INTENTION AND FACTORS ASSOCIATED WITH INITIATION AND ACTUAL BREASTFEEDING PRACTICES AMONG POST ELECTIVE-CAESAREAN DELIVERY WOMEN IN KELANTAN: A PROSPECTIVE COHORT STUDY

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LIST OF SYMBOLS

<	less than
>	more than
=	equal to
α	alpha
β	beta
%	percentage
n	minimum required a sample size
Z	value of standard normal distribution
Δ	precision
P	expected proportion

LIST OF ABBREVIATIONS

BFHI	Baby Friendly Hospital Initiative
CI	Confidence Interval
df	Degree of freedom
DHS	Demographic Health Survey
EBF	Exclusive Breastfeeding
HRPZ II	Hospital Raja Perempuan Zainab II
IFI	Infant Feeding Intention
IQR	Interquartile Range
MICS	Multiple Indicator Cluster Survey
MLR	Multiple Logistic Regression
MOH	Ministry of Health
NEBF	Non-Exclusive Breastfeeding
NHMS	National Health Morbidity Survey
NMRR	National Medical Research Register
RM	Ringgit Malaysia
ROC	Receiver Operating Characteristic
OR	Odd Ratio
SD	Standard Deviation
UNICEF	United Nation Children Education Fund
USM	Universiti Sains Malaysia
WHO	World Health Organization
SLR	Simple Logistic Regression
SSC	Skin to Skin Contact

NIAT DAN FAKTOR BERKAITAN PERMULAAN DAN AMALAN SEBENAR PENYUSUAN SUSU IBU DALAM KALANGAN WANITA SELEPAS PEMBEDAHAN CAESAREAN ELEKTIF DI KELANTAN: SATU KAJIAN KOHORT PROSPEKTIF

ABSTRAK

Pembedahan caesarean adalah faktor penting yang menyebabkan niat untuk menyusu susu ibu, memulakan penyusuan awal serta amalan penyusuan susu ibu secara eksklusif selama enam bulan menjadi rendah. Kajian ini bertujuan untuk menentukan niat dan faktor berkaitan permulaan dan amalan sebenar penyusuan susu ibu dalam kalangan wanita selepas melahirkan bayi secara pembedahan caesarean elektif di Kelantan. Ia menggunakan kaedah kajian kohort prospektif. Sejumlah 171 orang wanita yang dimasukkan ke dua buah hospital tertiari di negeri Kelantan untuk pembedahan caesarean telah mengambil bahagian di dalam kajian ini. Satu set soalan berstruktur telah digunakan untuk mendapatkan pembolehubah yang diperlukan. 77.2% responden mempunyai niat yang sangat kuat/kuat untuk menyusui bayi sebelum pembedahan. Selepas pembedahan,73.7% daripada wanita memulakan penyusuan susu ibu dalam masa satu jam dan ia adalah berkait secara signifikan dengan wanita yang tidak pasti bayinya kelihatan mengantuk (OR 0.40, 95% CI : 0.03, 5.83), bayi yang menerima sentuhan kulit ke kulit (OR 14.42, 95%CI :3.58, 58.06) dan wanita yang mengamalkan penyusuan susu ibu eksklusif semasa hospitalisasi (OR 36.37, 95% CI :5.60, 236.24). Perkadaran penyusuan susu ibu eksklusif pada satu, tiga dan enam bulan adalah 80.1%, 59.6%, dan 42.0%. Faktor yang di dapati berkait dengan penyusuan tidak eksklusif pada satu bulan adalah umur anak yang terdahulu iaitu wanita yang mempunyai anak yang berumur kurang dua tahun sehingga lebih lima tahun, wanita yang tidak menyusui anak terdahulu secara eksklusif (OR 3.78, 95% CI: 1.39, 10.29) dan wanita yang tidak yakin

mempunyai susu yang mencukupi (OR 4.83, 95% CI: 1.06,21.96). Pada tiga bulan, faktor yang berkaitan penyusuan tidak eksklusif adalah wanita yang tidak menyusui anak terdahulu secara eksklusif (OR 3.72, 5% CI: 1.69, 8.16) dan wanita yang sangat kerap/kerap beranggapan tiada susu (OR 4.97, 95% CI : 1.67, 14.85). Pada enam bulan, faktor yang berkaitan penyusuan tidak eksklusif adalah wanita yang sangat kerap/kerap beranggapan tiada susu (OR 10.6 95% CI : 2.41, 41.99), kadang-kadang/jarang-jarang mengalami luka puting (OR 0.21, 95% CI : 0.06, 0.72) dan sangat kerap/kerap mengalami sakit payudara apabila bayi menghisap (OR 4.74, 95% CI: 1.09, 20.56). Peratus wanita yang mempunyai niat penyusuan yang kuat atau sangat kuat adalah tinggi, namun begitu perkadaran wanita yang memulakan penyusuan dalam masa satu jam masih tidak memuaskan. Prevalen penyusuan eksklusif juga semakin berkurang apabila bayi meningkat usia. Oleh itu, pendidikan berterusan oleh pengamal kesihatan bermula dari tempoh antenatal adalah penting untuk menambahbaik niat penyusuan dan untuk mengekalkan penyusuan eksklusif sehingga enam bulan.

INTENTION AND FACTORS ASSOCIATED WITH INITIATION AND ACTUAL BREASTFEEDING PRACTICES AMONG POST ELECTIVE-CAESAREAN DELIVERY WOMEN IN KELANTAN: A PROSPECTIVE COHORT STUDY

ABSTRACT

Caesarean delivery is found to be a significant factor for low breastfeeding intention, initiation and exclusive breastfeeding (EBF) practice for six months duration. This study aimed to determine the intention and factors associated with breastfeeding initiation and actual breastfeeding practices among post-elective caesarean delivery women in Kelantan. It employed a prospective cohort study design. A total of 171 women admitted for elective caesarean delivery at two tertiary hospitals in Kelantan participated in this study. A set of structured questionnaires was used to obtain the variables of interest. 77.2% of respondents had a very strong/strong strength of intention to breastfeed their infant before caesarean delivery. After caesarean delivery, 73.7% of women initiated breastfeeding within one hour and it was significantly associated with women who were not sure that their infant looked sleepy (OR 0.40, 95% CI : 0.03, 5.83), infants who received skin to skin contact (OR 14.42, 95% CI:3.58, 58.06) and women who practiced EBF during hospitalization (OR 36.37, 95% CI :5.60, 236.24). The proportion of EBF at one, three, and six months was 80.1%, 59.6%, and 42.0% respectively. Factors found to be associated with non exclusive breastfeeding (NEBF) practice at one month were women last child age between less than two years to more than five years, women who did not practice EBF for her last child (OR 3.78, 95% CI: 1.39, 10.29) and women who never felt confident that her breast milk is adequate (OR 4.83, 95% CI: 1.06,21.96). At three months, factors associated with NEBF practice were women who did not practice EBF for her last child (OR 3.72, 5% CI: 1.69, 8.16) and women who

were very often/often perceived no milk (OR 4.97, 95% CI : 1.67, 14.85). At six months, factors associated with NEBF practice were women who were very often/often perceived no milk (OR 10.6, 95% CI : 2.41, 41.99), women who were sometimes/seldom experienced cracked nipples (OR 0.21, 95% CI : 0.06, 0.72) and very often/often experienced breast pain when baby suckled (OR 4.74, 95% CI: 1.09, 20.56). The women who had very strong/strong strengh of breastfeeding intention before caesarean delivery was relatively high, however proportion of women who initiated breastfeeding within one hour was still unsatisfactory. The prevalence of women who exclusively breastfed their infants was reduced as the child grew older. Therefore, continuous education by health practitioners started from the antenatal period is important to improve breastfeeding intention and to sustain the EBF practice until six months.

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Human milk is the most complete food for newborn to six months of age and continues to be an important source of nutrition and antibodies in the second half of the first year of life and beyond (Bar-Yam and Darby, 1997). For that reason, the World Health Organization (WHO) and United Nation Children Education Fund (UNICEF) recommended that infants should be exclusively breastfed for the first six months of life and complementary food should be introduced at the age of six months (WHO/UNICEF, 1989). Exclusive breastfeeding (EBF) refers to the act of feeding infants solely with breast milk. This includes breastfeeding from a wet nurse and feeding of expressing breast milk and infants who are given vitamins, minerals, medicines, holy water, a drop of syrups in addition to breast milk (WHO/UNICEF, 1989).

Breastfeeding intention during the prenatal phase is a very important driver for breastfeeding (Leclair *et al*., 2015). It is a powerful predictor of short-term breastfeeding outcomes in women delivering both at term and prematurely (Colaizy *et al*.,2013). Researchers confirmed that intention to breastfeed is one of the factors associated with non-successful breastfeeding (Abdul Hamid *et al*., 2017; Huang *et al*., 2017). They also found that having intention to breastfeed was associated with positive breastfeeding attitude. High breastfeeding intention also drives the women to initiate breastfeeding five times more likely, than those having low intention (Tria Astika *et al*.,2016).

Delivery methods may also affect breastfeeding initiation and duration (Zanardo *et al*., 2010). The study found that emergency and elective caesarean deliveries are similarly associated with a decreased rate of EBF compared with vaginal delivery. From the study, they found that only 3.5% post-caesarean delivery women gave breastfeeding as compared 71.5% of vaginal delivery women breastfeed their baby in the delivery room. They also found that a longer interval occurred between birth and first breastfeeding in the newborn delivered by caesarean delivery (Zanardo *et al.*, 2010).

The systematic review of breastfeeding after caesarean delivery found that the rates of early breastfeeding (any initiation or at hospital discharge) were lower after caesarean delivery compared with after vaginal delivery and lower after pre-labor but not after in-labor caesarean delivery (Prior *et al*., 2012). A similar finding was also found in a study done among Puerto Rican post-delivery women in which caesarean delivery were negatively related to breastfeeding initiation (Pérez-Ríos *et al*.,2008). Another study was done among Mexican women also found that caesarean delivery was a risk factor for the low initiation of breastfeeding but was unrelated to breastfeeding duration among women who breastfed for one month or more (Perez-Escamilla *et al*.,1996).

Multiple studies have found that caesarean delivery have been shown to be a barrier to breastfeeding initiation (Batal and Boulghaurjian, 2005; Cakmak and Kuguoglu, 2007; Perez-Escamilla *et al*., 1996). This happens after caesarean section in which the women becomes a surgical patient with all the inherent risks and problems (Cakmak and Kuguoglu, 2007). The mechanism by which caesarean section affects breastfeeding initiation is thought to be related to the fact that this surgical procedure has a longer recovery period than vaginal birth and can cause serious complications including pain,

uterine haemorrhage, infections and loss of mobility in the women (Liu *et al*., 2002, 2005; Lydon-Rochelle *et al*., 2000). All these aggravated health outcomes can compromise the women's ability to breastfeed not only by prolonging maternal-infant separation but also by forcing women to concentrate more on their recovery, rather than on their baby's nutritional needs (Liu *et al*., 2002, 2005; Lydon-Rochelle *et al*., 2000; Perez-Escamilla *et al*., 1996).

1.2 Problem statement

1.2.1 Caesarean delivery is a risk factor for non-exclusive breastfeeding (NEBF) practice.

Caesarean section is the most common major surgical procedure implemented in pregnant women. An earlier report on the caesarean section rates in government hospitals in Malaysia show an increasing trend. The percentage of caesarean section in public hospitals in Malaysia had increased from 10.5% in the year 2000 to 21.9% in 2010 (Figure: 1.1) (Ravindran, 2008; Sivasampu *et al*., 2011).

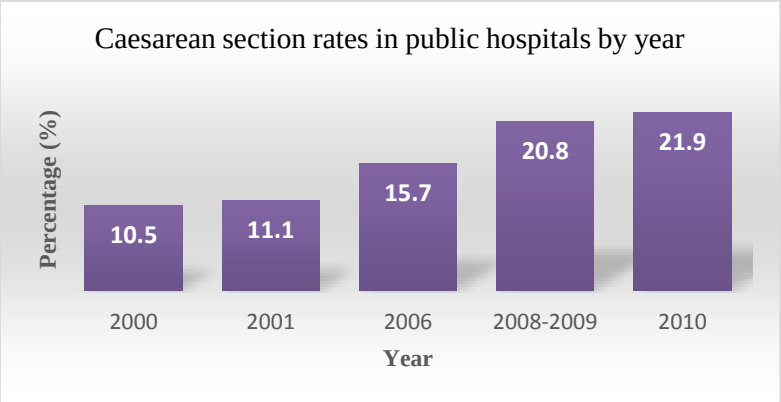

Figure 1.1 Caesarean section rates in public hospitals in Malaysia
(Souce: Ravindran, 2008; Sivasampu *et al*., 2011)

In 2006, the highest caesarean rate was Malacca with 25.4% of women who underwent caesarean delivery and the lowest was the Sabah with a caesarean rate of 10.9%. For Kelantan state, 11.5% or 2806 of women underwent caesarean section in 2006 (Ravindran, 2008). Unpublished data from the Hospital Raja Perempuan Zainab II (HRPZ II) and Hospital Universiti Sains Malaysia (Hospital USM) showed that caesarean delivery rate was increasing in trend which was 17.3% or 3833 and 18.4% or 4464 of women underwent caesarean delivery in 2013 and 2014 respectively (Obstetric and Gynaecology Department HRPZ II, 2014; Obstetric and Gynaecology Department Hospital USM, 2014). It was low as compared to the overall caesarean section rate in four South East Asian countries, in which 27% of women had a caesarean section, with rates varying from 19% to 35% between countries (Festin *et al*., 2009).

Globally, caesarean sections also showed an increase in trend from an average of 13 percent in 2005 to more than 20 percent in 2017. All regions have witnessed a large increase in rates of caesarean sections, apart from Sub-Saharan Africa, where rates have remained somewhat unchanged (WHO, 2018).

Women that undergone caesarean delivery will experience pain at surgical site. A study done by Sausa *et al*. (2009) among 60 women in the post-operative period of caesarean section in São Paulo state found that respondents rated the pain at surgical site after caesarean delivery as moderate and it limits physical activities especially sitting down, standing up, and walking. Apart from that, they also found that the pain causes movements of the women more difficult, and delayed the first women-child contact. A systematic review and meta-analysis that aimed to evaluate the prevalence, causes, and complications of caesarean in Iran found that the most frequent complication in women

undergoing caesarean was the muscular pain, and the most common foetal complications in newborn by caesarean delivery was transient tachypnea (Rafiei *et al*., 2018). In term of pain, breastfeeding did not have a significant analgesic effect on incisional pain after caesarean delivery. However, breastfeeding is associated with oxytocin release that significantly increases cramping pain postpartum most likely due to the oxytocin surge (Resident *et al*., 2015).

Besides the pain, caesarean delivery also generates stress that comes from the flabby flesh of maternal belly, the baby getting ill suddenly, interrupted sleep, inadequate breast milk, and uneasiness due to breast engorgement (Lisien *et al*., 2011). Apart from that, the surgical procedure also negatively related to breastfeeding initiation in multivariable logistic regression models done among Puerto Rican women (Pérez-Ríos *et al*., 2008).

The increasing rate of caesarean section in Malaysia could potentially impact the health of thousands of women and infants due to the fact that this procedure may delays the initiation and continuation of EBF, and thus hinders both women and children from receiving the multiple benefits provided by breastfeeding.

1.2.2 Role of breastfeeding promotion

Breastfeeding promotion is important because women need support to initiate and to sustain optimal breastfeeding and complementary feeding practices within the family, community, workplace and health system (WHO, 2003). It is also important to understand the associated factors for NEBF practice, in planning the breastfeeding education and support. These factors can be used to guide the healthcare

educator/promoter to tackle the real issues that led to the non-exclusivity practice of breastfeeding especially among population in Malaysia. Breastfeeding promotion or breastfeeding intervention can effectively increase breastfeeding duration and exclusivity outcomes among women (Fauzi *et al*., 2018). The Ministry of Health Malaysia (MOH), through the National Health and Morbidity Survey recommended that, the need to strengthen the breastfeeding education and support to women who delivered via caesarean section and address specific problems of breastfeeding among this group of women (Institute for Public Health, NIH, 2017). Abdul Hamid *et al*. (2017) suggested that factors associated with breastfeeding intention such as older age, greater years of education, being a housewife, having a partner and family support for breastfeeding and breastfeeding experience should be considered when planning interventions in promoting exclusive breastfeeding in Malaysia. Tria *et al.* (2016) suggested that breastfeeding intention during prenatal should be measure prior to early promotion, prevention and intervention on breastfeeding. The researchers used a similar instrument, (Infant Feeding Intention Scale) as in this current study, but on a different group of women. Therefore, it is important to measure breastfeeding intention among caesarean women to get a better understanding and to plan a breastfeeding intervention that focusing on their specific needs.

1.3 Justification of the study

This section explains two main justifications that highlight the significance of the study. Firstly, because breastfeeding has many advantages for both women and their infants and caesarean delivery may increase the risk of NEBF practice. From the review of literature, several factors were found to be related to the negative effect on the initiation and continuation of breastfeeding. Mode of delivery is one of these factors,

especially if women delivered via caesarean delivery. This is because caesarean delivery women are more likely requiring support and help to initiate and to continue breastfeeding (Cakmak and Kuguoglu, 2007). Therefore, this study was conducted to identify the intention and actual breastfeeding practices in the first 6 months among post-elective caesarean delivery women and its barrier factors to initiate and to continue exclusive breastfeeding for 6 months duration. With more understanding of the barrier factors in the initiation and to continue breastfeeding among post caesarean delivery women, the health care providers that involved directly with postnatal women can provide more optimal health education and assistance to women who are willing to breastfeed and reduce their discomfort and embarrassment to initiate and continue breastfeeding. The result of this study can be used to educate the health care providers who are involved directly in breastfeeding counseling so that they may have more knowledge and ideas on how to deal with post caesarean women having a problem to initiate and continue breastfeeding.

Secondly, since the study on impacts of caesarean delivery on breastfeeding outcomes among Malaysia population is limited, therefore the result of this study can be used by Malaysia policymakers to improve breastfeeding promotion strategies during prenatal and postnatal period by target caesarean delivery women to receive more help, knowledge, and assistance to initiate and to continue breastfeeding. It is hope that findings of this study able to increase breastfeeding rate among post caesarean delivery women if the barrier factors to initiate and to continue breastfeeding is tackled from the beginning by health care providers by giving more help, assistance, information, and education to them.

1.4 Research questions

Based on the problem statement and justification of the study, the research questions formulated. This study seeks to gain insight into the following research questions.

Research question 1	:	How many percents of women who admitted for elective caesarean delivery have various strength of exclusive breastfeeding intention after elective caesarean delivery?
Research question 2	:	What is the proportion of antenatal women that admitted for elective caesarean delivery has initiated breastfeeding within one hour after elective caesarean delivery?
Research question 3	:	What are the associated factors for breastfeeding initiation among post elective caesarean delivery women in Kelantan?
Research question 4	:	What are the breastfeeding practices for the first six months among post-elective caesarean delivery women in Kelantan?
Research question 5	:	What are the factors associated with non-exclusive breastfeeding practice at one, three and six months among post elective caesarean delivery women in Kelantan?

1.5 Research objectives

In accordance with the research questions, the general research objective of this study aims to determine the intention of breastfeeding and actual breastfeeding practices among post-elective caesarean delivery women in Kelantan.

Specific research objectives.

i. To determine the various strength of exclusive breastfeeding intention among antenatal women admitted for elective caesarean delivery.

ii. To determine the proportion of antenatal women admitted for elective caesarean delivery who has initiated breastfeeding within one hour after elective caesarean delivery.

iii. To determine factors associated with breastfeeding initiation among post elective caesarean delivery women in Kelantan.

iv. To determine the proportion of exclusive breastfeeding practices at one, three and six months among post elective caesarean delivery women in Kelantan.

v. To determine factors associated with non-exclusive breastfeeding (NEBF) practice at one, three, and six months among post elective caesarean delivery women in Kelantan.

1.6 Research hypothesis

Based on the specific objectives, two hypotheses were identified.

i. Socio-demographic data, previous obstetric and breastfeeding history, current obstetric history, the strength of infant feeding intention, and current delivery practice and information are the associated factors for breastfeeding initiation among post elective caesarean delivery women in Kelantan.

ii. Socio-demographic data, previous obstetric and breastfeeding history, current obstetric history, the strength of infant feeding intention, and current delivery practice and information are the associated factors for NEBF practice at one, three, and six months among post elective caesarean delivery women in Kelantan.

1.7 Operational definition

The operational definitions based on an understanding of renowned existing terms and confirming these terms fit, consistent, and suitable for the research objectives, setting, and people where the research was taken place. Two main concepts defined and used as general terms throughout this study. The terms are exclusive breastfeeding and breastfeeding initiation.

1.7.1 Exclusive breastfeeding

Exclusive breastfeeding refers to the act of feeding infants solely with breast milk. This includes breastfeeding from a wet nurse and feeding of expressed breast milk for 6 months of age (180 days). It includes infants who given vitamins, minerals, medicines, holy water, drop of syrups in addition to breast milk (WHO, 2011).

1.7.2 Predominant breastfeeding

Predominant Breastfeeding refers to the act of feeding infants predominantly with breast milk, as well as given other liquids (such as water, glucose water, and fruit juice) except other non-human milk and food-based fluids (Salim *et al*.,2010).

1.7.3 Mixed feeding

Mixed feeding refers to infant receives both breast milk and any other food or liquid including water, non-human milk and formula before 6 months of age (UNICEF, 2015).

1.7.4 Artificial feeding

Artificial feeding refers to the act of feeding infants with solely breast milk substitute (UNICEF, 2015).

1.7.5 Complementary feeding

Complementary feeding is defined as the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk (World Health Organization, 2003).

1.7.6 Breastfeeding initiation

According to WHO and UNICEF, ideally, the early initiation of breastfeeding is putting newborn to the breast within the first hour of life (WHO, 2018). In this study, it refers to the first breastfeeding after caesarean delivery which is within one hour or more.

1.7.7 Skin-to-skin contact (SSC)

SSC is when the infant is placed prone on the women's abdomen or chest with no clothing separating them. It is recommended that skin-to-skin contact begins immediately, regardless of method of delivery (World Health Organization, 1998).

1.7.8 Length of hospital stay

Duration of hospital stay after caesarean delivery.

1.7.9 Intention to breastfeed

Intention means 'something that you want and plan to do' (Cambridge University Press, 2020). Intention to breastfeed refers to plan related to breastfeeding.

1.7.10 Wet nurse

In the past, a woman employed to give her breast milk to another woman's baby (Cambridge University Press, 2020).

1.7.11 Parity

The condition of having given birth to an infant or infants, alive or dead (Farlex Partner Medical Dictionary, 2012).

CHAPTER 2

LITERATURE REVIEW

2.1 Benefits of exclusive breastfeeding to women and infants

"Exclusive breastfeeding (EBF) means that an infant receives only breast milk from his or her mother or a wet nurse, or expressed breast milk, and no other liquids or solids, not even water, with the exception of oral rehydration solution, drops or syrups consisting of vitamins, minerals supplements or medicines"(WHO, 2011). WHO and UNICEF recommends exclusive breastfeeding for the six months or 180 days of life for an optimal infant feeding (WHO, 2011).

EBF for the first six months of life meets the energy and nutrient needs of the vast majority of infants, if the breastfeeding technique is satisfactory (Butte *et al*., 2002). No other foods or fluids are required. Several studies have shown that healthy infants do not need additional water during the first six months if they are exclusively breastfed, even in a hot climate. Breast milk itself contain 88% of water and it is enough to satisfy a baby's thirst (Academy for Development Education, 2002).

Breast milk is a sole nutritional source that cannot be sufficiently replaced by any other food including formula feeds or animal milk. Breast milk contains adequate calories and delivers the right kind of proteins, fat, lactose, vitamins, iron, minerals and enzymes in amounts necessary for the growing infant (Australian Breasfeeding Association, 2017). Studies have proved a number of important health benefits of breastfeeding. These benefits come from the consumption of breast milk and the act of suckling at the breast for both short term and long-term effects. Short-term health benefits include protection against infectious disease, particularly diarrhoea, respiratory and ear

infection, appropriate growth patterns, reduced otitis media, eczema and optimal colonization of the intestinal microbiome. Long-term benefits include reduced risk for obesity and type 2 diabetes, improved scores of cognitive achievement and performance, lower the risk of getting asthma, necrotizing enterocolitis, leukemia during childhood and sudden infant death syndrome (SIDS) (Harder *et al*., 2005; Moore, 2001;Papatesta and Iacovidou, 2013; Stanley *et al*,. 2007; Statement, 2012).

Breastfeeding was also benefited women in a long-term period. A study done by a group of researchers from Pittsburgh, Pennsylvania, examined data from 139,681 postmenopausal women who reported a lifetime history of more than 12 months of lactation were less likely to have hypertension, diabetes, hyperlipidaemia, or cardiovascular disease than women who never breastfed. They also found that women with a single live birth whom breastfed from 7–12 months were significantly less likely to develop cardiovascular disease than women who never breastfed but they were not less likely to be obese (Schwarz *et al*., 2009). In 2015, Jarlenski *et al* have published a finding that demonstrating EBF for at least 3 months resulted in 3.2 pounds greater weight loss at 12 months postpartum compared to women who did not breastfeed or breastfed non-exclusively. A review articles by Salari and Abdollahi concluded that pregnancy might have a protective effect on a bone especially if followed by lactation (Salari and Abdollahi, 2014). Breastfeeding also reduces the risk of breast and ovarian cancer in women who breastfed their infants (Ip *et al*., 2007; Jagsi *et al*., 2017; Li *et al*., 2014).

2.2 Prevalence of exclusive breastfeeding

WHO and UNICEF recommends exclusive breastfeeding starting within one hour after birth until a baby is six months old (WHO and United Nations Children's Fund (UNICEF), 2018). Implementation of Baby Friendly Hospital Initiative (BFHI) is one of the global strategy by WHO and UNICEF to improve the prevalence of exclusive breastfeeding practice. A study done by Perrine *et al*.(2012) found that by increasing baby-friendly hospital practices, mainly giving only breast milk in the hospital may help more women achieve their exclusive breastfeeding intentions.

New release report published on 31st July 2018 in WHO website stated that "an estimated 78 million babies – or three in five – are not breastfed within the first hour of life, putting them at higher risk of death and disease and making them less likely to continue breastfeeding". Most of these babies are born in low-and middle-income countries (Garwood, 2018). The report highlights the importance of initiating breastfeeding within first hour of life for the newborn survival since the breast milk, which is extremely rich in nutrients, and antibodies would prevent the newborn from life-threatening consequences.

Proper feeding of infants and young children during the critical window (from birth to two years old) can increase their chances of survival besides promoting optimal growth and development. Non-breastfed infants and non-exclusively breastfed infant could be at a substantially greater risk of death from diarrhoea or pneumonia than one who is exclusively breastfed (United Nations Children's Fund, 2018).

2.2.1 World prevalence of exclusive breastfeeding practice

In general, global rates of exclusive breastfeeding are low. Global target implies that the global rate of exclusive breastfeeding from 38% for the period 2006-2010 should increase to 50% by 2025. This would lead to approximately 10 million more children being exclusively breastfed until six months of age (WHO and United Nations Children's Fund (UNICEF), 2018). Figure 2.1 shows UNICEF global databases of exclusive breastfeeding rate by country in year 2018. The data based on Multiple Indicator Cluster Survey (MICS), Demographic and Health Survey (DHS) and other nationally representative sources from year 2013 to 2018. In year 2018, UNICEF reported the Global EBF rate was 41%. Highest EBF rate was in Eastern and Southern Africa (56%) followed by South Asia (52%), Latin America (39%) and the lowest EBF rate was East Asia and Pacific (22%). UNICEF concluded that global rates for exclusive breastfeeding have improved modestly with an increase of only 7 percentage points in the last 15 years. They found that only two regions, Eastern and Southern Africa and West and Central Africa, showed the increment of rates by ten percentage points or more during this time-period (United Nations Children's Fund, 2018).

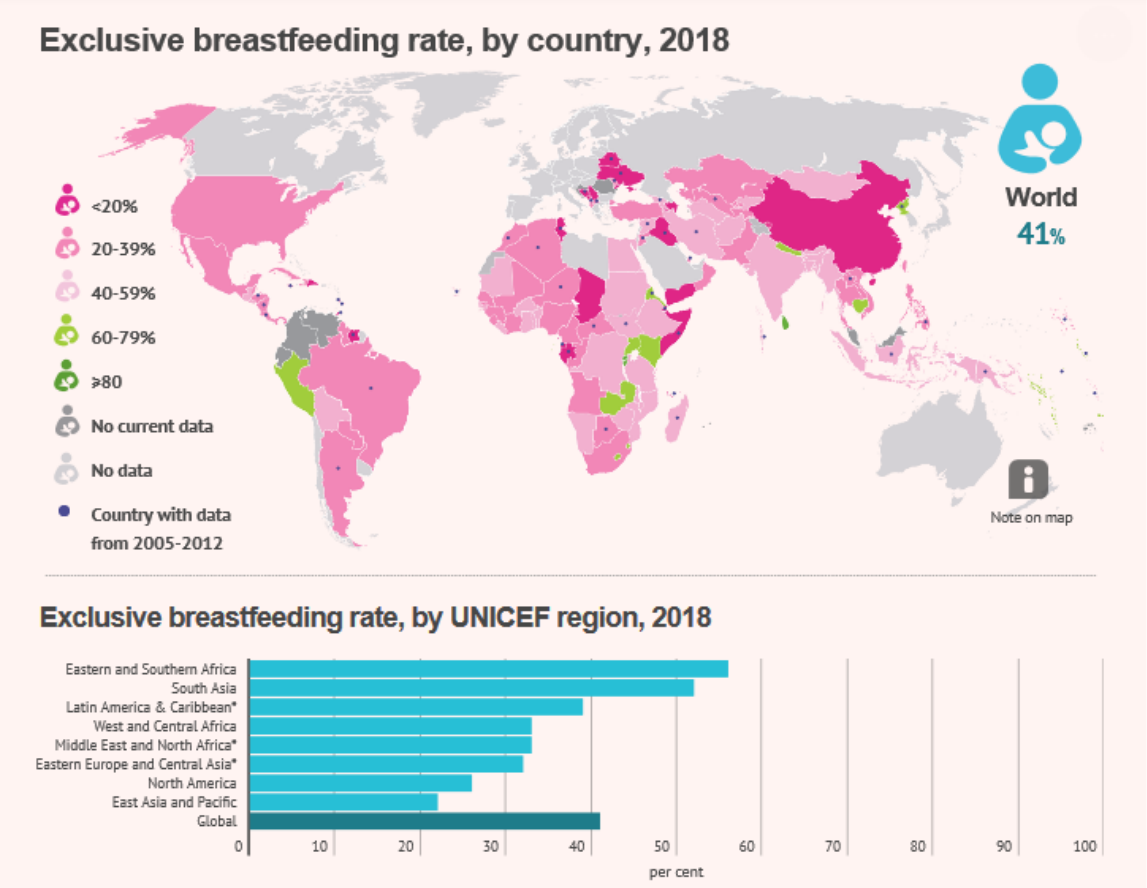

Figure 2.1 Exclusive breastfeeding rate by country in year 2018
(Source: United Nations Children's Fund, 2018)

Earlier data from demographic and health surveys from year 2002 until 2005 in East and Southeast Asia showed that exclusive breastfeeding rates in infants younger than six months were as follows: Vietnam, 15.5%; Timor-Leste, 30.7%; the Philippines, 33.7%; Indonesia, 38.9%; and Cambodia, 60.1% (Senarath *et al*., 2010).

2.2.2 Practice of breastfeeding in Malaysia

The National Coordinating Committee on Food and Nutrition, Ministry of Health Malaysia provided a dietary guideline for Malaysia on EBF in the 'Key message 12'. The message stated that 'Practice exclusive breastfeeding from birth until six months and continue to breastfeed until two years old'. The dietary guidelines were published in 1999 and were revised and launched in 2010 (Salim *et al.*, 2010).

Table 2.1 shows prevalence of exclusive breastfeeding practice by the Second National Health and Morbidity Survey (NHMS II) report in 1996. The report shows only 29% of infants below four months were breastfed exclusively in 1996, even though the prevalence of ever breastfeeding is 95% (Salim *et al*, 2010). The data of exclusive breastfeeding rate only available until four months may be due to the statement of the National Breastfeeding Policy in 1993 that stated "exclusive breastfeeding was recommended for the first four to six months of life and continued up to two years" (Fatimah *et al*., 2010). Therefore, comparison between the exclusivity at six months with the finding in NHMS III (2006) and NHMS 1996 cannot be done. However, the improvement trend in 10 years' time were noted in Malaysia.

Table 2.1 Prevalence of exclusive breastfeeding of infants below the age of four months

	N	Exclusive breastfeeding Prevalence (95% CI)	
*NHMS 1996			
Malaysia	799354	29.0	(26.7, 31.3)
Urban	412666	25.5	(3.5, 28.6)
Rural	386688	32.7	(29.3, 36.1)

(Source Fatimah *et al*., 2010)

The most recent survey on prevalence of exclusive breastfeeding is available in NHMS report in year 2016. The survey was done among 98 963 respondents. Finding of this survey showed that 47.1% of infants were breastfed exclusively until 6 months of age. Exclusive breastfeeding practices for babies below 6 months of age was more common among Malay women, housewives and women with lower education levels. Women from rural areas tend to breastfed longer than urban areas (Institute for Public Health, NIH, 2017).

When compare with findings from the NHMS III 2006, the prevalence of exclusive breastfeeding in Malaysia shows an increment of 32.6% in ten years duration from 14.5% in year 2006 to 47.1% in year 2016. The increment seen in the urban and the rural area. Comparing the increment, the urban area had better increment with 37.5% (from 10.8% to 48.3%) whereas; the rural area shows smaller improvement, which is 23.1% (from 22% to 45.1%). Table 2.2 illustrate the comparison of prevalence of EBF in urban and rural.

Table 2.2 Comparison between NHMS report in year 2006 and 2016 on prevalence of exclusive breastfeeding for infants below - 6 months old

	(n)	Exclusive breastfeeding Prevalence (95% CI)	
NHMS 2016			
Malaysia	98,963	47.1	(43.1, 51.2)
Urban	65,376	48.3	(42.9, 53.7)
Rural	33,587	45.1	(39.6, 50.8)
NHMS 2006			
Malaysia	25,930	14.5	(11.7, 17.9)
Urban	12,794	10.8	(7.7, 14.8)
Rural	13,137	22.0	(16.5, 28.5)

(Source Fatimah *et al*., 2010 and Institute for Public Health, NIH, 2017)

2.3 Factors associated with women's intention to breastfeed exclusively

There are many factors that may influence a women's decision to breastfeed her baby in the future. The factors may be from the women herself or from her support systems: her demographic characteristics, her previous experience of undergoing caesarean delivery, previous breastfeeding experience, diagnosis during pregnancy, indication for the surgery and her spouse or family members' factors (Chien and Tai, 2007; Perez-Escamilla *et al.*, 1997; Tully and Ball, 2014; Zanardo *et al*., 2010).

Women who had undergone caesarean delivery was among the women who had struggling to establish breastfeeding. Some of them had plan for non-exclusive breastfeeding (NEBF) practice due to their concern that their breast milk alone may be insufficient for the baby's growth requirements and infant formula was the main breast milk substitute or supplement considered (Nguyen *et al*., 2018). Saunders *et al*. (2010) used the theory of planned behaviour to describe the relationship among knowledge, age, education, parity, and selected factors of the theory of planned behaviour with the respondent intention to breastfeed. They found that perceived behavioural control and women with older age are best predictor for breastfeeding intentions. They also noted that respondent favourable expectations of the baby's father and health care workers, indicating positive normative beliefs regarding these individual's breastfeeding support. Besides that, other factors includes women's working status, household wealth index, women's health status, breastfeeding education and support from the healthcare providers during antenatal is associated with women's intention to breastfeed exclusively (Hmone *et al*., 2017; Huang *et al*., 2017; Lutsiv *et al*., 2013). Table 2.3 shows the summary of studies that explored the women's intention to breastfeed exclusively.

Table 2.3 Studies exploring the women's intention to breastfeed exclusively

Authors/ Country	Study Design	Context/Main Finding
(Nguyen *et al*., 2018) Viet Nam	A cross-sectional questionnaire survey of women among 286 women in the postnatal wards.	- Most women indicated intent to breastfeed exclusively for six months or more, but this was lower among women of preterm babies and those without post-secondary school education. - High rates of women had intention for exclusive breastfeeding probably reflects high levels of maternal education and successful implementation of the BFHI.
(Saunders-goldson and Nc, 2010) United Sates	A questionnaire survey of pregnant African-American women (AAW) among 95 respondents at two military prenatal clinics.	- Breastfeeding intent was related to AAW's age, education, and perceived subjective norms (social pressures) and behavioral control (success in breastfeeding); only age and perceived behavior-control best "predicted" breastfeeding intent.
(Huang *et al*., 2017) China	This observational study was conducted in 3 hospitals and involved 1260 women. 420 were pregnant women.	- Most women who intended to practice exclusive breastfeeding initially chose to add formula and had breastfeeding problems when discharged from hospital. - Successful breastfeeding depends on antenatal and postnatal breastfeeding education and on support provided by healthcare professionals.
(Hmone *et al*., 2017) Myanmar	A baseline survey for a randomized controlled trial, among 353 pregnant women at 28–34 weeks of gestation.	- This study found that women' intention to EBF was significantly associated with women's working status, her knowledge level, household wealth index and obtaining knowledge from health staff or mobile internet.
(Lutsiv *et al*., 2013) Canada	A Retrospective population-based cohort study at all hospitals in Ontario, among 92 364 respondents women who gave birth to live, term, singletons/twins.	- Breastfeeding intention was shown to be associated not only with various maternal factors, such as age, smoking, and various health problems, but also with antenatal, healthcare provider, and hospital factors.

2.4 Breastfeeding initiation and methods of delivery

Early and uninterrupted skin to skin contact (SSC) between women and infant should be facilitated and encouraged as soon as possible after birth. SSC is when the infant is placed prone on the women's abdomen or chest with no clothing separating them. It is recommended that skin-to-skin contact begins immediately, regardless of method of delivery (World Health Organization, 1998).

Breastfeeding initiation within the first hour of life is very important and could save lives. Study of more than 4,000 children in Tanzania showed that the children face a higher risk of common infections due to the delayed initiation of breastfeeding (WHO, 2018). WHO reported that an estimated 78 million babies – or three in five – are not breastfed within the first hour of life, hence putting them at higher risk of death and disease and making them less likely to continue breastfeeding (Garwood, 2018). Figure 2.2 shows percentage of newborn put to the breast within one hour of birth, by country and region. From figure 2.2, UNICEF 2018 reported that globally about 42% of infants was initiated breastfeeding within first hour of life. Country with highest breastfeeding initiation within first hour of life was Eastern and Southern Africa (65%) followed by Eastern Europe and Central Asia (56%) and the lowest was East Asia and Pacific (32%) (WHO and United Nations Children's Fund (UNICEF), 2018).

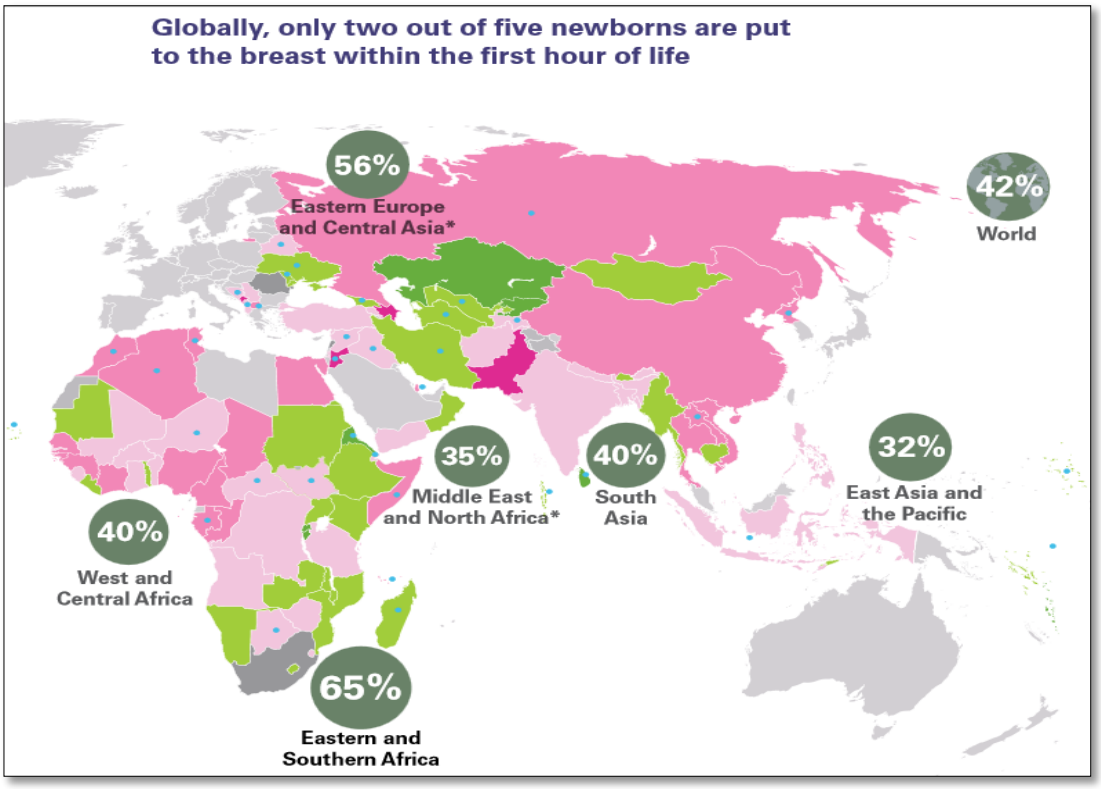

Figure 2.2 Percentage of newborn put to the breast within one hour of birth, by country and region in year 2017

(Source United Nations Children's Fund (UNICEF, 2018)

Breastfeeding initiation is a very important factor for the women to continue breastfeeding later on. A study done by Tengku Alina *et al*. (2013) among Kelantanese women found that, women who initiated breastfeeding more than one hour after delivery and those with more breastfeeding difficulties were more likely to discontinue exclusive breastfeeding. Current recommendations for breastfeeding initiation can be achieved by placing the baby on the women's chest for at least 10 minutes for skin-to-skin contact, put the baby to the breast for sucking within 1 hour after delivery and get nurses or doctors to assist in initiating breastfeeding (Salim, *et al*, 2010). Previously, WHO and UNICEFF had provided guidelines on Baby Friendly Hospital Initiative 1992. The guidelinee stated that women in the maternity ward who have had normal vaginal deliveries and caesarean deliveries should confirm that within a half-hour of

birth, they were given their babies to hold with skin contact, for at least 30 minutes and offered help by a staff member to initiate breastfeeding (WHO/UNICEF, 1989). Moore *et al*. (2014) in their randomized controlled trials comparing early SSC with usual hospital care, found a positive effects of early SSC on breastfeeding at one to four months post birth and breastfeeding duration. However, after caesarean delivery, initiation of breastfeeding may be delayed. The condition of the women or infant sometimes makes delay unavoidable, but it should not be necessary as a routine. After a caesarean section with regional anaesthesia, breastfeeding can often be initiated immediately. With general anaesthesia, breastfeeding can be initiated within a few hours, as soon as the women regains consciousness (Batal and Boulghaurjian, 2005). Due to delayed initiation of breastfeeding after caesarean delivery, a study has found that vaginal delivery was associated with a higher breastfeeding rate at discharge and at the subsequent follow-up seven days, three months and six months of life as compared with elective caesarean delivery baby (Zanardo *et al*., 2010). However, in women who initiated breastfeeding, caesarean delivery had no significant effect on any breastfeeding at six months. A systematic review and meta-analysis on breastfeeding after caesarean delivery also found that, exclusive breastfeeding practice was lower after six months of caesarean delivery. When the analysis was restricted to women who initiated breastfeeding, exclusive breastfeeding practice at six months was not significantly different between caesarean delivery and vaginal delivery groups of women (Prior *et al*., 2012). Study done by Kearney *et al* in 1990 on caesarean delivery and breastfeeding outcomes found a conflicting data. They did not found relationships between delivery type and duration of breastfeeding or pain or fatigue related to breastfeeding. Time of first breastfeeding was not related to breastfeeding duration. Although some investigators have reported that women who have caesarean deliveries or delayed first