

**A STUDY ON THE PROPORTION OF  
UNSUCCESSFUL EXCLUSIVE BREASTFEEDING  
AND ITS ASSOCIATED FACTORS AMONG  
HEALTH CARE PROVIDERS IN HOSPITAL  
UNIVERSITI SAINS MALAYSIA.**

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## ABSTRAK

### KAJIAN MENGENAI NISBAH KEGAGALAN PENYUSUAN IBU SECARA EKSKLUSIF DAN FAKTOR-FAKTOR BERKAITAN DI KALANGAN PENGAMAL PERUBATAN DI HOSPITAL UNIVERSITI SAINS MALAYSIA.

#### **LATAR BELAKANG**

Penyusuan susu ibu telah diiktiraf secara meluas sebagai pemakanan bayi yang optimum dan semula jadi. Walau bagaimanapun, terdapat pelbagai rintangan dan halangan untuk para ibu mengamalkan penyusuan secara eksklusif untuk tempoh enam bulan seperti yang telah disyorkan. Tujuan kajian ini dijalankan adalah untuk mengenal pasti faktor-faktor yang berkaitan dengan kegagalan penyusuan ibu secara eksklusif di kalangan pengamal perubatan di Hospital Universiti Sains Malaysia.

#### **KAEDAH**

Kajian ini adalah bercorak keratan rentas. Ia telah dijalankan bermula dari Jun hingga Disember 2015 dengan menggunakan borang soal selidik versi Bahasa Melayu yang telah divalidasi kepada 295 pengamal perubatan. Ciri-ciri ibu dan sosio-demografi yang tertentu telah dikaji. Kaedah regresi logistik berganda telah digunakan untuk menilai faktor-faktor yang berkaitan dengan kegagalan penyusuan ibu secara eksklusif.

## **KEPUTUSAN**

Prevalens kegagalan penyusuan ibu secara eksklusif di kalangan pengamal perubatan di HUSM adalah 58.3%. Ibu-ibu yang bersalin secara pembedahan (OR 2.31 [95% CI: 1.07, 4.98]), tidak mempunyai susu badan yang mencukupi (OR 4.06 [95% CI: 2.40, 6.89]) dan ibu-ibu yang lebih selesa dengan susu formula (OR 4.40 [95 % CI: 1.45, 13.31]) didapati mempunyai hubungan yang signifikan dengan kegagalan penyusuan ibu secara eksklusif.

## **KESIMPULAN**

Kegagalan penyusuan ibu secara eksklusif di kalangan pengamal perubatan adalah tinggi. Kaedah kelahiran, faktor kecukupan susu ibu dan pilihan ibu untuk penyusuan bayi didapati mempunyai kaitan dengan kegagalan penyusuan ibu secara eksklusif ini.

## **ABSTRACT**

A STUDY ON THE PROPORTION OF UNSUCCESSFUL EXCLUSIVE  
BREASTFEEDING AND ITS ASSOCIATED FACTORS AMONG HEALTHCARE  
PROVIDERS IN HOSPITAL UNIVERSITI SAINS MALAYSIA.

### **BACKGROUND**

Breastfeeding is widely recognized as the optimal and natural form of infant feeding. However, there are many obstacles and barriers towards exclusive breastfeeding to the recommended six months duration for mother to practice it. The aim of our study was to identify associated factors for unsuccessful exclusive breastfeeding among healthcare providers in Hospital Universiti Sains Malaysia.

### **METHODS**

This cross-sectional study was conducted from June 2015 to December 2015 by using a validated Malay version structured self-administered questionnaire to 295 healthcare providers. The selected socio-demographics and maternal characteristics were obtained. Multiple logistic regressions were used to evaluate the associated factors for unsuccessful exclusive breastfeeding.

## **RESULT**

The prevalence of unsuccessful exclusive breastfeeding among healthcare providers in Hospital Universiti Sains Malaysia was reported to be 58.3%. Mothers who deliver via Lower Segment Cesarean Section (OR 2.31[95% CI: 1.07, 4.98]), had inadequate breast milk (OR 4.06 [95% CI: 2.40, 6.89]) and mothers who preferred formula milk (OR 4.40 [95% CI: 1.45, 13.31]) were significantly associated with unsuccessful exclusive breastfeeding.

## **CONCLUSION**

Unsuccessful exclusive breastfeeding among healthcare providers was high. Mode of delivery, adequacy of breast milk and mothers preference for infant feeding showed a significant positive association with unsuccessful exclusive breastfeeding.

## **INTRODUCTION**

Various short and long-term health profits of breastfeeding to infant and mother has been recognized. Not only that, it is also found to be convenient to mother, cost-effective and also pleasant to environment (World Health Organization, 2001). The importance of exclusive breastfeeding in early child nourishment is extensively established.

In congruent with 2001 World Health Assembly Resolution 54.2, Malaysia developed its National Breastfeeding Policy in 1993 and further revised in 2005. It suggested exclusive breastfeeding to newborns until at least six months old. Mothers are also advisable to continue breastfeeding up to two years and beyond with judicious, sufficient and safe complementary food to children. Therefore since delivery, only breast milk should be given to babies, with no other milk or plain water. Introduction of complementary food is only advisable when the baby is six months old. Baby Friendly Hospital Initiative which was introduced by WHO/UNICEF had been adopted by Ministry of Malaysia in 1993 in order to increase breastfeeding practice among Malaysian women.

Apart from promoting sensory and cognitive development, breast milk also protects the infant against common childhood infections such as diarrhea and pneumonia, as well as chronic diseases. It also helps for a quicker recovery during sickness and will indirectly reduce infant mortality. Not only that, breastfeeding also grants maternal health and well-being, in which it helps in pregnancy spacing, reduces the risk of breast and ovarian



cancers, and also helps in family finances (Kramer et al, 2001). Therefore, exclusive breastfeeding practice needs to be enhanced to achieve the maximum benefits for all.

According to Millennium Development Goals Report 2015, Malaysia was able to maintain low infant mortality rates for more than a decade. Although relatively low mortality rates recorded in 1990, which were 13.1 per 1000 live births, further reduction by more than half to 6.2 per 1000 live births was achieved in 2012. It was close to the average mortality rates in high-income and developed nations which were 5.0 per 1,000 live births. In spite this outstanding achievement; there are some concerns that need to be focused on, with more attention on preventable deaths. In Malaysia, infectious and respiratory system diseases of infant were found to be two most common causes of mortality. Further reduction of under-five mortality could be prevented through exclusive breastfeeding (Ismail et al, 2012). With this study, it is hoped that exclusive breastfeeding practice rate among healthcare providers will be improved and later they will encourage society to practice the same.

The national report showed prevalence of child who had ever been breastfed dropped from 92% in 1950 to 78% in 1974 but started to rise in 1988 to 85%. The Third National Health and Morbidity Survey (NHMS) which was carried out in 2006 reported that prevalence of Malaysian women who had ever breastfeed their infants was 94.7%. Unfortunately, only 19.3% practised exclusive breastfeeding until four months and the percentage was further reduced to 14.5% when child was at six months. The prevalence of

exclusive breastfeeding in infants below than four months was significantly reduced by 9.7% as compared to NHMS II (1996). NHMS II also reported higher prevalence of exclusive breastfeeding among non-working mothers (31.3%) compared to employed mothers (25.4%). According to analysis by Ministry of Health in 2005, exclusive breastfeeding rates were high in the first two months but drops afterward when working mothers had to return to paid employment after the period of maternity leave ends.

Health care professionals, namely nursing personnel and medical practitioners (doctors), who have close contact with mothers will play a major role in promoting breastfeeding practice. Their personal breastfeeding experiences will eventually influence their attitude and expertise in counseling and managing breastfeeding issues in patients (Raghavan et al, 2012). However, there is limited data regarding exclusive breastfeeding practices among healthcare professionals in Malaysia. Published data by Sinniah et al. which was carried out among nurses in Malaysia observed that 74.8% partially breastfed their babies at birth. This figure dropped to 35.5%, 19%, 13.5%, 5.4% and 3.5% at 1 month, 2 months, 3 months, 6 months and at 9 to 12 months respectively. The documented main reasons for termination of breastfeeding were work and inadequate breast milk. Other causes were satisfaction with bottle feeding and reluctantly of mother to be tied down to the infant (Sinniah et al, 1980). No proper breastfeeding facilities at the workplace such as having allocated place and time for expressing breast milk was an identifiable risk factor for breastfeeding discontinuation among employed mothers in Malaysia (Amin et al, 2011). Other reasons causing working mothers to stop breastfeeding were negative

thoughts of expressing breast milk and also uncertainty about the cleanliness and safety of expressed breast milk (Ismail et al, 2012).

Meanwhile, the main reasons for discontinuation of breastfeeding among general population of Nigerian mothers were baby continued to be hungry post-feeding, health problem of mother and pain in the breast. Other reasons include insufficient breast milk, returned to employment, baby refusal of breast feeding and baby was not gaining sufficient weight. 84% of breastfeed mothers got encouragement from their own mothers as compared to only 51% from husbands. Personal experience of breastfeeding identified in 65% of successful exclusive breastfeeding mothers (Ojo et al, 2012).

A meta-analysis study in 2009 by Thulier and Mercer showed that biological variables such as insufficient breast milk, health problems of infants, parity of mothers, mode of delivery and physical challenges i.e. sore nipples, mastitis, breast engorgement, and plugged ducts; and social variables such as maternal occupation, number of working hours per week, social support from family members and health care professionals were associated with breastfeeding duration (Thulier and Mercer, 2009).

A study by Sinniah et al. showed significant difference among races in Malaysia in term of the frequency and median duration of breastfeeding. Almost all Malay mothers (90.8%) breastfeed their babies followed by Indians (80%). Surprisingly almost half of the Chinese (46.5%) did not breastfeed. Malays were found to breastfeed their children longer

with median duration of 2.53 months as compared 2.5 and 1.74 months for Indian and Chinese respectively (Sinniah et al, 1980). Similarly, a study by Tan K.L also observed that Chinese mothers were less likely to practice exclusive breastfeeding compared to Malays. He also reported that mother with more than one child and those with term infants were almost twice more likely to exclusively breastfeed. Mothers with supportive husbands and who practiced bed-sharing were 4 times and 1.5 times more likely to exclusively breastfeed (Tan K.L, 2011).

Study by Ouyang et al. in China found low breastfeeding rate among Chinese physician and nurses. 69.2% initiated breastfeeding, however at 4 months, only 19.1% were still breastfeeding and less than 1% continued to breastfeed for more than 1 year. Those younger than 30 years old, undergone Lower Segment Cesarean Section (LSCS) and physician were less likely to breastfeed (Ouyang et al, 2012).

In order to establish successful exclusive breastfeeding, health care workers should follow and abide the Code of Ethics for Marketing of Infant Foods and Related Products, which was last revised in 2008. They are not permitted to accept and dispense free samples of selected products to mothers particularly in health institutions. Apart from that, company personnel should not be given an opportunity to be in direct or indirect contact with mothers and must make sure that they have no access to mothers' or infants' contact details. Neither gift which intended to promote formula milk, complementary foods,

feeding bottles, teats or pacifiers form agents; nor sponsorship from manufacturers should be accepted.

## OBJECTIVES OF THE STUDY

### General Objective

1. To determine the proportion of unsuccessful exclusive breastfeeding and its associated factors among healthcare providers in Hospital Universiti Sains Malaysia.

### Specific Objectives

1. To determine the proportion of unsuccessful exclusive breastfeeding among healthcare providers in Hospital Universiti Sains Malaysia.
2. To identify the associated factors for unsuccessful exclusive breastfeeding among healthcare providers in Hospital Universiti Sains Malaysia.

TITLE PAGE

**Article title: A Study on the Proportion of Unsuccessful Exclusive Breastfeeding and its Associated Factors among Healthcare Providers in Hospital Universiti Sains Malaysia.**

**Running Head: Unsuccessful Exclusive Breastfeeding in HUSM**

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The results of this study are not yet presented in poster or abstract, or at a symposium.

There is no funding received in this study.

## **A Study on the Proportion of Unsuccessful Exclusive Breastfeeding and its Associated Factors among Healthcare Providers in Hospital Universiti Sains Malaysia.**

### **Abstract**

**Background:** Breastfeeding is widely recognized as the optimal and natural form of infant feeding. However, there are many obstacles and barriers towards exclusive breastfeeding (EBF) to the recommended six months duration for mother to practice it. The aim of our study was to identify the associated factors for unsuccessful exclusive breastfeeding (UnEBF) among healthcare providers (HCP) in Hospital Universiti Sains Malaysia (HUSM).

**Methods:** This cross-sectional study was conducted from June 2015 to December 2015 using a validated Malay version structured self-administered questionnaire to 295 HCP. The selected socio-demographics and maternal characteristics were obtained. Multiple logistic regressions were used to evaluate the associated factors for UnEBF.

**Results:** The prevalence of UnEBF among HCP in HUSM was reported to be 58.3%. Mothers who deliver via Lower Segment Cesarean Section (LSCS) (OR 2.31[95% CI: 1.07, 4.98]), had inadequate breast milk (OR 4.06 [95% CI: 2.40, 6.89]) and mothers who preferred formula milk (OR 4.40 [95% CI: 1.45, 13.31]) were significantly associated with UnEBF ( $p < 0.05$ ).

**Conclusions:** UnEBF among HCP was high. Mode of delivery, adequacy of breast milk and mothers preference for infant feeding showed a significant positive association with UnEBF.



**Keywords:** *Unsuccessful exclusive breastfeeding, Healthcare providers, LSCS, Inadequate breast milk, Preference towards formula milk*

## **Introduction**

Breastfeeding and human milk are not only for infant feeding and nutrition, but also has unique non-nutritional benefits to the infant and the mother, where it can optimise infant's and child's growth and development as well as mother's health (1-3). Therefore, exclusive breastfeeding (EBF) practice needs to be enhanced for infants and mothers to experience utmost health benefits.

In congruent with 2001 World Health Assembly Resolution 54.2, the National Breastfeeding Policy was developed in 1993 and further revised in 2005. It suggested EBF to newborns until at least six months old and continued up to two years of age and beyond with judicious, sufficient and safe complementary food (4). Although there are extensive researches showing the benefits of breastfeeding, and lots of strategies undertaken by the government to improve EBF, it is still not widely practiced. The National Health and Morbidity Survey III (2006) reported that 94.7% of Malaysian women have ever breastfeed their infants. Unfortunately, only 19.3% of them practised EBF until four months and the percentage further reduced to 14.5% when child was at six months (5, 6).

There were many factors leading to unsuccessful exclusive breastfeeding (UnEBF) in working mothers such as returned to work, had insufficient breast milk as well as satisfactory previous experience with bottle feeding (7, 8). Duration of maternity leave,

parity of mothers, mode of delivery and gestational age of infant at delivery also influenced the practice of breastfeeding (9, 10). Social background of mothers also played an important role in determination and successfulness of breastfeeding, such as support from husband or mother-in-law and practice of bed sharing with infant (8, 10).

The infant feeding decision is a complex process and it is influenced by psychological and social status, as well as economic factors and health care system (11). As we know, HCP play a major role in promoting breastfeeding practice. Successfulness of the promotion will eventually depends on their knowledge, attitude, motivation as well as communication skills. Their personal breastfeeding experiences will eventually influence their attitude and expertise in counseling and managing breastfeeding issues in patients (12).

The incidence of UnEBF among HCP was expected to be higher than lay person. However, there is limited data regarding prevalence of exclusive or non exclusive breastfeeding among them in Malaysia. This study was conducted to determine the proportion of UnEBF and to identify its associated factors among HCP in HUSM. With this study, it is hoped that EBF practice rate among HCP will be improved and later they will encourage the society to practice the same.

## **Material and Methods**

A cross sectional study was conducted from June 2015 to December 2015 in HUSM, Kelantan. The Human Research Ethic Committee USM (HREC) approved the study protocol on 1<sup>st</sup> June 2015 (USM/JEPeM/14090320).

### *Participants*

A total of 295 HCP participated in this study, consisted of 120 doctors and 175 nurses. This sample size was calculated using a single proportion formula based on a study performed in China (Ouyang at al, 2012), with considering of 20% dropout rate. HCP in all disciplines including medical based, surgical based, dentistry, intensive care unit, operation theatre and laboratory unit were involved in this study. All female nurses and medical doctors with youngest child's age between 6 months to 2 years in HUSM were eligible for the study, whereas single mothers were excluded.

### *Assessment of breastfeeding status and respondent's characteristics*

The structured self-administered questionnaire in Malay (national) language was developed and validated by performing content and face validation. Expert judgment on the degree of relevancy and representativeness for content validation were obtained from 5 panels with different expertise, which were statistician, breastfeeding counselor, obstetrician and those involved in studies regarding breastfeeding. Meanwhile, face validation which included degree of clarity and degree of comprehension was carried out

by interviewing 10 doctors and nurses from nearby health clinics. After reviewing the questionnaire, Content Validity Index (CVI) and Face Validity Index (FVI) were within acceptable level ( $> 0.5$ ).

Breastfeeding information of the participants at the time of data collection was asked. The data collection sheet comprised of two categories: (i) socio-demographic characteristics— age, ethnic, educational status, occupation, workplace (either in clinic or ward), practice of bed sharing, and support from husband as well as mother-in-law; (ii) maternal characteristic – parity, mode of delivery, gestational age of infant at delivery, duration of maternity leave, adequacy of breast milk, either she has breast pain and preference for infant feeding (either toward breastfeeding or formula milk).

In this study, EBF was defined as a mother who gave her child only breast milk (direct or expressed) without additional food or drink, with exclusion of drops or syrups containing vitamins, mineral supplements or medicines for at least the in first six month of infant's life. Bed-sharing was defined as the infant sharing a couch within arm's reach of the mother. Primiparous referred to mother who borne one child, and multiparous were those who borne more than one child.

### *Data collection procedure*

List of total numbers of 1140 female nurses and 1065 female doctors who were working and doing postgraduate study in HUSM from period of June until December 2015 taken from Human Resources Department. After screening based on inclusion and exclusion criteria, only 411 nurses and 393 doctors were eligible for the study. A convenience sampling method was implemented by taking the first 295 participants met due to feasibility of this study. This method was preferred because of time constraint and scheduled conflict between participants and researcher. Related information regarding the study was explained and informed consent was obtained. Privacy and confidentiality of participants and data were respected at all times.

### *Statistical analysis*

Data entry and analyses were performed by using the Statistical Package for the Social Sciences (SPSS) software, version 22. The categorical variables were expressed as the frequency and percentage. Factors potentially associated with UnEBF were screened by simple logistic regression, whereas multiple logistic regressions were used to determine the factors associated with UnEBF while other confounders in the model were adjusted. The statistical test used in the analysis was binary logistic regression. Level of significance was set at  $p < 0.05$ . Meanwhile, measurement of association between independent variables and the outcome were calculated by Odds ratio (OR) and 95% Confidence Interval (CI). The dependent variable was status of breastfeeding, whereas others were independent variables.

## Results

In this study, 295 participants were recruited and the response rate was 100%. A total of 172 participants (58.3%) had UnEBF. The mean age of the study participants was 31.98 (SD 4.17) years old, while, mean duration of breastfeeding was 9.58 (SD 6.74) months. Among those with UnEBF, majority were aged 30 and above (72.1%), Malays (84.3%), had educational level of secondary school or diploma (51.7%) and nurses by occupation (57%). The socio-demographic and maternal characteristics of the participants are summarized in Table 1.

Univariate Logistic Regression showed significant association between socio-demographic characteristics (i.e ethnic, workplace and practice of bed sharing) and maternal characteristics (i.e mode of delivery, gestational age at delivery, duration of maternity leave, adequacy of breast milk, mother had pain at breast and mother's preference for infant feeding) with UnEBF (Table 2). All of these variables with p value less than 0.25 were then included in a multivariate model.

Mode of delivery, adequacy of breast milk and mother's preference for infant feeding were significantly associated with UnEBF when other cofounders are being controlled (Table 3). Mothers who deliver via LSCS had 2.31 higher odd compared to mothers who deliver via spontaneous vaginal delivery (SVD) to have UnEBF (95% CI: 1.07, 4.98). Inadequate breast milk was at 4.06 at odds of UnEBF compared to adequate breast milk (95% CI: 2.40, 6.89). Apart from that, mothers who preferred formula milk

was at 4.40 at odds of UnEBF compared to those who preferred breast milk (95% CI: 1.45, 13.31).

[INSERT TABLE 1]

[INSERT TABLE 2]

[INSERT TABLE 3]

## **Discussion**

A healthy and sufficient nutrition is crucial for child's health and development. The most important period is from birth to two years old as rapid child growth and brain development occurs during this time (NHMS III). Early initiation of breastfeeding will determine successful establishment and length of breastfeeding. Therefore it is recommended that children to be placed to the breast immediately after birth or within one hour (WHO 1998). However, there is still high prevalence of UnEBF from various studies worldwide.

### *Proportion of UnEBF among HCP*

This study showed overall prevalence of UnEBF among HCP in HUSM for the first 6 months post delivery was 58.3%. The prevalence observed in this study was far lower than reported in NHMS III which was conducted in 2006, in which 85.5% of Malaysian population were UnEBF (5, 6). Perhaps, the prevalence decreased tremendously with the help of formulation of The National Breastfeeding Policy in 1993, which was last revised

in 2005 and adaptation of the WHO/UNICEF Baby Friendly Hospital Initiative by Ministry of Health (4, 13). Another reason for a large difference in the prevalence could be due to different population as they did a survey on general Malaysian population whereas our study participants were HCP.

There is a very limited data on the prevalence of breastfeeding among medical personnel in Malaysia. A study by Sinniah et al. (7) in 1980 among 317 nursing personnel of all categories in 5 representative centers in Malaysia revealed that the prevalence of UnEBF at 6 months was 94.6%. There was no known data on breastfeeding practice among medical doctors in Malaysia. We were interested in both groups, as they play a major role in promoting breastfeeding practice since they have close contact with mothers (1, 12, 14). Those who provide antenatal care, should be responsible to discuss the benefits of breastfeeding with their patients, as well as partners and other family members optimally maternal grandmother (15). From a study in Nigeria among 47 female residents' doctors in tertiary health institutions, 38.3% did not practise exclusive breastfeeding. This became a major concern as the practice of EBF among them ought to be higher than the lay women as they have a better knowledge of benefits of breastfeeding (14). Another study among female physicians and nurses in China found out 30.8% did not initiate breastfeeding at all, meanwhile only 19.1% were still breastfeeding at 4 months and only less than 1% continued to breastfeed for more than 1 year (16).



Local study by Amin et al. (17) in 2011 which was conducted among 290 employed mothers in Selangor reported that 51% had discontinued breastfeeding with 54% of them breastfeed less than three months, meanwhile 35% discontinued between three to six months. 12% of mothers discontinued breastfeeding after six months. Their respondents' job varies, which included professional, non-professional or managerial, support staff and also manual workers. Although there were different occupational backgrounds between their study and ours, the prevalence of UnEBF was about the same. It implicated that the practice of breastfeeding in Malaysia among working mothers was reduced to half as infants' age increased up to 6 months.

A study by Warren TK Lee et al. (18) in Hong Kong concluded that housewives had higher percentage of breastfeeding than working mother. They found that most working mothers considered early termination of breastfeeding once they resumed full-time employment after maternal leave had ended because it would be inconvenient for them.

One systematic literature review concluded that there were many obstacles and barriers for working mothers to practise breastfeeding successfully, i.e. breast milk insufficiency, return to work, social support etc (11). Reinforcement of policies that promote breastfeeding among working mothers and implementation of special interventions to tackle breastfeeding problems among them need to be done as this particular group was found to have poor EBF practice (19).

### *Factors associated with UnEBF*

Three significant associated factors for UnEBF among HCP were identified in this study. These factors were mode of delivery, adequacy of breast milk and mother's preference for infant feeding.

A finding from this study showed that mother who undergone Caesarean section were less likely to exclusively breastfeed their babies as compared to those undergone vaginal delivery, which was parallel to a study in China by Ouyang et al. (16). This was also supported by Zanardo et al. (20), who reported that breastfeeding prevalence was significantly higher following vaginal delivery compared with that after cesarean delivery. LSCS rate in Malaysian public hospitals was found to be increased to 15.7% in 2006 from 10.5% in year 2000 (21). As there were negative association between Caesarean deliveries and breastfeeding from many literatures worldwide, women and health care workers should be aware of this matter (22).

The results of our study also showed a significant positive association between inadequate breast milk and UnEBF. Mothers who have inadequate breast milk were less likely to exclusively breastfeeding their babies (7-9, 23, 24). Inadequate breast milk, which can be either real or perceived, is defined as a mother's feeling that her breast milk is not enough to either satisfy her child's hunger or to support sufficient weight gain (25). Mother's perception that her infant was not pleased by only breast milk was cited consistently as a major reason to terminate breastfeeding in all weaning age (43.5% -

55.6%) among 1323 mothers in Georgia, USA (26). A review of 20 published researches over 10 years duration (1996 – 2007) found that most women reported inadequate breast milk as the major problem and became the main reason for early cessation (27). This problem could be due to primary or secondary causes. About 5% of women may be affected by primary inability to fully lactate which is related to hormonal aberration or anatomic breast abnormalities. Meanwhile, secondary causes are much more common and are usually associated with problems in management of breastfeeding (28).

We also found that mothers with preference towards formula milk were more likely to have UnEBF. This might be due to easy access of formula milk in Malaysia and influences from other family members, friends, media, television etc. This was supported by a report that satisfaction with previous experience of bottle feeding had negative influence on mothers' practice of EBF (7). Supplemental feedings which was given either by cup or bottle had an unfavorable effect on breastfeeding duration. Mother's decision, either to breastfeed or bottle-feed her infant were most often made during pre-pregnancy period or during her first trimester (15, 29). Previous study also found out that the most important factors that would have encouraged bottle-feeding mothers to breastfeed include; more information from books, magazines, pre-natal classes, televisions and support from family members (29). Therefore, we need to look further in these issues to help mothers to successfully practice breastfeeding even among HCP.

Although this study design had limitations, the exploratory purpose of the study was achieved. Consistent with the previous literatures, we found out that Non-Malay mothers were UnEBF their babies more frequent (69.2%) than Malay mothers (56.6%) (7, 10). In this study, Non-Malay mother (n=39) consisted of 28 Chinese, 5 Indian and 6 were others i.e Siamese. However, comparison between other than Malay races was unable to be made due to small numbers of participants, which could not represent Malaysian ethnic composition as a whole. According to Department of Statistic Malaysia, Malays and Bumiputera have the largest race composition with 68.6%, followed by Chinese (23.4%), Indians (7.0%) and others are 1.0% (30).

In this study, parity, gestational age at delivery and mothers who practice bed-sharing with babies did not show significant associations with UnEBF. These findings were contrary with previous study by Tan K.L (10, 31). Although both of previous and current studies were done among Malaysian mothers, the larger sample size in previous study might explain the differences. The numbers of participants studied by him were 682, which was greater by two fold from our study. Furthermore, slight difference in socio-demographic characteristics of mothers in previous study, which included non-working mothers with lower educational background, might have contributed as well. In this study, among 217 multiparous women, only 123 of them had previous history of EBF to previous child. Another study in Hong Kong concluded that breastfeeding practice was significantly lower in mothers with one child when compared to those with two or more children (18). This might be due to inexperience in breastfeeding among those with their first child, causing them to be less confident and less skillful in initiating or prolonging the duration of

breastfeeding (18). A multilevel analysis among mothers in East and Southeast Asia (Indonesia, Philippines, Timor-Leste, Vietnam and Cambodia) also reported that first-born babies having the lowest rate of EBF (19).

Shorter duration of maternity leave and lack of support from mother-in-law were related with UnEBF in our study, however the results were not significant. Other study showed that longer maternity leave and family support had a role as a motivator for working mother to breastfeed (14). Another study in United States reported that women who had maternity leave of 1 to 6 weeks had a greater odds of continuing any breastfeeding beyond 6 months, meanwhile those who consumed work at or after 13 weeks post delivery had higher odds of principally breastfeeding beyond 3 months (32). In conclusion, a longer maternity leave was associated with a longer duration of breastfeeding. Contrary, a local study by Amin et al. (17) in 2011 found that longer maternity leave of more than 2 months as an identifiable risk factor for unsuccessful exclusive breastfeeding. From this study, almost all husbands were very supportive towards breastfeeding. Extended families, namely grandmothers, were also an important source of support for new mothers regardless of their parity (33-35).

Our study however did have some limitations. This study was a retrospective study, in which we asked mother who had given birth in the last 6 months to two years to report their experiences on breastfeeding. Although maternal recall on their long term pregnancy related event is considered valid and reliable, there are limitations pertaining to a

retrospective design (36). Specifically in this study, previous breastfeeding experience may have influenced the women's recall and bias. There were 73.6% (n=217) of the mother had one previous child or more.

## **Conclusions**

Majority of healthcare providers has unsuccessful exclusive breastfeeding with a prevalence of 58.3%, and this is worrying. Mothers who delivered via LSCS, mothers who had inadequate breast milk as well as those who preferred formula milk for infant feeding were significantly associated with UnEBF. Measures should be taken to ensure more successful exclusive breastfeeding among HCP as they have responsibilities in promoting breastfeeding in the society.

## REFERENCES

1. Eidelman AI, Schanler RJ, Johnston M, Landers S, Noble L, Szucs K, et al. Breastfeeding and the use of human milk. *Pediatrics*. 2012;**129**(3):e827-e841.doi: 10.1542/peds.2011-3552.
2. Kramer MS, Chalmers B, Hodnett ED, Sevkovskaya Z, Dzikovich I, Shapiro S, et al. Promotion of Breastfeeding Intervention Trial (PROBIT): a randomized trial in the Republic of Belarus. *Jama*. 2001;**285**(4):413-420. Available from: <http://jamanetwork.com>.
3. Ismail TAT, Sulaiman Z, Jalil R, Muda WMW, Man NNN. Breast milk expression among formally employed women in urban and rural Malaysia: A qualitative study. *International breastfeeding journal*. 2012;**7**(1):11. Available from: <http://www.internationalbreastfeedingjournal.com/content/7/1/11>.
4. Organization WH, UNICEF. *Global strategy for infant and young child feeding*: World Health Organization; 2003.
5. Institute for Public Health (IPH). *The Third National Health and Morbidity Survey (NMHS III) 2006. Infant Feeding*. Ministry of Health Malaysia; 2008.
6. Fatimah S, Saadiah H, Tahir A, Imam M, Faudzi YA. Breastfeeding in Malaysia: Results of the Third National Health and Morbidity Survey (NHMS III) 2006. *Malaysian journal of nutrition*. 2010;**16**(2): 195-206.
7. Sinniah D, Chon F, Arokiasamy J. Infant feeding practices among nursing personnel in Malaysia. *Acta Paediatrica*. 1980;**69**(4):525-529.
8. Ojo MA, Opeyemi VO. Constraints to exclusive breastfeeding practice among breastfeeding mothers in Southwest Nigeria: implication for scaling up *International*