

**ASSOCIATION OF CAESAREAN AND VAGINAL
DELIVERY ON BREASTFEEDING PRACTICES AMONG
POSTPARTUM WOMEN AT HOSPITAL UNIVERSITI
SAINS MALAYSIA (HUSM)**

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**SCHOOL OF HEALTH SCIENCES
UNIVERSITI SAINS MALAYSIA**

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by

LUM PEI TENG

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ABSTRAK

Beberapa kajian telah menunjukkan kaedah pembedahan caesarean memberi kesan yang negatif terhadap penyusuan ibu. Walau bagaimanapun, hasil daripada kajian sebelum ini tentang kesan kaedah pembedahan caeserean terhadap permulaan dan tempoh penyusuan ibu masih tidak konsisten. Kajian hirisan lintang ini telah dijalankan untuk mengkaji perkaitan kelahiran melalui pembedahan caesarean dan secara normal terhadap amalan penyusuan ibu dalam kalangan ibu selepas bersalin di Hospital Universiti Sains Malaysia (HUSM). Masa permulaan penyusuan dan niat ibu untuk meneruskan penyusuan ibu dinilai sebagai hasil kajian utama. Sejumlah 240 wanita selepas bersalin (berumur 18 hingga 45 tahun) telah menyertai kajian ini. Data dikumpul semasa sesi temubual dengan menggunakan borang soal selidik di wad 2 Topaz antara bulan Mac dan April 2015. Borang soal selidik telah digunakan untuk mengumpul data berkenaan sosiodemografi, jenis kaedah kelahiran, pariti, amalan penyusuan ibu dan status kesihatan reproduktif semasa mengandung. Ujian *Pearson chi-square* dan ujian *Fisher exact* telah digunakan untuk menganalisis data. Kebanyakan peserta kajian berbangsa Melayu (98.8%) diikuti oleh Cina (0.8%) dan India (0.4%). 34.6% wanita melahirkan anak melalui pembedahan caesarean manakala 65.4% melahirkan anak secara normal. Semua wanita dalam kajian ini memulakan penyusuan ibu semasa di hospital. 66.3% daripada mereka memulakan penyusuan ibu dalam masa 30 minit selepas bersalin manakala 33.8% wanita memulakan penyusuan ibu selepas 30 minit. Kebanyakan wanita (99.2%) mempunyai niat untuk meneruskan penyusuan ibu. 94.5% daripada mereka berniat untuk menyusukan anak mereka sehingga enam bulan hingga dua tahun. Jenis kaedah kelahiran didapati berkaitan dengan masa permulaan penyusuan ibu (p

<0.001). Kebanyakan ibu yang melalui kaedah kelahiran caesarean (78.3%) memulakan penyusuan ibu selepas 30 minit bersalin berbanding dengan wanita yang melalui kaedah kelahiran secara normal (10.2%). Walau bagaimanapun, tiada perkaitan dikenal pasti di antara jenis kaedah kelahiran dan niat ibu untuk meneruskan penyusuan ibu ($p = 0,546$). Hasil kajian ini menunjukkan pembedahan caesarean merupakan faktor penentu untuk permulaan awal penyusuan ibu dalam kalangan peserta kajian ini. Sokongan dan bantuan diperlukan daripada kakitangan hospital atau profesional kesihatan untuk meningkatkan penyusuan ibu dalam kalangan ibu yang melahirkan anak mereka melalui pembedahan caesarean.

ABSTRACT

Throughout literature, several studies have found caesarean delivery had negative impacts on breastfeeding. However, the results of previous studies on investigating the association of delivery methods on initiation and duration of breastfeeding were still inconsistent. This cross-sectional study was conducted with the objective to study the association of caesarean and vaginal delivery on breastfeeding practice among postpartum women who delivered their babies at Hospital Universiti Sains Malaysia (HUSM). Timing of breastfeeding initiation and maternal intention towards breastfeeding continuation after discharged were assessed as the breastfeeding outcomes in this study. A total of 240 postpartum women (aged 18 to 45 years) participated in this study. Data was collected during an interview section by using an interview-administered questionnaire in 2 Topaz postnatal ward between March and April 2015. The questionnaire was used to collect the data on maternal socio-demographics, types of delivery method, parity, breastfeeding practices and their reproductive health status. The association between the independent and dependent variable was analysed by using Pearson chi-square test and Fisher exact test. Majority of the study participants was Malay (98.8%) followed by Chinese (0.8%) and Indian (0.4%). 34.6% of women undergone caesarean birth whereas 65.4% of women undergone vaginal birth. All women in this study initiated breastfeeding during hospital stay. 66.3% of them initiated breastfeeding within 30 minutes after birth whereas 33.8% of women initiated breastfeeding after 30 minutes of birth. Majority of women (99.2%) had intention to continue their breastfeeding after discharged. 94.5% of them had intention to breastfeed their child until six months to two years. Mode of delivery was found significantly

associated with timing of breastfeeding initiation ($p < 0.001$). Mothers with caesarean delivery (CD) (78.3%) were more likely to initiate their breastfeeding after 30 minutes of birth than women with vaginal delivery (VD) (10.2%). However, no association was found between mode of delivery and maternal intention to continue breastfeeding after discharged ($p = 0.546$). The findings revealed that caesarean section was a determinant factor for early initiation of breastfeeding among this study population. Supports and assistances are needed from hospital staffs or health professional in improving breastfeeding initiation among mothers with caesarean birth.

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LIST OF ABBREVIATIONS

ALL	Acute Lymphocytic Leukemia
BFHI	Baby-Friendly Hospital Initiative
BMI	Body Mass Index
CD	Caesarean Delivery
CDC	Centers for Disease Control and Prevention
HREC	Human Research Ethics Committee
HSM	Hospital Seri Manjung
HUSM	Hospital Universiti Sains Malaysia
IgA	Immunoglobulin A
IPH	Institute for Public Health
MOH	Ministry of Health
NCCFN	National Coordinating Committee on Food and Nutrition
NHMS	National Health and Morbidity Survey
NICU	Neonatal Intensive Care Unit
O&G	Obstetrics and Gynaecology
PCA	Patient-controlled Analgesia
PRAMS	Pregnancy Risk Assessment Monitoring System
SD	Standard Deviation

SPSS	Statistical Package for the Social Science
UNICEF	United Nations Children's Fund
USM	Universiti Sains Malaysia
VD	Vaginal Delivery
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Early breastfeeding initiation is refer as the provision of maternal breast milk to infants within first hour of birth (WHO, 2014a) while exclusive breastfeeding is defined as the act of feeding infants with only breast milk without any other liquid, solid food and even water (WHO, 2014b). Breastfeeding act as a natural act and a learned behaviour which is an integral part of reproductive process (WHO, 2014a). Maternal breast milk is the natural first food for nourishing infants. Consumption of breast milk provides infants with adequate sugars, fats, proteins, vitamins, minerals and immunological components which can promote their growth and development (Pérez-Ríos *et al.*, 2008).

Breastfeeding is beneficial to mother and infant health and well- being. For infants, its benefits include increasing infant's neuro-development, enhancing their autoimmunity system, reducing the risk of getting childhood obesity, other infectious disease and chronic disease (Ahluwalia *et al.*, 2012; NCCFN, 2010). For mothers, breastfeeding can prevent mothers from getting breast cancer, ovarian cancer and help mothers in losing weight (Ahluwalia *et al.*, 2012; NCCFN, 2010; Pérez-Ríos *et al.*, 2008). Furthermore, it also brings economical and family benefits (Ahluwalia *et al.*, 2012; Pérez-Ríos *et al.*, 2008).

According to WHO & UNICEF (2009), exclusive breastfeeding is recommended for infants during first six months and continue breastfeeding up to two years with introducing complementary foods at the age of six months. For promoting and sustaining breastfeeding practices worldwide, Baby-Friendly Hospital Initiative (BFHI) was launch by WHO/UNICEF in 1992 to support mothers on breastfeeding with the foundation of “Ten Steps to Successful Breastfeeding” (WHO & UNICEF, 2009). In Malaysia, commitments have been made by Malaysia government to protect current breastfeeding practices from marketing of infant’s formula and give mothers supports for breastfeeding their infant (NCCFN, 2010). Malaysia has been intensified the promotion of breastfeeding by launching BFHI in Malaysia to ensure women initiate breastfeeding within first hour of birth (Fatimah *et al.*, 2010). Up to year 2012, there are a total of 141 public and private hospitals in Malaysia accredited as baby-friendly hospitals including Hospital Universiti Sains Malaysia (HUSM) in Kelantan (MOH, 2012).

As naturally, most of the women deliver their babies by vaginal delivery (VD). Caesarean delivery (CD) is an alternative delivery method if vaginal delivery is not carried out. Throughout literature, the mode of delivery methods are believed to have impact on breastfeeding (Ahluwalia *et al.*, 2012; Chien & Tai, 2007; Orun *et al.*, 2010; Pérez-Ríos *et al.*, 2008; Prior *et al.*, 2012; Rowe - Murray & Fisher, 2002; Zanardo *et al.*, 2010). Study of Rowe - Murray & Fisher (2002) found that CD as a barrier for breastfeeding initiation within first hour after birth at hospital. It delayed initiation of breastfeeding (Zanardo *et al.*, 2010). In the study of Zanardo *et al.* (2010), it was found that the prevalence of breastfeeding was lower among women undergone CD in comparison to those undergone VD. In a similar study conducted in 2012, researchers

found the intention of breastfeeding was low among women with CD (Ahluwalia *et al.*, 2012).

Breastfeeding initiation were believed to be interfered by the complications of CD such as longer infections, uterine haemorrhage, mother-infant separation, less of skin to skin contact, loss of mobility and pain (Ahluwalia *et al.*, 2012; Pérez-Ríos *et al.*, 2008). These complications cause mothers who undergone CD facing difficulties during breastfeeding. Mode of delivery also found to be associated with breastfeeding duration (Ahluwalia *et al.*, 2012). Besides this, there are also other associated factors such as maternal socio-demographics and reproductive health status affect breastfeeding practices (Amin *et al.*, 2011; Brand *et al.*, 2011; Chan & Asirvatham, 2001; Chin *et al.*, 2008; Heck *et al.*, 2006; Ong *et al.*, 2005; Orun *et al.*, 2010; Park *et al.*, 2003; Scott *et al.*, 2001; Tan, 2011; Vieira *et al.*, 2010; Youngwanichsetha, 2013).

1.2 Problem Statement

According to Third National Health and Morbidity Survey 2006 (NHMS III) in Malaysia, the overall prevalence of ever breastfed among children aged less than 12 months was 93.7% (IPH, 2008). The prevalence of timely breastfeeding initiation within one hour of birth was 63.7% while the overall prevalence of exclusive breastfeeding below four months and six months was 19.3% and 14.5% respectively (IPH, 2008). According to Fatimah *et al.* (2010), the prevalence of exclusive breastfeeding below six months was low in Malaysia. If compared with other countries in South East Asian region, Malaysia is the country with the lowest prevalence of exclusive breastfeeding.

The current breastfeeding practices were still below the recommended level in Malaysia (Fatimah *et al.*, 2010).

Furthermore, the prevalence of exclusive breastfeeding was highest among infants who aged below two months (27.1%) but dropped rapidly to 6.2% among infants who aged four to five months (IPH, 2008). Similar result also was shown in the study of Tan (2011) in Peninsular Malaysia. The prevalence of exclusive breastfeeding was 63.3% among infants who aged one month and declined rapidly to 32.4% among infants who aged six months. It is very important to identify the factors which may influence breastfeeding initiation and duration. Women with breastfeeding difficulties and delayed their breastfeeding initiation during hospital stay were more likely to discontinue breastfeeding at one month (Alina *et al.*, 2013). Hence, the timing of breastfeeding initiation is important to maintain breastfeeding duration. According to Prior *et al.* (2012), caesarean delivery (CD) had negative impact on breastfeeding.

Rates of CD had been increasing in Malaysia. According to Ravindran (2008), CD rates were increased from 10.5% in 2000 to 11.1% in 2001 and to 15.7% in 2006. The total number of caesarean sections was also increased from 112, 767 in 2010 to 117, 526 in 2011 in Malaysia. As its consequences, the prevalence of exclusive breastfeeding was remains low and CD is increasing in Malaysia. Hence, it is very important to carry out this study to examine the association of CD and VD on breastfeeding.

1.3 Objectives of Study

1.3.1 General Objective

- The general objective of the present study is to study the association of caesarean and vaginal delivery on breastfeeding practices among postpartum women at Hospital Universiti Sains Malaysia (HUSM), Kubang Kerian, Kelantan.

1.3.2 Specific Objective

- To determine the association between modes of delivery and timing of breastfeeding initiation.
- To determine the association between modes of delivery and mother's intention toward breastfeeding continuation after discharged.
- To determine the association between maternal socio-demographics and breastfeeding.
- To determine the association between maternal health status and breastfeeding.

1.4 Hypothesis

1.4.1 Null hypothesis

1. There is no significant association between mode of delivery methods and timing of breastfeeding initiation.
2. There is no significant association between mode of delivery methods and mother's intention toward breastfeeding after discharged.

3. There is no significant association between maternal socio-demographic and breastfeeding.
4. There is no significant association between maternal health status and breastfeeding.

1.4.2 Alternative Hypothesis

1. There is a significant association between mode of delivery methods and timing of breastfeeding initiation.
2. There is a significant association between mode of delivery methods and mother's intention toward breastfeeding after discharged.
3. There is a significant association between maternal socio-demographic and breastfeeding.
4. There is a significant association between maternal health status and breastfeeding.

1.5 Research questions

The results of this study aim to answer the following questions:

- i. Is mode of delivery methods associate to the timing of breastfeeding initiation?
- ii. Is mode of delivery methods associate to the mother's intention toward breastfeeding after discharged?
- iii. Is maternal socio-demographics associate to the breastfeeding?
- iv. Is maternal health status associate to the breastfeeding?

1.6 Significance of Study

According to NCCFN (2010), the significance of breastfeeding and infants' nutrition has been recognized by the government of Malaysia. In Malaysia, National Breastfeeding Policy was formulated in 1993 and revised in 2005 (Fatimah *et al.*, 2010). This policy mainly recommended exclusive breastfeeding among infants for 6 months and continue it up to 2 years. It is essential to encourage women in Malaysia to initiate breastfeeding in hospital and continue to breastfeed their child even after discharged due to breastfeeding bring a lot of benefits to mothers and infants.

This study conducted was focus on the association of CD and VD on breastfeeding. Besides this, the relevant factors which affect breastfeeding initiation and intention were also identified. Findings from this study served as a basic platform to help other researchers for further investigation on the factors related with breastfeeding. This study could also serve a future reference for health professionals to improve the environment for breastfeeding and promote the practice of breastfeeding initiation at hospital. Throughout this study, it helped to increase the awareness of public towards the importance of breastfeeding.

1.7 Conceptual Framework

Figure 1-1: Conceptual Framework of the study

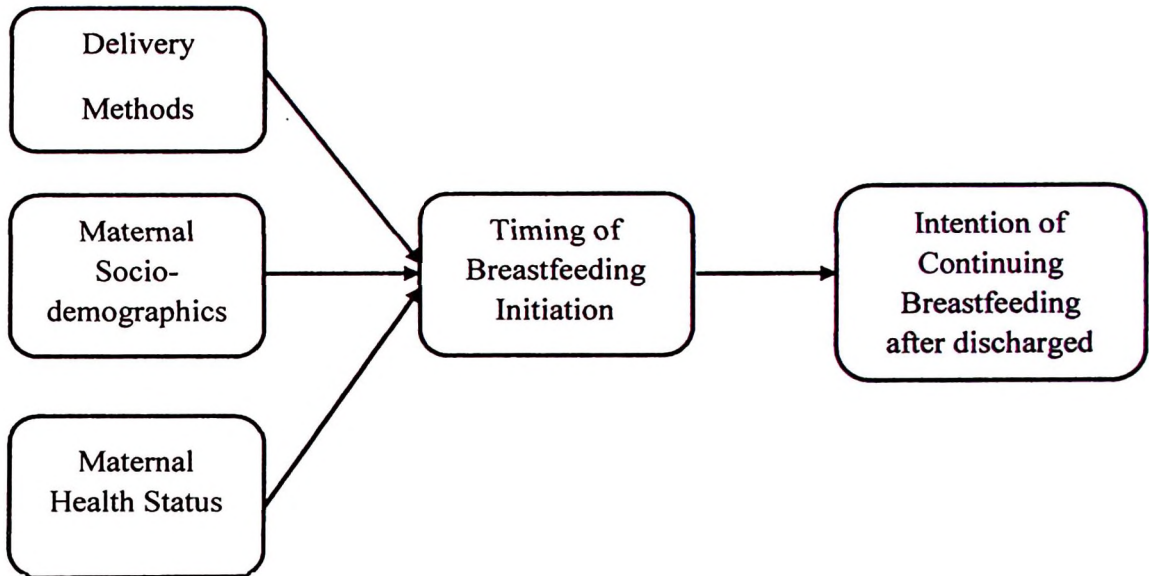


Figure 1-1 shows the conceptual framework of this study. Different mode of delivery methods may have different impact on breastfeeding. In this study, besides to identify the association of delivery methods on breastfeeding, other relevant factors included maternal socio-demographics and maternal health status which were believed to have some associations on breastfeeding were also assessed through this study. The outcomes assessed were the timing of breastfeeding initiation during hospital stay and the intention of women to continue breastfeeding after discharged.

1.8 Conceptual Definition and Operational Definition

Caesarean Delivery (CD)

Conceptual Definition	Operational Definition
It is also known as caesarean section, a surgical operation which health practitioners make a cut or incision in mother's abdomen wall and uterus to allow the delivery of an infant (BabyCenter, 2014b).	Response to an item: How was your new baby delivered? With the options of caesarean delivery or vaginal delivery

Vaginal Delivery (VD)

Conceptual Definition	Operational Definition
It is the delivery of an infant through birth canal which is vagina at around 38 to 41 weeks of pregnancy (Chisholm, 2014).	Response to an item: How was your new baby delivered? With the options of caesarean delivery or vaginal delivery

Timing of Breastfeeding Initiation

Conceptual Definition	Operational Definition
It is defined as the duration from infant birth to the first feeding by maternal breast milk during hospital stay.	For the objective of this study, timing of breastfeeding initiation was accessed by the timing (within/after _____ minutes/hours) given by respondents on an item: When did you initiate breastfeeding after your delivery?

Intention of breastfeeding continuation

Conceptual Definition	Operational Definition
It is defined as the purpose, attitude or act to continue breastfeeding	For the objective of this study, intention of breastfeeding continuation accessed by the response (yes/no) given by respondents on an item: Do you plan to continue with breastfeeding after discharged?

Maternal socio-demographics

Conceptual Definition	Operational Definition
It is refers to the general social background of a woman	In this study, maternal socio-demographics were refer to maternal reproductive age, body mass index (BMI), ethnicity, educational level, work status, monthly household income and parity.

Maternal health status

Conceptual Definition	Operational Definition
It is refers to the health status of a woman during her pregnancy	Maternal health status accessed in this study was refers to the diagnosis and any medical problems of a woman during her pregnancy.

CHAPTER TWO

LITERATURE REVIEW

2.1 Vaginal delivery (VD)

Vaginal delivery is classified as spontaneous vaginal and induced vaginal or unassisted and assisted vaginal (Chien & Tai, 2007; Watt *et al.*, 2012). Spontaneous or unassisted vaginal delivery is the baby delivered naturally by pushing force from mother and without using the vacuum, forceps or any instrumentation (Levine, 2012). While in induced or assisted vaginal delivery, the delivery process is assisted by using either a vacuum or forceps to get the baby out from the birth canal (BabyCenter, 2014a). In vacuum extraction delivery, a rounded and flexible cup is applied. It connected to an electric suction pump that creates vacuum pressure to hold the cup to the baby's head and help to move the baby out from birth canal.

On the other hand, a specifically designed forceps which follow the curve of baby's head and the curve of maternal cervix is used to hold baby's head out from vagina in forceps using assisted vaginal delivery. Normally, this kind of delivery will be performed under the situation that the mother has been pushing for a long time or the baby is almost out but his heart rate is "non-reassuring" (BabyCenter, 2014a). This kind of delivery method is considered safe as long as the baby's head is low enough in mother's vagina and there are no any factors that may complicate the vaginal delivery (BabyCenter, 2014a).

2.2 Caesarean delivery (CD)

Caesarean delivery is classified as unplanned and planned caesarean (Ahluwalia *et al.*, 2012; Watt *et al.*, 2012) or emergency and elective caesarean (Ahluwalia *et al.*, 2012; Zanardo *et al.*, 2010). Unplanned or emergency caesarean is a caesarean section is carried out by health practitioners without any planning before labour begins. There are many reasons for requiring a c-section for delivering a baby, this option depends on mothers' situation and health practitioners' advice (Al-Taher, 2011). In many cases, a c-section occurs is the safest option for mothers and baby for the health reasons (Al-Taher, 2011). Normally, an emergency caesarean section happened due to the reason of life-threatening when the mother and her baby have a complication during pregnancy or labour such as her labour is very slow or under the condition the women is planning a c-section but her amniotic sac is broken before operation (BabyCenter, 2013). The emergency c-section also happens when baby is in a danger situation which included lack of oxygen supply for baby, abruption of placenta, the baby is distress and heavy bleeding during labour (Al-Taher, 2011).

A planned c- section happens if the mother has an infection such as HIV or herpes which may pass on to their baby, severe pre- eclampsia or eclampsia which may result in delay in birth and chronic disease such as diabetes and cardiovascular disease. The position of baby in the uterus also is one of the reasons to determine vaginal delivery or planned c- section (Al-Taher, 2011). Planned caesarean section is encouraged if the baby is in transverse position and breech position which is the baby in a bottom down position in uterus. Furthermore, if the mother is expected to have twins

or more, lost her baby in the past or she has a low lying placenta, most probably obstetrician will encourage her to have a planned c- section (Al-Taher, 2011).

2.3 Rates of Caesarean section in Malaysia

A report about CD rates in government hospital Malaysia in 2000, 2001 and 2006 was shown in Table 2-1.

Table 2-1: Caesarean section rates in public hospitals by state in 2000, 2001 and 2006

[Source: Ravindran, 2008]

State	Caesarean section rates (%)		
	2000	2001	2006
Perlis	11.2	10.0	20.1
Kedah	10.4	12.4	18.0
Penang	12.5	14.3	17.4
Perak	13.1	12.7	19.3
Selangor	8.7	10.8	16.6
Federal Territory	15.5	15.7	23.6
Negeri Sembilan	12.8	15.2	20.8
Melaka	20.5	22.3	25.4
Johor	12.0	12.4	15.0
Pahang	12.8	10.8	15.2
Terengganu	7.0	7.6	11.1
Kelantan	6.8	7.5	11.5

Sabah	8.2	7.4	10.9
Sarawak	7.9	8.0	11.7
TOTAL	10.5	11.1	15.7

From Table 2-1, the CD rates in Malaysia have shown increasing from 2000 to 2006. The highest CD rate was shown in Melaka while the lowest CD rate was shown in Sabah. Table 2-2 shows the total number of caesarean sections in Malaysia by state in 2010 and 2011.

Table 2-2: Total Number of Caesarean Sections in Malaysia by State in 2010 and 2011
[Source: Ravichandran *et al.*, 2013]

State	Total Number of Caesarean Section	
	2010	2011
Malaysia	112,767	117,526
Perlis	870	1,019
Kedah	8,277	9,862
Kedah& Perlis	9,147	10,881
Pulau Pinang	6,512	7,195
Perak	10,325	10,837
Selangor& WP Putrajaya	27,071	25,081
WP Kuala Lumpur	11,876	12,339
Selangor& WP Putrajaya& WPKL	38,947	37,357

Negeri Sembilan	3,617	3,956
Melaka	3,651	4,174
Johor	11,827	12,089
Pahang	5,001	5,261
Terengganu	2,524	3,138
Kelantan	4,911	5,458
Sabah& WP Labuan	8,589	9,018
Sarawak	7,716	8,162

From the Table 2-2, there were a total of 112, 767 of CD in 2010 while a total of 117, 526 CD in 2011 in Malaysia. In 2011, higher number of CD was recorded almost among all states in Malaysia if compared with previous year. The most CD were performed in public hospitals which is 81, 629 CD when compared to the private hospitals which recorded as 35, 897 CD in 2011 (Ravichandran *et al.*, 2013).

2.4 Baby- Friendly Hospital Initiative (BFHI)

Baby Friendly Hospital Initiative (BFHI) was an effort to ensure that all maternities whether free standing or in a hospital, become centers of breastfeeding support. It was launch by WHO/UNICEF in 1991 to 1992 to promote, improve and maintain breastfeeding practices all over the world. There were more than 20,000 hospitals in 156 countries worldwide having been designated with this initiative over last 15 years (WHO & UNICEF, 2009). “Ten Steps to Successful Breastfeeding”, a summary of the guidelines for maternity care facilities was developed for protecting,

promoting and supporting breastfeeding. Figure 2-1 shows the “Ten Steps to Successful Breastfeeding”.

Figure 2-1: 10 Steps to Successful Breastfeeding [Source: WHO & UNICEF, 2009]

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within a half-hour of birth.
5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk unless medically indicated.
7. Practice rooming in - allow mothers and infants to remain together - 24 hours a day.
8. Encourage breastfeeding on demand.

There are a total of 141 public and private hospitals in Malaysia accredited as baby- friendly hospitals in Malaysia (MOH, 2012). The total number of hospital with BFHI by states is shown in Table 2-3.

Table 2-3: Total number of hospital with BFHI by states [Source: MOH, 2012]

States	Numbers
Perlis	1
Kedah	9
Pulau Pinang	7
Perak	16
Selangor	13
Kuala Lumpur	5
Wilayah Persekutuan	2
Negeri Sembilan	6
Melaka	4
Johor	13
Pahang	10
Terengganu	6
Kelantan	10
Sarawak	19
Sabah	20
TOTAL	141

2.5 The importance of breastfeeding

2.5.1 Benefits for infants

All healthy infants are born with naturally suckling instinct ("Colosturm: Your Baby's First Meal," 2014). This instinct enables infants can drink the breast milk by suckling during their first year of life and it is intense after birth. First half to two hours after birth is the most critical period of initiating breastfeeding because earlier initiation of breastfeeding is important ensure a longer duration of breastfeeding (Orun *et al.*, 2010).

Colostrum in first breast milk is a stick, yellowish and clear fluid which produced by female mammary gland (Uruakpa *et al.*, 2002). It is produced in the end of pregnancy (Barger, 2014). Colostrum is a nutrient rich fluid which high in protein, low in sugar and significantly low in fat ("Colosturm: Your Baby's First Meal," 2014). It functions as speed up infant's intestinal functions normally (Orun *et al.*, 2010). It has a mild laxative effect which helps infants to expel their first stools called meconium (Barger, 2014). The laxative effect also help infant to secret excess bilirubin and prevent jaundice. In addition, colostrum contains large quantities of anti-microbial agents, immunoglobulin A (IgA) to boost infant's immune system (Uruakpa *et al.*, 2002). Hence, feeding infant with breast milk can reduce their risk to experience any infectious disease such as gastrointestinal illness, bacterial meningitis, respiratory tract infections, urinary tract infections, necrotising enterocolitis and otitis media (Ahluwalia *et al.*, 2012; NCCFN, 2010).

Besides this, breastfeeding was believed to reduce the risk of asthma among children (Ip *et al.*, 2009). The incidence of asthma was reduced among infants who breastfed for at least three months whereas the risk of developing asthma among children with a family history of asthma was also decreased if the mother breastfed for three months. Breastfeeding greater than six months was also found to reduce the risk of acute lymphocytic leukemia (ALL) (Ip *et al.*, 2009). In addition, breastfeeding bring long term neuro-development of infants in terms of increasing their cognitive development in childhood and this will benefit their educational achievements in the future. Reducing risk of childhood obesity also associated with breastfeeding practice (Ahluwalia *et al.*, 2012). The study of Ip *et al.* (2009) reported that obesity or overweight decreased in adolescence and adult life when the individual was breastfed for at least 3 months.

2.5.2 Benefits for mothers

There are also certain essential health benefits of breastfeeding for mothers. According to NCCFN (2010), 22% of reduction in the prevalence of overweight and obesity was associated with breastfeeding practice due to mothers with breastfeeding are more likely to return their pre- pregnancy weight. Breastfeeding practice is also good for mother's health in term of preventing haemorrhage, anaemia, reducing their risk of cardiovascular disease, ovarian cancer, breast cancer and decrease the possibility of getting osteoporosis (Ahluwalia *et al.*, 2012; NCCFN, 2010; Pérez-Ríos *et al.*, 2008). In addition, breastfeeding practice also brings economical and family benefits. It can reduces the expenses of family on purchasing the infants formula and reduce the costs

for treating infants' illness due to their immune system are strengthened by breastfeeding (Ahluwalia *et al.*, 2012; NCCFN, 2010; Pérez-Ríos *et al.*, 2008).

2.6 Mode of delivery methods and breastfeeding practices

The mode of delivery method was associated with breastfeeding (Ahluwalia *et al.*, 2012; Chien & Tai, 2007; Orun *et al.*, 2010; Pérez-Ríos *et al.*, 2008; Prior *et al.*, 2012; Rowe - Murray & Fisher, 2002; Zanardo *et al.*, 2010). A systematic review included 53 studies and meta-analysis included 48 studies done by Prior *et al.* (2012) to determine the association between CD and breastfeeding outcomes. Result from the study demonstrated that the rates of breastfeeding initiation were significantly lower among women with CD if compared with women undergone VD. This showed CD was negatively associated with breastfeeding initiation. However, no significant association was found between CD and full breastfeeding or exclusive breastfeeding at 6 months among women who initiated breastfeeding. On the other hand, in the subtypes of caesarean delivery, elective CD was significantly reduced early breastfeeding in comparison with VD. However, no effect was found for emergency CD (Prior *et al.*, 2012).

A cross-sectional study conducted by Pérez-Ríos *et al.* (2008) in a representative sample of 1695 of Puerto Rico women who aged 15 to 49 years by using an interviewer-administered questionnaire to examine the relationship of CD and breastfeeding initiation. Similarly, there were a significant lower proportion of women who undergone CD initiated breastfeeding if compared with those undergone VD. Women who had a

CD delayed their breastfeeding initiation during their hospital stay (Rowe - Murray & Fisher, 2002). In the study of Rowe - Murray & Fisher (2002), CD has been shown as a significant barrier to the implementation of BFHI Step 4 which is helping mother to initiate breastfeeding within first half hour of birth. As its result, there was a difference of the timing of breastfeeding initiation among VD and CD group. The time to the first breastfeeding was longest among CD group if compared with VD group. Among women with VD, time to first breastfeed was shorter among women with spontaneous VD than those with induced VD (Rowe - Murray & Fisher, 2002).

Similar result was also showed in the study of Zanardo *et al.* (2010). Breastfeeding prevalence in hospital is significantly lower after CD, the time interval between birth and first breastfeeding was longer among women undergone CD. Besides this, CD were associated with the decreased rate of exclusive breastfeeding too when compared with VD. However, this study shown there was no difference found in breastfeeding duration between elective CD and emergency CD. In another study of Orun *et al.* (2010), the negative association between CD and breastfeeding initiation was significant within first three hours after gave birth but it was not significant after three hours birth.

In the study of Chien & Tai (2007), it was found that women with CD delay their breastfeeding initiation during hospital stay if compared with women with VD. Women with CD more likely to initiated breastfeeding after 30 minutes of birth. Hence, the result had shown that CD was a risk factor for the timing of breastfeeding initiation. Besides this, women with CD were less likely to breastfeed exclusively at one month

and three months of postpartum whereas induced VD only affected the breastfeeding at three months of postpartum. This study showed CD and induced VD were negatively associated with breastfeeding duration. On the other hand, the study of Watt *et al.* (2012) reported that breastfeeding initiation was not associated with the mode of delivery (CD and VD) but it was associated with delivery methods subtypes (planned or emergency CD and induced or spontaneous VD). As its result, women with induced VD and emergency CD were more likely to initiate breastfeeding in comparison of those with spontaneous VD and elective CD. For breastfeeding duration, the results showed that mode of delivery were not associated with breastfeeding at six weeks after delivery (Watt *et al.*, 2012).

One study have reported that mode of delivery methods have no effect on breastfeeding initiation but duration (Ahluwalia *et al.*, 2012). A longitudinal follow up study was conducted by Ahluwalia *et al.* (2012) by the using the data (2005-2006) from the longitudinal Infant feeding Practices Study II to assess the association between delivery method and breastfeeding initiation, breastfeeding at four weeks, six months and overall duration. As its result, mode of delivery methods was not associated with breastfeeding initiation but it associated with breastfeeding duration. Women with assisted VD were significant less likely to breastfeed at four weeks and six months of postpartum whereas women with emergency CD were less likely to breastfeed at 6 months of postpartum. However, similar result as the study of Zanardo *et al.* (2010), no significant association was found on breastfeeding with either elective CD or emergency CD (Ahluwalia *et al.*, 2012). For intention to breastfeed, women with planned CD were less intended to breastfeed their infants and less favourable attitude towards

breastfeeding compared with those with other delivery methods (Ahluwalia *et al.*, 2012). As overall, the association between mode of delivery methods and breastfeeding are still inconsistent.

2.7 Possible complications of caesarean section which influence breastfeeding

Initiation of breastfeeding delayed among mothers who undergone CD can be explained by several complications which commonly associated with CD. Postoperative pain after a caesarean section leads to uncomfortable position and physical limitations for breastfeeding among women with CD (Karlstrom *et al.*, 2007; Lin *et al.*, 2008). The experienced pain was a also potential factor to delay mother and infant skin to skin contact and this in turn to affect breast milk stimulation and production (Lin *et al.*, 2011). Another study of Chalmers *et al.* (2010) found that women with CD held their infant too late, less likely to hold them in naked during first maternal skin contact and less likely to put their infant to the breast in the first two hours after delivery (Chalmers *et al.*, 2010). Hence, these reasons caused women with CD had less mother and infant skin to skin contact experiences and in turn affect breastfeeding.

Furthermore, effect of anesthetic agents was believed to affect infant's sucking ability and in turn influence breastfeeding (Lin *et al.*, 2011; Sakalidis *et al.*, 2013; Wittels *et al.*, 1998). There are studies found that different type of analgesia after caesarean birth affect infant's tongue and nipple movement and neurobehavioral scores (Sakalidis *et al.*, 2013). Delayed mouth movements and delayed sucking response due to effect of analgesia affect the efficacy of breastfeeding (Wittels *et al.*, 1998). Besides this,

with exposure of body part during breastfeeding (Amir & Donath, 2007) become possible barriers for breastfeeding.

From the aspect of ethnicity, in this study, maternal ethnicity was not associated with the timing of breastfeeding initiation but it was associated with maternal intention to continue breastfeeding after discharged. Based on the result, 99.6% of Malay mothers had intention to continue breastfeeding after delivery if compared with Chinese and Indian group. This result was similarly consistent with another study conducted by Chan and Asirvatham (2001) at Hospital Seri Manjung (HSM) in Perak where the results showed that highest breastfeeding rate was among Malay mothers (95%) followed by Indian (69%) and Chinese (36%). However, the association of maternal ethnicity and their intention towards breastfeeding continuation in this study was obtained may be due to the reason of almost all the women in this study (99.2%) regardless ethnicity had intention to continue to breastfeeding and only two women (one Malay and one Chinese) were no intention to do that. Small sample size and majority of Malay participants were recruited are also may be the determinant for this association.

In this study, other socio-demographic factors included maternal age, educational levels, employment, monthly household income, parity and husband support were not associated with the timing of breastfeeding initiation and maternal intention to continue breastfeeding respectively. This result obtained may be due to sample size was small in this study. In contrast, several previous studies demonstrated that these socio-demographic factors were associated with breastfeeding initiation and duration (Amin *et al.*, 2011; Brand *et al.*, 2011; Chin *et al.*, 2008; Heck *et al.*, 2006; Li *et al.*, 2004; Ong *et al.*

al., 2005; Orun *et al.*, 2010; Park *et al.*, 2003; Scott *et al.*, 2001; Tan, 2009, 2011; Vieira *et al.*, 2010; Youngwanichsetha, 2013).

5.6 Maternal reproductive health status and breastfeeding

The major diagnosis of women during their pregnancy in this study included diabetes, cardiovascular disease (CVD), hypertension and anaemia. Association was only found between diabetes and the timing of breastfeeding initiation in this present study. Mothers with diabetes were less likely to initiate breastfeeding within 30 minutes after birth. This result was similarly consistent with a previous review done by Taylor *et al.* (2005) which reported that diabetes were adversely affect breastfeeding initiation. Possible reasons were infants delivered by mothers with diabetes had high chance to get macrosomia, prematurity, congenital malformation and other complications which trigger to longer separation between mother and their infant after birth, this condition delayed breastfeeding initiation (Taylor *et al.*, 2005). On the other hand, the result of this study was in contra with the study of Pérez-Ríos *et al.* (2008) which shown diagnosis of diabetes was not significantly associated with breastfeeding initiation. In this study, result revealed that CVD, hypertension and anaemia were not significantly associated with timing of breastfeeding initiation and this result also similarly consistent with the observation from the previous study (Pérez-Ríos *et al.*, 2008).

CHAPTER SIX

CONCLUSION

6.1 Summary

This present study was conducted to determine the association of caesarean and vaginal delivery on timing of breastfeeding initiation and intention to continue breastfeeding practice after discharged among postpartum women who delivered their babies in HUSM. All women in this study initiated breastfeeding and majority of them had intention to continue their breastfeeding up to two years. Strong association was found between mode of delivery (caesarean and vaginal delivery) and timing of breastfeeding initiation. However, mode of delivery was not significantly associated with mother's intention towards breastfeeding continuation. Maternal socio-demographics and their health status were also assessed throughout this study. Maternal BMI and diabetes were found to be associated with timing of breastfeeding initiation while maternal ethnicity was associated with maternal intention to continue to feed their infants with breast milk after discharged from hospital. This study highlighted delivery method was a determinant factor for the timing of breastfeeding initiation.

6.2 Strengths and Limitations of the study

6.2.1 Strengths

This finding could be a preliminary data for further research on the factors related with breastfeeding among postpartum women in HUSM. This study could also

serve a future reference for health professionals to improve the environment for breastfeeding and strengthen the practice of breastfeeding initiation at hospital.

6.2.1 Limitation

Several limitations in this study should be acknowledged. First, most of the parameters of this study was measured by using interview-administered questionnaire, whereby it depends on subjective self-reporting from study participants. They may under/over report the information. These might lead to information bias and affect the validity of the finding in this study. Generalizability to other ethnic population was also limited due to the predominant ethnic of study participants were Malay. Besides this, the association of delivery method with breastfeeding duration and other types of breastfeeding practices such as exclusive breastfeeding and complementary breastfeeding were not assessed thoroughly in this study due to time constraints. Only timing of breastfeeding initiation and intention towards breastfeeding continuation were assessed at the time of interview. In addition, subtypes of delivery methods (spontaneous vs induced VD and emergency vs elective CD) were not collected in this study.

6.3 Recommendation

Further studies which involve assessment of subtypes delivery methods and possible mechanism linked to the barriers of breastfeeding among women with caesarean birth are recommended. Follow-up studies or longitudinal studies are also suggested to involve maternal breastfeeding practices up to 6 months or 2 years in order

to investigate the association of delivery methods with breastfeeding duration and type (exclusive and mixed feeding).

Late timing of breastfeeding initiation among women with caesarean birth during hospital stay should be a public health concern for the implementation of BFHI Step 4. Health professionals and hospital staffs should help and support women with caesarean section to improve their early initiation of breastfeeding and increase or maintain the rate of breastfeeding in this group. As recommendation, educational program at clinic or ward at O&G department should be developed and reinforced with the objective of increasing women's knowledge about the benefits of breastfeeding and selection of natural delivery methods (spontaneous vaginal delivery).

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APPENDICES

APPENDIX A: Approval letter from HREC USM



Jawatankuasa Etika Penyelidikan Manusia USM (JEPeM)
Human Research Ethics Committee USM (HREC)

12th February 2015

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JEPeM Code : USM/JEPeM/14110451

Protocol Title : Effect of Caesarean and Vaginal Delivery on Breastfeeding Practices among Postpartum Women at Hospital Universiti Sains Malaysia (Hospital USM), Kubang Kerian, Kelantan.

Dear Mr/Miss.,

We wish to inform you that your study protocol has been reviewed and is hereby granted approval for implementation by the Jawatankuasa Etika Penyelidikan Manusia Universiti Sains Malaysia (JEPeM-USM). Your study has been assigned study protocol code **USM/JEPeM/14110451**, which should be used for all communication to the JEPeM-USM related to this study. This ethical clearance is valid from **February 2015** until **January 2016**.

The following documents have been approved for use in the study.

1. Research Proposal

In addition to the abovementioned documents, the following technical document was included in the review on which this approval was based:

1. Patient Information Sheet and Consent Form (English version)
2. Patient Information Sheet and Consent Form (Malay version)
3. Questionnaires

Attached document is the list of members of JEPeM-USM present during the full board meeting reviewing your protocol.

While the study is in progress, we request you to submit to us the following documents:

1. Progress report using the JEPeM-USM FORM 3(B) 2014: Continuing Review Application Form every 1 year from date of approval (NOTE: In view of active ethical clearance, this report is mandatory even if the study has not started or is still awaiting release of funds.)
2. Any changes in the protocol, especially those that may adversely affect the safety of the participants during the conduct of the trial including changes in personnel, must be submitted or reported using JEPeM-USM FORM 3(A) 2014: Study Protocol Amendment Submission Form.
3. Revisions in the informed consent form using the JEPeM-USM FORM 3(A) 2014: Study Protocol Amendment Submission Form.
4. Reports of adverse events (if any) including from other study sites (national, international) using the JEPeM-USM FORM 3(G) 2014: Adverse Events Report.
5. Notice of early termination of the study and reasons for such using JEPeM-USM FORM 3(E) 2014.
6. Any event which may have ethical significance.
7. Any information which is needed by the JEPeM-USM to do ongoing review.

8. Notice of time of completion of the study using JEPeM-USM FORM 3(C) 2014: Final Report Form.
9. Application for renewal of ethical clearance 90 days before the expiration date of this approval through submission of JEPeM-USM FORM 3(B) 2014: Continuing Review Application Form.

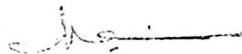
Please note that forms may be downloaded from the JEPeM-USM website: www.jepem.kk.usm.my

Jawatankuasa Etika Penyelidikan (Manusia), JEPeM-USM is in compliance with the Declaration of Helsinki, International Conference on Harmonization (ICH) Guidelines, Good Clinical Practice (GCP) Standards, Council for International Organizations of Medical Sciences (CIOMS) Guidelines, World Health Organization (WHO) Standards and Operational Guidance for Ethics Review of Health-Related Research and Surveying and Evaluating Ethical Review Practices, EC/IRB Standard Operating Procedures (SOPs), and Local Regulations and Standards in Ethical Review.

Thank you.

"ENSURING A SUSTAINABLE TOMORROW"

Very truly yours,



PROF. DR. MOHD SHUKRI OTHMAN
Deputy Chairperson
Jawatankuasa Etika Penyelidikan (Manusia) JEPeM
Universiti Sains Malaysia



USM UNIVERSITI
SAINS
MALAYSIA

Jawatankuasa Etika Penyelidikan Manusia USM (JEPeM)
Human Research Ethics Committee USM (HREC)

Date of meeting: 18 December 2014
Venue : Meeting Room, Centre for Research Initiatives,
Clinical and Health Sciences, USM Kampus Kesihatan.
Time : 9.00 a.m – 2.00 p.m
Meeting No : 298

Universiti Sains Malaysia
Kampus Kesihatan,
16156 Kubang Kerian,
Kelantan, Malaysia.
T: 069 - 767 3000 ssmk 2351/2362
F: 069 - 767 2351
E: jepem@usm.my
www.jepem.kk.usm.my

Members of Committee of the Jawatankuasa Etika Penyelidikan (Manusia), JEPeM Universiti Sains Malaysia who reviewed the protocol/documents are as follows:

Member (Title and Name)	Occupation (Designation)	Male/ Female (M/F)	Tick (✓) if present when above items, were reviewed
Deputy Chairperson : Professor Dr. Mohd Shukri Othman	Deputy Chairperson of Jawatankuasa Etika Penyelidikan (Manusia), JEPeM USM	M	✓ (Deputy Chairperson)
Secretariat: Miss Siti Fatimah Ariffin	Research Officer	F	✓
Members :			
1. Prof. Wan Abdul Manan Wan Muda	Lecturer, School of Health Sciences	M	✓
2. Professor Dr. Nik Hazlina Nik Hussain	Lecturer, School of Medical Sciences	F	✓
3. Associate Professor Dr. Nor Azwany Yaacob	Lecturer, School of Medical Sciences	F	✓
4. Associate Professor Dr. Suzina Sheikh Abd Hamid	Lecturer, School of Medical Sciences	F	✓
6. Dr. Haslina Taib	Lecturer, School of Dental Sciences	F	✓
7. Mr. Haji Ismail Hassan	Community Representative	M	✓
8. Mrs. Zawiah Abu Bakar	Community Representative	F	✓

The Jawatankuasa Etika Penyelidikan (Manusia), JEPeM of Universiti Sains Malaysia is in compliance with International Conference on Harmonization-Guidelines for Good Clinical Practice (ICH-GCP) guidelines and Declaration of Helsinki.

PROFESSOR DR. MOHD SHUKRI OTHMAN
Deputy Chairperson
Jawatankuasa Etika Penyelidikan (Manusia), JEPeM
Universiti Sains Malaysia

APPENDIX B: Approval letter from HUSM



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Pejabat Pengarah
Office of the Director

Ruj. Kami : HUSM/11/020/ Jld.

Tarikh : 26 Februari 2015

Lum Pei Teng
Pelajar Ijazah Tahun 4
Program Sains Pemakanan
Pusat Pengajian Sains Kesihatan (PISK)
Kampus Kesihatan USM
16150 Kubang Kerian, KELANTAN

Jalan Raja Perempuan Zainab II
16150 Kubang Kerian, Kelantan
Telefon : 609-7673001 / 3002 / 3003
Faks : 609-7673007
husm@kb.usm.my
http://www.h.usm@kb.usm.my

Tuan/Puan,

Permohonan Kebenaran Untuk Menjalankan Kajian di Wad 2 Topaz Obstetrik & Ginckologi di Hospital USM

Tajuk Kajian: "Effect of Caesarean and Vaginal Delivery on Breastfeeding Practises among Postpartum Women at Hospital Universiti Sains Malaysia".

Perkara di atas dengan segala hormatnya adalah dirujuk.

2. Sukacita dimaklumkan bahawa pihak pengurusan hospital ini telah meluluskan permohonan tuan/puan menjalankan projek tersebut di hospital ini tertakluk kepada syarat-syarat sedia ada seperti berikut:

- 2.1 Identiti pesakit/staf dan keluarga hendaklah dirahsiakan.
- 2.2 Gambar-gambar langsung (secara jelas) yang melibatkan pesakit/staf tidak boleh diambil.
- 2.3 Sebarang bentuk laporan mengenai penyelidikan ini tidak boleh diterbitkan tanpa kebenaran bertulis dari Pengarah Hospital ini.
- 2.4 Data-data yang dikumpulkan hanya dibenarkan untuk perbincangan akademik sahaja.
- 2.5 Satu salinan penyelidikan ini hendaklah dihantarkan kepada Pengarah HUSM.
- 2.6 Tidak mengganggu perawatan pesakit dan perjalanan klinik sedia ada.
- 2.7 Sila maklum kepada ketua unit/jabatan yang terlibat.

3. Sehubungan itu, tuan/puan boleh berhubung terus dengan pihak-pihak yang berkenaan untuk urusan selanjutnya.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Memastikan Kelestarian Hari Esok

(DR. NIK MIN AHMAD)

Timbalan Pengarah Kanan (Klinikal)



APPENDIX C: Information Sheet (English version)

RESEARCH INFORMATION

Research Title : **Association of Caesarean and Vaginal Delivery on Breastfeeding Practices among Postpartum Women at Hospital Universiti Sains Malaysia (HUSM)**

Researcher's Name : **Ms Lum Pei Teng**

INTRODUCTION

You are invited to participate in a voluntary research study to assess the association of caesarean and vaginal delivery on breastfeeding practices among postpartum women in the postnatal ward 2 Topaz of Obstetrics and Gynaecology HUSM. Breastfeeding initiation is defined as the provision of maternal breast milk to infants within one hour of birth. In the study of Prior et al. (2012), researchers found that caesarean section had negative impact on breastfeeding. Besides this, there are other factors that affect breastfeeding such as socio-demographics and maternal health status during pregnancy.

This study requires you to be interviewed and answer the questions in the questionnaire that the study provided. Before you agree to participate in this study, it is important that you have to read and understand the content of this form. It describes about the purpose of the study, qualification of participation, study procedures, possible benefits, risks and confidentiality. You have the rights to quit from this study at any time. If you agree to participate in this study, you will receive a copy of this form for you to keep.

PURPOSE OF THIS STUDY

This present study aimed to identify the association of caesarean and vaginal delivery on breastfeeding initiation among postpartum women in the postnatal ward 2 Topaz of Obstetrics and Gynaecology HUSM.

QUALIFICATION OF PARTICIPATE

You are qualified to be in this study if:

- ✓ You aged 18- 49 years
- ✓ Your gestational age \geq 37 weeks
- ✓ You delivered a live singleton infant
- ✓ You are willing to give informed consent

You are cannot take part in this study if:

- ✓ You delivered multiple infants
- ✓ Your infant admitted to NICU

STUDY PROCEDURES

Once you agree to participate in this study, you will be interviewed to answer a questionnaire which consisting of 3 sections. Section A is regarding your socio-demographic background. Section B will assess your delivery methods, parity and some information about your breastfeeding practices. Section C will assess your medical problem during pregnancy. Estimated time to complete an interview and questionnaire is around 30-40 minutes.

POSSIBLE BENEFITS

Result obtained from this study is about the effect of caesarean and vaginal delivery on breastfeeding practice. Throughout this interview and study, your awareness and knowledge about the importance of breastfeeding may increase. This study may also initiate more assisting from health care staffs and nurses on your breastfeeding initiation in hospital.

RISKS

This study did not include any real risk. You may need to give your time in co-operation to answer the questions.

PARTICIPATION IN STUDY

Your participation in this study is entirely voluntary. You may refuse to participate in the study or you may stop participation in the study at anytime, without a penalty or loss of benefits to which you are otherwise entitled. Your participation also may be stopped without your consen

QUESTIONS

If you have any questions about this study or your rights, please contact:

Ms Lum Pei Teng
School of Health Sciences,
Universiti Sains Malaysia,
Health Campus, 16150,
Kubang Kerian, Kelantan.
H / P No: 017- 7498012
E-Mail: peiteng1118@my.com

Dr Sharifah Syed Abdullah Zahhura
School of Health Sciences,
Universiti Sains Malaysia,
Health Campus, 16150,
Kubang Kerian, Kelantan.
H / P No: 019-2322355
E-Mail: zahhura@kk.usm.my

If you have any questions regarding the Ethical Approval, please contact:

Encik Mohd Bazlan Hafidz Mukrim
Setiausaha Jawatankuasa Etika Penyelidikan (Manusia) USM
Pusat Inisiatif Penyelidikan- Sains Klinikal & Kesihatan, USM
Kampus Kesihatan.
No tel : (09) 767 2354/ (09) 767 2362
E- Mail : bazlan@usm.my/ jepem@usm.my

CONFIDENTIALITY

Your personal information will be kept confidential by the researchers and will not be made publicly available unless disclosure is required by law. Data obtained from this study that does not identify you individually may be published or given to regulatory authorities involved. By signing this consent form, you authorize the record review, information storage and data transfer described above.

SIGNATURES

To be entered into the study, you or a legal representative must sign and date the signature page.

APPENDIX D: Consent Form (English version)

CONSENT FORM FOR PARTICIPANT

**Participant Consent Form
(Signature Page)**

Research Title : Association of Caesarean and Vaginal Delivery on Breastfeeding Practices among Postpartum Women at Hospital Universiti Sains Malaysia (HUSM)

Researcher's Name: Ms Lum Pei Teng

To participate, you or your legal representative must sign this page. By signing this page, I am confirming the following:

- I have read all the information in the Patient Information and Consent Form include any information regarding the risk in this study and I have had sufficient time to consider the information.
- All of my questions have been answered satisfactorily.
- I voluntarily agree to participate in this research study, compliance with the study procedures and provide necessary information to doctors, nurses and other staff members as requested.
- I may terminate my participation in the study at any time.
- I have received a copy of the Participant Information and Consent Form to keep for myself.

Name of Participant (Print or Type)

Code Number

Participant I/C No (New)

No. I/C (Old)

Signature of Participant or Legal Representative

Date (dd/MM/yy)

Name & Signature of Interviewer

Date (dd/MM/yy)

Name & Signature of Witness

Date (dd/MM/yy)

Note: i) All subject/patients who are involved in this study will not be covered by insurance.

APPENDIX E: Information Sheet (Malay version)

MAKLUMAT KAJIAN BAGI PESERTA

Tajuk Kajian : **Perkaitan Kelahiran melalui Kaedah Pembedahan Caeserean dan secara normal terhadap Amalan Penyusuan Ibu dalam Kalangan Ibu Selepas Bersalin di Hospital Universiti Sains Malaysia (HUSM)**

Nama Penyelidik : **Cik Lum Pei Teng**

PENGENALAN

Anda dipelawa untuk menyertai satu kajian penyelidikan secara sukarela untuk mengkaji perkaitan bersalin melalui pembedahan caesarean dan secara normal terhadap permulaan penyusuan ibu di wad 2 Topaz Obstetrik dan Ginekologi HUSM. Permulaan penyusuan ibu bermaksud pemberian susu badan ibu kepada bayi dalam tempoh sejam selepas bersalin. Dalam kajian Prior et al. (2012), penyelidik mendapati bahawa pembedahan caesarean memberi kesan yang negatif terhadap penyusuan ibu jika dibandingkan dengan kaedah secara normal. Di samping itu, terdapat faktor-faktor lain yang memberi kesan kepada penyusuan ibu seperti faktor soslo-demograf dan status kesihatan semasa mengandung.

Kajian ini memerlukan anda untuk melibatkan diri dalam satu temu bual dan menjawab soalan-soalan dalam borang soal selidik yang disediakan. Sebelum anda bersetuju untuk menyertai kajian penyelidikan ini, adalah penting untuk anda membaca dan memahami borang ini. Borang ini menghuraikan tujuan kajian, prosedur, manfaat yang mungkin, risiko dan hak anda untuk menarik diri daripada kajian ini pada bila-bila masa. Sekiranya anda menyertai kajian ini, anda akan menerima satu salinan borang ini untuk disimpan sebagai rekod anda.

TUJUAN KAJIAN

Kajian ini bertujuan untuk mengkaji perkaitan bersalin melalui pembedahan caesarean dan secara normal terhadap amalan penyusuan ibu di wad 2 Topaz Obstetrik dan Ginekologi HUSM.

KELAYAKAN PENYERTAAN

Anda layak untuk menyertai kajian ini sekiranya:-

- ✓ Anda berumur 18- 49 tahun
- ✓ Usia Kandungan anda \geq 37 minggu
- ✓ Anda telah melahirkan bayi yang hidup
- ✓ Anda bersetuju untuk menyertai kajian ini

Anda tidak layak menyertai kajian ini sekiranya:-

- ✓ Anda telah melahirkan anak kembar atau lebih
- ✓ Bayi anda sedang berada dalam NICU

PROSEDUR-PROSEDUR KAJIAN

Sekiranya anda bersetuju menyertai kajian ini, anda akan diminta untuk melibatkan diri dalam suatu temu bual dan menjawab soalan-soalan yang merangkumi 3 bahagian. Bahagian A adalah berkenaan dengan latar belakang sosiodemografi. Bahagian B akan bertanya tentang jenis cara kelahiran anak, jenis pariti dan maklumat yang berkaitan amalan penyusuan ibu. Bahagian C akan menanyakan status kesihatan semasa mengandung. Masa yang diambil untuk melengkapkan temu bual dan borang soal selidik ini adalah selama 30-40 minit.

MANFAAT YANG MUNGKIN

Keputusan soal selidik menggambarkan kesan bersalin melalui pembedahan caesarean dan secara normal terhadap penyusuan ibu. Melalui temu bual dan kajian ini, kesedaran dan kepentingan penyusuan ibu akan meningkat. Kajian ini juga dapat meningkatkan kesedaran kakitangan penjagaan kesihatan dan jururawat untuk memberi bantuan pada permulaan penyusuan ibu di hospital.

RISIKO

Kajian ini tidak mengandungi sebarang risiko yang nyata. Anda mungkin perlu memberikan sedikit masa dalam temu bual dan menjawab soalan-soalan dalam boring soal selidik tersebut.

PENYERTAAN DALAM KAJIAN

Penyertaan anda dalam kajian ini adalah secara sukarela. Anda berhak menolak untuk menyertai kajian ini atau anda boleh menamatkan penyertaan anda pada bila-bila masa, tanpa sebarang denda atau kehilangan manfaat yang sepatutnya anda perolehi. Penyertaan anda juga mungkin boleh ditamatkan oleh ketua projek yang terlibat dalam kajian ini tanpa persetujuan anda.

PERSOALAN

Sekiranya anda mempunyai sebarang soalan mengenai prosedur kajian ini atau hak-hak anda, sila hubungi:

Ms Lum Pei Teng
School of Health Sciences,
Universiti Sains Malaysia,
Health Campus, 16150,
Kubang Kerian, Kelantan.
H / P No: 017- 7498012
E-Mail: peiteng1118@my.com

Dr sharifah Zalhura Syed Abdullah
Pusat Pengajian Sains Kesihatan,
Universiti Sains Malaysia,
Kampus Kesihatan, 16150,
Kubang Kerian, Kelantan.
H/P No : 019-2322355
E-Mail : zalhura@kk.usm.my

Sekiranya anda mempunyai sebarang soalan berkaitan kelulusan etika kajian ini, sila hubungi:

Encik Mohd Bazlan Hafidz Mukrim
Setiausaha Jawatankuasa Etika Penyelidikan (Manusia) USM
Pusat Iniatif Penyelidikan- Sains Klinikal & Kesihatan, USM Kampus
Kesihatan.
No tel : (09) 767 2354/ (09) 767 2362
E- Mail : bazlan@usm.my/ jepem@usm.my

KERAHSIAAN

Maklumat soal-selidik anda akan dirahsiakan oleh penyelidik dan tidak akan didedahkan secara umum melainkan jika ia dikehendaki oleh undang-undang. Data yang diperolehi dari kajian yang tidak mengenal pasti anda secara perseorangan mungkin akan diterbitkan atau diberikan kepada pihak berkuasa yang berkenaan. Maklumat soal-selidik anda mungkin akan disimpan dalam komputer untuk diproses. Dengan menandatangani borang persetujuan ini, anda membenarkan penelitian rekod, penyimpanan maklumat dan pemindahan data seperti yang dijelaskan di atas.

TANDATANGAN

Untuk dimasukkan ke dalam kajian ini, anda atau wakil sah anda mesti menandatangani serta mencatatkan tarikh halaman tandatangan.

APPENDIX F: Consent form (Malay version)

BORANG KEIZINAN BAGI PESERTA

Borang Keizinan Peserta (Halaman Tandatangan)

Tajuk Kajian : Perkaitan Kelahiran melalui Kaedah Pembedahan Caeserean dan secara normal terhadap Amalan Penyusuan Ibu dalam Kalangan Ibu Selepas Bersalin di Hospital Universiti Sains Malaysia (HUSM)

Nama Penyelidik: Cik Lum Pei Teng

Untuk menyertai kajian ini, anda atau wakil sah anda mesti menandatangani mukasurat ini. Dengan menandatangani mukasurat ini, saya mengesahkan yang berikut:

- Saya telah membaca semua maklumat dalam Borang Maklumat dan Keizinan Peserta ini termasuk apa-apa maklumat berkaitan risiko yang ada dalam kajian dan saya telah pun diberi masa yang mencukupi untuk mempertimbangkan maklumat tersebut.
- Semua soalan-soalan saya telah dijawab dengan memuaskan.
- Saya, secara sukarela, bersetuju menyertai kajian penyelidikan ini, mematuhi segala prosedur kajian dan memberi maklumat yang diperlukan kepada doktor, para jururawat dan juga kakitangan lain yang berkaitan apabila diminta.
- Saya boleh menamatkan penyertaan saya dalam kajian ini pada bila-bila masa.
- Saya telah pun menerima satu salinan Borang Maklumat dan Keizinan Peserta untuk simpanan peribadi saya.

Nama Peserta (Dicetak atau Ditaip)

No. Code

No. Kad Pengenalan Peserta (Baru)

No. K/P (Lama)

Tandatangan Peserta atau Wakil Sah

Tarikh (dd/MM/yy)

Nama& Tandatangan Individu yang Mengendalikan Perbincangan

Tarikh (dd/MM/yy)

Nama Saksi dan Tandatangan

Tarikh (dd/MM/yy)

Nota: i) Semua subjek/pesakit yang mengambil bahagian dalam projek penyelidikan ini tidak dilindungi insuran

APPENDIX G: Interview-administered Questionnaire (English version)

Respondents' Code:
Date:



Interviewer-administered Questionnaire

**Research Title: Association of Caesarean and Vaginal
Delivery on Breastfeeding Practices among Postpartum
Women at Hospital Universiti Sains Malaysia (HUSM)**



Researcher's Name: Lum Pei Teng/ Dr. Sharifah Zahura Syed Abdullah/ Dr Adibah Ibrahim

This questionnaire contains 3 subsections.

TEL. NO.: _____

SECTION A: PERSONAL DETAILS AND SOCIO- DEMOGRAPHICS

INSTRUCTION: Please fill in participant's information and tick (✓) the MOST ACCURATE option.

1. Maternal Age at delivery: _____ years
2. Maternal Weight: _____ kg
3. Maternal Height: _____ cm
4. Maternal Body Mass Index (BMI): _____ kg/m²

The BMI recorded during FIRST VISIT at clinic during pregnancy

5. Ethnic/Race

- Malays Chinese Indian Others

6. Highest Educational Level:

- Never go to school
 Primary School
 Secondary School
 Diploma
 University
 Postgraduate

7. Work Status:

Unemployed

Employed

8. Monthly household income (RM) : _____

SECTION B: DELIVERY METHODS, PARITY AND BREASTFEEDING PRACTICES)

INSTRUCTION: Please tick (✓) the MOST ACCURATE option.

1. How was your new baby delivered?

Caesarean delivery

Vaginal delivery

2. Is this baby your first child?

Yes

No

3. Did your husband prefer and support you breastfeeding?

Yes

No

4. When did you initiate breastfeeding after your delivery?

Within/ After _____ minutes/ hours

INSTRUCTION FOR ONLY QUESTION 5: Please tick (✓) the related option. *You can choose MORE THAN ONE option.*

5. What are the problems that you faced during breastfeeding initiation?

- No any problems
- I was too tired
- I felt pain/ discomfort
- My baby was sleepy/ less suckling
- I would not have enough breast milk
- My nipples were sore and cracked
- My breast engorged
- Others: _____

INSTRUCTION: Please tick (✓) the MOST ACCURATE option.

6. Do you plan to continue with breastfeeding after discharged?

- Yes → (Please answer QUESTION 7)
- No

7. For how long do you plan to continue with the breastfeeding?

_____ weeks _____ months

SECTION C: REPRODUCTIVE HEALTH STATUS/ DIAGNOSIS DURING PREGNANCY

INSTRUCTION: Please tick (✓) the MOST ACCURATE option.

1. Do you have any medical problem during your pregnancy?

No

Yes, please specify:

Diabetes

Cardiovascular disease

Hypertension

Anaemia

Others: _____

Thank You

APPENDIX H: Interview-administered Questionnaire (Malay version)

No. Siri:
Tarikh:



Borang Soal Selidik

**Tajuk Kajian: Perkaitan Kelahiran melalui Kaedah
Pembedahan Caeserean dan secara Normal terhadap Amalan
Penyusuan Ibu dalam Kalangan Ibu Selepas Bersalin di
Hospital Universiti Sains Malaysia (HUSM)**



Nama Penyelidik: Lum Pei Teng/ Dr. Sharifah Zahura Syed Abdullah/ Dr Adibah Ibrahim

Borang ini mengandungi 3 bahagian.

NO. TEL: _____

BAHAGIAN A: MAKLUMAT PERIBADI DAN SOSIODEMOGRAFI

ARAHAN: Sila tandakan (\checkmark) pada petak yang berkenaan.

1. Umur ibu semasa mengandung: _____ tahun
2. Berat badan ibu: _____ kg
3. Ketinggian ibu: _____ cm
4. Indeks Jisim Badan (BMI) Ibu: _____ kg/m²

*** BMI yang dicatatkan pada pemeriksaan kali pertama di klinik
semasa mengandung***

5. Bangsa:
 Melayu Cina India Lain- lain
6. Taraf pendidikan yang tertinggi:
 Tidak Bersekolah
 Sekolah Rendah
 Sekolah Menengah
 Diploma
 Universiti
 Pascasiswazah

7. Status Perkerjaan:

Tidak kerja

Kerja,

Kerja sendiri

Kerja sepenuh masa

Kerja separuh masa/ sambilan

8. Pendapatan isi rumah bulanan (RM) : _____

BAHAGIAN B: KAEDAH BERSALIN, PARITI DAN AMALAN PENYUSUAN IBU)

ARAHAN: Sila tandakan (✓) pada petak yang berkenaan.

1. Apakah jenis kaedah bersalin anda?

Pembedahan

Normal

2. Adakah bayi ini anak pertama anda?

Ya

Tidak

3. Adakah suami anda memberi sokongan kepada anda untuk menyusu ibu?

Ya

Tidak

4. Bilakah anda mula menyusu ibu selepas bersalin?

Dalam / Selepas _____ minit/ jam

ARAHAN BAGI SOALAN 5: Sila tandakan (✓) pada petak yang berkenaan. *Anda Boleh pilih MELEBIHI satu pilihan*

5. Apakah masalah yang anda hadapi semasa mula menyusui badan selepas bersalin?

- Tiada apa-apa masalah
- Saya rasa terlalu letih
- Saya rasa sakit badan/ tidak selesa
- Bayi saya mengantuk
- Susu badan saya tidak mencukupi
- Puting saya sakit dan merekah
- Payudara saya bengkak
- Lain-lain: _____

ARAHAN: Sila tandakan (✓) pada petak yang berkenaan.

6. Adakah anda merancang untuk meneruskan penyusuan ibu selepas bersalin?

- Ya → (Sila Jawab SOALAN 7)
- Tidak

7. Berapa lama anda merancang untuk meneruskan penyusuan ibu?

_____ minggu _____ bulan

**BAHAGIAN C: STATUS KESIHATAN SEMASA MENGANDUNG /
DIAGNOSIS SEMASA MENGANDUNG**

ARAHAN: Sila tandakan (√) pada petak yang berkenaan.

1. Adakah anda mempunyai apa-apa masalah kesihatan semasa mengandung?

Tidak

Ya, sila nyatakan:

Penyakit kencing manis

Penyakit kardiovaskular

Penyakit tekanan darah tinggi

Anemia

Lain-lain: _____

----- *Terima kasih* -----