during the Restricted Movement Control Order and Lockdown period due to the COVID-19 pandemic. There is also a chance of misunderstanding of questions among participants as the researchers were unable to explain the questions face to face.

6.5 CONCLUSION

Based on the results, it can be concluded that there is an association between knowledge of the caesarean section among women in Malaysian with the age, marital status, education level, occupation, household income, pregnancy and parity. There is also an association between the attitude towards the caesarean section among women in Malaysia with the age, marital status, education level, occupation, pregnancy and parity. However, there is no association of perceptions towards the caesarean section among women in Malaysia with the women's socio-demographic backgrounds

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APPENDIX I: WORK PLAN (GANTT CHART)

Activity (2021)	Dec	Jan	Feb	Mac	Apr	May	Jun	Jul
Proposal Preparation								
Submission of Proposal								
Preparation of Proposal Presentation								
Proposal Presentation								
Preparation of Ethical Approval / Letters								
Data Collection and Analysis								
Final Report Presentation								
Correction of Final Report								
Submission of Final Report to Module Coordinator								
Poster Preparation								
Submission of Poster and Scientific Article								
Poster Competition								
Submission of Logbook and Hard Bound Copies of Final Report								

APPENDIX II: QUESTIONNAIRE ON KNOWLEDGE, ATTITUDE AND PERCEPTION TOWARDS CAESAREAN SECTION AMONG MALAYSIAN WOMEN

SECTION I / *BAHAGIAN I*:

SOCIO-DEMOGRAPHIC & OBSTETRIC HISTORY / LATAR BELAKANG DEMOGRAFI & OBSTETRIK

Please fill up/ tick the details accordingly / Sila isi / tandakan mana yang berkaitan.

SOCIO-DEMOGRAPHIC HISTORY / LATAR BELAKANG DEMOGRAFI		
1.	Age (Year) / *Umur (Tahun)*	☐ 18-24 ☐ 25-29 ☐ 30-34 ☐ 35-39 ☐ 40-50
2.	Ethnicity / *Etnik*	☐ Malay / *Melayu* ☐ Chinese / *Cina* ☐ Indian / *India* ☐ Others (Specify)/*Lain-lain (Nyatakan)*:____
3.	Marital status / *Status perkahwinan*	☐ Single / *Bujang* ☐ Married / *Berkahwin* ☐ Divorced / *Bercerai* ☐ Others (Specify) / *Lain-lain (Nyatakan)*:____
4.	Education level / *Tahap pengajian*	☐ Primary school / *Sekolah rendah* ☐ Secondary school / *Sekolah menengah* ☐ Diploma ☐ Degree / *Ijazah* ☐ Master / *Sarjana* ☐ PHD / *Doktor falsafah* ☐ Others (Specify) / *Lain-lain (Nyatakan)*:___
5.	State / *Negeri*	☐ WP (Kuala Lumpur, Putrajaya, Labuan) ☐ Selangor ☐ Perak

		☐ Melaka ☐ Pahang ☐ Johor ☐ Kelantan ☐ Terengganu ☐ Perlis ☐ Sarawak ☐ Sabah ☐ Kedah ☐ Pulau Pinang ☐ Negeri Sembilan
6.	Residency / *Kawasan perumahan*	Please write the name of the town you live
7.	Occupation / *Pekerjaan*	☐ Housewife / *Suri rumah* ☐ Student / *Pelajar* ☐ Professional / *Profesional* ☐ Private business / *Perniagaan* ☐ Others (Specify) / *Lain-lain (Nyatakan)*:___
8.	Household income / *Pendapatan isi rumah*	☐ <RM1,000 ☐ B40 (RM4,850 and below / RM 4,850 *dan ke bawah*) ☐ M40 (RM4,850 - RM10,959) ☐ T20 (More than RM10,960 / *Melebihi* RM 10,960)
OBSTETRIC HISTORY / LATAR BELAKANG OBSTETRIK		
9.	Are you currently pregnant? / *Adakah anda sedang mengandung?*	☐ Yes / *Ya* ☐ No / *Tidak*
10.	If NO, have you been pregnant before? / *Sekiranya tidak, adakah anda pernah mengandung?*	☐ Yes / *Ya* ☐ No / *Tidak*
11.	How many children do you have? (alive & has passed away) / *Berapakah bilangan anak yang anda ada? (Yang masih hidup dan telah meninggal dunia)*	
12.	Any miscarriages before? / *Pernahkah anda mengalami keguguran?*	☐ Yes / *Ya* ☐ No / *Tidak*
13.	If YES, state how many time / *Sekiranya YA, sila nyatakan jumlah keguguran*	

14.	Have you had any caesarean section before? / *Pernahkah anda mengalami pembedahan caesarean ?*	☐ Yes / *Ya* ☐ No / *Tidak*
15.	If YES, state how many / *Jika YA, sila nyatakan bilangan pembedahan caesarean yang anda telah alami*	
16.	Last place of delivery (state the hospital name / *Tempat terakhir anda melahirkan anak (sila nyatakan nama hospital)*	
17.	Year of last delivery / *Tahun terakhir beranak*	

SECTION II / *BAHAGIAN II*:

KNOWLEDGE AND AWARENESS / *PENGETAHUAN DAN KESEDARAN*

KNOWLEDGE / PENGETAHUAN

Please answer the following question / Sila jawab soalan dibawah.

No	Questions / Soalan	Options / Pilihan Jawapan
1)	Name all method of delivery that you know of *Nyatakan semua kaedah melahirkan anak yang anda ketahui*	
2)	Have you heard about caesarean section ? *Adakah anda pernah mendengar tentang pembedahan caesarean ?*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
3)	Do you think women can have vaginal delivery after a caesarean section ? *Pada pandangan anda, bolehkah seorang wanita melahirkan anak secara normal selepas menjalani pembedahan caesarean ?*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
4)	Who is required to give consent for a caesarean section ? *Siapakah yang perlu memberi kebenaran untuk menjalani pembedahan caesarean ?*	☐ Patient herself / *Pesakit* ☐ Husband / *Suami* ☐ Both patient and husband / *Pesakit dan semua*
5)	Maternal complications of caesarean delivery are greater compared to normal delivery. *Komplikasi terhadap ibu dalam pembedahan caesarean adalah lebih tinggi berbanding kelahiran normal.*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
6)	Infection risk of caesarean delivery is higher than vaginal delivery. *Risiko untuk mendapat jangkitan lebih tinggi dalam pembedahan caesarean berbanding kelahiran normal.*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
7)	Women who undergo one caesarean section will always be delivered by caesarean section in future pregnancies. *Wanita yang telah pernah menjalani pembedahan caesarean akan sentiasa melahirkan anak dengan pembedahan caesarean pada masa akan datang.*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*

8)	Babies born by caesarean section are smarter compared to those born by vaginal delivery. *Bayi yang lahir dengan kaedah pembedahan caesarean adalah lebih bijak berbanding bayi yang lahir secara normal.*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
9)	Breathing disorders in babies born by caesarean section are less than vaginal delivery. *Masalah pernafasan dalam kalangan bayi yang lahir secara pembedahan caesarean lebih rendah berbanding kelahiran secara normal.*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
10)	Bleeding during caesarean delivery is less than vaginal delivery. *Pendarahan semasa pembedahan caesarean adalah kurang berbanding kelahiran normal.*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
11)	During the COVID-19 pandemic, COVID-19 positive mothers should ideally be offered caesarean section as the mode of delivery until more evidence on safety of vaginal deliveries is established. *Semasa pandemic COVID-19, ibu yang positif COVID-19 sebaiknya ditawarkan pembedahan caesarean sebagai kaedah bersalin sehingga lebih banyak bukti mengenai keselamatan secara kelahiran secara normal ditemui.*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
12)	During the COVID-19 pandemic, mothers with close contact with COVID-19 positive patients should ideally be offered caesarean section as the mode of delivery until more evidence on safety of vaginal deliveries is established. *Semasa pandemic COVID-19, ibu yang mempunyai kontrak rapat dengan pesakit positif Covid-19 sebaiknya ditawarkan pembedahan caesarean sebagai kaedah bersalin sehingga lebih banyak bukti mengenai keselamatan dalam kelahiran secara normal ditemui.*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
13)	Caesarean section can reduce the risk of COVID-19 transmission to the fetus compared to vaginal delivery. *Pembedahan caesarean boleh mengurangkan risiko penyebaran COVID-19 kepada bayi berbanding kelahiran secara normal.*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*

AWARENESS / KESEDARAN

Please answer the following question / Sila jawab soalan dibawah.

No	Question / Soalan	Options / Pilihan Jawapan
1)	Have you experience caesarean section ? *Pernahkan anda menjalani pembedahan caesarean ?*	☐ Yes / *Ya* ☐ No / *Tidak* ☐ Not Sure / *Tidak pasti*
2)	If you answered yes, do you know what was the reason for having caesarean section ? *Jika anda menjawab ya, adakah anda mengetahui tentang petanda anda perlu menjalani pembedahan caesarean ?*	
3)	If you answered yes, how long did you stay in the hospital after the caesarean section ? *Jika jawapan anda ya, berapa lama anda perlu berada di hospital selepas pembedahan caesarean tersebut ?*	

SECTION III / *BAHAGIAN III*:

ATTITUDE / *SIKAP*

Please answer the following question based on your opinion / *Sila jawab soalan dibawah berdasarkan pandangan anda.*

No.	Questions	Options
1.	Vaginal delivery creates a more affectionate mother-baby relationship/ *Melahirkan anak secara normal mewujudkan hubungan ibu-bayi yang lebih mesra*	1. Completely Agree/ *Sangat Setuju* 2. Agree/ *Setuju* 3. .Neutral 4. Disagree/ *Tidak Setuju* 5. Completely Disagree/ *Sangat Tidak Setuju*
2.	Caesarean section is preferable in the absence of economic problems/ *Pembedahan caesarean menjadi pilihan saya sekiranya tiada masalah ekonomi*	2. Completely Agree/ Sangat Setuju 3. Agree/ Setuju 4. .Neutral 5. Disagree/ Tidak Setuju 6. Completely Disagree/ Sangat Tidak Setuju
3.	Having a birth plan is a good idea for a pregnant woman./ *Mempunyai rancangan kelahiran adalah idea yang baik untuk wanita hamil.*	1. Completely Agree/ Sangat Setuju 2. Agree/ Setuju 3. .Neutral 4. Disagree/ Tidak Setuju 5. Completely Disagree/ Sangat Tidak Setuju
4.	It is a woman's right to choose a caesarean section for herself, even if there are no medical reasons to have it / *Wanita mempunyai hak untuk memilih pembedahan caesarean untuk dirinya sendiri, walaupun tidak ada alasan perubatan untuk memilihnya*	1. Completely Agree/ Sangat Setuju 2. Agree/ Setuju 3. .Neutral 4. Disagree/ Tidak Setuju 5. Completely Disagree/ Sangat Tidak Setuju
5.	Compared with vaginal birth, caesarean section prevents bladder problems (such as urinary frequency, urgency or loss of urine) in the future./ *Berbanding dengan kelahiran normal, pembedahan caesarean mencegah masalah pundi kencing (seperti kekerapan kencing,*	1. Completely Agree/ Sangat Setuju 2. Agree/ Setuju 3. .Neutral 4. Disagree/ Tidak Setuju 5. Completely Disagree/ Sangat Tidak Setuju

	urgensi atau kekurangan air kencing) pada masa akan datang.	
6.	Compared with vaginal birth, caesarean section prevents future sexual problems for the mother / *Berbanding dengan kelahiran normal, pembedahan caesarean mencegah masalah seksual untuk ibu di masa depan*	1. Completely Agree/ Sangat Setuju 2. Agree/ Setuju 3. .Neutral 4. Disagree/ Tidak Setuju 5. Completely Disagree/ Sangat Tidak Setuju
7.	Compared with vaginal birth, the caesarean section is more convenient for mothers./ *Berbanding dengan kelahiran normal, pembedahan caesarean lebih selesa untuk ibu.*	1. Completely Agree/ Sangat Setuju 2. Agree/ Setuju 3. .Neutral 4. Disagree/ Tidak Setuju 5. Completely Disagree/ Sangat Tidak Setuju
8.	Caesarean section is a less painful method of delivery than vaginal birth./ *Pembedahan caesarean adalah kaedah kelahiran yang kurang menyakitkan daripada kelahiran normal.*	1. Completely Agree/ Sangat Setuju 2. Agree/ Setuju 3. .Neutral 4. Disagree/ Tidak Setuju 5. Completely Disagree/ Sangat Tidak Setuju
9.	Compared with vaginal birth, caesarean section is safer for the baby./ *Berbanding dengan kelahiran normal, pembedahan caesarean lebih selamat untuk bayi.*	1. Completely Agree/ Sangat Setuju 2. Agree/ Setuju 3. .Neutral 4. Disagree/ Tidak Setuju 5. Completely Disagree/ Sangat Tidak Setuju
10.	Caesarean section is as safe as vaginal birth./ *Pembedahan caesarean adalah selamat seperti kelahiran normal.*	10. Completely Agree/ Sangat Setuju 11. Agree/ Setuju 12. .Neutral 13. Disagree/ Tidak Setuju 14. Completely Disagree/ Sangat Tidak Setuju

SECTION IV / *BAHAGIAN IV*:

PERCEPTION / *PERSEPSI*

Please answer the following question based on your opinion / *Sila jawab soalan dibawah berdasarkan pandangan anda.*

No	Question	Options
1.	Vaginal delivery is a natural and acceptable mode of delivery/ *Kelahiran normal adalah kaedah kelahiran semula jadi dan diterima ramai.*	1. Completely Agree/ *Sangat Setuju* 2. Agree/ *Setuju* 3 .Neutral 4. Disagree/ *Tidak Setuju* 5. Completely Disagree/ *Sangat Tidak Setuju*
2.	Seeing the baby immediately after vaginal delivery is a pleasure for the mother/ *Melihat bayi selepas kelahiran normal adalah membahagiakan ibu.*	1. Completely Agree/ *Sangat Setuju* 2. Agree/ *Setuju* 3 .Neutral 4. Disagree/ *Tidak Setuju* 5. Completely Disagree/ *Sangat Tidak Setuju*
3.	Mothers regain their health status sooner after vaginal delivery than caesarean section/ *Tahap kesihatan ibu pulih lebih cepat selepas kelahiran normal berbanding pembedahan caesarean.*	1. Completely Agree/ *Sangat Setuju* 2. Agree/ *Setuju* 3 .Neutral 4. Disagree/ *Tidak Setuju* 5. Completely Disagree/ *Sangat Tidak Setuju*
4.	Vaginal delivery has a more pleasant outcome compared to caesarean section./ *Kelahiran normal lebih menyenangkan berbanding pembedahan caesarean.*	1. Completely Agree/ *Sangat Setuju* 2. Agree/ *Setuju* 3 .Neutral 4. Disagree/ *Tidak Setuju* 5. Completely Disagree/ *Sangat Tidak Setuju*
5.	I believe that having a vaginal birth is a more empowering experience than delivering by caesarean section/ *Saya percaya bahawa kelahiran secara normal memberi impak yang lebih besar berbanding kelahiran melalui pembedahan caesarean.*	1. Completely Agree/ *Sangat Setuju* 2. Agree/ *Setuju* 3 .Neutral 4. Disagree/ *Tidak Setuju* 5. Completely Disagree/ *Sangat Tidak Setuju*

6.	The most important thing in having a vaginal delivery is the woman's own confidence in her ability to give birth/ *Perkara yang paling penting dalam melahirkan anak secara normal adalah keyakinan wanita itu sendiri terhadap kemampuannya.*	1. Completely Agree/ *Sangat Setuju* 2. Agree/ *Setuju* 3 .Neutral 4. Disagree/ *Tidak Setuju* 5. Completely Disagree/ *Sangat Tidak Setuju*
7.	I believe that a woman recovers faster after a caesarean section compared to vaginal birth./ *Saya percaya bahawa wanita pulih lebih cepat selepas pembedahan caesarean berbanding selepas kelahiran secara normal.*	1. Completely Agree/ *Sangat Setuju* 2. Agree/ *Setuju* 3 .Neutral 4. Disagree/ *Tidak Setuju* 5. Completely Disagree/ *Sangat Tidak Setuju*
8.	Caesarean section is less painful compared to vaginal birth. *Pembedahan caesarean kurang menyakitkan berbanding kelahiran normal.*	1. Completely Agree/ *Sangat Setuju* 2. Agree/ *Setuju* 3 .Neutral 4. Disagree/ *Tidak Setuju* 5. Completely Disagree/ *Sangat Tidak Setuju*

APPENDIX III: DUMMY TABLE

Table 1: Socio-demographic History

Respondent	Characteristics Frequency	Percentage (%)
Gender Male Female		
Ethnicity Malay Chinese Indian Others		
Marital status Single Married Divorced Others		
Education level Primary School Secondary school Diploma Degree Master PHD Others		
State WP (Kuala Lumpur, Putrajaya, Labuan) Selangor Perak Melaka Pahang Johor Kelantan Terengganu Perlis Sarawak Sabah Kedah Pulau Pinang Negeri Sembilan		
Residency Urban Sub-urban Rural		

Occupation Housewife Student Professional Private Business Others		
Household Income <RM4,000 RM4,001 - RM10,000 >RM10,000		

Table 2: Obstetric History

Respondent	**Characteristics Frequency**	**Percentage (%)**
Currently Pregnant Yes No		
Previously Pregnant(if not currently pregnant) Yes No		
Total Number of Children		
Previous Miscarriages Yes No		
Number of Miscarriages(If had previous miscarriage)		
Previous Caesarean Section Yes No		
Number of PreviousCaesarean section(if had any)		
Place of last Delivery		
Year of last Delivery		

Table 3: Knowledge Score

	Frequency	**Percentage(%)**
Good Knowledge Level More or equal to 76% score		
Poor Knowledge Level Less than 76% score		

Table 4: Attitude and Perception Score

	Frequency	**Percentage(%)**
Positive Attitude and Perception towards Caesarean Section More or equal to 50% score		
Negative Attitude and Perception towards Caesarean Section Less than 50% score		