

**THE EFFECT OF LACTATION COUNSELLING BY
TELEPHONE ON BREASTFEEDING PRACTICES
AMONG MOTHERS WHO ATTENDED A PUBLIC
HOSPITAL IN KUALA LUMPUR, MALAYSIA**

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ABSTRACT

The exclusive breastfeeding rate at four month in Malaysia has declined from 29.0% in 1996 to 19.3% in 2006, despite the implementation of the National Breastfeeding Policy and the Baby Friendly Hospital Initiative policy in government hospitals since 1993. This thesis research assessed the effects of pro-active lactation counselling provided through telephone among mothers who gave birth in a public hospital in Kuala Lumpur. Two study designs were conducted to achieve the objective of this thesis. A randomized controlled trial was conducted whereby provider-initiated telephone lactation counselling by nursing professionals was rendered twice monthly for six months to mothers who had the intention to breastfeed their newborn infants. This intervention was effective in increasing the exclusive breastfeeding rate at the first month postpartum (intervention vs. control: 84.3% vs. 74.7%, OR 1.83 95% C.I. = 1.05, 3.16) but not at the later postpartum months. The intervention was well accepted by the mothers, found to be helpful, improved the mother's satisfaction with breastfeeding and the mother's sense of comfort with breastfeeding. A qualitative study explored the Lactation Counsellor's opinion on the intervention found that the greatest determinant which affected the provision of telephone-based lactation counselling was the intention of Lactation Counsellors, followed by external constraints. Mothers' influence and behaviour also played an apparent role in the success of telephone counselling. In *conclusion*, this research has shown the promising effects of telephone lactation counselling in increasing the exclusive breastfeeding practice, particularly in the early postpartum months. Future research need to

focus on providing extensive support module at the early postpartum period, among mothers who has higher risk of stopping breastfeeding.

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ABSTRAK

Kadar penyusuan susu ibu eksklusif pada empat bulan di Malaysia telah menurun daripada 29.0% pada tahun 1996 kepada 19.3% pada tahun 2006, walaupun Polisi Penyusuan Kebangsaan dan Inisiatif Hospital Rakan Bayi telah dilaksanakan di semua hospital awam semenjak tahun 1993. Tesis ini menilai pendekatan baru dalam menyediakan sokongan penyusuan susu ibu selepas bersalin, iaitu kaunseling laktasi melalui telefon kepada ibu-ibu yang mempunyai niat untuk menyusukan bayi mereka yang baru lahir. Dua jenis kajian telah dijalankan untuk mencapai objektif tesis ini. **Kajian Rawak Terkawal** mengkaji keberkesanan laktasi kaunseling melalui telefon secara proaktif oleh kaunselor laktasi terhadap amalan penyusuan. Keputusan menunjukkan intervensi ini berkesan dalam meningkatkan kadar penyusuan eksklusif pada bulan pertama selepas bersalin (intervensi lwn. kawalan: 84.3% berbanding 74.7%, OR 1.83 95% CI = 1.05, 3.16), tetapi tidak bagi bulan keempat dan keenam. Intervensi ini diterima baik oleh ibu-ibu, membantu meningkatkan kepuasan dan mewujudkan perasaan selesa dengan penyusuan susu ibu. **Kajian Kualitatif** pula meneroka pandangan Kaunselor Laktasi terhadap pelaksanaan intervensi ini. Faktor penting yang memberi kesan kepada pelaksanaan kaunseling laktasi melalui telefon adalah keinginan Kaunselor Laktasi sendiri, diikuti oleh kekangan luar. Pengaruh dan tingkah laku ibu juga memainkan peranan yang penting dalam kejayaan kaunseling melalui telefon. **Kesimpulannya**, kajian ini telah menunjukkan bahawa kaunseling laktasi telefon mempunyai harapan untuk diketengahkan sebagai salah satu cara sokongan untuk meningkatkan amalan penyusuan susu ibu secara eksklusif, terutama dalam tempoh awal selepas bersalin. Para

penyelidik perlu memberi tumpuan kepada kajian yang menyediakan modul sokongan pelbagai selepas bersalin dikalangan ibu-ibu yang mempunyai risiko menghentikan penyusuan.

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LIST OF ABBREVIATIONS

EBF	Exclusive Breastfeeding
IDI	In-depth Interview
RCT	Randomized Controlled Trial
WHO	World Health Organization
RR	Relative Risk
ARR	Adjusted Relative Risk
OR	Odds Ratios
AOR	Adjusted Odds Ratio
CI	Confidence Interval
LC	Lactation Counsellor
MHKL	Maternity Hospital Kuala Lumpur
UNICEF	United Nations Children's Fund
MOH	Ministry of Health Malaysia
BFHI	Baby Friendly Hospital Initiative
NGO	Non-Governmental Organization

CHAPTER 1: INTRODUCTION

1.1 Breastfeeding as the optimal infant nutrition

Breastfeeding is an optimal infant feeding behaviour that offers considerable benefit to both mothers and infants. In an effort to improve the public's health and to give children a healthy start in life, professional and international organizations (e.g., the World Health Organization and UNICEF) have issued statements; as well as instituted variety of programs, all in favour of promoting, protecting and supporting breastfeeding (Raleigh, 2002; World Health Organization, 1998, 2003a). The activities resulting from the statements and programs of these professional and international organizations have subsequently reversed the downward trend in breastfeeding rates that existed worldwide prior to the last quarter of the last century (A S Ryan, Wenjun, & Acosta, 2002; A S Ryan, 1997; Anne L Wright & Schanler, 2001). The WHO recommends exclusive breast-feeding (BF) for 6 months, with introduction of complementary foods and continued BF thereafter (Michael S Kramer & Kakuma, 2009).

There is sufficient evidence to support the benefits of breastfeeding. Breastfeeding offers vast benefits both to the infants and mothers. Numerous researches on the benefits of breastfeeding for infants have been conducted, and these include studies on infections, neurological development, allergic disorders, growth patterns, diabetes mellitus and inflammatory bowel disease. Aspects of maternal health that have been studied include lactational amenorrhoea, osteoporosis and pre-menopausal breast cancer. It would be beyond the scope of this thesis to appraise the evidence on all these conditions.

1.1.1 Protection against infectious diseases

Many trials which include laboratory and epidemiological studies have provided evidence that breastfeeding provide protection against infection. Breast milk contains a range of anti-infective components that are thought to protect infants against infection and mothers against mastitis (Heinig & Dewey, 1996). Studies have shown that breastfeeding reduces the infants' mortality and morbidity rates, particularly **protecting the infants against infectious diseases** (Agrasada, Ewald, Kylberg, & Gustafsson, 2011; Betrán, de Onís, Lauer, & Villar, 2001; Duijts, Jaddoe, Hofman, & Moll, 2010; Scariati, Grummer-Strawn, & Fein, 1997).

The benefit of protection against infectious diseases was not only applicable in developing countries (Betrán et al., 2001), but extends to the developed countries as well (Scariati et al., 1997). Besides being nutritionally superior to infant formula, human breast milk contains immunoglobulins and antibodies that protect the infant from infections during the first few months of life when the infant's immune system is not well developed. A meta-analysis has reported a markedly reduced mortality (especially due to infectious disease) with breastfeeding even into the second year of life (WHO Collaborative Study Team on the Role of Breastfeeding on the Prevention of Infant Mortality., 2000).

The epidemiologic evidence also has shown that even in developed countries, breastfeeding protects against gastrointestinal and (to a lesser extent) respiratory infection, and that the protective effect is enhanced with greater

duration and exclusivity of breastfeeding (Beaudry, Dufour, & Marcoux, 1995; Howie, Forsyth, Ogston, Clark, & Florey, 1990). One of the important studies of the impact of infant feeding on health was a cohort study on 4164 babies born in Rotterdam, Netherlands between April 2002 and January 2006 (Duijts et al., 2010) regarding the associations of duration of exclusive breastfeeding with infections in the upper respiratory (URTI), lower respiratory (LRTI), and gastrointestinal tracts (GI) in infancy. The authors reported that when compared with never-breastfed infants, those who were breastfed exclusively until the age of 4 months and partially thereafter had lower risks of infections in the URTI (AOR: 0.65; 95% C.I. 0.51–0.83), LRTI (AOR: 0.50; 95% C.I. 0.32–0.79) and GI (AOR: 0.41; 95% C.I. 0.26 –0.64) until the age of 6 months. The protection against LRTI infections went beyond until the age of 7 and 12 months (AOR: 0.46, 95% C.I. 0.31–0.69). Similar tendencies were observed for infants who were exclusively breastfed for 6 months or longer (Duijts et al., 2010).

Other studies have also compared the relative risk of gastroenteritis in breastfed and formula-fed infants. Duffy et al (1986) found a significant reduction in gastroenteritis among infants who were exclusively breast fed for four months (Duffy et al., 1986). Dewey and friends (1995) monitored 87 infants weekly for two years and found that diarrhoeal illness was approximately twice as common amongst formula-fed infants, but no association with respiratory disease (Dewey, Heinig, & Nommsen-Rivers, 1995). However, a prospective study of 500 babies from middle class households found no significant relationship between infant feeding and

gastroenteritis, respiratory illness or otitis media during the first year of life (Rubin et al., 1990). Raisler, Alexander, & O'Campo (1999) reported on the health of 7,092 infants in the US National Maternal and Infant Health Survey (Raisler, Alexander, & O'Campo, 1999). Fully breastfed babies had lower odds ratios for diarrhoea, vomiting and cough or wheeze. Predominantly breastfed babies had lower odds ratios for diarrhoea and cough or wheeze, while those fed equal amounts of breast and formula feeds had lower odds ratios for cough or wheeze. These results suggest that reductions in infection rates are associated with the amount of breastfeeding a baby receives. The PROBIT trial also found a significant reduction in the risk of gastrointestinal infections (M S Kramer et al., 2001).

In neonatal intensive care units, necrotizing enterocolitis is the commonest serious gastrointestinal illness seen. In 1990, Lucas and Cole reported on a study whereby necrotizing enterocolitis developed in 5.5% premature babies (Lucas & Cole, 1990). The authors reported that babies who were exclusively fed formula were 6 - 10 times more likely to have confirmed disease than those fed breast milk alone, and 3 times more common than those who received formula plus breast milk. This study also reported that babies who were born at more than 30 weeks' gestation, confirmed necrotizing enterocolitis was rare in those whose diet included breast milk and the infection was 20 times more common in those fed formula only (Lucas & Cole, 1990).

Important bacterial and hormonal interactions occurred during breastfeeding between the mother and baby, and impact the mouth, tongue, swallow, and eustachian tubes. Previous meta-analyses have shown that lack of breastfeeding and less intensive patterns of breastfeeding are associated with increased risk of acute otitis media, one of the most common infections of childhood. A review of epidemiologic studies indicates that the introduction of infant formula in the first 6 months of life is associated with increased incidence of acute otitis media in early-childhood (Abrahams & Lobbok, 2011).

1.1.2 Respiratory illness

In 1998, the Dundee study group reported on the health of infants up to the age of seven (Wilson et al., 1998). They found that the probability of children ever having respiratory illness was significantly less for those who were exclusively breastfed for at least 15 weeks, 17%, (95% confidence interval 15.9% - 18.1%), than for those who were partially breastfed, 31.0%, (26.8% - 35.2%), or those who were bottle fed, 32.2%, (30.7% to 33.7%). Other findings at age seven included the observation that children who were exclusively bottle fed had higher systolic blood pressures than those given any breast milk. Introducing solids before fifteen weeks was associated with more wheezing and an increased percentage of body fat. In a study of more than 1,200 infants enrolled with a health maintenance organisation, Wright, Holberg, Taussig & Martinez (1995) found that at the age of six, 11% of recurrent wheeze in non-atopic children could be attributed to not having been

breast-fed (A L Wright, Holberg, Taussig, & Martinez, 1995). The PROBIT trial found no association with rates of respiratory infection, which the authors attributed to relatively high breastfeeding rates in both control and intervention groups and women in Belarus relying little on child-care facilities (M S Kramer et al., 2001). Victora et al. (1989) identified 127 infants who died due to respiratory infection and compared them with 254 neighbourhood controls. While the main risk factor associated with mortality was low socioeconomic status, breastfeeding was also shown to have a significant protective effect. Although not necessarily applicable to developed countries, the results of this Brazilian case-control study merit attention, because of the rigour with which it was conducted and the focus on mortality, rather than morbidity (C G Victora, Smith, Barros, Vaughan, & Fuchs, 1989).

Due to the heterogeneity and an overwhelming number of studies which assessed the relationship of breastfeeding and childhood asthma, a systematic review and meta-analysis was conducted by Dogaru et.al (2014) which aimed to identify and summarize all publications on breastfeeding and the risk of asthma in children. These authors included 117 of 1,464 titles identified studies published between 1983 and 2012 on breastfeeding and asthma in children from the general population. This review reported a positive association of breastfeeding with reduced asthma/wheezing. Evidence has shown that children who are breastfed longer have a lower risk of developing asthma. The risk reduction is most pronounced in children 0–2 years of age and decreases with age, but is still evident at school age (Dogaru, Nyffenegger, Pescatore, Spycher, & Kuehni, 2014).

1.1.3 Protection against childhood obesity

Breast-fed and formula-fed infants have different growth patterns (Dewey, Heinig, Nommsen, Peerson, & Lönnerdal, 1993) and there has been interest in whether this may herald a lifelong difference in body composition and the prevalence of disease in adult life. A German study of 9,357 children who were examined at school entry found that 4.5% of those who were never breastfed were obese (body mass index > 97th centile), compared with 2.8% of those who were breastfed (von Kries et al., 1999). Similar findings were reported by Wilson (1998) from the Dundee cohort of children at seven years (Wilson et al., 1998) which suggest a causal link. However, an alternative explanation would be that mothers who breastfeed also give their children a more healthy diet during the early years.

Breastfeeding offers long term benefits to the infants' growth. It has been shown that childhood obesity is negatively associated with breastfeeding (Arenz, Ruckerl, Koletzko, & von Kries, 2004; Huus, Ludvigsson, Enskär, & Ludvigsson, 2008; Koletzko et al., 2009). Arenz et al (2004) reported the results from a systematic review which investigated the relationship between breast-feeding and obesity in childhood. The results from the meta-analysis showed that breastfeeding reduced the risk of obesity in childhood significantly (AOR 0.78, 95% CI 0.71, 0.85). Although this systematic review was based on cohort, cross-sectional and case-control studies, it provided evidence that breastfeeding has a protective effect against childhood obesity (Arenz et al., 2004). Another cohort study was conducted in Sweden reported that short-term exclusive breastfeeding for less than four months was

associated with obesity in five-year-old children (simple logistic regression: OR = 1.44; CI = 1.00–2.07; P = 0.050), but when the authors included other independent socio-economic factors in the analysis, short-term exclusive breastfeeding did not attain statistical significance (Huus et al., 2008). Three systematic reviews have provided evidence that rapid weight gain in infancy and in the first two years of life was a significant risk indicator for later adiposity (Baird et al., 2005; Monteiro & Victora, 2005; K. K. Ong & Loos, 2006). It has been studied and proven that the lower weight gain in infancy in breastfed babies were due to the lower protein content of human milk compared with most infant formula (Koletzko et al., 2009). A recent meta-analysis which included twenty-five studies with a total participants of 226,508 from 12 countries reported that breastfeeding was associated with a significantly reduced risk of obesity in children (AOR = 0.78; 95% CI: 0.74, 0.81) (Yan, Liu, Zhu, Huang, & Wang, 2014). Further analysis to find the association between breastfeeding duration and obesity was also conducted in this meta-analysis further indicated a dose-response effect of breastfeeding duration and obesity. Children who were breastfed for more than seven months were significantly less likely to be obese (AOR = 0.79, 95% CI: 0.70, 0.88), while those breastfed for less than 3 months showed about 10% decrease in the risk of childhood obesity (AOR = 0.90, 95% CI: 0.84, 0.95).

Researchers have also been conducting trials to find the association of Type-1 Diabetes and breastfeeding. A systematic review was conducted by Patelarou et.al (2012) to evaluate the type of feeding, duration of breastfeeding, time of introduction of formula or cow's milk, and the potential impact on developing

Type-1 Diabetes. A total of 28 from 61 studies were included in this review, of which all were case-control studies except for one prospective cohort study. The results of this systematic review indicate that a short duration and/or a lack of breastfeeding may constitute a risk factor for the development of Type-1 Diabetes later in life. Another recent systematic review had also reported that the available evidence has shown that lack of breastfeeding is a possible modifiable risk factor for the manifestation of both Type-1 and Type-2 Diabetes in children (Pereira, Alfenas, & Araújo, 2014). The benefits of breastfeeding have been attributed to bioactive substances, which promote the maturation of the immune system, reduce insulin resistance, and prevent excessive weight gain during childhood.

1.1.4 Neurological development

Some studies suggest acceleration of neuro-cognitive and motor development (J. W. Anderson, Johnstone, & Remley, 1999; Clark et al., 2006; Gómez-Sanchiz, Cañete, Rodero, Baeza, & González, 2004; Jedrychowski et al., 2011; Mettner, 2006; Petryk, Ot, & Harris, 2007; Silva, Mehta, & O'Callaghan, 2006). In a prospective cohort which was completed in 1997, it was found that breastfeeding for longer than four months had a positive effect on the child's mental development at 24 months of age. This study showed a statistically significant difference in the Bayley Mental Development Index scores, which was higher among infants who were breastfed longer than four months compared to those who were breastfed for four months or less and higher than formula-fed infants (Gómez-Sanchiz et al., 2004). A pioneer study conducted by Krol et.al. (2015) on the association between the duration of

EBF and emotion processing in infancy has shown that infants with high EBF experience show a significantly greater neural sensitivity to happy body expressions than those with low EBF experience. The results from this study also supported the notion that breastfeeding behaviour is a complex biological and psychological process linked to early socio-emotional development (Krol, Rajhans, Missana, & Grossmann, 2014).

Over the years, a number of studies (Anderson et al., 1999; Horwood & Fergusson, 1998; Lanting, Fidler, Huisman, Touwen, & Boersma, 1994; Uauy & De Andraca, 1995; Cesar G. Victora et al., 2015) have found that breastfed children score higher on tests of cognitive function than those fed formula. However research in this area is complicated by the fact that breast-fed infants tend to come from more advantaged family environments and their mothers have higher educational attainment. In 1999, Anderson et al (1999) published a meta-analysis of differences in cognitive development between breast-fed and formula-fed children and attempted to clarify the role of potential confounding factors (Anderson et al., 1999). Before adjusting for key covariates, breastfed infants had an IQ advantage of 5.32 points (95% CI, 4.51 - 6.14). After adjusting for covariates, breastfed infants still had a 3.16 point advantage (95% CI 2.35 - 3.98). The IQ advantage was detectable from age 6 months until 15 years, the last age for which reliable data were available, and appeared to correlate with the length of time for which infants had been breastfed. Low-birth weight babies benefited most, with a cognitive development advantage of 5.18 points, compared with 2.66 points for those with normal birth weights. The mechanism for this effect has been questioned

and may involve a combination of both biological factors and the mother-infant interaction involved in breastfeeding (J. W. Anderson et al., 1999).

In their trials of preterm diet, Lucas, Morley & Cole (1998) found that tube-fed premature infants given breast milk had more favourable cognitive outcomes than those who were given formula (Lucas, Morley, & Cole, 1998). It has been suggested that long chain polyunsaturated fatty acids in breast milk may play a part in enhancing neurological development, but three trials in term babies have reported conflicting results (Birch, Hoffman, Uauy, Birch, & Prestidge, 1998; Lucas et al., 1999; D. T. Scott et al., 1998). Discussing a later follow-up study, based on IQ tests at age 7 to 8 years, which found that boys born prematurely were more likely to benefit from nutrient-enhanced as opposed to standard formula, Lucas et al (1998) hypothesised that suboptimal nutrition at key stages in early brain development may have long term effects on cognitive function (Lucas et al., 1998). They suggested that early nutrition might "program" longer-term outcomes. However, it may not be appropriate to extrapolate from this work to healthy term babies, because many preterm babies develop illness in addition to their prematurity and they are born at an earlier stage of neurological development.

A recent study by Victora et.al (2015) reported a 30-year prospective, population-based birth cohort study conducted in Brazil, identified dose-response associations with breastfeeding duration for IQ and educational attainment. This study found from confounder-adjusted analysis that participants who were breastfed for 12 months or more had higher IQ scores

as compared to those who were breastfed for less than one month (difference of 3.76 points, 95% CI 2.20–5.33). They were also noted to have more years of education (0.91 years, 0.42–1.40), and higher monthly incomes (341.0 Brazilian reals, 93.8–588.3) than did those who were breastfed for less than 1 month. The authors concluded that breastfeeding is associated with improved performance in intelligence tests 30 years later, and might have an important effect in real life, by increasing educational attainment and income in adulthood (Victora et al., 2015).

Evidence for the role of early social environment as either a mechanism for, or confounding factor in the association between breastfeeding and intelligence comes from the range of factors identified as covariates in Anderson et al (1999) meta-analysis (J. W. Anderson et al., 1999). The importance of this was also illustrated by a study of men and women born in Hertfordshire between 1920 and 1930 which used multivariate analysis to compare health visitor records with intelligence tests conducted years later as adults (Gale & Martyn, 1996). Predictors of a higher IQ were having fewer older siblings, older maternal age and non-manual social class, but use of a dummy (pacifier), was associated with lower adult intelligence. In this study, although those who had been exclusively breastfed had slightly higher IQ scores, no association between feeding and IQ was detected in the multivariate analysis. In summary, meta-analysis has confirmed that breastfeeding is associated with a small benefit in IQ which is likely to be partly mediated by the mother-infant interaction involved in breastfeeding, and partly by differences between the

composition of human milk and infant formula. This benefit is greater for premature or low-birth weight babies, but does also apply to term babies.

1.1.5 Other potential benefits of breastfeeding for infants

Over the last 30 years, researchers have expended considerable resources investigating whether breastfeeding protects against allergic disease (Vandenplas, 1998). In 1988, Kramer proposed 12 criteria for studies in which the relation between breastfeeding and development of atopy and asthma are assessed. He suggested that previous studies contained flaws in design or implementation, including selection of the study population, retrospective recall bias about feeding history, short duration of follow-up, inadequate definition of outcomes, and failure to consider confounding variables (M S Kramer, 1988). Prior to the publication of the PROBIT trial (M S Kramer et al., 2001), it has been hard to draw clear conclusions. One problem has been that if avoidance of food antigens protects against atopy, few breastfeeding mothers achieve the avoidance needed to demonstrate an effect, either because they supplement with formula or early solids, or because of the presence of food antigens in their own milk (Chandra, Puri, & Hamed, 1989; Lovegrove, Hampton, & Morgan, 1994). As a result, many studies have had inadequate power to detect differences in the prevalence of atopic conditions.

Evidence for an association with wheezing (but not eczema) was provided by Burr (1993) in a study of 453 children with a family history of atopic disease (Burr et al., 1993). Oddy (2002) reported that cessation of exclusive breastfeeding before the age of 6 months was identified as a significant risk

factors for wheezing lower respiratory tract infections in the first year of life (OR 1.98, 95% CI 1.46–2.68). The cessation of breastfeeding before the age of 2 months was a significant risk factor for four or more upper respiratory tract infections in the first year of life (OR 1.40, 95% CI 1.04–1.88, $p=0.028$) (Oddy, de Klerk, Sly, & Holt, 2002).

Similarly, Saarinen, Moore et al and Chandra et al all reported lower rates of atopic disease amongst who were breast-fed (Chandra et al., 1989; W. J. Moore, Midwinter, Morris, Colley, & Soothill, 1985; Saarinen & Kajosaari, 1995). The PROBIT trial found that infants of women delivering at intervention sites were breastfed for longer and had a lower risk of atopic eczema (3.3% vs. 6.3%; AOR 0.54; 95% CI 0.31 - 0.95) (M S Kramer et al., 2001). In their trial with preterm babies, Lucas, Brooke, Morley, Cole, & Bamford (1990) found that amongst the subgroup of 160 infants who had a family history of atopic disease, those randomised to receive infant formula experienced more atopic disorders at 18 months (Lucas, Brooke, Morley, Cole, & Bamford, 1990). However there was no association in Howie et al.'s Dundee study (Howie et al., 1990) or a recent study of 3,856 Japanese children at age three (Nakamura et al., 2000). Golding, Butler & Taylor (1982) found that those who breastfed reported more eczema, but suggested that this might be because those with a family history of atopy may be more committed to breastfeeding (Golding, Butler, & Taylor, 1982). Until the publication of the PROBIT trial (M S Kramer et al., 2001), the question of whether breastfeeding prevents atopic disease had been controversial and it may take a little while for the scientific community to interpret the results. However it seems likely that

many mothers with a strong family history of atopy will breastfeed in the hope of protecting their babies against conditions of which they have personal experience.

Prolonged and exclusive breastfeeding has also been associated with a reduced risk of the sudden infant death syndrome (SIDS) (Ford et al., 1993; McKenna & McDade, 2005) and lymphoma (Davis, 1998).

1.1.6 Maternal benefits of breastfeeding

Besides the overwhelming benefits of breastfeeding for the child, breastfeeding has beneficial effect towards the mother. The maternal benefits of breastfeeding are not as well studied or documented as are the advantages to the child, as long-term follow-up in numbers sufficient to quantify findings is difficult to achieve. However, the evidence is sufficient to confirm that women who breastfeed, particularly to or beyond one year, are known to have a reduced risk of breast cancer, type 2 diabetes, cardiovascular disease (CVD), some (reproductive) cancers, postpartum depression, and rheumatoid arthritis (Bentley-Lewis, Levkoff, Stuebe, & Seely, 2008; Collaborative Group on Hormonal Factors in Breast Cancer, 2002; Gross & Burger, 2002; Schwarz et al., 2009; Sibolboro Mezzacappa & Endicott, 2007; Stuebe, Rich-Edwards, Willett, Manson, & Michels, 2005; Yang & Jacobsen, 2008; Zhang, Zhang, Liu, Li, & Wang, 2015).

There appears to be a dose-response effect with breastfeeding and disease risk. The reduction in breast cancer risk, for which it is difficult to assess the

incremental benefits of breastfeeding, has taken a long time to confirm, but the data are significant and the link is reassuringly clear (Collaborative Group on Hormonal Factors in Breast Cancer, 2002). The short lifetime duration of breastfeeding or lack thereof, typical of women in developed countries, makes a major contribution to the higher incidence of breast cancer (Collaborative Group on Hormonal Factors in Breast Cancer, 2002). Yang & Jacobsen (2008) conducted a systematic review for studies published between 1999 and 2007 regarding the effect of breastfeeding and breast cancer. The authors concluded that no consensus about the relationship between breastfeeding and breast cancer could be made due to the equivocal number of evidence which reported on the significance of ever breastfeeding or breastfeeding duration with breast cancer. It is important to note that although the authors identified more than thirty studies during the review, meta-analysis was not conducted. (Yang & Jacobsen, 2008). A systematic review conducted by Nagata et.al (2012) reviewed epidemiological studies on breastfeeding and breast cancer among Japanese women. The authors reported breastfeeding had possibly decrease the risk of breast cancer among Japanese women, although this statement was made with caution due to the small number of studies included in the review (Nagata et al., 2012).

Lactation is associated with an attenuated stress response, involving cortisol and the lactogenic hormones, oxytocin and prolactin, which appear to have both antidepressant and anxiolytic effects (Sibolboro Mezzacappa & Endicott, 2007). This may be beneficial in reducing postpartum depression, which is a common antenatal complication with devastating long-term effects. Because

reducing distress may decrease the risk of depression, parity may act as a mediator when breastfeeding is embraced in multiparous but not primiparous mothers (Sibolboro Mezzacappa & Endicott, 2007). Research has also shown that women who breastfeed for a more than 2 years in a lifetime had a 37% lower risk of coronary heart disease (CHD). With additional adjustment for early-adult adiposity, parental history, and lifestyle factors, these same women had a 23% lower risk of CHD than women who had never breastfed (Schwarz et al., 2009).

Longer duration of breastfeeding is associated with reduced incidence of Type-2 Diabetes (Stuebe et al., 2005). Lactation may reduce the risk of Type-2 Diabetes in young and middle-aged women by improving glucose homeostasis. A longer duration of breastfeeding is associated with a reduced risk of developing Type-2 Diabetes among parous women with no history of gestational diabetes (Bentley-Lewis et al., 2008). Although lactation does not appear to offer a significant reduction in diabetes risk among women with gestational diabetes, these findings are limited to women participating in the Nurses' Health Study and are not generalizable (Stuebe et al., 2005).

Beyond the benefits of chronic disease reduction, another potential benefit of extended breastfeeding is the natural suppression of ovulation (Gross & Burger, 2002; W. Li & Qiu, 2007). Prolonging postpartum anovulatory cycles is a consequence of exclusive breastfeeding, thereby serving as a natural contraceptive for up to 6 months (Gross & Burger, 2002). Populations where breastfeeding is customary have been shown to have fewer births than

populations in which infants are bottle fed. The starting time of supplementary feeding is positively correlated with the time of the restoration of menstruation (W. Li & Qiu, 2007). Lactational amenorrhoea reduces menstrual blood loss and plays a role in helping women space their children.

Research has also confirmed the popular belief that breastfeeding helps women regain their pre-pregnant weight (Dewey, Heinig, & Nommsen, 1993) and that they experience improved bone remineralisation post-partum (Melton et al., 1993), prevents osteoporosis (Dursun, Akin, Dursun, Sade, & Korkusuz, 2006) and fewer hip fractures in later life (Cumming & Klineberg, 1993). Breastfeeding has also been associated with a lower incidence of premenopausal breast cancer (Enger, Ross, Henderson, & Bernstein, 1997; Newcomb et al., 1994; United Kingdom National Case-Control Study Group, 1993), endometrial cancer (Wang, Li, & Shi, 2015) and a reduced risk of some ovarian cancers (Rosenblatt & Thomas, 1993).

1.2 Breastfeeding in Malaysia and comparison with its neighbouring countries

In Malaysia, the National Breastfeeding Policy was formulated in 1993 whereby exclusive breastfeeding was recommended for the first four to six months of life and continued up to two years.

The National Breastfeeding Policy (2006) states that:

“All mothers are encouraged to breastfeed their babies exclusively with breast milk from birth until 6 months of age and thereafter to continue until the child is 2 years old. Complementary foods should be introduced when the baby is 6 months old.”

Since the introduction of this policy, breastfeeding promotion in Malaysia has been intensified with the implementation of various programmes throughout the country such as the Baby Friendly Hospital Initiative (BFHI), training programme for health staff, extension of maternity and paternity leave for the government sector and the Code of Ethics for the Marketing of Infant Formula Products. Malaysian Breastfeeding Policy was revised in 2005 in accordance with World Health Assembly Resolution 54.2 (2002), whereby exclusive breastfeeding was recommended for the first 6 months of life and continued up to two years. The initiation and duration of breastfeeding declined worldwide as a result of rapid social and economic change through most of the twentieth century, alongside with urbanisation and extensive marketing of breast milk substitutes. However, in the recent years, the global trend has shifted towards improved breastfeeding practices. Survey data from 43 countries indicated a significant increase in exclusive breastfeeding, from 39 to 46% between 1989 and 1999, with wide variations within and between geographic regions (World Health Organization, 2012).

Prior to the 1990, there was no available data which represents the breastfeeding status in Malaysia. The Second National and Health Morbidity Survey (NHMS II) which was conducted in 1996 was the first national survey that used the indicators recommended by WHO for assessing breastfeeding (World Health Organization, 1991) and provided baseline data for the country. Findings of the NHMS II showed that although the overall prevalence of children ever breastfed in Malaysia was 88.6%, the prevalence of exclusive breastfeeding at four months was only 29.0% (Fatimah et al., 1999). The latest National Health & Morbidity Survey III (NHMS III) conducted in 2006 has shown that the overall prevalence of ever breastfed among children aged less than 2 years was 95.0% (95% C.I. 93.8, 96.0) (Fatimah, Siti Saadiah, Tahir, Imam Hussain, & Ahmad Faudzi, 2010). It was also noted the overall prevalence of exclusive breastfeeding below 4 months was 19.3% (95% C.I. 15.5%, 23.9%), while the overall prevalence of exclusive breastfeeding below 6 months was 14.5% (95% C.I. 11.7%, 17.9%), while predominant breastfeeding below 4 months and 6 months were 19.7% (95% C.I. 15.6, 24.7) and 16.9% (95% C.I. 13.7, 20.6) respectively. The prevalence of complementary breastfeeding was 46.7% (95% C.I. 41.2, 52.2) amongst infants below 4 months and below 6 months was 48.2% (95% C.I. 43.8, 52.7). Breastfeeding was initiated within one hour of birth in 63.7% (95% C.I. 61.4, 65.9) infants. When compared to the National Health & Morbidity Survey II (NHMSII), there was a significant increase in the prevalence of ever breastfeeding, predominantly breastfeeding below four months and timely first suckling. However, there was a significant decrease of 9.7% in the prevalence of exclusive breastfeeding among children below four months (Fatimah et al.,

2010). This is despite numerous activities and policy change took place with the recommendations from the WHO and UNICEF regarding infant feeding (World Health Organization & UNICEF, 2006). The survey had also reported that exclusive breastfeeding was significantly more in the rural (30.7%, 95% C.I. 23.3 - 39.2) compared to the urban localities (12.9%, 95% CI 8.9 - 18.5) (Fatimah et al., 2010).

When compared to the data from Indonesia, a neighbouring country, the results showed that the ever breastfeeding rate in Malaysia is quite similar with the rates in Indonesia (95.2% in 2007) (WHO Global Data Bank on Infant and Young Child Feeding, 2007), but the rate of exclusive breastfeeding at six month in Malaysia is very low compared to Indonesia which has 32.4% of infants exclusively breastfed at six month in 2007. However, it was also noted that the rate of exclusive breastfeeding in Indonesia was also declining from 39.5% in 2003, although not as drastically as what happens in Malaysia. Meanwhile in Singapore, only 7% of the mothers breastfed exclusively at 4 months, and this rate fell to near zero at 6 months (Foo, L. L. Quek, S. J. S. Ng, S. A. Lim, M. T. Deurenberg-Yap, 2005). When comparing these two countries (Malaysia and Singapore), it was obvious that the rate of exclusive breast feeding is still low when compared to other countries. For example, in Australia 80–90% of women initiate breastfeeding, and 47 percent of women were breastfeeding (exclusively or partially) six months later, with marked differences between social groups (Donath & Amir, 2000). Among the East-Asean countries, Cambodia has made the most astounding improvement in exclusive breastfeeding rate, from around 11% in 1998 to more than 60% in

2005 and 2008. The increase was brought about by the change in health seeking behaviour during antenatal and postpartum period (more mothers seek health services care) and the declining practice of giving water to the infants especially during the hot season. However, a UNICEF report has identified that the reported exclusive breastfeeding rates in 2005 were overestimated and was partially a result of biases (seasonal and questionnaire biases) in the surveys conducted (Conkle, 2007). A comparison of breastfeeding rates within the South-east Asian countries is depicted in the Table 1.1 below:

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Table 1.1: Comparison of breastfeeding rates and its trend among South-east Asian Countries

Country	Year	Ever Breastfeeding rate (%)	Exclusive Breastfeeding rate <4 month (%)	Exclusive Breastfeeding rate <6 month (%)	Source of data
Malaysia	1996	88.6	29.0	-	<i>a</i>
	2006	95.0	19.3	14.5	
Indonesia	1991	96.5	52.4	44.5	<i>b</i>
	1994	96.7	47.3	41.5	
	1997	96.3	52.0	42.5	
	2003	95.9	55.1	39.5	
	2007	95.2	40.6	32.4	
Singapore	2001	94.5	7.0	0	<i>b</i>
Thailand	2001	92.1	-	-	<i>b</i>
Philippines	1993	87.2	32.9	25.1	<i>b</i>
	1998	88.0	47.3	37.0	
	2003	86.5	42.8	33.5	
	2008	87.7	40.1	34.0	
Cambodia	1998	96.6	15.6	11.0	<i>b</i>
	2000	95.7	14.5	11.4	
	2005	96.8	67.7	60.8	
	2008	-	74.3	65.9	
			-	40.3 (urban) 70.8 (rural)	
Laos	2000	94.9	28.2	-	<i>b</i>
	2006	-	33.1	26.4	
Myanmar	1995	99.4	30.1	-	<i>b</i>
	2000	96.5	15.8	11.0	
	2003	-	14.7	-	
Vietnam	1997	97.8	27.1	16.7	<i>b</i>
	2000	99.1	49.7	39.0	
	2002	97.7	19.5	15.4	
	2006	-	20.5	16.9	
			7.2 (urban) 24.8 (rural)	7.7 (urban) 19.5 (rural)	
<i>a</i> = National Health Morbidity Survey II (1996) and III (2006)					
<i>b</i> = WHO Global Data Bank on Infant and Young Child Feeding (IYCF)					

1.3 Effect of Policy on Breastfeeding Practices

Good public health and governmental policies are effective ways of improving health and living standards of mankind. Since the mid 1940s through the early 1970s due to vigorous marketing of infant formula by formula companies, there was a dramatic downward trend of breastfeeding in developing countries whose governments allowed heavy advertisement and marketing by formula companies.

Declining rates of breastfeeding worldwide in the twentieth century led to the WHO and UNICEF identifying a need for a global response to the protection, promotion and support of breastfeeding. The decline in breastfeeding was thought to be as a result of both socio-cultural reasons and also to the aggressive marketing strategies used by infant formula companies worldwide (UNICEF, 2005; Palmer, 2009). Initial recommendations to help stop the decline in breastfeeding were proposed to the World Health Assembly in 1981 by the WHO in the form of the International Code of Marketing of Breast-milk Substitutes (The Code) (World Health Organization, 1981). The aim of the Code is "to contribute to the provision of safe and adequate nutrition for infants, by the protection and promotion of breastfeeding, and by ensuring the proper use of breast milk substitutes, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution." The Code outlined a set of recommendations to regulate the marketing of breast milk substitutes, feeding bottles and teats. The adoption of the code, which is still in place, has been associated with major reductions in some forms of advertising and promotion of breast milk substitutes around the globe. The Ministry of Health

Malaysia (MOH) first formulated a Code of Ethics for Infant Formula Products in 1979, and was revised in August 1, 2008 and was renamed the Code of Ethics for the Marketing of Infant Foods and Related Products. In the late 1980s, stricter enforcement of the Code had almost crippled the promotional activities of infant formula and food products in Malaysia. In 2006, the Malaysian government imposed sanctions on eight out of the 12 infant food companies operating in the country for violations of the Malaysian Health Ministry's Infant Formula Code of Ethics. The eight multinational manufacturers of infant milk formula were banned from advertising, selling or producing in Malaysia for a year by the country's then Health Minister.

In 1989 WHO and UNICEF launched an official joint statement, protecting, promoting and supporting breastfeeding and recognized the important role of the maternity services in promoting breastfeeding. It acknowledged the need for leadership from health professionals in sustaining or re-establishing a "breastfeeding culture". This statement also included the Ten Steps to Successful Breastfeeding (United Nations Children's Fund (UNICEF), 1989; World Health Organization, 1998). In 1990, representatives from thirty countries, world health leaders and technical advisors gathered in Florence, Italy to create a global action plan to reverse declining breastfeeding rates and this gave rise to the Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding by UNICEF (United Nations Children's Fund (UNICEF), 1991). It established four targets, that is;

by the year 1995, all governments were to have achieved the following:

- i. Appointed a national breastfeeding coordinator and established a multi-sectoral national breastfeeding committee.
- ii. Ensured that every facility providing maternity services fully practices all ten of the 'Ten Steps to Successful Breastfeeding' set out in the joint WHO/UNICEF statement, 'Protecting, Promoting and Supporting Breast-feeding: The special role of maternity services'.
- iii. Taken action to give effect to the principles of the International Code of Marketing of Breast-milk Substitutes.
- iv. Enacted imaginative legislation protecting the breastfeeding rights of working women and established means for its enforcement.

In 1991 the WHO and UNICEF launched the Baby Friendly Hospital Initiatives (BFHI) to promote implementation of the second target of the Innocenti Declaration. The Ten Steps to Successful Breastfeeding became the foundation of the BFHI (Appendix B). In 1992, UNICEF and WHO launched a major international campaign to encourage all hospitals with maternity services to accept the Ten Steps as basic maternity and newborn infant care policies and procedures. In 2005, once again in Florence, there was a meeting to assess the progress made since the original Innocenti Declaration and also to renew each member's commitment to breastfeeding. While not all of the targets of the Innocenti Declaration had been met, there was

progress, with the most promising indicator of success being a reversal in the decline in breastfeeding rates worldwide. The importance of countries reinforcing a 'breastfeeding culture' and vigorous reinforcement against a 'bottle feeding culture' was highlighted (UNICEF, 2005). The vision put forward by the 2005 Innocenti Declaration, for the future, was 'an environment that enables mothers, families and other caregivers to make informed choices about optimal feeding for infants and young children and to receive adequate support to implement them in order to achieve the highest attainable standard of health and development'.

In 2003 a Global Strategy for Infant and Young Child Feeding was launched, a tool which countries could use to assess national practices and programmes in relation to targets set out by the Global Strategy for Infant and Young Child Feeding (World Health Organization, 2003b). This strategy was built on past and continuing achievements of policies to protect, promote and support breastfeeding. It emphasized on the need for comprehensive national policies on infant and young child feeding. It was acknowledged that 'no single intervention or group could succeed in meeting the challenge and so implementation of the strategy would need political will, public investment, awareness among health workers, involvement of families and communities and collaboration between governments, international organizations, and other concerned parties that would ultimately ensure that all necessary action was taken'. The WHO and UNICEF's global recommendations for optimal infant feeding are set out in the global strategy: exclusive breastfeeding for six months, followed by nutritionally adequate and

safe complementary feeding starting from the age of six months with continued breastfeeding up to two years of age or beyond.

The reversal of the downward trend of breastfeeding was facilitated by the institution of the above mentioned policies and strategic plans. There is a general rise in breastfeeding rates all over the world as more and more hospitals are certified as "Baby Friendly" as a result of the implementation of the Ten Steps to Successful Breastfeeding recommended by UNICEF/WHO since the early 1990s. This increase in breastfeeding rates due to these sound public health policies is seen in both developed and developing countries. This is a successful public health effort documented by comparing rates of breastfeeding initiation, exclusiveness and duration from studies conducted before and after the launch of the Baby Friendly Hospital Initiative.

The BFHI has been found to be successful in increasing breastfeeding initiation rates in hospitals (Bartington, Griffiths, Tate, Dezateux, & Cohort, 2006; Merten & Ackermann-Liebrich, 2004; Merten, Dratva, & Ackermann-Liebrich, 2005). BFHI was very effective in increasing breastfeeding initiation and duration in Belarus (Kramer et al. 2001). In Switzerland, the breastfeeding rates have generally increased since 1994 but infants who were born in baby-friendly hospitals were more likely to be breastfed for a longer time than those born in non-baby-friendly facilities (Merten & Ackermann-Liebrich, 2004). Mothers who delivered in baby-friendly accredited maternity units were 10% more likely to start breastfeeding than those who delivered in a non-accredited hospital (Bartington et al., 2006). Merten, Dratva, &

Ackermann-Liebrich (2005) had recommended that the continuation of BFHI in Switzerland, due to the fact that it may have caused an indirect influence in improving the breastfeeding rates in non-baby-friendly health facilities, have raised the public awareness of the benefits of breastfeeding, and caused an increase in the number of professional lactation counsellors (Merten et al., 2005).

Even moderate levels of breastfeeding promotion in hospitals identified by BFHI criteria resulted in longer-term breastfeeding success. Full implementation of BFHI programme was an effective intervention to increase breastfeeding and exclusive breast-feeding in the USA (Philipp et al., 2001). A USA study examined the BFHI steps' effect on breastfeeding continuation. The strongest risk factors for early breastfeeding termination were late initiation and formula supplementation. Mothers experiencing no BFHI practices are eight times more likely to stop breastfeeding than mothers who experienced five BFHI practices. Even gradual application of BFHI practices will have an effect on breastfeeding (DiGirolamo, Grummer-Strawn, & Fein, 2001). A single RCT conducted in Switzerland (Kind, Schubiger, Schwarz, & Tönz, 2000) produced different results. The aim of this study was to evaluate whether restriction of supplementary fluids and avoidance of teats and pacifiers affect later breastfeeding success. The authors found that there was very little difference between the intervention and control group in the results. However, the quality of this study was poor as the intervention was not carried out as planned.

There was an increased emphasis on the importance of establishing “baby friendly communities” in line with step ten of the Ten Steps, whereby community facilities would be given baby friendly accreditation in accordance with a Seven Point Plan for sustaining breastfeeding in the community (Appendix C). Following the success of BFHI, the ‘Baby Friendly Hospital Initiative Revised, Updated and Expanded for Integrated Care’ was published (World Health Organization & UNICEF, 2006), which include a recommendation that staff receive training on providing support for ‘non-breastfeeding’ mothers and emphasize on the importance of mother-friendly care so that practices are in place for mother-friendly labour and delivery.

1.3 Problem statement

The exclusive breastfeeding rate in Malaysia is low despite the implementation of the National Breastfeeding Policy, which incorporates the BFHI in all the government hospitals since 1993. In 2006, the overall prevalence of exclusive breastfeeding in Malaysia below 4 months was 19.3% (15.5%, 23.9%), while the overall prevalence of exclusive breastfeeding below 6 months was at a dismal 14.5% (11.7%, 17.9%). The prevalence of predominant breast feeding rate in 2006 was 16.9%, complementary breast feeding was 46.9% and stopped breast feeding was 18.1% (Fatimah et al., 2010). A comparison of the breastfeeding status between NHMSII and NHMSIII is shown in Figure 1.1.

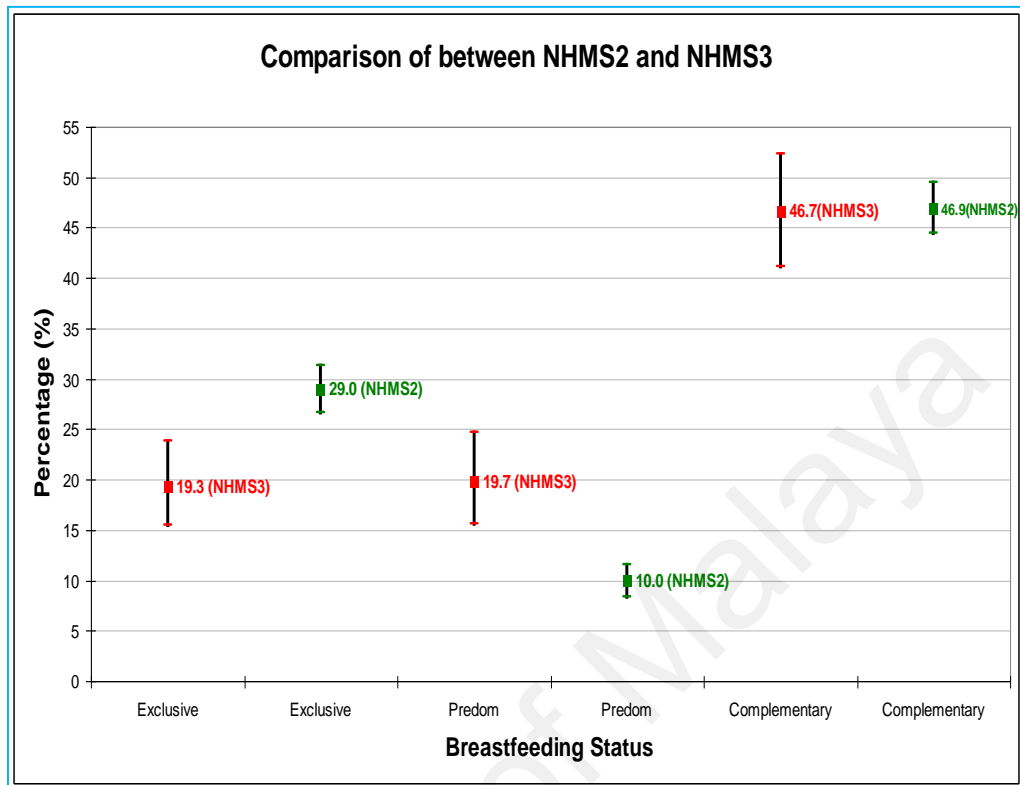


Figure 1.1: Comparison of breastfeeding status between NHMS2 and NHMS3

It is also an interest of the researcher to study the reasons why mothers had stopped exclusive breast feeding when they have actually started it in the first place. The results from NHMSIII (2006) have also shown other issues which were related with exclusive breastfeeding. In this national survey, almost half of the infants less than two months old who were breastfeeding were given infant formula, and the same group of infants was also given commercial baby food (39.6%) and other types of solids (Ministry of Health Malaysia, 2006). This finding contrasts with non-breastfed infants from the same age-group, whereby although all of these non-breastfed infants were given infant formula, none of them were given commercial baby food or other solids (Table 1.3). This raises question about whether there was a misguided perception in the

community regarding the inferiority of nutritional values of breast milk for babies as compared to the infant formulas.

Table 1.3: Foods consumed by breastfeeding and non-breastfeeding infants in the last week preceding the NHMIS2 interview

Foods consumed by breastfeeding infants in the last 1 week preceding the interview (NHMSIII)										
Percentage of breastfeeding infants fed:										
Age (months)	Infant formula	Commercial baby food	Cereal	Tubers	Fish	Meat	Beans	Eggs	Vegetables	Fruits
<2	47.0	39.6	40.2	0	23.8	16.4	0	29.5	40.2	13.0
2 - 3	58.7	55.4	54.6	5.4	13.4	13.4	5.4	5.4	5.4	5.4
4 - 5	48.2	69.7	70.9	28.5	34.4	22.7	4.3	26.0	39.9	34.4
6 - 8	53.0	59.5	86.0	49.5	61.9	57.8	15.1	49.3	70.5	66.2
9 - 11	54.2	37.4	92.3	57.0	75.9	74.2	32.9	68.9	82.3	83.0
Total	53.5	38.7	86.5	57.1	78.3	71.4	36.4	69.7	79.0	78.1

Foods consumed by non breastfed infants in the last 1 week preceding the interview (NHMSIII)										
Percentage of non breastfed infants fed:										
Age (months)	Infant formula	Commercial baby food	Cereal	Tubers	Fish	Meat	Beans	Eggs	Vegetables	Fruits
<2	100.0	0	0	0	0	0	0	0	0	0
2 - 3	96.0	100.0	39.8	23.0	46.0	23.0	23.0	0	46.0	23.0
4 - 5	100.0	68.1	72.6	24.9	40.9	29.0	0	5.1	40.2	41.7
6 - 8	99.1	54.7	82.9	56.2	68.4	50.9	22.9	37.4	74.4	59.7
9 - 11	98.1	55.8	91.6	61.3	83.5	73.2	28.3	60.9	79.9	83.6
Total	97.1	40.3	88.3	62.7	85.3	75.9	41.0	68.7	85.1	83.9

There are many possible reasons for the low exclusive breastfeeding rates in the country. They include ignorance of the value of breast milk, lack of support from family members, returning to work soon after delivery, and even lack of support from health workers. At the Maternity Hospital Kuala Lumpur which is the centre of reference for breastfeeding in Malaysia, the available data showed that at post-partum hospital discharge, all of the mother/ infant pairs were breastfeeding. The rates of exclusive breastfeeding differ between

the maternity wards, which ranges from 85.2% to 96.7% (Department of Obstetrics and Gynaecology MHKL, 2010). In this hospital, skin-to-skin contact and breastfeeding initiation was achieved among 93.8% of vaginal deliveries in the labour room (Department of Obstetrics and Gynaecology MHKL, 2010). At present, there is lack of active involvement of lactation counsellors from the health professionals in postnatal support to mothers. Many who have been certified as lactation counsellors play only passive role at the hospital in the promotion of lactation for mothers. Currently, the mothers who breast feed may find support at the Community Clinics, or they may initiate contact with members of the Malaysian Lactation Advisors and Consultants Association (*Persatuan Penasihat dan Pakar Laktasi Malaysia*), online support groups and rarely the general practitioners. Thus, it is up to the mothers' initiative to seek help with continuing breast feeding after they were discharged from the hospital.

Relevant to the context of this write-up, there is yet another reason which may have affected the breastfeeding practice in Malaysia. Up until today, the commercial infant foods that are portrayed to be as good as, if not better, than breast milk and they are easily available especially when the household income is increasing with the rising economic status. Mothers may be exposed to the rigorous and attractive commercial information on infant feeding and may be inclined to mixfeed. This reduces the infant's suckling at the breast, which in turn diminishes breast milk supply and leads to cessation of breastfeeding. Infant food companies were said to have employed a wide range of marketing strategies to reach mothers and infants, including use of

the mass media, retail outlets, healthcare staff and facilities and professional bodies as the medium through which promotional messages are carried through to the public. Certain companies have launched strategic promotional teams to engage in building rapport and create top-of-mind recall among health professionals, and to promote growing up milk in non-hospital settings such as the nurseries and kindergartens (Kaun, 2001). This is especially so when promotional activity of these companies were almost crippled after stricter enforcement of the Code of Ethics of Infant Formula Products in the late 1980s.

It was noted that the lack of participation from the private hospitals pertaining to adherence to the National Breastfeeding Policy and the Health Ministry's Infant Formula Code of Ethics may have also contributed to the current scenario. This is apparent when up until 2012; only 8 private hospitals in Malaysia (3%) were awarded the Baby Friendly Hospital status from a total of 200 private hospitals with delivery services. This percentage is very low compared to the government-run hospitals, of which all 139 public hospitals has been certified as Baby Friendly Hospital. It was expected that if the BFHI was conducted among these private hospitals, the percentage of exclusive breastfeeding might be increased as there were more than 63,000 births per year in these hospitals (Ministry of Health Malaysia, 2011c).

The increasing household income may have also contributed to the breastfeeding practices in Malaysia. The average mean monthly household income in Malaysia has increased from RM2472 in 1999 to RM3249 in 2004,

growing at 5.6 per cent per annum. In Kuala Lumpur, the average mean monthly household income has increased from RM4105 (1999) to RM3249 (2004). It was reported that all states in Malaysia except the Federal Territory of Kuala Lumpur recorded a decline in the incidence of poverty in 2004 (Department of Statistics Malaysia, 1999, 2004). Purchasing power is related with household income, and may have an effect on the sale of formula infants and food in Malaysia. However, this statement remains controversial as the inflation rate in Malaysia has also increased. Thus the dilemma remains unanswered as to how the households managed to purchase these pricey infant formula/ food products as the prices has been escalating ever since the economic downfall in 1998.

Another factor that may be inter-related with the increasing household income and the decline of exclusive breastfeeding rate in Malaysia is the increasing number of women entering the workforce. In Malaysia, women's participation in the workforce, though low, has increased from 44.7 per cent in 1995 to 47.3 per cent in 2004. In the private sector, the percentage doubled from 13.5% to 26.2% in the same period. The Tenth Malaysia Plan (2011-2015) revealed a rise in the percentage of women in management positions in the public sector from 18.8% in 2004 to 30.5% in 2010. However, at the current moment major improvements need to be made in balancing their competing responsibilities within the family and the workplaces. Policy changes at the workplace such as flexible time arrangements at work, safe and high quality childcare facilities as well as 'teleworking', are still not executed at large by the employers. This lack of support from within the workforce probably has

contributed to working mothers' making decision to 'ease' their infant feeding choices by introducing infant formula just before they are scheduled to return to work, where in fact they had been exclusively breastfeeding beforehand.

1.4 Rationale of study

It is of public health importance to seek better and effective ways to promote breast feeding. By recruiting certified lactation counsellors, there is less need for extensive training before the implementation of the intervention, as all lactation counsellors have had to attend at least the 40-hour Lactation Management and Counselling Course (WHO/ UNICEF, 1993) before being certified as a Lactation Counsellor. This study will provide evidence whether the change in the conduct of lactation counselling could help in the promotion of breast feeding, particularly exclusive breast feeding among mothers. The antenatal breast feeding programme within the Malaysian public health care system can be considered as good as almost all of the public hospitals have been certified as Baby Friendly Hospital. However, it was noted from observation and personal experience that there is lacking in the postnatal support for lactating mothers in Malaysia.

Furthermore, the obesity trend among children in Malaysia is increasing. It was noted from the National Health & Morbidity Survey III (2006) that the prevalence of overweight among children aged less than 18 years in Malaysia has increased from 2.0% in 1996 to 5.36% in 2006 (Ministry of Health Malaysia, 2006). By the year 2011, 3.9% (0.3 million) of children below 18 years in Malaysia are obese (Ministry of Health Malaysia, 2011b). This observation is of public health importance with the identification of

overweight/obesity as a risk factor for exposing individuals to chronic diseases such as type-2 diabetes, heart disease and certain types of cancers, and increased mortality. A systematic review showed that breastfeeding reduced the risk of obesity in childhood significantly (Arenz et al., 2004) and the risk of Type-1 Diabetes among children (Malcova et al., 2006) . Thus, breastfeeding offers the hope to reduce the rate of obesity and risk of type-1 diabetes mellitus among children in Malaysia if it is practiced widely.

This intervention (telephone lactation counselling) may be introduced within the public hospitals to further improve the current breast feeding promotion strategy in Malaysia if proven effective from this research. Although it may not be practiced as the main form of promotion, the proactive effort by the certified lactation counsellors to promote breast feeding is a good idea for the benefit of mothers.

The data obtained from this study could be used to further improve the current breast feeding promotion strategy by using the available human resource. By increasing the exclusive breastfeeding rates in Malaysia, it is hoped that the health status of the infants in Malaysia will be further improved. Breastfeeding is a cheap alternative to reduce the increasing rate of obesity among children in Malaysia and prevent the risk of type-1 diabetes mellitus among children in Malaysia.

This thesis attempts to provide evidence that with a better and proactive counselling intervention by the lactation counsellors, the mothers will be

better equipped with knowledge and support to continue breast feeding. This is dealt in the randomized controlled trial designed to evaluate the effectiveness of this intervention. A better postnatal support for breast feeding mothers is essential. This is because we may not be able to improve other postnatal environment that may affect the mothers, but an improvement of care by the health care workers may give a higher hope of success of breast feeding to the mothers. The breastfeeding mothers' responses towards the telephone lactation counselling was also sought in the RCT. The research was expanded with a qualitative study to explore the Lactation Counsellors' perspectives on telephone lactation counselling.

1.4 Telephone as a tool for counselling

Breastfeeding counselling is a form of support which involves practical know-how as well as communication skills. Breastfeeding counselling may work in tandem with psychosocial support to address mental health needs of women, or may be integrated or work alongside other sectors allied to infant feeding. Breastfeeding counselling does not tell the mother what to do, but helps them to come to their own decision. It is more than giving messages and advice to mothers. Breastfeeding counselling is not a standalone intervention, but should be integrated into relevant nutrition and healthcare programmes such as antenatal and postnatal care, maternity services, growth monitoring, psychosocial services and therapeutic feeding programmes. Breastfeeding counselling is usually provided by a trained counsellor in breastfeeding, either through a face-to-face session, telephone or even through the internet medium.

Lester (1974) had classified telephone therapy into two basic types, crisis counselling and informational, while Rosenfield (1997) had categorized telephone services into support, informational, advocacy, helplines, befriending and advice giving. Counselling by telephone has been defined as a service whereby a trained counsellor works with a client, or a group of clients, by telephone, to enable the client(s) to explore personal situations, problems or crises in a one-off or in an on-going longer term therapeutic relationship (Rosenfield, 1997a).

Rosenfield (1997) has stated based from her vast experience as a counsellor some of the advantages which telephone counselling can bring compared to face-to-face counselling include: the counsellor can work with a wide ranging geographic spread of clients; counsellors do not have to admit strangers to the home/ office; neither party has to travel anywhere, be physically mobile or be 100 percent well to participate; telephone counselling is ecologically efficient; there is greater equality between the client and counsellor as the relationship develops; the counsellor must check any assumptions made by either counsellor or client; the counsellor must be aware and sensitive to her voice patterns and intonations and its possible impact on the client; clients can feel safe to talk more readily about deeply personal issues, emotions and experiences (Rosenfield, 1997b). It was noted however, that the tradition that counselling takes place on the counsellor's terms is challenged. Based from her extensive experience, Rosenfield (1997) had stated that "*it seems that a telephone client will place trust in the counsellor and will talk in greater depth far more quickly than if the client and counsellor were meeting in the same*

room each week.” However, it was also stated in the same chapter that *“it is harder on the telephone to be clear about the client’s circumstances- a counsellor can work only with what the client chooses to tell and what the counsellor can hear in the background”* (Rosenfield, 1997c).

Telephone counselling has been found to be effective for certain problems, such as smoking cessation (Kealey et al., 2009; Peterson et al., 2009; Rabiun, McAlister, Geiger, Huang, & Todd, 2004; Zhu, Tedeschi, Anderson, & Pierce, 1996), dietary change (Eakin et al., 2009) and mental health (Reese, Conoley, & Brossart, 2002), but the research has not been extended to address adequately the effectiveness of telephone counselling alone for breastfeeding practices. The research supporting the effects of telephone counselling for breastfeeding tends to incorporate the intervention as an adjunct with other forms of support, except for one study conducted by Fallon et al. (2005).

Technological advances and emphasis on time-limited, inexpensive treatment has ushered in psychotherapy through use of telecommunications and the internet (Rosenfield, 1997). The utilization of technology and telecommunications for health care purposes is commonly referred to as “telehealth,” which has increased in popularity and usage in clinical practice (Jerome et al., 2000). The Internet and the use of video transmission have received more attention for the provision of telehealth services, but the telephone is overwhelmingly the most popular telehealth medium for delivering clinical services among licensed psychology practitioners (Williams, 2000). Little research exists, however, on whether the effectiveness

of lactation counselling extends to telephone counselling. Additionally, the ethics of providing telephone counselling services is questioned in the literature (Haas, Benedict, & Kobos, 1996). Telephone counselling has received attention in the literature as an attractive alternative to traditional face-to-face counselling. The four strengths that have been attributed to telephone counselling are as follows: It is less expensive compared to face-to-face counselling, it allows anonymity, it gives a sense of control, and it is convenient (Mermelstein & Holland, 1991; Ranan & Blodgett, 1983; Shepard, 1987; Zhu et al., 1996). These strengths are believed to make counselling possible for some who would not otherwise seek or receive counselling services.

Telephone has clearly become an increasingly popular, readily accessible and familiar tool globally. In Malaysia, the subscription and penetration rate of different types of communication services in the year 2010 and 2011 is reported as in Table 1.4. A survey in 2005 reported that among mobile phone subscribers in Malaysia, females take up 42.6 percent of the subscriber base, while adults (users from 20 to 49 years of age) accounted for 78.2 percent (Malaysian Communications and Multimedia Commission, 2005). One might think that in this era, internet-based support system would be an excellent alternative. Although the household penetration rate for internet services in Malaysia has reached up to 62.3% in 2011, it was still lower compared to the mobile telephone penetration rate of 127.7%. Furthermore, based on personal experiences, the speed of data transfer via internet services in Malaysia has not reached satisfactory level. Thus telephone as a communication method to

provide health education and support could be regarded as a suitable choice for mothers who live in an urban area such as in Kuala Lumpur.

Table 1.4: Subscription and penetration rate of communication services in Malaysia in 2010 and 2011

Type of Communication	Total number of subscription by person ('000 population)		Population penetration rate (per 100 population)		Nationwide subscription ('000)		Total number of subscription by household ('000 households)		Household penetration rate (per 100 households)	
	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
Direct Exchange Line (DEL) telephones	-	-	-	-	4,404	4,091	2,804	2,491	42.5	37.3
Mobile telephone	33,859	36,661	119.2	127.7	-	-	-	-	-	-
Broad-band (fixed and wired)	-	28,704	-	19.4	-	-	-	6,674	-	62.3

Source: Malaysian Communications and Multimedia Commission, 2011

1.5 Rationale of study

It is of public health importance to seek better and effective ways to promote breast feeding. By recruiting certified lactation counsellors, there is less need for extensive training before the implementation of the intervention, as all lactation counsellors have had to attend at least the 40-hour Lactation Management and Counselling Course (WHO/ UNICEF, 1993) before being certified as a Lactation Counsellor. This study will provide evidence whether the change in the conduct of lactation counselling could help in the promotion of breast feeding, particularly exclusive breast feeding among mothers. The antenatal breast feeding programme within the Malaysian public health care system can be considered as good as almost all of the public hospitals have been certified as Baby Friendly Hospital. However, it was noted from

observation and personal experience that there is lacking in the postnatal support for lactating mothers in Malaysia.

Furthermore, the obesity trend among children in Malaysia is increasing. It was noted from the National Health & Morbidity Survey III (2006) that the prevalence of overweight among children aged less than 18 years in Malaysia has increased from 2.0% in 1996 to 5.36% in 2006 (Ministry of Health Malaysia, 2006). This observation is of public health importance with the identification of overweight/obesity as a risk factor for exposing individuals to chronic diseases such as type-2 diabetes, heart disease and certain types of cancers, and increased mortality. A systematic review showed that breastfeeding reduced the risk of obesity in childhood significantly with the adjusted odds ratio at 0.78 (95% CI= 0.71, 0.85) (Arenz et al., 2004). Breastfeeding also decreases the risk of Type-1 Diabetes among children. A case control study found that breastfeeding for more than 12 months was protective of Type-1 Diabetes with OR=0.42 (95% CI: 0.22–0.81) (Malcova et al., 2006) . Thus, breastfeeding offers the hope to reduce the rate of obesity and risk of type-1 diabetes mellitus among children in Malaysia if it is practiced widely.

This intervention (telephone lactation counselling) may be introduced within the public hospitals to further improve the current breast feeding promotion strategy in Malaysia if proven effective from this research. Although it may not be practiced as the main form of promotion, the proactive effort by the

certified lactation counsellors to promote breast feeding is a good idea for the benefit of mothers.

The data obtained from this study could be used to further improve the current breast feeding promotion strategy by using the available human resource. By increasing the exclusive breastfeeding rates in Malaysia, it is hoped that the health status of the infants in Malaysia will be further improved. Breastfeeding is a cheap alternative to reduce the increasing rate of obesity among children in Malaysia and prevent the risk of type-1 diabetes mellitus among children in Malaysia.

This thesis attempts to provide evidence that with a better and proactive counselling intervention by the lactation counsellors, the mothers will be better equipped with knowledge and support to continue breast feeding. This is dealt in the Phase One of the study. A better postnatal support for breast feeding mothers is essential. This is because we may not be able to improve other postnatal environment that may affect the mothers, but an improvement of care by the health care workers may give a higher hope of success of breast feeding to the mothers. Phase Two of the study seeks the breastfeeding mothers' responses towards the telephone lactation counselling, which makes it part of a programme evaluation. The study was expanded in Phase Three, of which a qualitative study was conducted to explore the Lactation Counsellors' perspectives on telephone lactation counselling.

1.6 Objective of this Thesis

1.6.1 Main objective

To assess the effects of telephone-based lactating counselling towards the breastfeeding patterns among mothers who delivered in a public hospital in Kuala Lumpur.

1.6.2 Specific Objectives

To achieve the aim of the study, several specific objectives were developed;

- i. To determine the proportion of different breast feeding patterns among the participants/ respondents i.e. exclusive breast feeding, predominant breast feeding, complimentary feeding and discontinued breast feeding in the control and the intervention groups.
- ii. To determine the association of proactive lactation counselling via telephone with the outcome of breastfeeding practice
- iii. To determine the cumulative probability of breastfeeding with time according to maternal groups
- iv. To determine the factors associated with the success of exclusive breastfeeding
- v. To develop a model of predictive factors associated with the success of exclusive breast feeding
- vi. To determine the common problems discussed among the lactating mothers with the lactation counsellors
- vii. To determine whether the intervention was well accepted by mothers

- viii. To explore the experiences of lactation nurses who had participated in delivering the pro-active telephone-based lactation counselling service to mothers in Kuala Lumpur.

In order to achieve the main objective and specific objectives, two types of study has been conducted. A randomized controlled trial was conducted among the mothers to achieve objectives (i) to (vii). A qualitative study was conducted among the Lactation counsellors to achieve specific objective (viii). Both of these studies complement each other, and followed the recommendations by the Medical Research Council on the development and evaluation of complex interventions to improve health (G. F. Moore et al., 2015).

1.7 Summary

Breast feeding is recognised as the optimal method of infant nutrition. A large variety of interventions to increase the duration of breast feeding have been tested in different settings with varied effectiveness. Although the breastfeeding rates in Malaysia has improved with the implementation of the National Breastfeeding policy, the exclusive breastfeeding rate at six months remained low compared to other neighbouring countries. Thus, an exploration on the new way of providing postnatal lactation support is deemed necessary, particularly in this era where tele-communication is easily available. Postnatal lactation counselling via telephone, provided by the lactation counsellors from the nursing professionals was chosen as the method of choice to provide a new approach in supporting mothers to breastfeed. This approach was chosen in order to utilise the available pool of expertise in the area, using a feasible way

of communication with the mothers. The outline of this thesis is presented as in Figure 1.2 below.

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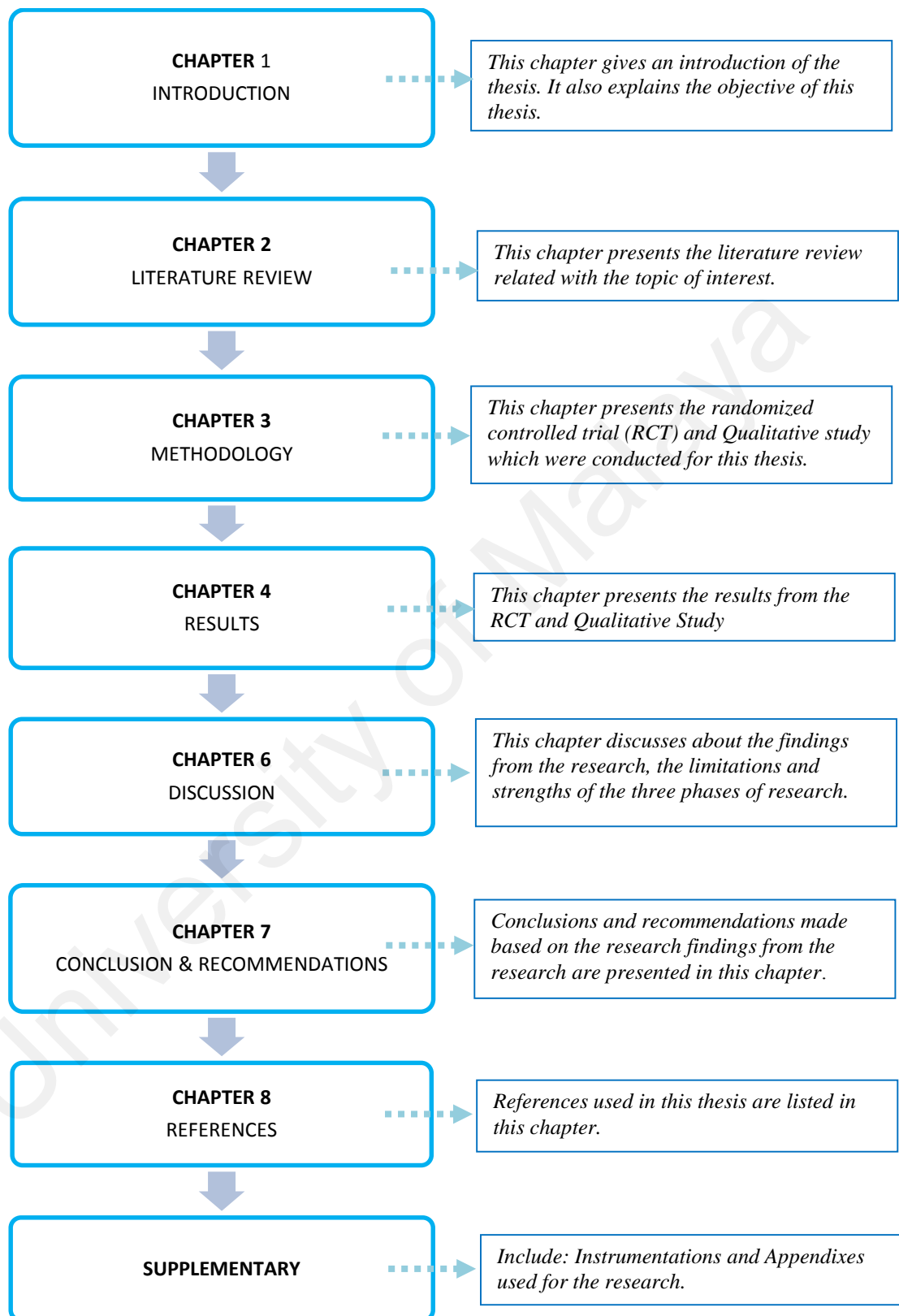


Figure 1.2: Outline of Thesis Presentation.

CHAPTER 2: LITERATURE REVIEW

This chapter presents a background to the research and the aims and objectives. The review begins by addressing the determinants of exclusive breastfeeding. Emphasis is given on postnatal breastfeeding support, which focused on telephone based support or counselling. Particular emphasis is also being given to the role of health professionals in the promotion of breastfeeding. The theories of behaviour change which are related to breastfeeding are also presented in this chapter. Lastly, the theoretical framework for this thesis is presented at the end of this chapter.

2.1 Determinants of Exclusive Breastfeeding Practice

Many studies have discussed in detail about the factors which are associated with breastfeeding. In MHKL, the breastfeeding initiation rate among the mother/infant dyads in the year 2010 was a hundred percent (Department of Obstetrics and Gynaecology MHKL, 2010). In view of the high breastfeeding initiation rate, the factors which are associated with breastfeeding initiation will not be explored in detail in this thesis. The factors which are associated with breastfeeding duration and cessation have also been studied extensively and will not be covered in this chapter. Instead, the factors which are associated with exclusive breastfeeding will be discussed as these are more relevant with the purpose of the intervention study. Factors that were reported to be positively and negatively associated with exclusive breastfeeding are categorized and discussed below. Consistent with the aim of this review, particular emphasis is given to factors that are potentially modifiable by

midwife-provided educational intervention which would commence in the postnatal period.

A woman's decision to exclusively breastfeed is believed to be influenced by a complex array of factors such as political, socio-cultural, psychosocial, demographic, biomedical and environmental. Among the specific factors known to influence a woman's choice of infant feeding across the world are maternal age; marital status; maternal literacy; religious affiliation; infant gender and birth weight; substance use (smoking and alcohol consumption); household size; place of residence (urban or rural); cultural beliefs, norms and attitudes toward breastfeeding; availability of lactation support in the clinical and community settings; employment and socio-economic status. Other factors include the parity and the type of delivery.

2.1.1 Sociodemographic factors

Socio-demographic factors which have been found to be associated with exclusive breastfeeding include: maternal age, religion, level of education, economic status, and the head of household.

Maternal age has been found to be associated with initiation, exclusiveness and duration of breastfeeding. Mothers 25 years and older are more likely to initiate and continue breastfeeding than younger mothers irrespective of country of origin or ethnicity (Al-Sahab, Lanes, Feldman, & Tamim, 2010; Naanyu, 2008; Alan S Ryan, Zhou, & Gaston, 2004). For example, in their study among mothers in the United States, Ryan et al (2002) found older

mothers to be more likely compared to their younger counterparts to initiate breastfeeding and to continue breastfeeding at 6 months. There is also evidence that strongly suggests a positive association between maternal age and the duration of exclusive breastfeeding. However, in Greece, younger maternal age is associated with higher rates of exclusive breastfeeding (Pechlivani et al., 2005).

Religion of the mother is also a determinant of exclusive breastfeeding. Agampodi (2007) reported that in Sri Lanka, Muslim mothers were negatively associated with exclusive breastfeeding (Agampodi, Agampodi, & Piyaseeli, 2007). However, in a local setting, Tan (2011) found that Malay mothers (who are almost always a Muslim by religion in Malaysia) were positively associated with exclusive breastfeeding practice.

The **economic status** of the household is also a factor in determining exclusive breastfeeding practice. Agho et al. (2011) has reported that infants from the poorest households were less likely to be EBF compared to infants from middle-level (AOR = 2.45, 95%CI = 1.06-5.68) and wealthiest households (AOR = 1.15, 95%CI = 0.28-6.69) (Agho, Dibley, Odiase, & Ogbonmwan, 2011). In contrast, Pérez-Escamilla et al. (1995) reported from a study that mothers from the lower socioeconomic status in Honduras and Mexico were positively associated with exclusive breastfeeding (Pérez-Escamilla et al., 1995). In a local setting however, it was found that the socioeconomic status was not a significant determinant of exclusive breastfeeding (Tan, 2011).

Maternal **level of education** has been reported to be positively associated with the initiation, exclusiveness and duration of breastfeeding. In Vietnam researchers have reported a significantly higher percentage of exclusive breastfeeding among women with more than high school education (68%) compared to only 32% among those with high school or lesser education (Duong, Lee, & Binns, 2005). While maternal level of education continues to be shown to have positive association with exclusive breastfeeding across countries, Pechlivani F et al (2005) al in Greece found an inverse association. In this cross-sectional study low educational level is associated with higher rates of exclusive breastfeeding (Pechlivani et al., 2005). The same inverse association of lower maternal education level with exclusive breastfeeding was also noted by S. B. Agampodi et al in Sri Lanka and J. F. Ludvigsson & Ludvigsson in Sweden (Agampodi et al., 2007; Ludvigsson & Ludvigsson, 2005). Fathers' level of education has also been found to be a significant factor in the practice of exclusive breastfeeding. In Sweden, it was found that infants whose fathers have lower education levels, had an almost 1.5 times risk factor to shorter exclusive breastfeeding duration (Ludvigsson & Ludvigsson, 2005).

Researchers have also found associations between breastfeeding and **marital status** (Al-Sahab et al., 2010; Binns et al., 2004; Jane A Scott, Binns, Oddy, & Graham, 2006; Ward, Sheridan, Howell, Hegarty, & O'Farrell, 2004). In a prospective study of 247 mothers from the UK who delivered singleton births, Ward and co-workers reported that married mothers were more likely to

initiate breastfeeding at hospital discharge (80.2 % vs. 66.7%) and exclusively breastfeeding at 6 and 14 weeks postpartum (91.1% vs. 74.1% and 93.8% vs. 75.5%, respectively) than single mothers (Ward et al., 2004).

Studies have shown that the **presence of a father figure** in a household is also associated with exclusive breastfeeding (Al-Sahab et al., 2010; Pérez-Escamilla et al., 1995). Mothers who lived in with their partners were also found to exclusively breastfeed their infants when compared to those who lived separately (Al-Sahab et al., 2010). The presence of the infant's father at home was marginally and positively associated with exclusive breast-feeding (Pérez-Escamilla et al., 1995). When mothers who breastfeed became the head of a household, it has a negative association with exclusive breastfeeding practice (Espinoza, 2002) when compared to a positive effect by a father being the head of a household (Chatman et al., 2004).

Other maternal factors associated with exclusive breastfeeding are parity, body mass index, smoking status and maternal employment. **Parity** is another important maternal characteristic reported to influence breastfeeding exclusivity (Al-Sahab et al., 2010; Naanyu, 2008; Pechlivani et al., 2005; Tan, 2011). Studies across countries, cultures and ethnic groups have found higher rates of exclusive breastfeeding among multiparous mothers (Al-Sahab et al., 2010; Pechlivani et al., 2005; Tan, 2011). For example, Tan KL (2011) reported that among multiparous mothers in the district of Klang, Selangor Malaysia, there was a significant 1.7 higher probability to exclusively breastfeed when compared to first time mothers (95% C.I 1.17, 2.42).

Maternal employment has been found to have a negative association with breastfeeding exclusiveness irrespective of country of birth, race or ethnicity (Al-Sahab et al., 2010; Azaiza & Palti, 1997; Ludvigsson & Ludvigsson, 2005; Mohd Amin, Mohd Said, Sutan, Shah, & Darus, 2011; Pechlivani et al., 2005; Rea, Venâncio, Batista, & Greiner, 1999). Mohd Amin et al. (2011) conducted a cross-sectional study which assessed the factors that contribute to discontinuing breastfeeding among employed mothers who attended government clinics in the Petaling District, Malaysia. This study found that among the working mothers, more mothers who worked in the private sector (57%) had discontinued breastfeeding at the time of the study than mothers who worked with the government (57% vs. 40%, OR 0.52, 95% CI: 0.32, 0.86). The authors also reported that not having adequate breastfeeding facilities at the workplace was also a risk factor for breastfeeding discontinuation (AOR 1.8, 95% CI: 1.05, 3.1) (Mohd Amin et al., 2011). Although maternal employment has been reported to generally affect the duration and exclusivity of breastfeeding, Rea et al. (1999) reported that in Brazil, employed mothers who had access to and utilized work-related day care and breast milk expression facilities had a longer mean duration of exclusive breastfeeding than their counterparts with no access to these facilities (31 vs. 12 days, respectively) (Rea et al., 1999). Also, in Honduras, Perez-Escamilla et al. found maternal employment to be inversely associated with the duration of exclusive breastfeeding (Pérez-Escamilla et al., 1995). The **mode of work** (fixed working hours vs. shift working hours) was associated with exclusive breastfeeding at one month (odds ratio (OR) = 0.45)

and two months (OR = 0.39) (Lakati, Binns, & Stevenson, 2002). However, there was also documentation that unemployed mothers have an inverse association with exclusive breastfeeding (Agampodi et al., 2007).

2.1.2 Biomedical factors

Al-Sahab (2010) reported that mothers who have a **lower prenatal body mass index (BMI)** have more tendencies to exclusively breastfeed. The author reported from a regression analysis that a unit of increase in prenatal BMI would have a 0.97 probability to not exclusively breastfeed (95% CI 0.95, 0.99). Although the findings was statistically significant, the clinical significance of this finding is questionable based on the confidence interval values (Al-Sahab et al., 2010). However, another study had shown that pre-pregnant overweight and obesity had significant negative association with the duration of exclusive breastfeeding (Hilson, Rasmussen, & Kjolhede, 1997). The authors reported that mothers who were prenatally overweight and obese had a 1.4 times hazard risk when compared to mothers who had normal weight.

Smoking among mothers is negatively associated with exclusive breastfeeding (Al-Sahab et al., 2010; Ludvigsson & Ludvigsson, 2005; Tan, 2011). Al-Sahab et al reported from a study in Canada that mothers who did not smoke have twice the probability to exclusively breastfeed when compared to mothers who smoked (adjusted OR 2.11, 95% C.I. 1.36, 3.27). Meanwhile, in a local setting, an even higher probability was found among mothers who

didn't smoke to exclusively breastfeed (adjusted OR 5.18, 95% C.I. 1.59, 45.1).

2.1.3 Antenatal & birthing practices

Birthing practices has also been identified as the determinant to exclusive breastfeeding. **The type of delivery** have been found to influence the exclusivity of breastfeeding (Al-Sahab et al., 2010; Duong et al., 2005; Pechlivani et al., 2005). In Vietnam, researchers have found vaginal delivery to positively influence the decision to exclusively breastfeed (OR: 18.52; 95% CI: 5.47-6271) (Duong et al., 2005). A similar association was also reported by Pechlivani et al. (2005). Mothers who delivered via Caesarean sections was found to have an inverse association with exclusive breastfeeding (Al-Sahab et al., 2010). The author had also reported that mothers who delivered at home were more likely to exclusively breastfeed their infants (Al-Sahab et al., 2010).

Mothers who has made more **antenatal visits** during their pregnancy was reported to exclusively breastfeed their infants more compared to those who neglected their antenatal visits (Agho et al., 2011; Tiwari, Mahajan, & Lahariya, 2008). It was reported by Agho et al (2011) that mothers in Nigeria who had no antenatal visits during pregnancy had lower probability for exclusive breastfeeding than those mothers who had 1 to 3 antenatal clinic visits, and 4 or more antenatal clinic visits (AOR = 2.62, 95%CI = 0.83-8.31 and AOR = 2.70, 95%CI = 1.04-7.01, respectively). More immunization visits

at postnatal period was also a positive factor to exclusive breastfeeding (Tiwari et al., 2008).

Horvath et al (2005) determined the effect of **supplemental fluids or feedings** during the first few days of life on the overall breastfeeding duration and rate of exclusive breastfeeding among health infants, via systematic review of relevant studies in electronic databases. The author reported that there is considerable uncertainty about the effects of brief exposure to water, breast-milk substitutes, or other liquids on the success and duration of breastfeeding (Horvath, Koletzko, Kalisz, & Szajewska, 2005).

2.1.4 Infant factors

Studies have also shown that several factors related with the infants also determined the practice of exclusive breastfeeding. **Term infants** were exclusively breastfed more compared to preterm infants (Tan, 2011). Several studies have also reported that **female babies** were positively associated with exclusive breastfeeding (Agho et al., 2011; Espinoza, 2002; Pérez-Escamilla et al., 1995). Babies born with a **higher birth weight** were more likely to be exclusively breastfed than male babies (Eregie, 1998; Pechlivani et al., 2005; Pérez-Escamilla et al., 1995). An **increasing age of the infant** was associated with significantly less EBF (AOR = 0.65, 95%CI = 0.51- 0.82) (Agho et al., 2011).

2.1.5 Early breastfeeding practices or norms

Early breastfeeding practices at the hospital or at home have an impact towards exclusive breastfeeding. Studies have shown that **early breastfeeding initiation** was positively associated with exclusive breastfeeding (Pechlivani et al., 2005; Tiwari et al., 2008). Rooming-in of infants at the hospital after delivery ((Pechlivani et al., 2005) and **bed sharing** at home (Tan, 2011) are also significant factors determining the success of exclusive breastfeeding. A systematic review has found that the use of **pacifiers** was found to be negatively associated with exclusive breastfeeding practice (O'Connor, Tanabe, Siadaty, & Hauck, 2009).

2.1.6 Psychosocial factors

The psycho-social factors related to exclusive breastfeeding has also been studied. Mothers who had **felt having insufficient milk** were significantly and negatively associated with exclusive breastfeeding (Sorensen et al., 1998). Naanyu (2008) reported from a study that first time mothers who had **breastfeeding difficulties** have a negative association with exclusive breastfeeding by a factor of -0.18 (Naanyu, 2008). In a study conducted in a rural area in Vietnam, Duong et al (2005) reported that if women did not feel **comfortable to breast-feed** their child in public places, they were unlikely to maintain an EBF practice (OR=0.45, 95% CI=0.25–0.80). It was also found from the same study that when mothers made their own decision on breast-feeding, their babies were likely to be exclusively breast-fed (OR=2.14, 95% CI=1.09–4.13). The same author had also found that the preference of feeding of a father also affects the infant feeding choices. In families whose fathers

who preferred breast-feeding, their infants were more likely to be exclusively breast-fed; OR= 4.92 (95% CI=2.43–9.98). The nutritional stability of a family is also important. In a place where the majority of families are poor, it is likely for the baby to be exclusively breast-fed when a family had sufficient food during the year (OR=4.16, 95% CI=1.02–9.83) (Duong et al., 2005).

2.2 Breastfeeding Support

Support to breast feeding could be direct or indirect support, provided by individuals, groups or health system, and may be conducted at different time intervals before and after the birth of an infant. This thesis focuses on the postnatal breastfeeding support for improving the breastfeeding practices, in particular towards achieving exclusive breastfeeding.

2.2.1 Support from within the health system

It was noted that one of the strongest determinants for exclusive breastfeeding was **health facility factors**. Furthermore, exclusive breastfeeding rates will be significantly increased with every month of monitoring duration. It was suggested that the introduction of continuous monitoring of infant nutrition and related health care practices might have a positive effect on breastfeeding management in health facilities (Merten & Ackermann-Liebrich, 2004).

Support from health care workers such as doctors, nurses/ lactation consultants and breastfeeding counsellors have all been found to impact breastfeeding (Azaiza & Palti, 1997; Haider, Ashworth, Kabir, & Huttly, 2000; L. Li, Zhang, Scott, & Binns, 2004). Researchers have also found higher

breastfeeding incidence and duration among mothers who attend antenatal breastfeeding classes (Binns et al., 2004; Qiu, Zhao, Binns, Lee, & Xie, 2009; J A Scott, Landers, Hughes, & Binns, 2001). In a study of 1059 women delivering at two rural and two urban hospitals in Australia, Scott et al. (2001) concluded that, support from partners (OR: 10.92; 95% CI: 6.50-18.32), maternal grandmother (OR" 5.91; 95% CI: 3.37-10.39), and attendance to antenatal classes (OR: 1.39; 95% CI: 1.01-1.92) were significantly associated with a higher likelihood of breastfeeding at hospital discharge (J A Scott et al., 2001).

Hannula, Kaunonen, & Tarkka (2007) conducted a systematic review regarding **professional support** interventions for breastfeeding (Hannula, Kaunonen, & Tarkka, 2007). This review included studies from year 2000 and March 2006 and focused on interventions which were conducted from the antenatal, intrapartum and postnatal period. The authors concluded that postnatal telephone support by health professionals was found to be effective in increasing the breastfeeding initiation and duration. However, this conclusion was made based on the results from a single study (Fallon et al., 2005) and no meta-analysis was attempted by the authors to collectively pool the results of studies which combined telephone support or calls with other types of lactation support .

2.2.2 Support from family and community

Breastfeeding initiation, exclusivity and duration have been reported to be influenced by different psychosocial factors. **Partner and maternal**

grandmother support have been consistently identified as being positively associated with the initiation, exclusivity and duration of breastfeeding (Duong et al., 2005; Qiu et al., 2009; Jane A Scott et al., 2006; Vittoz, Labarere, Castell, Durand, & Pons, 2004). In general, mothers are more likely to initiate and continue breastfeeding if they have access to psychosocial support of one form or the other.

2.2.3 Support to increase breastfeeding knowledge and skills

Health promotion programmes were also noted to improve the breast feeding exclusivity. In a study to assess the effectiveness of an educational programme, families in the intervention group were visited (twice before the births of their babies and once after) and were given written and oral advice about all aspects of breastfeeding and storing and expressing milk. In this study, the proportion of women breastfeeding exclusively at 6 months was significantly higher in the intervention group than among the control group 48% vs. 27% (OR 2.91; 95% CI 1.10-7.71) (Gijsbers, Mesters, Kester, Knottnerus, & Schayck, 2006). Betzold et al (2007) conducted a family practice breastfeeding education pilot program. In this study, a family practice office that employed a lactation consultant and followed the American Academy of Pediatrics' "Ten Steps to Support Parents' Choice to Breastfeed Their Baby" distributed handouts at each prenatal and well-child visit (up to one year). It was noted that at post-intervention there was a 200% increase in the exclusively breastfeeding 4–6 month group and a 160% increase in the 6–12 month duration group (Betzold, Laughlin, & Shi, 2007).

Imdad, Yakoob & Bhutta (2011) conducted a systematic review on the effect of breastfeeding promotion interventions on breastfeeding rates with a special focus in developing countries. The intervention studies included in this review include **breastfeeding education and/or additional support** given to mothers through counsellors (by professional health or peer counsellors) in individual or group sessions, either through face to face or telephone and given in prenatal, postnatal, or combined pre- natal and postnatal periods. A total of 53 studies were included in this review. These authors found that breastfeeding promotion interventions significantly increased exclusive breastfeeding rates at 4-6 weeks and at 6 months postpartum. There was an overall 137% increase in exclusive breastfeeding rate at six months with promotion interventions, with a significant 6 times increased incidence in developing countries, compared to 1.3 times in developed countries. This review concluded that prenatal counselling was of greater importance for breastfeeding at 4-6 weeks, while combined prenatal and postnatal counselling was of significant benefit for exclusive breastfeeding at 6 months of age (Imdad, Yakoob, & Bhutta, 2011).

Another similar review was conducted by Britton et al (2007). This Cochrane review on support for breastfeeding mothers (Britton, McCormick, Renfrew, Wade, & King, 2007) focused on **additional support interventions** for breastfeeding and has excluded studies that had an educational intent. It reports that with all forms of additional support, there was a significant 33% and non-significant 10% reduced risk of stopping exclusive breastfeeding at 4-6 weeks and 6 months, respectively. When all forms of extra support were

analysed together in this review, it showed an increase in duration of 'any breastfeeding' (the authors definition includes partial and exclusive breastfeeding), with a relative risk for stopping any breastfeeding before six months at 0.91 (95% CI 0.86 to 0.96). It was also found that all forms of extra support together had a larger effect on the duration of exclusive breastfeeding than on any breastfeeding (RR 0.81, 95% CI 0.74-0.89). Britton et al. (2007) also concluded that a combined peer and professional support was able to significantly extend the duration of any breastfeeding (RR before 4-6 weeks 0.65, 95% 0.51 to 0.82; RR before 2 months 0.74, 95% CI 0.66 to 0.83) (Britton et al., 2007).

Guise et al (2003) conducted a systematic review for the US Preventive Services Task Force (USPSTF) and found fair evidence that programs combining **breastfeeding education with behaviourally oriented counselling** are associated with increased rates of breastfeeding initiation and its continuation for up to 3 months (Guise et al., 2003). Based on this report, the USPSTF recommended for structured breastfeeding education and behavioural counselling programs to promote breastfeeding. The authors have also found fair evidence that providing on-going support for patients, through personal visits or telephone contacts with providers or counsellors, was able to increase the proportion of women continuing breastfeeding for up to 6 months. However, the authors iterated that personal on-going support had a much smaller effect than educational programs on the initiation of breastfeeding and its continuation for up to 3 months. In year 2008, USPSTF came up with another report (Chung et al., 2008) which was an update of the 2003 report

(Guise et al., 2003). In this updated review (Chung et al., 2008), the authors found that the combination of pre- and postnatal breastfeeding interventions had significantly increased both the rates of intermediate and long-term any breastfeeding compared to usual care, 1.38; 95%CI 1.33-1.43, respectively). Postnatal breastfeeding interventions were found to significantly increase the rate of exclusive short-term breastfeeding compared to usual care (pooled RR: 1.21; 95%CI 1.08-1.36). The authors had also made an analysis on interventions that had only postnatal components and the results suggest that larger effects (compared to control) were associated with longer exclusive breastfeeding durations ($P < 0.001$). This association of longer exclusive breastfeeding was not found for prenatal alone or combined pre- and postnatal breastfeeding interventions. Individual level professional support with or without other components significantly increased the rate of any intermediate breastfeeding and intermediate exclusive breastfeeding duration when compared to usual care (pooled RR: 1.12; 95%CI 1.02-1.30; 2.12; 95% CI 1.46-3.07, respectively) (Chung et al., 2008).

Generally, the determinants of exclusive breastfeeding can be simplified in a figure as presented below:

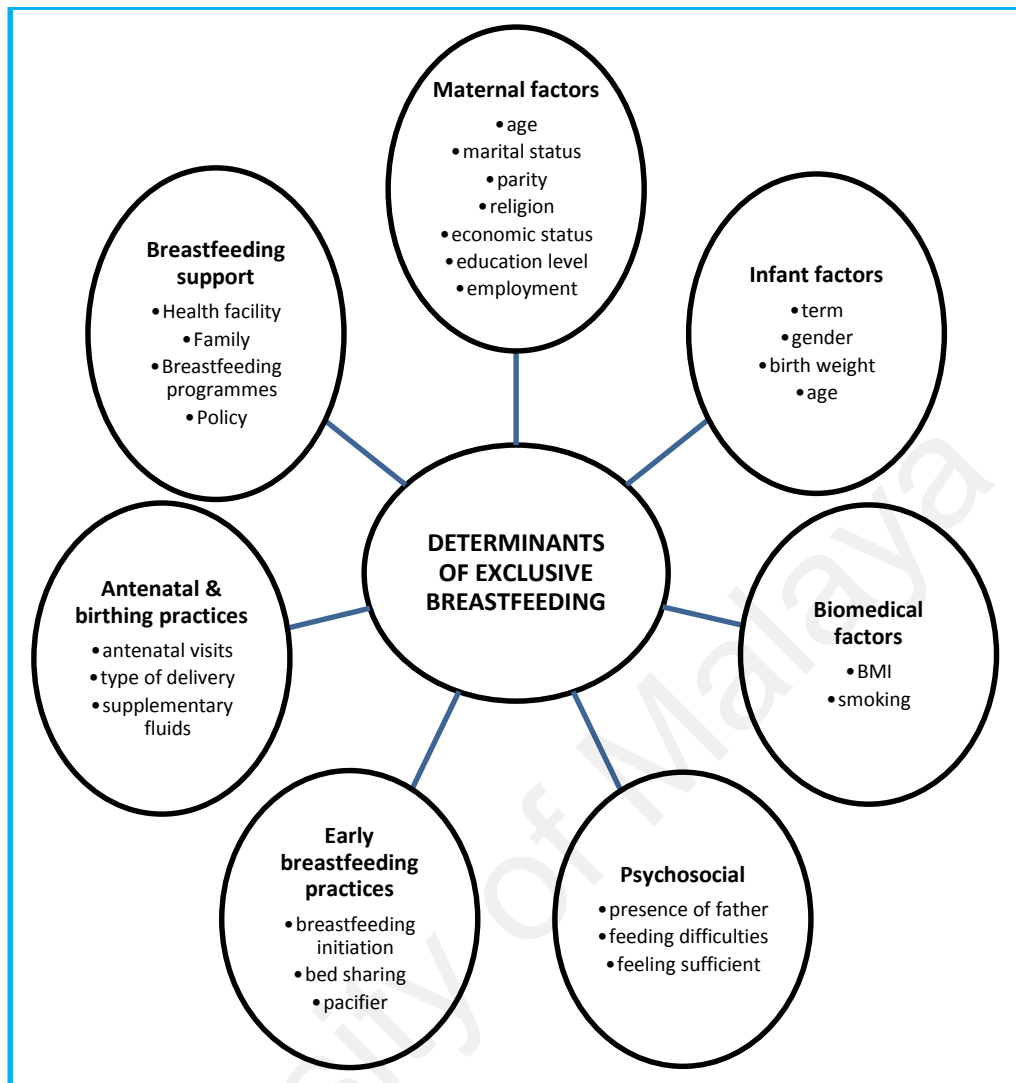


Figure 2.1: Determinants of exclusive breastfeeding

2.3 The Use of Telephone in Breastfeeding Support

Professional support can be broken down into two sub-categories: system level and individual level professional support. System level professional support includes training of health professional to increase breastfeeding promotion knowledge and skills, and BFHI. Individual level professional support includes all forms of one-to-one breastfeeding support or promotion during hospital stay or outpatient visits or social support after discharge (e.g., home visits or telephone support) from health professionals. This thesis focuses on

individual level professional support in the form of telephone lactation counselling.

A systematic review was conducted for this thesis regarding the use of telephone calls by health professionals as the communication method in postnatal breastfeeding support. The systematic review was conducted at the beginning of research proposal, and was constantly updated for new relevant publications up until the completion of Phase One. The systematic review was conducted using the PubMed Database, Cochrane Library, CINHAL, and search engines such as Ovid. The literature was limited only to English language papers. The keywords used during the systematic search include a single or combination of these words/ phrases: breastfeeding, breastfeed*, lactation, counselling OR counselling, support, postnatal, postpartum, “health professional*”, “lactation consultant”, “lactation counsel*or”, breastfeeding consultant”, “breastfeeding counsel*or”. The relevant publications were vetted accordingly with the inclusion/ exclusion criteria which were:

Inclusion criteria:

- *all types of studies*
- *English language publication*
- *involve telephone calls as one of the means of breastfeeding promotion activity*
- *involve certified counsellors, whether from the health professionals or the peers*
- *exclusive breastfeeding is included as one of the outcomes*

Exclusion criteria:

- *studies which did not report on exclusive breastfeeding outcome*
- *other forms of telephone services such as short message service (SMS) or mobile internet applications or alerts*

From a total of 32 relevant literatures retrieved from a systematic review, only eighteen of them were related to telephone counselling. Of these, eight studies were regarding postpartum telephone counselling provided by health professionals, lactation consultants or lactation counsellors (Bonuck, Trombley, Freeman, & McKee, 2005; Carlsen et al., 2013; Di Napoli et al., 2004; Fallon et al., 2005; Frank, Wirtz, Sorenson, & Heeren, 1987; Khresheh, Suhaimat, Jalamdeh, & Barclay, 2011; McDonald, Henderson, Faulkner, Evans, & Hagan, 2010; Vari, Camburn, & Henly, 2000). The other five literatures consist of systematic reviews (Britton et al., 2007; Chung et al., 2008; Dennis & Kingston, 2008; Hannula et al., 2007; Imdad et al., 2011). Studies of postpartum telephone lactation counselling provided by peer counsellors (A. K. Anderson, Damio, Young, Chapman, & Pérez-Escamilla, 2005; Chapman, Damio, Young, & Pérez-Escamilla, 2004; Dennis, Hodnett, Gallop, & Chalmers, 2002; L. C. Pugh et al., 2010; Wong et al., 2007) are discussed in the next sub-paragraph.

Dennis & Kingston (2008) conducted a systematic review of telephone support for women during pregnancy and the early postpartum period and its effect towards breastfeeding practices and several other outcomes (Dennis & Kingston, 2008). The authors included in this review three RCTs of telephone support interventions in which their primary aim was breastfeeding outcome (Dennis et al., 2002; Frank et al., 1987; L. Pugh, Milligan, Frick, Spatz, & Bronner, 2002). This author had combined in its meta-analysis the effects of postpartum telephone lactation support by lactation counsellors (Frank et al., 1987) with those given by peer counsellors (Dennis et al., 2002; L. Pugh et al.,

2002). Meta-analysis of all types of telephone interventions showed that there was an overall beneficial effect on the continuation of any breastfeeding (three trials, $n = 618$; RR = 1.18, 95% CI 1.05- 1.33). When specific time periods were examined for the continuation of any breastfeeding, a beneficial effect was found at 0 to 4 weeks (one trial; $n = 256$; RR = 1.10, 95% CI 1.01-1.21), 5 to 8 weeks (one trial; $n = 256$; RR = 1.13, 95% CI 1.00-1.28), and 9 to 12 weeks (two trials; $n = 295$; RR = 1.25, 95% CI 1.07-1.45) but not at 13 to 16 weeks (one trial; $n = 323$; RR = 1.12, 95% CI 0.94-1.34) or 17 to 24 weeks (one trial; $n = 39$; RR = 2.11, 95% CI 0.61-7.24). The authors also had shown that there was an overall beneficial effect on the continuation of exclusive breastfeeding (two trials, $n = 295$; RR = 1.45, 95% CI 1.12-1.87). When specific time periods were examined for the continuation of exclusive breastfeeding, a beneficial effect was found at 0 to 4 weeks (one trial; $n = 256$; RR = 1.18, 95% CI 1.00-1.40) and 9 to 12 weeks (two trials; $n = 295$; RR = 1.45, 95% CI 1.13-1.86) but not at 5 to 8 weeks (one trial; $n = 256$; RR = 1.15, 95% CI 0.93-1.41) and 17 to 24 weeks (one trial; $n = 39$; RR = 2.11, 95% CI 0.61-7.24) (Dennis & Kingston, 2008).

2.3.1 Telephone use in postnatal breastfeeding support by health professionals

Telephone use in postnatal breastfeeding support by health professionals was looked upon thoroughly in the systematic review. A systematic review table which presents the appraisal of included studies in this topic is presented in the Table 2.1 below.

Table 2.1: Systematic review on telephone use in postnatal breastfeeding support by health professionals

Author (year)	Fallon et al (2005)	Frank et al (1987)	Vari et al (2000)	Di Napoli et al (2004)	Bonuck et al (2005)	McDonald et al (2010)	Khresheh et al (2011)	Hoddinott et al (2012)	Carlsen et al (2013)
STUDY CHARACTERISTICS									
Country	Brisbane, Australia	Boston, US	US	Rome, Italy	Bronx, New York	Australia	Jordan	Scotland	Denmark
Setting	two regional hospitals (one public, one private)	multi-ethnic, low-income urban women	-WIC clinic in US Air Force Base (intervention) -community hospital (control)	public maternity ward	two community health centres serving low income, primarily Hispanic and/or black women	public teaching hospital	two public hospitals	Postnatal ward	public teaching hospital
Study design	Prospective cohort + qualitative study	RCT	Quasi-experimental	RCT	RCT	RCT	RCT	RCT	RCT
Location of intervention	home-based	hospital & home-based	hospital & home-based	hospital & home-based	home-based	hospital & home-based	hospital & home-based	Home-based	home-based
Randomization	randomization process not reported	randomization block of eight	not done	done process not detailed out in report	Managed by project's bio-statistical office -undisclosed blocking factor and stratification according to centre	sealed, opaque envelopes, sequence in blocks of 12	-sealed, opaque envelopes -sequence not reported	Done Website randomization sequence service was used	- web-based independent programme

Table 2.1 continued: Systematic review on telephone use in postnatal breastfeeding support by health professionals

Author (year)	Fallon et al (2005)	Frank et al (1987)	Vari et al (2000)	Di Napoli et al (2004)	Bonuck et al (2005)	McDonald et al (2010)	Khresheh et al (2011)	Hoddinott et al (2012)	Carlsen et al (2013)
Intervention	Telephone based support First contact occurred 48 hours after discharge, and approximately weekly thereafter for 4 weeks.	20-40 minutes bedside postpartum counselling + 8 scheduled telephone calls at 5,7,14,21,24 days, 6, 8 12 weeks of infants' life ± commercial or research discharge packs	3 antenatal breastfeeding support group education sessions + postnatal telephone follow-ups by LC + postnatal peer contacts via telephone	1 postnatal home visit + telephone counselling for 6 months. Details or frequency of planned telephone counselling not provided. it was assumed from this paper that the main intervention was telephone counselling	-2 individual meetings with prenatal and postpartum hospital and home visits ± telephone consultation available up to 12 months. -Prenatal telephone support was initiated by LC -Nursing bra provided free to mothers -Electric/manual breast pumps provided free to mothers of certain criteria	Extended midwifery support (EMS): one-to-one postnatal educational session + weekly home visits + twice weekly telephone contact by a midwife until their baby was six weeks old	1-h postnatal educational session + pamphlet with breastfeeding information + telephone calls at 2 & 6 months. Telephone calls= informed source for BF, not counselling	Daily proactive & reactive telephone calls for ≤ 14 days. Women may telephone the feeding team at any time during study period.	Telephone-based advisory support service. Initial contact within 1 st week postpartum, 3 calls in 1 st month, 2 calls in 2 nd month, once per month thereafter until 6 month ± extra calls if necessary ± standard country & hospital postnatal support
Provided by	Lactation Consultant	Lactation Consultant	Lactation Consultants	Trained midwives	Lactation Consultants	Experienced registered midwives (without LC certification)	Clinical nurses trained in BF	Dedicated breastfeeding team	Lactation Consultant (IBCLC)

Table 2.1 continued: Systematic review on telephone use in postnatal breastfeeding support by health professionals

Author (year)	Fallon et al (2005)	Frank et al (1987)	Vari et al (2000)	Di Napoli et al (2004)	Bonuck et al (2005)	McDonald et al (2010)	Khresheh et al (2011)	Hoddinott et al (2012)	Carlsen et al (2013)
Control	Conventional care. Unclear	routine breastfeeding counselling provided in the hospital by nurses ± commercial or research discharge packs	no breastfeeding support group	no specific interventions	health centres standard of care, none followed an established protocol for breastfeeding education or support or offered a private lactation space	standard postnatal midwifery support (SMS)	standard postnatal care follow-up calls to collect data	Reactive telephone calls ≤ 14 days	Standard postnatal care in Denmark + standard BF support by Hospital
Number of women received intervention	696	171 Two groups of intervention: 1) research counselling + research discharge pack 2) research counselling + commercial discharge pack	19	assigned to group=303, received intervention=276	188	425	72	35	108

Table 2.1 continued: Systematic review on telephone use in postnatal breastfeeding support by health professionals

Author (year)	Fallon et al (2005)	Frank et al (1987)	Vari et al (2000)	Di Napoli et al (2004)	Bonuck et al (2005)	McDonald et al (2010)	Khresheh et al (2011)	Hoddinott et al (2012)	Carlsen et al (2013)
Number of women in control group	625 (Baseline cohort: all women who gave birth between July 10 and November 30, 2001)	172 Two control groups:(1) routine counselling + research discharge pack (2) routine counselling + commercial discharge pack	36 (16: older group, 20: younger group)	302	194	424	68	34	118
Inclusion criteria	all women who gave birth	-breast fed once at hospital -speak English or Spanish -have telephone at home -infant not admitted >48 hours NICU	-first time breastfeeding -normal infants -speaks English ->18 years old	-women intended to breastfeed	-speaks English or Spanish -twin or singleton pregnancy -intend to keep the infant; - remain in the centre and its hospital system for prenatal and infant care up to 12 months; has ≥ 2 contact telephone numbers; gestation before 24 weeks	-had given birth at the hospital -intend to breastfeed	-primiparous -had given birth vaginally	-women admitted to ward between 26.7.10 until 18.10.10 -lived in 3 most disadvantaged postcode area - breastfeeding	obese women who participated in Treatment for Obese Pregnant Study; intend to BF; no history of breast surgery; term singleton, healthy infant

Table 2.1 continued: Systematic review on telephone use in postnatal breastfeeding support by health professionals

Author (year)	Fallon et al (2005)	Frank et al (1987)	Vari et al (2000)	Di Napoli et al (2004)	Bonuck et al (2005)	McDonald et al (2010)	Khresheh et al (2011)	Hoddinott et al (2012)	Carlsen et al (2013)
Exclusion criteria	-no home telephone contact -had insufficient understanding of English -lived outside Australia - baby did not survive	not stated	not stated	-did not speak Italian; could not be contacted by telephone; did not reside in the catchment area of the hospital; babies admitted to ICU or transferred to other hospitals; women who suffered from diseases which counter-indicate breast-feeding	-HIV-positive status -chronic therapy with medications incompatible with breastfeeding -pre-gestational diabetes mellitus - women with human T-cell leukaemia virus-1, breast reduction or surgery, hepatitis B or C	-gestational age less than 36 completed weeks -multiple pregnancy -maternal age less than 18 years -insufficient English to complete questionnaires. -lived outside the Perth -not contactable by telephone	-gestational age of less than 36 weeks -multiparous -lived outside southern Jordan -were not contactable by telephone after discharge	-Aged<16 years old -have serious medical problems -insufficient spoken English	-gestation age <258 days -postnatal age >48 hours -infants admitted to NICU -infants with congenital disorders
Length of follow up	3 months	4 months	6 weeks	6 months	Aug 2000 - Nov 2002	6 months	6 months		6 months
Completeness of follow-up	no mention of contact tracing of loss to follow-ups	-telephone interview conducted at 4 months -no mention of contact tracing of loss to follow-ups	contacted at 6 weeks by mail questionnaire or telephone interview	telephone interviews at 2 weekly frequency	Interviews at 1, 2, 3, 4, 6, 8, 10, and 12 months after birth	-Self-report mailed questionnaire at 2 & 6 months -BF diary -tracing by telephone	Questionnaire follow up at 6 month		BF data by telephone

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Description of withdrawals	not stated	not stated	not stated	reported	reported	not stated	reported	reported	Not stated
Blinding	not relevant	only data collector at follow up was blinded	not relevant	not reported	not done	not done	not reported	not blinded	only to BF data collector
Outcome measure	Exclusive & partial breastfeeding duration measured at 3 months postpartum. EBF definition by WHO (1991)	exclusive breastfeeding rates and duration, partial breastfeeding rate, onset of weaning EBF definition may have included those given plain water or juices (author excluded giving formula or solids as non-EBF)	-duration of BF -BF completeness -Exclusive BF -BF satisfaction Exclusive BF definition by Labbok & Krasovec (1990)	EBF duration EBF definition by WHO (1991)	breastfeeding intensity score over 52 weeks by summing weekly scores (range of 1–7, with 7 being exclusive formula feeding using the Index of Breastfeeding Status maternal self-report	Full BF (no artificial milk supplementation but other fluids and/or solids given) and any BF at six months postpartum Exclusive BF definition by Labbok & Krasovec (1990)	-Full BF at 6 months -Gastrointestinal & respiratory infections among infants	- giving some breast milk at 6-8 weeks after birth - exclusive breastfeeding milk at 6-8 weeks after birth	EBF & any BF (WHO definition)

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Intention to treat analysis	not stated	not stated	not done	-stated as done -some figures in results table does not tally with the figures in the flow chart	Not done. Authors had done per protocol analysis instead	Stated as done by authors, but instead, per protocol analysis was done by the authors for the outcomes	Not done. per protocol analysis was done.	Done	not stated
QUALITY ASSESSMENT									
Selection bias	not relevant - randomization done	not relevant - randomization done	not relevant - randomization done	not relevant - randomization done	not relevant - randomization done	not relevant - randomization done	not relevant - randomization done	not relevant - randomization done	not relevant - randomization done
Performance bias	no explanation given by authors on possibility of exposure to other types of BF support	no explanation given by authors on possibility of exposure to other types of BF support	exposure to other types of BF support in the control group	no explanation given by authors on possibility of exposure to other types of BF support in both groups	-no exposure of control to intervention LCs -possible exposure to WIC programs but assessed by authors	no explanation given by authors on possibility of exposure to other types of BF support	author reported on exposure to other forms of BF support/ education (64%) participants received information about BF outside the study	no explanation given by authors on possibility of exposure to other types of BF support	exposure to other types of BF support in the control group
Measurement bias	recall & attention biases may occur during telephone interview	recall & attention biases may occur during telephone interview	recall & attention biases may occur	attention biases may occur when participants were followed up too frequently	participants self-reported their BF status each week – may contribute to recall or attention bias	may have occurred when participants entered their BF diaries, but not mentioned by authors	recall & attention biases may occur during final follow up	recall & attention biases may occur during data collection via telephone	recall & attention biases may occur during data collection via telephone

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Intervention bias	not reported	author reported compliance to intervention	not reported proficiency bias may have occurred	compliance bias & proficiency bias may have occurred	multiple BF support at longer period of time may have introduced compliance & proficiency bias	no predetermined intervention dosages, varies according to individuals' need. may have introduced proficiency bias	consistency of care was maintained	not reported	consistency of care was maintained
Compliance to intervention	-dosage/ compliance analysis of intervention not reported -participants' satisfaction on intervention was reported	-91% received ≥7 telephone contacts, -75% received ≥1 additional follow up call - 40% used paging system to initiate contact counsellor	dosage/ compliance analysis of intervention not reported	-15.9% of participants assigned to intervention had refused to receive the intervention. -dosage/ compliance among participants who agreed to receive the intervention were not reported.	At 13 weeks: -19% intervention group women in the outcomes sample (n=145) did not have any contact with the LC -55% received telephone calls - total duration of telephone calls = 60.19 ± 34.36 -mean duration of telephone calls 28.4 ± 38.12	-93% EMS group received the in-hospital education session. -74% received between two and four home visits - 8% received one visit - 7% received no home visits. -The return rate for the follow-up questionnaires ranged 71.9% - 92.5%	-dosage/ compliance analysis of intervention not reported	-91% from the intervention received calls until end of 1 week, 42% until the 2 nd week	-dosage/ compliance analysis of intervention not reported

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Loss to follow up	Ranged from 9.7% to 14.8% in different cohorts	15%	0	- loss to first follow up (no follow-up) = 10.4% - percentage of participants who were partially followed up = 48.7%	ranged from 16-17%	Ranged from 0.9% to 1.9%	37.5% in intervention, 33.8% in control groups (no response to phone calls and moving conflicts)	15.9%	8.4%
Overall assessment of quality	Women recruited into the study maybe more motivated to breastfeed	It was not clear in the study who was the "trained counsellor". Thus, it was assumed that it was not from among the peers, but a personnel who had obtained a qualification in nursing or infant feeding and counselling Study flow chart was not presented	-a thorough module of intervention was given, but the exact exposure to intervention (telephone counselling by LC) not reported -number of participants was small. -no mention on sample size calculations or effect size. -validated questionnaires were adapted	Author did not specify how the uniformity and quality of intervention was controlled, and did not specify in detail regarding the telephone counselling.	Author did not specify how the uniformity and quality of intervention was controlled for	-The author mentioned ITT analysis was done, but no ITT result was presented -Authors chosen Fully BF definition as outcome measure because it was assumed that women in Australia choose to commence supplementation with solids before their babies reach six months of age.	Author did not specify how the uniformity and quality of intervention was controlled, and did not specify in detail regarding the telephone counselling.	Author did not specify how the uniformity and quality of intervention was controlled, and did not specify in detail regarding the telephone support No ITT result was reported	-Women recruited into the obesity management study maybe more motivated to breastfeed - Uniformity by engaging only one counsellor - Author did not specify how the quality of intervention was controlled -ITT analysis

Table 2.1 continued: Systematic review on telephone use in postnatal breastfeeding support by health professionals

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		The main intervention studied and reported was regarding the discharge packs. Association of counselling intervention was not reported	for data collection - women representative only from the selected setting			- mothers recruited into study have intention to BF			was not conducted
Intervention	<u>Private hospital:</u> Exclusive BF at 4.5 weeks OR 1.4 (95% CI = 1.0–2.0) Partial BF at 4.5 weeks OR 1.4 (95% CI = 0.9–2.2) Exclusive BF, Partial BF at 3 months- no association	Association of research discharge pack with EBF, controlling for counselling intervention. NO report on the association of counselling on EBF when discharge packs were controlled. Women who	The intervention group had significantly longer duration of exclusive breastfeeding (mean 5.42 weeks) compared to control (Younger-age control group mean EBF 3.38 week, older-age group mean EBF 4.55 weeks)	In the group of women who effectively received the intervention, a reduction in the risk of premature discontinuation of exclusive or predominant breastfeeding was observed (HR 0.71; 95% CI: 0.49–1.03).	<u>Any breastfeeding:</u> (intervention vs. control): -2 weeks: 90% vs. 65% -20 weeks: 53.0% vs. 39.3%; <i>P</i> < .028 -12 months: 18% vs. 15% <u>BF ≥ 50%:</u> -1 week: 69% vs. 47%; <i>P</i> < .001 -9 week: 45.8% vs. 33.1%; <i>P</i> <	<u>Full breast feeding:</u> EMS 43.3% vs. SMS 42.5%, RR 1.02, 95% CI 0.87–1.19 <u>Any breastfeeding:</u> EMS 63.9% vs. SMS 67.9%, RR 0.94, 95%CI 0.85–1.04	Proportion of women fully breastfeeding their babies at 6 months (intervention group: 39% and control group: 27%, percentage difference = 12%) (95%CI: -9% to 30%)	<u>Some breastfeeding at 6-8 weeks</u> Intervention vs. control: 69% vs. 46% (RR 1.49, 95% CI 0.92-2.40) EBF at 6-8 weeks: 53% vs 31% (RR 1.73, 95% CI 0.88-3.37)	EBF at 3 mo. postpartum: OR 2.14 (1.23, 3.74), AOR 2.45 (1.36, 4.41). No OR for EBF rate at 6 mo. presented. The exact proportion of EBF rates in both groups was not presented

Table 2.1 continued: Systematic review on telephone use in postnatal breastfeeding support by health professionals

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	<p><u>Public hospital:</u> Exclusive BF, Partial BF at 4.5 weeks or 3 months- no association</p>	<p>received the research discharge pack, were more likely to prolong exclusive breast-feeding ($P = .004$), to be partially breast-feeding at 4 months postnatal ($P = .04$), and to delay the daily use of solid foods in the infant's diet ($P = .017$).</p>		<p>the main findings presented were discontinuation of BF, not EBF rates or odds of EBF</p>	<p>.030 <u>Exclusive BF:</u> -2 weeks: 20% vs. 19%; -6 weeks: 15% vs. 16%; -13 weeks: 9% vs. 11%; -26 weeks: 5% vs. 8%; -52 weeks: 6% vs. 5% <u>AOR low vs. high BF in control group</u> -13 weeks: 1.90 (95% CI 1.13–3.20) -52 weeks: 2.50 (95% CI 1.48–4.21)</p>				<p>Partial BF: OR 1.85 (1.06,3.21), AOR 2.25 (1.24,4.08)</p>

Table 2.1 continued: Systematic review on telephone use in postnatal breastfeeding support by health professionals

Author (year)	Fallon et al (2005)	Frank et al (1987)	Vari et al (2000)	Di Napoli et al (2004)	Bonuck et al (2005)	McDonald et al (2010)	Khresheh et al (2011)	Hoddinott et al (2012)	Carlsen et al (2013)
CONCLUSION									
	Predominately telephone-based intervention is effective in increasing EBF rates in a private hospital setting, but not in public hospital setting	Discharge packs consistent with WHO Code is effective in increasing EBF rate	BF support module which combined BF support group education sessions, postnatal telephone follow-ups by LC & postnatal peer contacts via telephone can improve the duration of exclusive breastfeeding	BF support module which combined 1 postnatal home visit and telephone counselling is effective in reducing the risk of premature discontinuation of EBF	BF support module which combined education, home visits and telephone contacts during both antenatal + postnatal: - is not effective in increasing EBF rates -is effective in increasing any BF rates up to 20 weeks postpartum	BF support module which combined postnatal Bf education, home visits and scheduled telephone counselling was not effective in increasing full breast feeding or any breast feeding at six months	Postnatal education & support programme was not effective in increasing full BF rate	Proactive telephone care delivered by a dedicated team may be effective. Definite conclusion could not be made as this was a pilot study with small number of participants and many limitations	Telephone based lactation support is effective in prolonging EBF and partial BF rates among obese women

Nine articles were found very much related and would have significant contribution in the discussion chapter. Five articles reported a positive effect of telephone based breastfeeding support on exclusive breastfeeding (Di Napoli et al., 2004; Fallon et al., 2005; Frank et al., 1987; Vari et al., 2000). Three articles had reported that such support was not effective in prolonging exclusive breastfeeding duration (Bonuck et al., 2005; Hoddinott, Craig, Maclennan, Boyers, & Vale, 2012; Khresheh et al., 2011; McDonald et al., 2010).

Fallon et al. (2005) conducted an intervention study that incorporated the lactation counsellors to provide postpartum telephone support to the mothers who gave birth at the public and private hospitals, and compared their breastfeeding practices with mothers from the control group. Two maternity hospitals from the city of Toowoomba in Brisbane, Australia were selected for this study and two cohorts from each of these hospitals were used for the study. The control (baseline) group included all women who gave birth between July 10 and November 30, 2001, while the intervention group included all women who gave birth between January 1 and July 18, 2003. The author found that women who delivered at the private hospitals who had received the intervention were 1.4 (95% CI = 1.0–2.0) times more likely to be exclusively breastfeeding at 4.5 weeks postpartum and 1.4 times (95% CI = 0.9–2.2) more likely to be partially breastfeeding at 4.5 weeks postpartum than mothers in the control group. However, the intervention was found not effective among mothers from the public hospitals which has a high breastfeeding initiation rates ($p > 0.05$) (Fallon et al., 2005). This is the only

study found to incorporate a single method of postpartum lactation support (i.e. telephone-based counselling by lactation counsellors), while the other studies had incorporated telephone-based support with different models of other postpartum lactation support. It could be deduced from this paper that the place of birth has an impact on the conduct of breastfeeding promotion and breastfeeding practices.

Another research which studied the effects of telephone lactation counselling provided by lactation consultants was conducted by Frank et al (1987). Although this study has been included in a systematic review (Dennis & Kingston, 2008), it is best if this study is appraised in this thesis as well. This was the earliest study identified which studied on the effectiveness of telephone support in breastfeeding. In this study, the intervention group received a standard postpartum care plus in-hospital breastfeeding counselling by lactation consultant followed by eight telephone calls post discharge over a 12-week period, while the controls received a standard postpartum care that included breastfeeding assistance by hospital nursing staff and breastfeeding “hotline”. The intervention group also had access to a 24-hour telephone support. The intervention resulted in a significantly prolonged exclusive breast-feeding, partial breast-feeding at 4 months postpartum the delay the daily use of solid foods in the infant's diet in the intervention group (Frank et al., 1987).

Vari et al. (2000) conducted a quasi-experimental study in the United States that provided a combination of antenatal breastfeeding support group

education sessions with postnatal telephone follow-ups by LC and postnatal peer contacts via telephone (Vari et al., 2000). In this study, the intervention group had significantly longer duration of exclusive breastfeeding (mean 5.42 weeks) compared to control. However, this study has only a fair level of quality. This is because, although a thorough module of intervention was given, the exact quantity of exposure to intervention (telephone counselling by LC) was not reported, the number of participants was small and there was no mention on sample size calculations or effect size. This study had also used the exclusive breastfeeding definition by Labbok & Krasovec (1990).

One study which was conducted in a public maternity ward in Italy also provided a positive result (Di Napoli et al., 2004). Di Napoli et al. (2004) conducted an RCT which provided one postnatal home visit and telephone counselling for 6 months by trained midwives as the intervention. In the group of women who effectively received the intervention, a reduction in the risk of premature discontinuation of exclusive or predominant breastfeeding was observed (HR 0.71; 95% CI: 0.49–1.03). This study has a fair level of quality as the author did not specify how the uniformity and quality of intervention was controlled, and did not specify in detail regarding the telephone counselling. It was also noted from the appraisal that participants were followed up too frequently (2 weekly telephone interview) and this could have led to attention biases.

Telephone-based support was also studied if it could increase the duration of breastfeeding in obese women in an RCT by Carlsen et.al. (2014). 207 dyads

of obese mothers and their singleton, healthy, term infants were recruited in Denmark for this study, of which 105 dyads received support and 102 dyads were control subjects. Only one International Board Certified Lactation Consultant carried out the intervention to maintain the consistency, which was based on structured interviews and consisted of encouraging telephone calls. Initial contact was given within 1st week postpartum, three calls in the 1st month, two calls in the 2nd month, and once per month thereafter until 6 months. The mothers in the intervention group may receive extra calls if necessary, along with the standard country & hospital postnatal support. This RCT found that telephone-based advisory support was very effective in prolonging breastfeeding in obese mothers who often terminate the breastfeeding of their infants prematurely. The support group breastfed exclusively for a longer duration compared to the control group (median of 120 days, 25th–75th percentiles: 14–142 days vs. 41 days 3–133 days respectively; $p = 0.003$). Any breastfeeding duration was maintained for a median of 184 days (92–185 days) for the support group compared with 108 days (16–185 days) for control subjects ($p = 0.002$). Support increased the exclusive breastfeeding at 3 months (AOR= 2.45, 95% CI: 1.36, 4.41) and the partial breastfeeding rate at 6 months (AOR= 2.25, 95% CI: 1.24, 4.08) (Carlsen et al., 2013).

A pilot randomized controlled trial was conducted in Scotland to assess the feasibility and effectiveness of implementing a dedicated feeding support team on a postnatal ward (Hoddinott et al., 2012). This study was conducted among mothers who were recruited from postnatal ward from different regions in

Scotland, of which the intervention group were given proactive and reactive telephone calls by a dedicated breastfeeding team for a maximum of two weeks. Mothers in the intervention group were allowed to make telephone calls if needed to a dedicated telephone number. Meanwhile, mothers in the control group were subjected to reactive telephone calls. It was reported that this method of proactive telephone care delivered by a dedicated feeding team shows promise for increasing breastfeeding rates 6-8 weeks after birth. A higher percentage of mothers in the intervention group had practiced exclusive breastfeeding compared to the controls (48.5% vs. 23.5%; RR 1.73, 95% C.I. 0.88-3.37). Although the result was not significant, the effect size was likely to be overestimated as the sample size was small and no sample size calculation was performed prior to the study. The authors also reported that this intervention is feasible as part of routine postnatal care (Hoddinott et al., 2012).

Other studies which had combined telephone support with other forms of lactation support during postpartum period produced results which did not favour the intervention. Bonuck, Trombley, Freeman, & McKee (2005) conducted a randomized, controlled trial of a prenatal and postnatal lactation consultant intervention, which incorporated two prenatal meetings by lactation consultants, a postpartum hospital visit, and/or home visits and telephone calls for the intervention group. The authors reported that the exclusive breastfeeding rates did not differ between groups. However, when the outcomes were analysed according to breastfeeding intensity, it was found that the control subjects had a lower breastfeeding intensity at 13 weeks (odds ratio

[OR]: 1.90; 95% confidence interval [CI]: 1.13–3.20) and 52 weeks (OR: 2.50; 95% CI: 1.48–4.21) (Bonuck et al., 2005). In this study, the data analyses used a slightly different outcome measurement, the Index of Breastfeeding Status. The index used was a 7-level ordinal scale that measures the percentage of breast milk an infant receives, compared with the total amount of feedings. The author stated that these 7 levels were mutually exclusive (level 1: 100% breast milk; level 2: $\geq 80\%$ breast milk combined with $< 20\%$ artificial milk or solids; level 3: 50–80% breast milk and the rest artificial milk or solids; level 4: 50% breast milk and 50% artificial milk or solids; level 5: 20–50% breast milk and the rest artificial milk or solids; level 6: $\leq 20\%$ breast milk combined with $> 80\%$ artificial milk or solids; level 7: 100% artificial milk or solids). In this study, exclusive breastfeeding was defined as level 1, while exclusive formula feeding was defined as level 7. It was not stated on why the authors had chosen this index as the measurement method and not the indicators as defined and recommended by the WHO (World Health Organization, 1991).

Another study which had incorporated telephone support in the postnatal programme was reported by McDonald (2010). In this study, the postnatal support programme included a comprehensive individual educational session in their hospital room and follow-up support at home, provided by one of four experienced registered midwives who had received the standard breast-feeding education curriculum for Australian midwives, augmented with on-going professional development, but without lactation consultant certification. Women in the intervention group were telephoned twice weekly and offered

weekly home visits by a research midwife until their baby was six weeks old. In this study however, the intention of the telephone calls and home visits was not to provide clinical care per se, but to provide women with access to an informed source of breast-feeding support. This study had a high loss to follow-up rates and this could have affected the outcome of the study. However, the outcome was calculated based on the intention-to-treat analysis. The authors found that at the end of the study, the extended midwifery support at postnatal period was not effective in increasing any breastfeeding, full breastfeeding or exclusive breastfeeding rates (McDonald et al., 2010).

In Jordan, Khresheh et al. (2011) conducted an RCT conducted among 140 primiparous women in two public hospitals (Khresheh et al., 2011). The intervention involved a one-hour postnatal educational session, plus pamphlet with breastfeeding information, plus telephone calls at 2 & 6 months. These interventions were provided by trained nurses in breastfeeding. The telephone calls however, served as an information source for breastfeeding, and were not provided as counselling. At the end of the study follow up, the author reported that the proportion of women who were fully breastfeeding their babies at 6 months was 39% in the intervention group and 27% in the control group (95% C.I: -9%, 30%). The authors concluded after their study that the postnatal education and support program had improved breastfeeding knowledge among the women in the study, but the increase in knowledge did not translate to an increase in the duration of full breastfeeding to six months. The authors mentioned in the article that consistency of care was maintained, however did not specify how the uniformity and quality of intervention was controlled, and

did not specify in detail regarding the telephone counselling. Hence, this paper could be regarded as having a fair quality level.

Other literature which reported on telephone breastfeeding support during the postnatal period was telephone hotlines. These telephone hotlines were incorporated with other types of postnatal support, and the telephone call were initiated by the mothers (Coffield, 2008; Osman, Chaaya, El Zein, Naassan, & Wick, 2010). Coffield 2008 reported of a Maternal and Child Health Service provided at the City of Kingston, Melbourne which provides both home visits and telephone breastfeeding support to breastfeeding mothers and babies by the Maternal and Child Health Nurse Lactation Consultants (City of Kingston Breastfeeding Support Service). In this service women can self-refer, or were referred to the Service by midwives at hospitals, General Practitioners, or by their Maternal and Child Health Nurse. It was reported that such service had increased the rate of full breastfeeding from 32% at the time of contact to 44% at two weeks after the initial contact. However, this author did not report on the definitions of breastfeeding practice used for evaluation (Coffield, 2008).

2.3.2 Telephone use in postnatal breastfeeding support by peer counsellors

Over the years, extensive research has been done to evaluate the effect of peer counselling towards breastfeeding. It has been clearly justified that support from peer groups or individuals do have a positive effect on breastfeeding. In this thesis however, only literatures related with peers counselling using telephone as the medium shall be discussed. Five papers have been identified in relation to peer counsellors using telephone as the mode of contact with

breastfeeding mother, either in single intervention form or with other support modes (A. K. Anderson et al., 2005; Chapman et al., 2004; Dennis et al., 2002; Wong et al., 2007).

University of Malaya

Table 2.2: Systematic review on telephone use in postnatal breastfeeding support by peer counsellors

Author (year)	Dennis et al (2002)	Wong et al (2007)	Anderson et al (2005)	Chapman et al (2004)	Pugh et al (2010)
Characteristics of study					
Country	Toronto, Canada	Hong Kong	Connecticut, US	Connecticut, US	
Setting	2 semi urban community	Government hospital	Low-income Latina community	urban hospital low-income, predominantly Latina population	2 urban hospitals (one university hosp, one community hosp; both were not BFH certified)
Study design	RCT	RCT	RCT	RCT	RCT
Location of intervention	home-based	home-based	home-based	home-based	home-based
Randomization	consecutively numbered, sealed, opaque envelopes containing randomly generated numbers	computer generated random sequence	computer generated random sequence	computer generated random sequence	computer generated random sequence in blocks of ten, sealed envelope technique
Intervention	Telephone contacts + Conventional care, initiated within 48 hours after hospital discharge	Conventional care plus additional PC support consisting of a hospital visit and follow-up telephone support (seven regular telephone consultations from a PC -at 24 hours, four days, one week, two weeks, one month, two months and four months post discharge)	Conventional BF support + EBF peer counselling support: 3 prenatal home visits, daily perinatal visits, 9 postpartum home visits, and telephone counselling as needed.	routine breastfeeding education plus peer counselling Breastfeeding peer counselling services included 1 prenatal home visit, daily perinatal visits, 3 postpartum home visits, and telephone contact as needed Free mini-electric breast pumps provided	24 week intervention= daily hospital visits by BST until discharged, home visits by BST until 4 weeks postpartum, scheduled telephone support by peer counsellor, and 24 hour pager access to community nurse. home visits/ telephone call could be tailored to needs *BST= community nurse + peer counsellor

Table 2.2 continued: Systematic review on telephone use in postnatal breastfeeding support by peer counsellors

Author (year)	Dennis et al (2002)	Wong et al (2007)	Anderson et al (2005)	Chapman et al (2004)	Pugh et al (2010)
Provided by	peer counsellors= woman experienced with breast-feeding who attended a 2.5-hour orientation session	Volunteer peer counsellors = 16 trained mothers who had successfully BF, motivated to help others BF	peer counsellor= 2 women, successfully BF, motivated to help others BF, trained for 2 weeks by IBCLC	Paid peer counsellors, who had: - completed high school, - breastfed a child for a minimum of 6 months, - been trained in BF management.	Peer counsellors
Control	Conventional care = in-hospital and community postpartum support services provided by hospital-based nursing and medical staff	Conventional care= routine breastfeeding support and advice	Conventional BF support (needs-based LC service, BF help at hospital, telephone helpline)	Routine breastfeeding education	Usual care= access to an inpatient visit by a lactation consultant. Hospital-based LC was also available via a telephone “warm-line”
Intervention dosage analysis	not standardized	not reported	prenatal home visits 88.9%, week 6 postpartum 63.5% average total duration of the prenatal home visits 2.6±1.9 hours, in-hospital visits 2.2±2.0 hours	-prenatal visit: 53% reported at least once prenatal visit, mean 69.0±57.6 minutes -reasons for lack of prenatal visit was reported - 94% perinatal peer contact, 2.7±3.7 visits, total mean 63.8±123.0 minutes. - postpartum contacts: home visit 50% telephone 53% - after 1 month <10% peer contact	- Home visits by the BST lasted 45 – 60 minutes mode: 1 visit - telephone support calls average 20 minutes mode: 3 visits

Table 2.2 continued: Systematic review on telephone use in postnatal breastfeeding support by peer counsellors

Author (year)	Dennis et al (2002)	Wong et al (2007)	Anderson et al (2005)	Chapman et al (2004)	Pugh et al (2010)
Number of women received intervention	132	100	90	90	168
Number of women in control group	126	100	92	75	160
Inclusion criteria	<ul style="list-style-type: none"> -in-hospital -primiparous ->16 years of age -able to speak English -singleton birth at ≥37 weeks' gestation -resided in the surrounding region accessible by a local telephone call 	<ul style="list-style-type: none"> -Cantonese- speakers -healthy mothers -vaginal delivery of a full term healthy infant -mothers planned to stay in Hong Kong for six months postpartum -mothers has intention to breastfeed 	<p>3 stages of inclusion criteria (1) Antenatal: ≥18 years or older; gestational age of ≤32 weeks; healthy; (2) considered BF the newborn; planned to deliver at Hartford Hospital; willing to stay in the study area for at least 3months after delivery; lived in a household earning <185% of the federal poverty level; contactable by telephone (3) mother is healthy postpartum; baby born at term > 36 weeks; normal birth weight >2.5 kg); no neonatal medical complications; Apgar scores at 1 and 5 minutes ≥6</p>	<p>Antenatal criteria:</p> <ul style="list-style-type: none"> - ≥18 years old - considering breastfeeding their infant - residents of the greater Hartford area - available for telephone follow-up - low income - ≤ at no more than 26 weeks' gestation - not yet enrolled in the peer counselling program <p>Postnatal criteria:</p> <ul style="list-style-type: none"> - healthy, full-term, singleton - absence of congenital anomalies - no maternal history of HIV 	<ul style="list-style-type: none"> - singleton infant at least 37 weeks gestation - breastfeeding intention by the mother - English speaking mother - WIC eligible family - available telephone access - geographically feasible address defined as within 25 miles of the birth hospital

Table 2.2 continued: Systematic review on telephone use in postnatal breastfeeding support by peer counsellors

Author (year)	Dennis et al (2002)	Wong et al (2007)	Anderson et al (2005)	Chapman et al (2004)	Pugh et al (2010)
Exclusion criteria	-had a factor that could significantly interfere with breast-feeding - had enrolled prenatally with the participating volunteer breast-feeding organization	-	-	Infants admitted to the neonatal intensive care unit	- craniofacial abnormalities in the infant - positive drug screen for mother or infant, - NICU admission immediately after birth
Length of follow up	4, 8 and 12 weeks post-partum	6 months	3 months	6 months	24 weeks
Completeness of follow-up	Reported	follow-up interview : at 5 days, 3 month by telephone, 6 month face-to-face	interviewed weekly during the first month and biweekly during the second and third months via the phone	monthly telephone follow-up until participants stopped BF or maximum of 6 months	telephone follow-up at biweekly intervals through 12 weeks and every fourth week through 24 weeks. rigorous contact tracing was reported
Description of withdrawals	No withdrawals	reported	reported	not reported	reported
Blinding	Single blinded (RA)	not reported	not done	Single blinded (interviewer)	single blinded
Outcome measure	breast-feeding duration, maternal satisfaction with infant feeding method and perceptions of peer support - BF definitions Labbok & Krasovec (1990)	-Mothers' feeding methods and breastfeeding duration -definitions of BF by Labbok & Krasovec (1990)	Exclusive breastfeeding	Primary outcome: Breastfeeding rates at birth and 1, 3, and 6 months postpartum. Secondary outcome: Exclusive BF rates	Any breastfeeding rate

Table 2.2 continued: Systematic review on telephone use in postnatal breastfeeding support by peer counsellors

Author (year)	Dennis et al (2002)	Wong et al (2007)	Anderson et al (2005)	Chapman et al (2004)	Pugh et al (2010)
Assessment of quality					
Intention to treat analysis	The statistical calculations were not made based on intention-to-treat analysis	done	per-protocol analysis	per-protocol analysis	done
Selection bias	Not relevant-randomization done	Not relevant-randomization done	Not relevant-randomization done	Not relevant-randomization done	Not relevant-randomization done
Intervention bias	-Frequency of contact was not standardized -Peer counsellors consist of full-timers & part-timers -Proficiency bias may have occurred	-Frequency of contact was standardized. however, no report on the actual contact	measures were taken to minimize variation in intervention	-Proficiency bias may have occurred due to understaffing	measures were taken to minimize variation in intervention
Performance bias	exposure to other types of BF support in the control group	there may be exposure to other types of BF support in the control group no report on any study standard protocol procedure or guidelines	measures were taken to ensure no performance bias occurred	there may be exposure to other types of BF support in the control group no report on any study standard protocol procedure or guidelines	exposure to other types of BF support in the control group may happen study standard protocol procedure or guidelines was reported
Measurement bias	recall & attention biases may occur during telephone interview	memory aids and a diary were given to mothers to reduce possible recall bias	-attention bias may have occurred during frequent telephone interviews -expectation bias may have occurred when data collector was not blinded	-attention bias may have occurred during frequent telephone interviews	-attention bias may have occurred during frequent telephone interviews

Table 2.2 continued: Systematic review on telephone use in postnatal breastfeeding support by peer counsellors

Author (year)	Dennis et al (2002)	Wong et al (2007)	Anderson et al (2005)	Chapman et al (2004)	Pugh et al (2010)
Loss to follow up	0.78%	3%	14.8%	4% (1 st month) - 12% (6 th month)	14.6% (6 weeks) – 28.7% (24 weeks)
Overall assessment of quality	<p>-Randomization of participants was properly done in this study.</p> <p>-This study has defined its criteria of peer support well.</p> <p>-Besides collecting data of participants, it has also conducted assessments of its peer volunteers. However, it did not attempt any efforts to standardize the number or frequency of interventions received by the mothers.</p> <p>-The statistical calculations were not made based on intention-to-treat analysis, and the confidence interval of outcome measures were not mentioned or listed in the table.</p>		<p>this study was not blinded, thus interviewer</p>	<p>This program supported any breastfeeding, rather than focusing on exclusive breastfeeding. Peer counsellors worked to support any breastfeeding without alienating those already introducing formula. Several efforts were made to minimize bias (i.e. Interviewers were unaware of group assignment at the beginning of each interview, and all questions pertaining to peer counsellor contact were asked at the end of the interview. Monthly follow-up was conducted to minimize recall bias</p>	

Table 2.2 continued: Systematic review on telephone use in postnatal breastfeeding support by peer counsellors

Author (year)	Dennis et al (2002)	Wong et al (2007)	Anderson et al (2005)	Chapman et al (2004)	Pugh et al (2010)
Results					
	Significantly more mothers in the peer support group than in the control group were exclusively breast-feeding at 4 weeks (p = 0.03) and at 12 weeks (p = 0.01)	No significant difference in the overall breastfeeding duration or the exclusivity of breastfeeding between mothers who received routine breastfeeding support and advice (control group) and mothers who received additional peer counsellor support consisting of a hospital visit and follow-up telephone support (PC group)	-The rate of non-EBF in the control group was significantly higher compared with the intervention at 1, 2, and 3 months -At 3 months post-partum, 98.6% of mothers in control group were not EBF since birth, while 79.4% in the intervention group did so (RR=1.24; 95% CI, 1.09-1.41).	-EBF prevalence at 1 month post-partum was exceedingly low and not impacted by study group (RR, 1.07; 95% CI, 0.90-1.27) - Stop BF prevalence: 1 month: 35.7% vs. 49.3%; RR 0.72; 95% CI 0.50-1.05 3 month: 55.6% vs. 70.8%; R, 0.78; 95% CI 0.61-1.00 - Any BF prevalence: 6 months: RR 0.94; 95% CI, 0.79-1.11	Any BF from multiple logistic regression (intervention vs. control) 6 weeks: 66.7% vs. 56.9%, OR 1.72 (p<.05) 12 weeks: 49.4% vs. 40.6%, OR 1.58, (p=0.05) 24 weeks: 29.2% vs. 28.1%
Conclusion					
	Telephone-based peer support intervention was effective in maintaining breast-feeding to 3 months post-partum	Mainly telephone-based peer support was not effective in increasing EBF	This BF peer support module was effective in increasing EBF up to 3 months postpartum	This BF peer support module: - not effective in increasing EBF - effective in preventing stopping BF until 3 months postpartum	This BST module was effective in increasing the breastfeeding rates through the first six weeks postpartum

An excellent intervention study focusing on telephone support by peer counsellors was reported by Dennis et al. (2002). In this study, the telephone interactions by peers support consisted about 97% of the interactions, and of which almost all of it was initiated by the peer counsellors. The authors reported that significantly more mothers who received peer volunteer support were exclusively breast-feeding at 12 weeks. The authors found that there was no association between the occurrence and frequency of peer volunteer interactions with the extent of breastfeeding at 4, 8 and 12 weeks post-partum, and concluded that a standardized peer support intervention was not necessary (Dennis et al., 2002). This study however, had used breastfeeding definitions by the Interagency Group for Breastfeeding (Labbok & Krasovec, 1990) instead of the definition by WHO (World Health Organization, 1991). Discussion from the paper cited that that it was the quality, not the quantity, of social interactions and relationships that is most strongly associated with physical and psychological outcomes, and that it was not the actual receipt of peer support that increased breast-feeding duration but rather the perception that a peer volunteer would be available to help, if necessary. Research has indicated that the perception of support may have a stronger influence on specific health outcomes than the actual enactment of support (Wethington & Kessler, 1986).

An RCT evaluating peer counsellor support which incorporated antenatal and postnatal visits as well as telephone support was reported by Chapman et al (2004). In this study, mothers who came from a population of low-income Latinas were recruited from the hospital's prenatal clinic. The intervention

included one prenatal home visit, daily perinatal visits, three postpartum home visits, and telephone contact as needed. The authors reported that during the postpartum period, the contacts primarily occurred during the first month of which home visits and telephone calls were reported by 50% and 53% respectively. In this study, it was found that the intervention group had a significant 61% lower relative risk of not initiating breastfeeding and 28% and 22% lower relative risks for not breastfeeding at 1 and 3 months. However, the intervention was not effective in increasing the exclusive breastfeeding rate. The authors iterated that it was a common practice among mothers from the study population to mix their infants' feeding with formula from during an early postnatal period and the authors did not give priority on exclusive breastfeeding based on this reason (Chapman et al., 2004).

In a setting closer to Malaysia, Wong et al (2007) conducted an RCT in Hong Kong which provided a postnatal visit and scheduled telephone consultations until four months for the intervention group. In this study, the hospital had in place its breastfeeding volunteer programme where mothers were visited by a peer counsellor at postpartum on an ad hoc basis. Mothers who were recruited into the peer counsellor intervention group would in addition receive seven regular telephone consultations from a peer counsellor and contacts were discontinued at any time if the mother decided to completely stop breastfeeding her. The author reported no statistical differences in mothers' feeding methods (exclusive, almost exclusive or predominant breastfeeding) at the day 5, third and sixth months postpartum for intervention and control mothers respectively (Wong et al., 2007). In this study, although he authors

had reported on the evaluation results regarding the intervention from the peer counsellors, the intervention dosage was not discussed or reported. Thus the rigour of the intervention process could not be evaluated based from the paper itself.

In another study, Anderson et al. (2005) conducted an RCT in among the low income predominantly Latina mothers in Connecticut. In this study, the participants were recruited prenatally and randomly assigned to either receive support for EBF from a peer counsellor plus conventional breastfeeding support or only conventional breastfeeding support. The main focus of this study was on the provision of scheduled home visits by two trained peer counsellor during antenatal and postnatal period. Telephone support was given through means of providing the mothers with the beeper and cell phone number of the peer counsellors should the need arose if lactation crises occurred between scheduled home visits. The authors reported on the counselling coverage received among the intervention group, mainly on the number and hours of home visits, but the minute details of the telephone support was not reported. Although the intervention model in this study was proven to be effective in improving exclusive breastfeeding rates among the participants, the (indirect) effects of the telephone support was not analysed (A. K. Anderson et al., 2005).

One study found the effectiveness of telephone lactation counselling in combination with other forms of support (L. C. Pugh et al., 2010). Pugh et al. (2010) conducted a randomized controlled trial which incorporated

community nurse and a breastfeeding peer counsellor as the Breastfeeding Support Team in two hospitals in Baltimore, Maryland USA. In this study, the intervention began after delivery at the hospital and continued visits and support were provided through 24 weeks postpartum. The intervention was intensified for the first four weeks postpartum, with continuing support through 24 weeks postpartum. Besides receiving daily hospital visits by both members of the BST until discharge, the intervention group were also visited two times in the home during the first week and a third visit at four weeks postpartum. The intervention group received telephone support through a scheduled telephone call (by the peer counsellor) at least every two weeks through 24 weeks postpartum and they could page the nurse by a pager 24 hours per day seven days a week (through 24 weeks postpartum). The control group in this study received the usual postpartum care i.e. in-patient access to visit by Lactation Consultant and postpartum access to hospital-based Lactation Consultant via telephone. With their carefully planned intervention, it was found that significantly more mothers in the intervention group had reported any breastfeeding compared to the control group at 6 weeks postpartum (66.7% vs. 56.9%, $p=0.05$). However, non-significant differences were found at 12 and 24 weeks postpartum. This study however, did not report any exclusive breastfeeding rates among the participants because most infants were fed formula in the nursery before enrolment into the study. It is important to note that the current thesis research was conducted prior to the publication of this study by Pugh et al. (2010).

2.3.3 Reported experiences in telephone-based breastfeeding support

Only one report was found regarding the evaluation of telephone based breastfeeding support from the view of the receivers (i.e. the mothers) (Fallon et al., 2005). The author had reported that mothers who received the intervention had liked about the support service because of the ability to ask questions. Other commonly reported likes by the mothers included being able to gain reassurance, confidence, and/or encouragement, having regular contact, the mode of contact being seen as convenient, the good advice and support provided, the high quality of information provided, and the personalities of the support providers. The author had also reported that some of the women wanted the duration of the service extended, and wanted the ability to initiate contact with their support provider. Some of the mothers from the study had disliked the timing and duration of calls.

Based on the findings above, a diagram on the various counselling methods to improve exclusive breastfeeding practice was drawn as in Figure 2.2 below. The diagram was drawn upon the methods involving telephone counselling which has been proven to be effective in increasing the exclusive breastfeeding duration in studies which has been discussed as above.

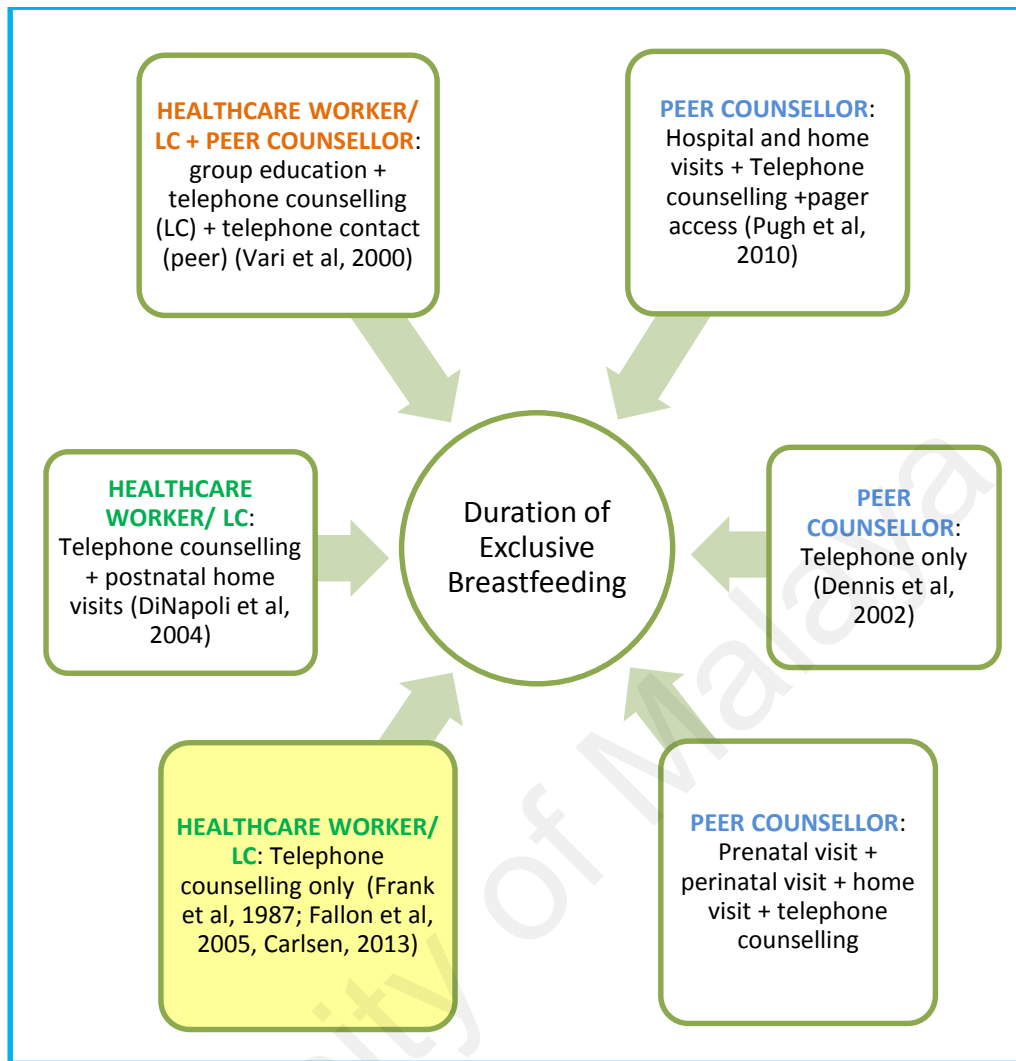


Figure 2.2 Diagram showing the various methods of counselling to improve the duration of exclusive breastfeeding based on the literature review

In this thesis, the counselling method which was chosen as the intervention involved only telephone lactation counselling by healthcare worker at postnatal period. This decision was made on the basis that: (i) this method has not been studied before in Malaysia, (ii) to utilize the available human resources (registered nurses) who were trained and has experience in providing lactation counselling (iii) to avoid spending vastly on limited financial resource if other methods (i.e. antenatal or postnatal home visits) were to be incorporated with telephone counselling.

2.4 The behavioural change theories

Understanding human behaviour is important for anyone planning a health promotion programme and it may be that an inadequate understanding of why women choose to breast or bottle feed is one of the reasons professionals have had limited success influencing their choices. Well-constructed models can provide a framework that allows the factors influencing behaviour to be compared. By using models, health workers may be able to identify which factors are most important and most amenable to change. Similarly, models may help focus efforts on those people who are most open to change. This chapter considers some of the models used to study human behaviour and examines their relevance to breastfeeding promotion.

2.4.1 The Health Belief Model

The health belief model (Maiman & Becker, 1974; Rosenstock, 1974) was one of the first attempts to understand how people make decisions about their health. This model suggests that individuals weigh up the pros and cons of a particular course of action when prompted by some trigger. The model suggests their decision will depend on their own perception of both their susceptibility to health problems and the likely severity of those problems, balanced against the 'costs' to them of taking the course of action. Thus the health belief model suggests that women balance their perceptions of the likelihood and severity of the problems their babies might face if they bottle feed against the 'cost' to themselves of breastfeeding. Although this model focused the attention on modifiable psychological prerequisites of behaviour, it is lacking in specification of a causal ordering and neglects the social factors

contributing to behaviour. This model may not be best if applied in breastfeeding, especially when mothers and infants have conflicting interests. As an example, a mother who plans to continue exclusive breastfeeding while working have the “cost” side of the equation, whereas most of the benefits of her continuing breastfeeding accrue to her baby.

Table 2.3: The Health Belief Model

<i>The Health Belief Model</i> (Maiman & Becker, 1974; Rosenstock, 1974)
Participation in a recommended health action can be predicted based on an individual’s perceptions of: <ul style="list-style-type: none">▪ her own susceptibility (an individual's assessment of their risk of getting the condition)▪ severity of the health condition (an individual's assessment of the seriousness of the condition, and its potential consequences)▪ barriers to taking the health action (an individual's assessment of the influences that facilitate or discourage adoption of the promoted behaviour)▪ benefits of taking the health action (an individual's assessment of the positive consequences of adopting the behaviour).▪ the costs of adhering to the health action

Libbus et al. (1997) conducted a study among low-income American women who were expecting their first babies and intended to breastfeed. The authors identified infant health benefits and improved bonding as the main perceived advantages of breastfeeding (Libbus, Bush, & Hockman, 1997). Interference with maternal schedule, inability of others to feed infant and physical discomfort were reported as the disadvantages of breastfeeding among the mothers. While health beliefs may differ between different populations, they merit attention because it seems likely that promotional or interventional programmes that address the actual concern of these women will be most

effective in facilitating breastfeeding. This model however ignores the social and cultural factors that may influence infant feeding.

2.4.2 The Theory of Reasoned Action

Ajzen and Fishbein (1969, 1970) developed the Theory of Reasoned Action (TRA) which regards attitudinal and normative factors as predictors of whether people intend to undertake a particular behaviour and whether they actually do so (Ajzen & Fishbein, 1969, 1970). The attitudinal factors referred to the individual's evaluation of performing the action or towards the behaviour, which could be positive or negative in nature. It is determined through an assessment of one's beliefs regarding the consequences arising from a behaviour and an evaluation of the desirability of these consequences. The normative factors refers to the role of social influences on an individuals' decision making and his willingness to comply with those pressures. An opinion given by any relevant acquaintance will be weighted by the individual based on his motivation to comply with the opinion.

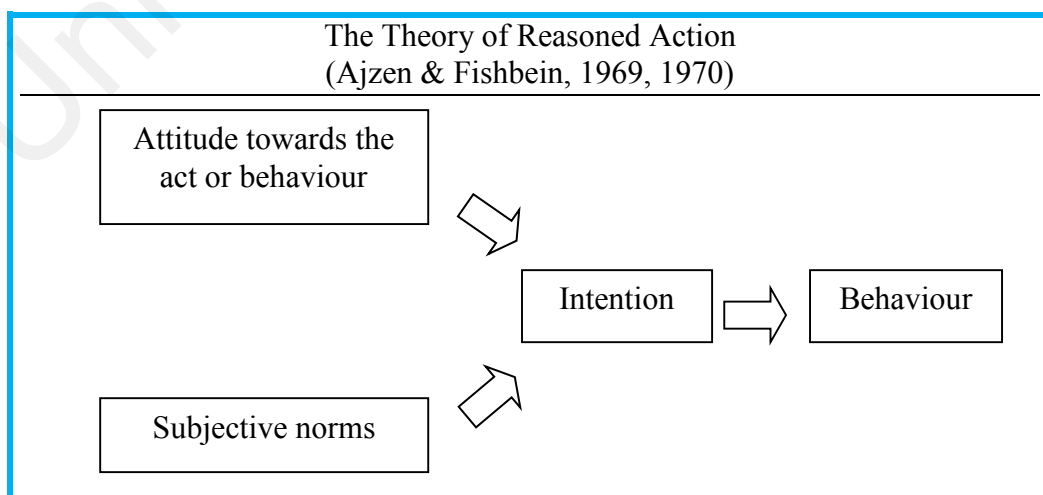


Figure 2.3: The Theory of Reasoned Action

A study has been conducted by Manstead & Proffitt (1983) among 215 mothers which measured the correlation between the mothers' attitudes and subjective norms with their feeding intentions and subsequent behaviour (Manstead & Proffitt, 1983). It was found that almost 60% of the variation in mothers' intentions could be accounted for by the attitudinal and normative variables studied. Among mothers who were having their first newborn, attitudes and subjective norms were almost equally strongly correlated with feeding intentions. Whereas amongst mothers who had previous children, attitudes were more strongly correlated with feeding intentions than subjective norms. The authors suggested that experiences with a first newborn will influence the mothers' feeding intentions and mediated by changes in their attitudes. This study also found that mothers' attitudes influenced their ability to carry out their intentions. Thus, it is suffice to conclude that the TRA is useful in predicting mothers' decision on infant feeding.

A third construct, perceived behavioural control, was added by Ajzen (1991) to the Theory of Reasoned Action which concerns people's perceptions on the ease or difficulty of carrying out the behaviour and is determined by both past experience and expectations regarding the future. This later variation is known as the Theory of Planned Behaviour (Ajzen, 1985). In this theory, perceived behavioural control is defined as one's perception of the ease or difficulty of performing a behaviour.

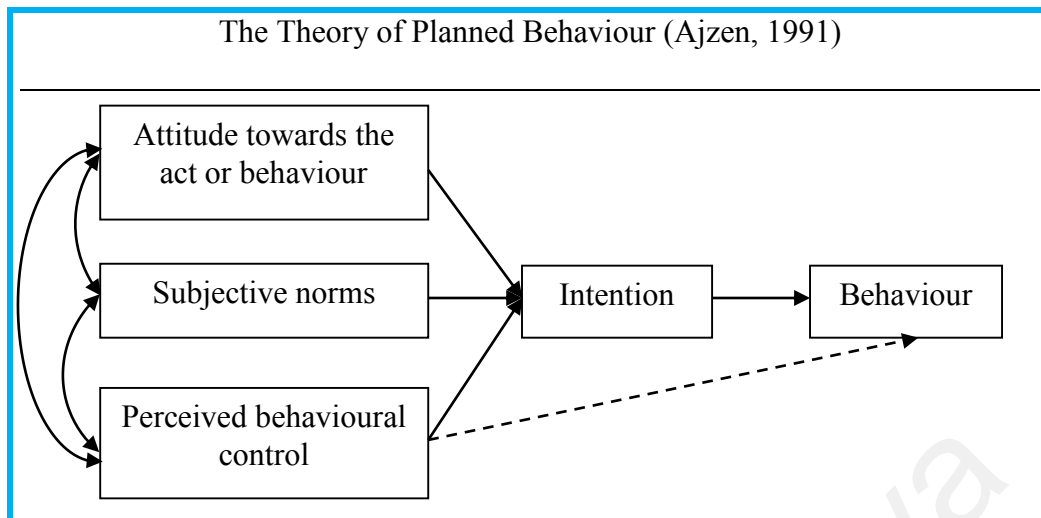


Figure 2.4: The Theory of Planned Behaviour

Several studies have tested the applicability of the Theory of Planned Behaviour (TPB) to breastfeeding. Janke (1994) who conducted a study among women who planned to breastfeed, was able to predict 73% of those who weaned before eight weeks using a "Breastfeeding Attrition Prediction Tool" based on this theory (Janke, 1994). Duckett et al. (1998) reported from his study among first time mothers who delivered at a private hospital that breastfeeding duration was more strongly associated with feeding intention than any other variable (Duckett et al., 1998). The author also reported that knowledge about breastfeeding directly influenced breastfeeding duration without being mediated by attitudes or intentions. The findings of these studies showed the value of including women's perceived behavioural control in the model and the applicability of the Theory of Planned Behaviour.

2.4.3 Integrated Behavioural Model

Montaño & Kasprzyk (2008) recommended the use of the Integrated Behavioural Model (IBM) that includes the constructs from Theory of Reasoned Action/ Theory of Planned Behaviour, as well as from other influential theories (Montaño & Kasprzyk, 2008). As in TRA/TPB, the most important determinant of behaviour in IBM is intention to perform the behaviour. Without motivation, a person is unlikely to undertake the recommended behaviour. This model construct has four other components which directly affect behaviour change, which are the need of knowledge and skills to carry out the behaviour, the salience of the behaviour, environmental constraints and the habit of performing the behaviour as a result of past experiences. These components and their interactions are important to consider when designing interventions to promote health behaviours. For example, if a mother has the intention to breastfeed her infant, it is crucial to ensure that she has sufficient knowledge on breastfeeding and the external support system which could help her to carry out her intention. For an action that is carried out for a long interval, such as the telephone lactation counselling, the behaviour must also be made salient, so that the behaviour could easily be carried out and accepted by both the provider and client.

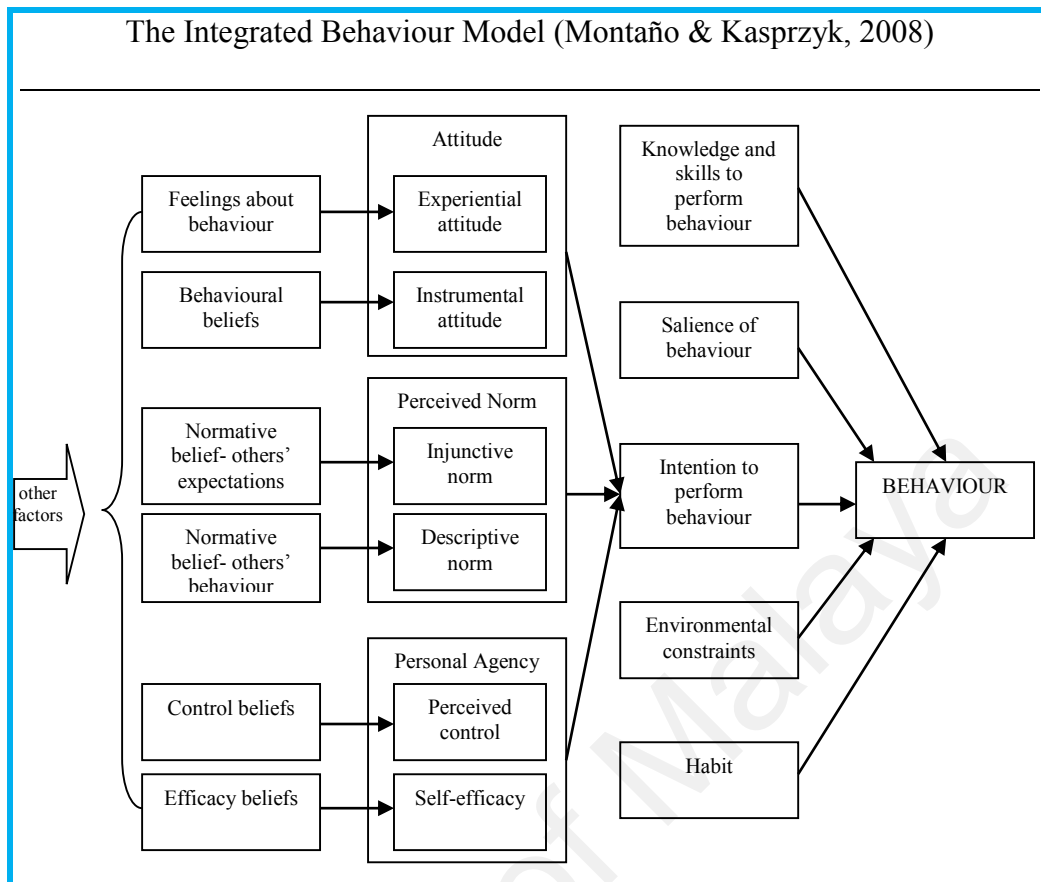


Figure 2.5: The Integrated Behaviour Model

2.4.4 The Transtheoretical Model

Prochaska and Di Clemente (1983) developed the Transtheoretical Model or also known as the Stages of Change model to explain the stages that an individual may experience when changing an addictive behaviour (Prochaska & DiClemente, 1983). This model is most useful in working on individual health promotion, as it allows health workers to match their interventions to individuals' needs and identify those who are most receptive to help. The stages identified in this model are pre-contemplation, contemplation, preparation, action, maintenance and relapse.

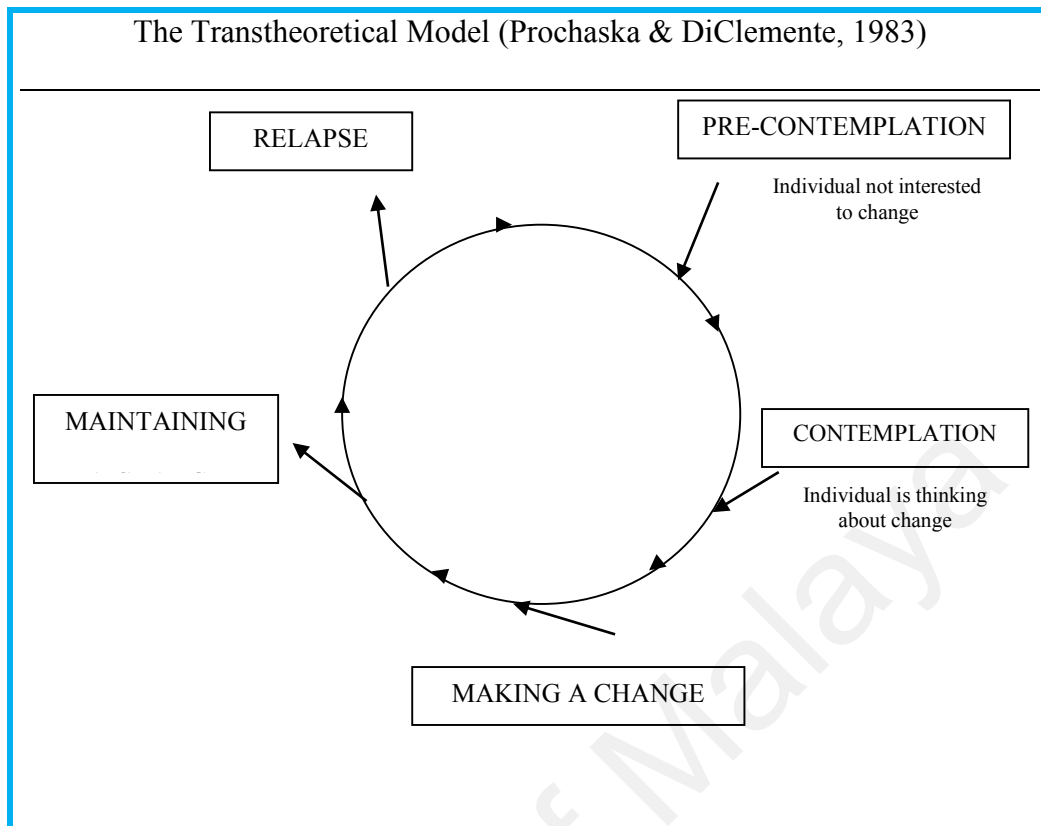


Figure 2.6: The Transtheoretical Model

The model may be relevant in understanding women's readiness to consider breastfeeding and how best to support them. However, it does not fully address the reasons why people undertake certain behaviours such as breastfeeding, or why some think more than others about this decision. It was noted that in breastfeeding, the notion of relapsing to breastfeed is rather different than other behaviour change. This is because mothers who failed to maintain breastfeeding will need to wait until a future child is born before they can put into practice what they have learnt from the previous attempt.

2.4.5 The Health Action Model

The Health Action Model offers a framework which explain the reasons why people make certain choices about their health and the factors that influence

whether they carry out those choices (Tones, 1995a). It incorporates elements of the Health Belief Model, the Theory of Reasoned Action and the Stages of Change Model, while recognizing the importance of individuals' self-esteem and the environment in which they try to implement decisions. This model is more complex and harder to test which likened to the complexity of human behaviour.

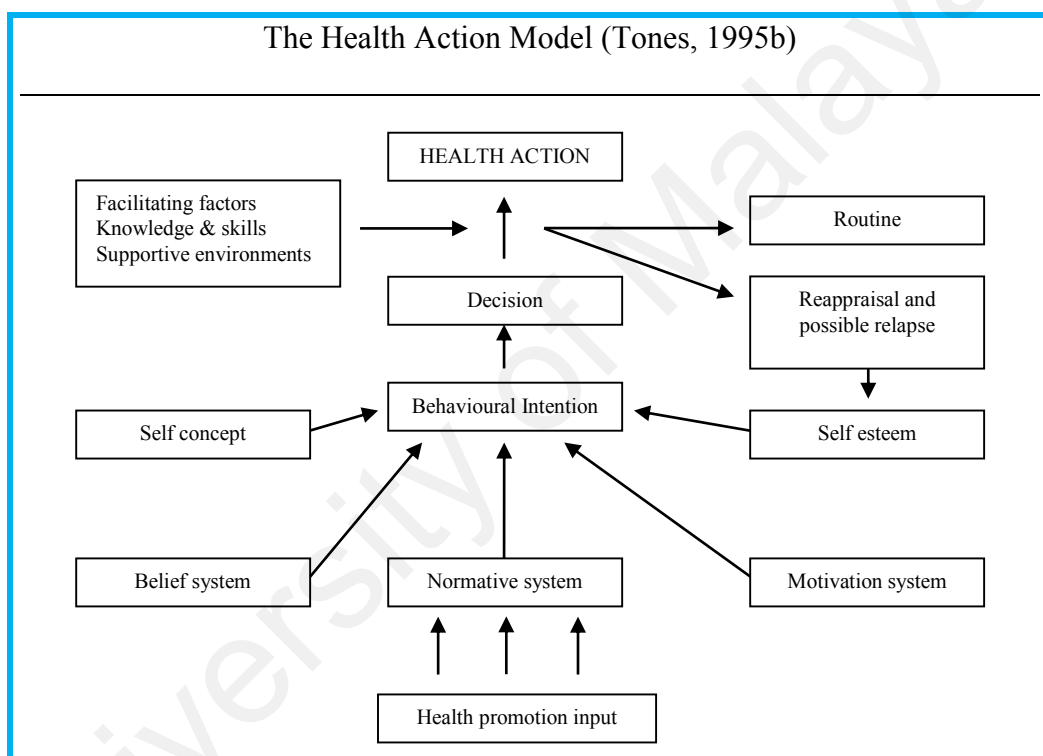


Figure 2.7: The Health Action Model

Although the model has been used to illustrate a woman's experience of breastfeeding (Tones, 1995b), its applicability to this has not been fully evaluated. The separation of factors which influence behavioural intention from those influencing their implementation is helpful, but the same factors may influence both stages in reality. Despite its complexity, the Health Action Model made it easier to understand the way in which interventions may work. Mass media campaigns, or attempts to portray breastfeeding in a positive light

through television, are most likely to affect women's attitudes and norms, influencing their intentions, whereas interventions that focuses on individuals, such as support from breastfeeding counsellors, aim to help women implement their decisions.

2.4.6 Utilization of behavioural change models for study design

The themes which emerged from the consideration of models of behaviour change have provided invaluable input in the design and interpretation of the studies reported in this thesis.

The RCT in this thesis investigated the effects of providing telephone-based postnatal lactation counselling for mothers who had the intention to breastfeed. This study adopted a logical positivist approach, to assess whether by giving individual women information, advice and support through telephone counselling would enable them to carry out their intention to breastfeed and their way of practicing it. The main themes from models of behaviour change which were applied for the RCT include:

- i. enhancing their behavioural intention to exclusively breastfeed, by providing a motivation system: Health Action Model (Tones, 1995a)
- ii. facilitating the mothers who had made the decision to exclusively breastfeed, by providing them with the means of guidance and coaching through telephone counselling, increasing their knowledge and skills and providing supportive environment: Health Action Model (Tones, 1995a)

- iii. changing the mothers' attitude towards breastfeeding/ bottle feeding :
Theory of Planned Behaviour (Ajzen, 1991), Integrated Behaviour Model (Montaño & Kasprzyk, 2008)
- iv. increasing the mothers' perceived believe of control in breastfeeding:
Health Action Model (Tones, 1995a), Theory of Planned Behaviour (Ajzen, 1991), Integrated Behaviour Model (Montaño & Kasprzyk, 2008)
- v. increasing the mothers' knowledge and skill to breastfeed: The Integrated Behaviour Model (Montaño & Kasprzyk, 2008)
- vi. providing an intervention which was assumed has salient features:
Integrated Behaviour Model (Montaño & Kasprzyk, 2008)

It is important to consider that the women's attitudes, the cultural norms and women's readiness to comply with them, their readiness to change, and the social context within each mother are also of great determinacy in breastfeeding. Hence, enquiries were also made in the RCT to look beyond the impact of the intervention and understand the role of breastfeeding support for women. To investigate this, follow-up questionnaires were used which included a number of close-ended and open-ended questions that asked women about their experiences and support that they received from the lactation counsellors. The responses from the mothers would help identify the factors which are relevant towards their acceptance or rejection of the intervention, which could also have indirectly affected their breastfeeding intention and behaviour.

The qualitative study explored the provision of the intervention from the Lactation Counsellors' perspective. Because of the exploratory nature of this study, it seemed important to allow them to express themselves in their own words, using open questions during the in-depth interviews. Since this intervention study was the first ever conducted and it tested on a new system of providing postnatal lactation support, the Lactation Counsellors' were also subjected to a change in behaviour which was slightly different from their past practices. Thus, the Lactation Counsellors' views on this intervention are somewhat relevant to the themes from behaviour change models. For this thesis, it was thought that the Integrated Behaviour Model (Montaño & Kasprzyk, 2008) would best be made as the comparison in identifying the Lactation Counsellors responses towards provision of this new intervention within the Malaysian health system.

The conceptual framework of factors which may affect the exclusive breastfeeding outcome, based on the literature review is presented as in Figure 2.8 below.

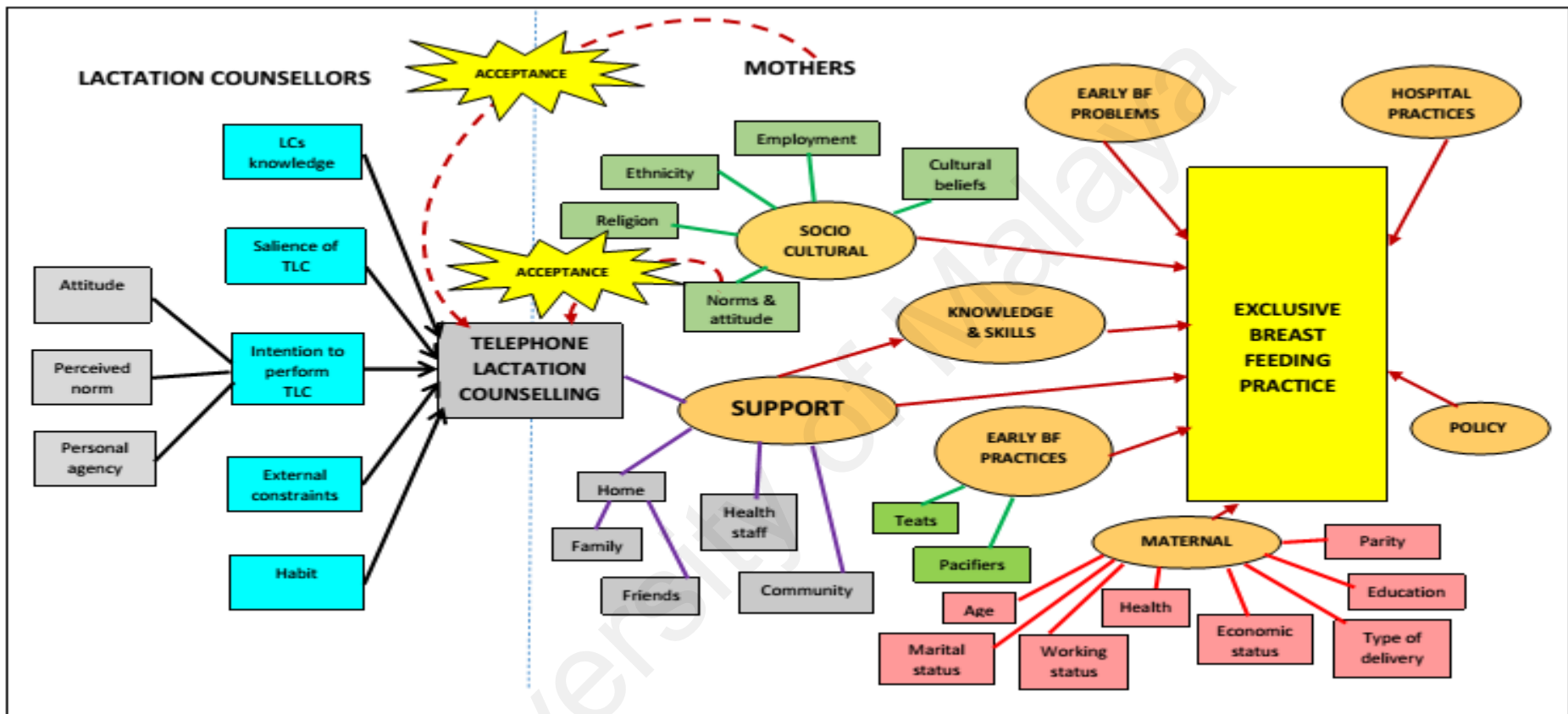


Figure 2.8: Conceptual framework of factors which may affect exclusive breastfeeding outcome in this research based from the findings of literature review

CHAPTER 3: METHODOLOGY

This chapter presents the methodological steps that were undertaken to answer the research questions posed in this thesis. In order to achieve the main and specific objectives of this thesis, two types of studies were conducted. A randomized controlled trial was conducted among the mothers, while a qualitative study was conducted among the lactation Counsellors. Research design, sampling, measurement, data collection, and data analysis are discussed in detail for each study design.

3.1 Randomized Controlled Trial (RCT)

3.1.1 Research Question

There were several questions which need to be answered from this RCT. Among the questions that may be resolved from this research are:

- i. What are the factors associated with the success of exclusive breastfeeding?
- ii. What are the factors that will influence the mothers' breastfeeding practices?
- iii. Will there be any difference in the breast feeding patterns among mothers if there is change in the conduct of lactation counselling?
- iv. Will telephone lactation counselling cause the change in breast feeding pattern?
- v. What is the probability of mothers to continue breast feeding if they were subjected to a different postnatal support programme?
- vi. Is the intervention well accepted by the mothers?

- vii. What are the common lactating problems among mothers?

3.1.2 Hypothesis

It was hypothesized that mothers who received the new intervention would have a significantly higher exclusive breastfeeding rate compared to the control group. Alternatively, there might be no difference in the proportion of different breast feeding practices between the intervention and the control group. It was also hypothesized that mothers who received the intervention would have a significantly higher (any) breastfeeding rate compared to the control group.

3.1.3 Study design

This study was a prospective randomized controlled trial, with the follow up of each participant for 6 months. The intervention group received lactation counselling given by certified lactation counsellors via telephone at the frequency of twice in a month, while the non-intervention group received the current conventional care.

Intervention in this study was defined as:

Lactation counselling given by certified lactation counsellors via telephone twice monthly to each lactating mother plus the current conventional care (thus it is expected that every mother will receive twelve lactation counselling at the end of the study). Contacts were discontinued at any time if the mother decided to completely stop breast feeding. Mothers were allowed to receive the current conventional care (postnatal breast feeding promotion or support by own

healthcare provider). Contacts were also discontinued when the mother has given the baby for foster care and have no physical contact to enable her to breast feed the baby.

Control or no intervention in this study was defined as:

Receiving current conventional care (postnatal breast feeding promotion or support by own or public healthcare provider). These include breast feeding talks during immunization follow ups, the mothers' communication with the lactation counsellors through information/ pamphlets received during antenatal or postnatal follow ups (which is by her self-attempt), and advice regarding breast feeding received by any health care workers at any time or from the media, and peer counsellors, family members or friends.

Lactation counsellors in this study were the registered nurses from Maternity Hospital Kuala Lumpur who had post basic training in midwifery, and were certified as lactation counsellors (had undergone 40 hours lactation management and counselling course). Twelve of these lactation counsellors participated in the study. The lactation counsellors conducted the telephone-based counselling on part-time basis. None of the Lactation Counsellors were International Board Certified Lactation Consultant (IBCLC) certified because they had not attempted the certification examination prior to the study. Each participant (mothers) answered a self-administered questionnaire at 1st day post-partum, and was interviewed by telephone at one month, four month and six month post-partum.

3.1.4 Study area/ site

This study was done in the area of Kuala Lumpur. Kuala Lumpur is defined within the borders of the Federal Territory of Kuala Lumpur and it is an enclave within the state of Selangor. Kuala Lumpur is the capital and the second largest city in Malaysia by population. The city proper, making up an area of 243 km², has a population of 1.72 million as of 2010 (Department of Statistics Malaysia, 2010b). It has a population density of 7089 per km², and its average annual population growth rate is 1.1% (Department of Statistics Malaysia, 2010a). In 2010, the total household of Kuala Lumpur was 407400; the total living quarters was 485800, while the average population per household was 4.2. The crude birth rate in Kuala Lumpur is 16.8, the infant mortality rate 5.6, and the stillbirth rate is 4.0.

The study was conducted in Maternity Hospital Kuala Lumpur (MHKL). This hospital is the tertiary referral centre in Malaysia and is the referral centre for breast feeding. The sample taken from this hospital could be representative of the population. Although there are many private hospitals in Kuala Lumpur, only MHKL was selected for this study as recruitment of participants from the private hospitals would introduce bias. This was because the antenatal and post-natal programmes offered particularly on breast feeding differ from the programme in government hospitals, besides only a small fraction of the private hospitals were certified as Baby Friendly Hospital. MHKL is a public hospital which was certified as a Baby Friendly Hospital in 20th October 1997. Re-evaluations on the status were done in 14th Jun 2004, 28th January 2008 and 3rd May 2011, of which the hospital had successfully manage to keep the certification. Multiple courses

and activities to promote breastfeeding were held throughout the whole year by the Breastfeeding Unit, which include either group or individual approaches.

In the year 2010, a total of 11765 mother/infant pair were discharged from MHKL, of which 3780 of such pairs were discharged within the duration of participant recruitment (April – July 2011) (Department of Obstetrics and Gynaecology MHKL, 2010). Approximately 92.9% of the mother/infant pairs were exclusively breastfeeding at discharge in 2010, and only 7.6% of such pair had received at least one bottle feed at discharge (Department of Obstetrics and Gynaecology MHKL, 2010). The rate of Caesarean sections done in MHKL was 28.6% in the year of 2010 (Department of Obstetrics and Gynaecology MHKL, 2010). At the labour room, 84.6% of the deliveries had also practiced ‘skin-to-skin contact’ and breastfeeding initiation, while at the Maternity Operation Theatre, about 94.7% of the cases had practiced the same (Department of Obstetrics and Gynaecology MHKL, 2010). In the year 2010, approximately 84.8% of mothers who came to the O & G Clinic were given the Breastfeeding Education (in any forms), while in the maternity wards it ranges between 83.1% to 94.0% (Department of Obstetrics and Gynaecology MHKL, 2010).

3.1.5 Study population

The study population in this study was mothers who had just given birth to a normal baby. To be eligible for the study, the women were required to be 18 years of age or older; Malaysian nationality, delivered at 37 weeks gestation or more, delivered only a single infant, able to understand and communicate in spoken Malay Language or English; have received at least once any prenatal BF

education programme; had telephone access and had given informed consent. Women with multiple pregnancies or medical problems which may hinder breastfeeding, delivered via Caesarean section or whose baby subsequently required prolonged care in a Special Care Nursery were not eligible. Participants were all recruited from the hospital's postnatal ward.

3.1.6 Sample size

The sample size was calculated using the OpenEpi Program. Calculation was made based on the study by Dennis (2002) (Dennis et al., 2002) and projections from the NHMSIII results. Dennis et al (Dennis et al., 2002) introduced telephone counselling as the intervention for breastfeeding versus conventional care. It showed that with telephone counselling, the exclusive breast feeding rate at 3 month differed by 16.5% (56.8% vs. 40.3%). When projected to Malaysia, the exclusive breastfeeding rate at 4 month (Fatimah et al., 2010) was 19.3% (unexposed); thus to have the expected result as Dennis et al (2002), the expected exclusive breast feeding rate at 4 month would be 35.8% (exposed group). Exclusive breastfeeding rate at 4 month was taken because this was the data comparable between the NHMSII and NHMSIII (Fatimah et al., 2010), and much closer to the data from Dennis et al (2002).

Using the OpenEpi Programme, calculations were made using a two-sided significance level(1-alpha) of 0.95; power of 0.8; ratio of sample size, unexposed/exposed equals to 1:1; percent of unexposed with outcome of 19%; percent of exposed with outcome of 36%; odds ratio of 2.3; risk/prevalence ratio of 1.9; risk/prevalence difference equals to 1. The total number of subjects which

should be recruited in this study amounted to a total of 252 subjects (126 participants in each arm). However, when taking into consideration that a maximum of twenty percent of subjects may be lost to follow up, the total minimum number of participants which should be recruited in the study was 304 subjects (152 participants in each arm). At the end of the study, a total of 357 participants were recruited, of which 178 were in the intervention group and 179 in the control group.

The following figure 3.1 shows the flow of participants' recruitment throughout the study.

University of Malaysia

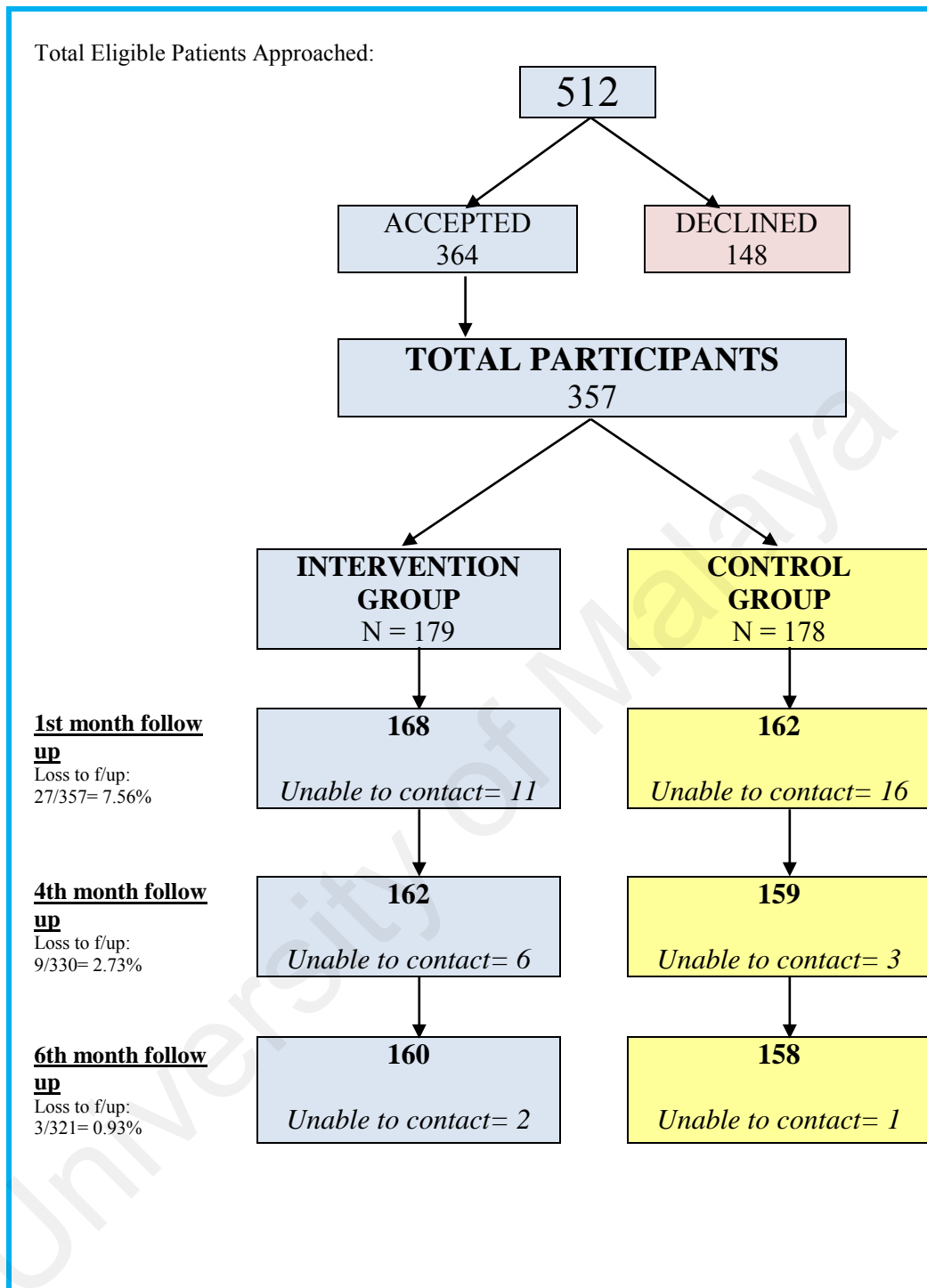


Figure 3.1: Flow Chart of Participants' Recruitment

3.1.7 Sampling procedure

A list of mothers who had just given birth to a normal baby was identified from the postnatal ward registry in the hospital. All four maternity wards (were selected from the Maternity Hospital Kuala Lumpur. From this list, all

mothers were pre-selected starting from 12.00 am on each the day. These pre-selected mothers were then screened for eligibility. Those who passed the inclusion and exclusion criteria were then informed about the study and invited to participate into the study. Only those who gave consent were recruited into the study. The participants were given an identity number (only known to the principal investigator) and were assigned to either the intervention group or no intervention group using randomization method (blocked randomization method using block size of four).

3.1.8 Procedure of study

Study participants were recruited when they have delivered at the Maternity Hospital Kuala Lumpur. Recruitment took place approximately for three months (began in March 2010 and ended at the end of July 2010). As soon as informed consent has been obtained, participants were asked by the principal investigator or the research enumerator to complete a questionnaire.

The questionnaire for Day 1 Post-Partum has four parts (refer Instrument G). It consists of close-ended and open-ended questions. Part One collected details about each woman's socio-demographic characteristics, mainly their age, ethnicity, marital status, highest level of education, employment status, personal income, and high risk behaviours. It also includes the household background information i.e. total household income. Part Two asked questions regarding the details of the woman's health background and the information on the delivery of baby. Part Three elicit the information on infant feeding. This part also elicit each woman about her attitudes to, and beliefs about,

breast-feeding, and, in particular, how long she intended to breastfeed and the current status of the infant feeding. This part also assessed the exposure and knowledge regarding exclusive breastfeeding each woman had received during her antenatal period and the breast feeding support she has had. Part Four requested additional information on the persons who will always be able to contact the participant in case the participant moves from the housing address given at initial interview.

Mothers who were not in the intervention group continued with the current breast feeding promotional practice. It may include breast feeding talks during immunization follow ups, the mothers' communication with the lactation counsellors through information/ pamphlets received during antenatal or postnatal follow ups (which is by her self-attempt), and advice regarding breast feeding received by any health care workers at any time or from the media, peer counsellors, family and friends. The intervention group received, besides the current breast feeding promotional practice, proactive lactation counselling twice monthly by the appointed lactation counsellors. These lactation counsellors were public hospital nurses certified as lactation counsellors or are members of the *Persatuan Penasihat dan Pakar Laktasi Malaysia*. They have all received the 40 hour lactation management & counselling course before being certified as lactation counsellors. The lactation counsellors were required to keep a log book on all communication or telephone contacts of all their designated mothers.

At one and four month postpartum, each mother will be contacted by telephone, by the research enumerator, to determine their breastfeeding status.

On each occasion, participants will be asked if they were still breastfeeding, whether they are fully breastfeeding (breast milk only) or partially breastfeeding (formula, solids, or both, as well as breast milk). If the baby had been weaned (defined here as the withdrawal of all forms of breast milk), the women were asked why they had stopped breastfeeding, and the age of their baby (to the nearest week) when he or she was weaned. A standardized interview questions was used to maintain consistency, and open-ended answers provided individuals with an opportunity to raise concerns, and provide depth to the issues highlighted. The research enumerator was not aware of the grouping status of the mothers (single blinding).

The standardized interview questions at one, four and six-month post-partum were quite similar. It included several parts which assessed the current infant feeding status, breastfeeding support, and information on the working status of the mother. Only slight variations exist for these interview questions were made to accommodate to the suitability of different timeframe (refer Instrument H).

The intervention group received an additional telephone call from the principal investigator to assess the acceptance of proactive lactation counselling and to countercheck on the intervention given by the lactation counsellors. At the fourth month postpartum, mothers in the intervention group were contacted by the Principal Investigator to answer several additional questions. Mothers were needed to give their verbal consent before the questions were asked. The additional questions asked include the support received at home, the main

breastfeeding problems they had shared with their LCs, any breastfeeding problems they had not shared with their LCs, what they had liked/ didn't like about the counselling sessions, the difficulties faced during consultations and whether they would recommend any improvements on the intervention (refer Instrument I). The fourth month was chosen by the Principal Investigator because by this time, it was assumed that the mothers have had enough sessions with their LCs to be able to give their feedback on the intervention, without having to wait until the sixth month when there was a possibility that more would be uncontactable. This additional interview was conducted by the PI alone, as to avoid the revelation of the mothers' group to the Research Enumerator. An exploration about the mothers' experiences when they received this intervention is necessary in order to gain their perspectives on the intervention. Their criticisms or suggestions would be beneficial in improving the intervention in the future if found to be effective. Furthermore, it was also important to assess whether the intervention had achieved its collateral objective of imparting the knowledge and skill to mothers to successfully breastfeed their infants. The following key questions were addressed by the PI during the additional interview:

- i. What were the breastfeeding issues that mothers talk to their lactation counsellors?
- ii. Did the support, advice and counselling provided by the lactation counsellors prove to be helpful to the mother?
- iii. What are the obstacles or difficulties faced by the mothers during the consultation?
- iv. What improvements could be made to make the intervention better?

The principal investigator would also call the participants when they were uncontactable by the lactation counsellors on three consecutive attempts. A framework of the study is detailed in Figure 3.2 and 3.3.

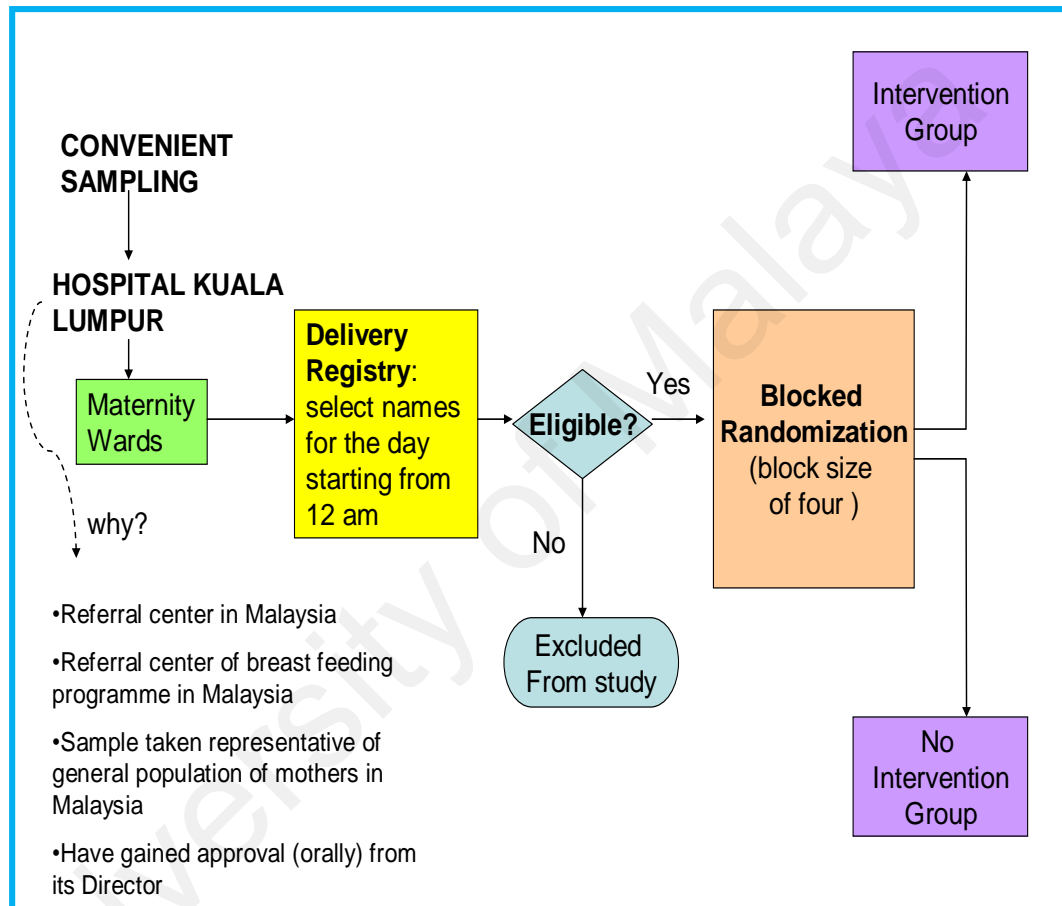


Figure 3.2: Framework of the Study.

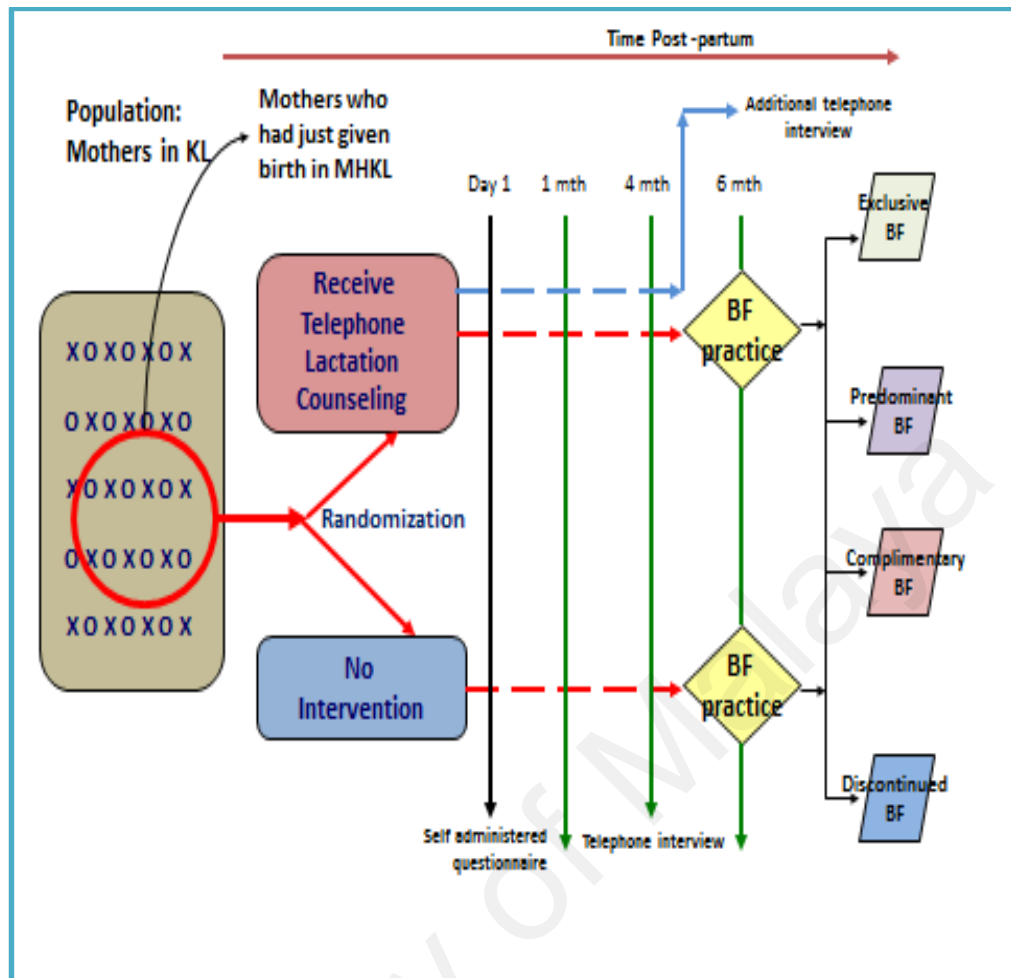


Figure 3.3: Flow diagram of the study design

The current breast feeding promotion as practiced by the lactation counsellors or the health staffs in Malaysia differ from the intervention in this study. For the current practice, the health staffs will see the mothers when they were referred to (when having breast feeding problem), self-volunteer or during home visits. Lactation counsellors or health staff will only be in telephone contact with any mother if the mother was proactive enough to initiate the contact via telephone. For this research, the lactation counsellors called the mothers (more of a pro-active approach by the health staff) without taking any consideration whether the mother was having or not having any breast feeding

problem. The difference between the current breast feeding promotion in Malaysia and the proposed intervention in this study is shown as in the diagram below (Figure 3.4).

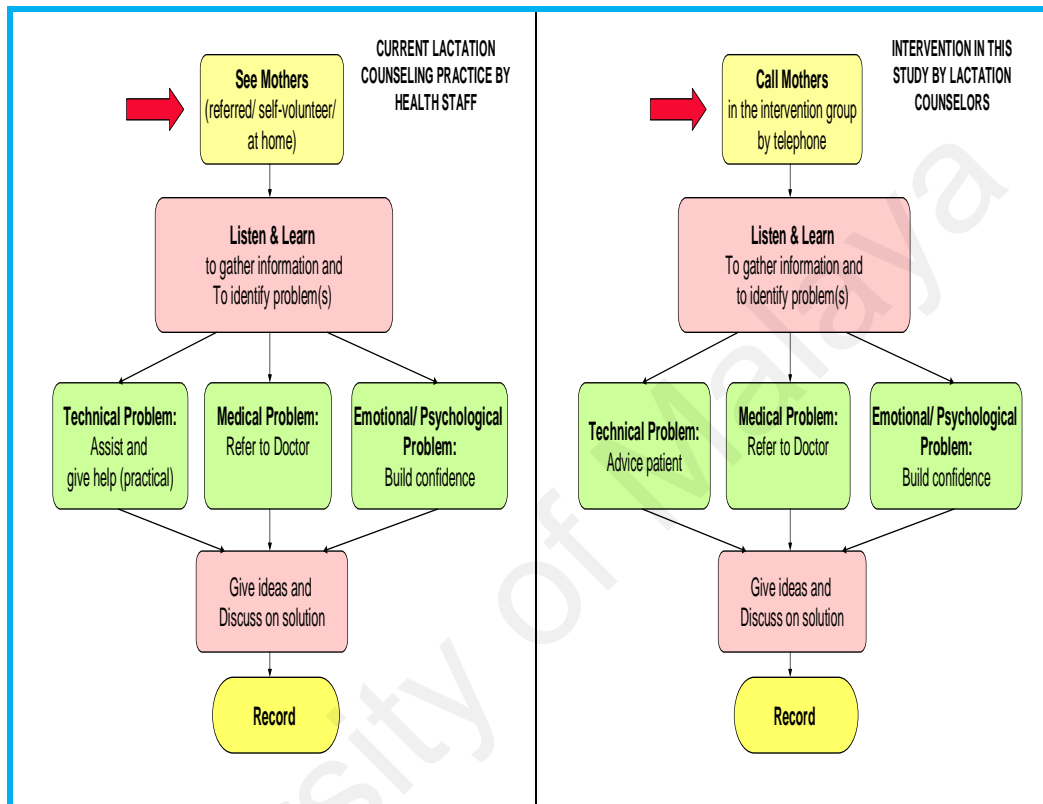


Figure 3.4: The difference between current breast feeding promotion in Malaysia and the proposed intervention in this study.

Maintenance of quality and uniformity of the research is explained further in section 3.1.18.

3.1.9 Randomization

After consent, eligible mothers who agreed to participate answered the first questionnaire at approximately within one day post-partum. They were all not assigned to any groups at this particular moment. Once their particulars (and

questionnaires) were collected by the Research Enumerator, it was handed over to the Principal Investigator. The Principal Investigator generated and maintained a list of random codes for subjects, corresponding to the intervention and control assignment groups using an independent web-based programme. The Principal Investigator will then assign the participants to the intervention or control group. A page with the subject's identification number, treatment assignment, and administrative information (e.g. date of recruitment, date assigned) was generated for each subject.

Assignment of participants to their respective intervention groups was not disclosed to the Research Enumerator (who was in contact again with the participants during follow ups at 1, 4 and 6 month post-partum). Assignment of the Lactation Counsellors for the participants in the intervention group was conducted in a fixed rotation basis and the sequence was only known to the Principal Investigator. The particulars of participants who were assigned to the intervention group were handed to their respective Lactation Counsellors by the Principal Investigator using a printed list (by hand) and via e-mail. The Research Enumerator shared basic demographic and contact information but did not discuss the breastfeeding intentions, knowledge, or attitudes assessed at the baseline interview questionnaire. The Lactation Counsellors then sought to arrange the first telephone call with the participant.

3.1.10 Study variables, confounders, operational definitions and scales of measurement

a) Outcome variable

The main outcome variable for the RCT is the **breastfeeding practice** using the "previous 24-hours" and the "ever given the infant anything besides breast milk since birth" definitions. Exclusive breastfeeding is defined as when the infant has received only breast milk from his/ her mother or a wet nurse, or expressed breast milk, and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines (World Health Organization, 1991).

The outcome variable for the additional interview conducted at four months among mothers in the intervention group were quantitative data i.e. answers to the closed-ended questions as well as qualitative data i.e. answers to responses. In this additional interview, the outcome variables for analyses include:

- i. The respondents' demographic characteristics
- ii. Mothers' breastfeeding experiences
- iii. Breastfeeding-related problems faced by mothers
- iv. Mothers' impression on the telephone lactation counselling
- v. Difficulties or problems faced by the mothers during the consultation process
- vi. Mothers' suggestion(s) to improve the service

b) Independent variables

The main independent variables assessed are the number of telephone lactation counselling and the total hour of counselling received in the intervention group, and it was compared to the duration of breast feeding and its relation to the breast feeding practice (i.e. exclusive, predominant, complementary and stopped breast feeding).

Several independent variables which are associated to be linked with the success of exclusive breast feeding were also studied in this cohort study, which includes sociodemographic factors, biosocial factors (mainly support for the breastfeeding), biomedical factors and also specific factors pertaining to work for the working mothers. These independent variables were selected to be included in the analysis based on the literature review. The following independent variables which were associated with the outcome variable were included in the multivariate analyses:

- Sociodemography: age, parity, marital status, level of education, ethnicity, total household income, prenatal body mass index (BMI) of mother
- Biosocial: partner supporting respondent's decision to breastfeed, seeking of help from healthcare workers (self-attempted), respondent breastfed as a child, intentions to exclusively breastfeed the index child at pregnancy, support from other relatives
- Data on the delivery: weight of baby, type of delivery (spontaneous vaginal delivery or assisted vaginal delivery)
- Specific data/ information for working mother: status of employment, working hours per day, type of working time arrangement i.e. fixed

hours, shift hours, time mother restart work after confinement, whether workplace was helpful in decision to continue breastfeeding, factors at workplace which encourage or discourage decision to continue breastfeeding

3.1.11 Assessment on the conduct of lactation counselling

Assessment on the conduct of lactation counselling was done by the principal investigator on each of the lactation counsellors. The (subjective) method of assessment would be observation of the conduct of telephone counselling (by way of using the telephone speaker), and the lactation counsellors would be marked on several factors such as: at ease and confident during the conduct of counselling, able to answer the questions posed by the patients, attentive to the patients problems, able to refer the patients when necessary etc. The other (objective) method of assessment was by analysing the log book of each counsellor.

3.1.12 Operational definitions

The operational definitions used in this study are listed in Appendix R. The operational definitions were adapted from the World Health Organization (World Health Organization, 1991), Guideline for Interview for the National Health & Morbidity Survey III and also the available English dictionaries online (Merriam Webster Dictionary).

3.1.13 Scales of measurement

The study outcomes include qualitative and quantitative variables. Quantitative data were rounded up to the nearest first decimal point, except for the body mass index of the participants. For analysis purposes, some of the quantitative variables were re-formatted into different levels/ group. Majority of the variables were quantitative, either nominal or categorical data.

3.1.14 Methods of data collection

Data were collected using a self-administered questionnaire and telephone interview. Participants answered a self-administered questionnaire at first day post-partum (Appendix G). During that time, participants may have been accompanied by the research enumerator while answering the self-administered questionnaire in case clarifications were needed while they answer the questions. Data at one, four and six month post-partum were collected via telephone interview using a structured questionnaire (Appendix H). When the participant was not contactable through the phone, the research enumerator tried contact tracing, or mailed the questionnaires to their house after several failed attempts of calling.

The log book of each of the lactation counsellors were checked at the end of the study and also at any random time during the conduct of study. This was to ensure that the lactation counsellors were indeed doing their task as needed in the study. The total number of hours of telephone counselling received by each participant was calculated.

All data collected was entered into the SPSS 15.0 every time a participant has answered the questionnaire or interviewed at each time interval. Ultimately, for every patient the full data were entered when they have completed their follow up by six months. Any incomplete data or missing data were referred back to the participant by either the investigator or enumerator for clarification.

3.1.15 Data analysis and interpretation of results

SPSS for Windows (version 15.0) was used for data entry and all analyses. The main outcome variable for this study is breast feeding outcome. Mantel-Haenszel Chi-square analyses were used to examine bivariate associations between the outcome variable and independent variables, and to compare differences in proportions among the comparison groups. Multivariate logistic regression analyses were conducted to assess the independent influence of significant factors from the bivariate analyses in predicting the success of exclusive breastfeeding controlling for group assignment, infant's sex and maternal health problem. All results were interpreted using $p < 0.05$ (2-sided) as the criterion for statistical significance.

3.1.16 Study instruments

The study instruments for this study include:

- i. Screening form for eligibility in RCT study (refer Appendix A)
- ii. Guideline on taking an informed consent (refer Appendix B)
- iii. Consent form for RCT (refer Appendix C)
- iv. Patient information sheet for RCT (refer Appendix D)

- v. Record list for patients who consented to participate in the study (refer Appendix E)
- vi. Questionnaires for:
 - Day 1 post-partum (self-administered questionnaire) (refer Appendix F)
 - One-month, four-month and six-month post-partum telephone interview (refer Appendix G)
 - Telephone questionnaire for mothers in the intervention group at four- month postpartum (via telephone) (refer Appendix H)
- vii. Standard operating protocol for lactation counsellors (refer Appendix I)
- viii. Counselling Guideline for the Telephone Lactation Counselling and Breast Feeding Practices Study, adapted from the WIC BF Peer Counselling Training Manual (refer Appendix J)
- ix. Reference Guide on Solving Breastfeeding Problems (refer Appendix K)
- x. Individual telephone record (refer Appendix L)
- xi. Record of telephone counselling sessions for Lactation Counsellors (refer Appendix M)
- xii. Handbook on breast feeding for working mothers published by the *Persatuan Penasihat dan Pakar Laktasi Malaysia* (Malaysian Association of Lactation Advisors And Consultants)

New questionnaires were developed for this study, adapted from a few studies which were done previously on breastfeeding practices. The questions for socio-demography were mostly adapted from the Individual Questionnaire (>18 years old) from the National Health and Morbidity Survey III 2006 (Fatimah et al., 2010). The questions for infant feeding practices and breastfeeding support were mostly adapted from the Individual Questionnaire (<2 years old) from the National Health and Morbidity Survey III 2006, the Exclusive Breastfeeding Peer Counselling Intervention Study at Hartford Hospital (A. K. Anderson et al., 2005) and Peterborough County Breastfeeding Survey 2000 (Peterborough County City Health Unit, 2003). New questionnaires were developed because there was not a single available validated questionnaire which could be used to suit the study objectives and the available validated questionnaires from the studies done abroad need to be amended to the local situation. The additional questions for mothers in the intervention group at four month post-partum was developed based on several themes which include the mothers' previous breastfeeding experience, partner and family support for breastfeeding, breastfeeding problems, mothers' feelings regarding the counselling, the problems faced by mothers when joining this research and suggestions for improvements.

Pre-testing of the questionnaires (Appendices F & G) was done three months before the actual time of study. The questionnaires were pre-tested among mothers who were not among the sample population. Participants were all given the opportunity to criticize the pre-test questionnaires using an additional leaflet at the end of the questionnaire. Feedback from the

participants was taken into note and amendments were made accordingly (only minor adjustments were made which involved the articulation of language and the arrangement of questions). After the first test-run, a second test-run was done on the same subjects. The definitions for the clinical definitions of the questionnaire are available in Appendix R.

3.1.17 Quality Control for the Study Procedures

This study was rigorously conducted in a busy tertiary hospital setting. Attempts to adhere to good clinical practice guidelines (Ministry of Health Malaysia, 2011a) were made from the beginning of the study until the end by all parties involved. Measures were taken to ensure that quality is controlled for during the study and is described as follows.

Principal Investigator (PI):

The Principal Investigator was involved in the study procedures from the beginning until the end. These include: recognizing potential participants from the maternity wards postnatal list every day, taking informed consents, guiding participants in answering the self-administered questionnaires, conducting telephone interviews for the follow up sessions, contact tracing of participants, data collection and data entry, data cleaning, data analyses and write up of reports. A Good Clinical Practice certificate was obtained before the commencement of the study. All the necessary tools used for the thesis was developed beforehand, reviewed by the supervisor and amended for corrections (Appendices A-M).

Research Enumerator (RE):

The RE who was temporarily employed for this study was a 25 year old female, Malay graduate student. She was given the task in helping with recruitment of the participants and conducting telephone interviews for the follow up sessions.

- i. RE was given a thorough briefing on the study objectives and procedures as well as her role as the RE of the study before the commencement of project.
- ii. RE was given ample time to learn and practice on the ways of approaching a potential participant. A screening form was provided to the RE to list down any potential participants everyday (refer Appendix A).
- iii. RE was given a thorough explanation on taking an informed consent, guided through the process by the PI until she was deemed competent enough to do it (taking an informed consent) on her own. A laminated guideline on taking an informed consent and patient information sheet was provided to the RE as the standard to follow to when taking a consent (refer Appendices B & D).
- iv. RE was given a thorough briefing on the questionnaires used in the study. The RE was explained on the terms used in the questionnaires, and was explained on her role in guiding/ helping the participants with the self-administered questionnaire, and her role in conducting telephone interviews for the follow up sessions.
- v. RE was given specific instructions to record the names and hospital registration number of the potential participants daily, and the names

of the mothers who consented to participate in the study. The record list was to be handed over to the PI everyday (refer Appendices E & F).

- vi. RE was provided a study file to assist her carry all the necessary tools of the study.

Lactation Counsellors (LC):

To maintain uniformity in the conduct of lactation counselling, the LCs were given training before commencement of the study. One session was allocated to explain the research standard operating procedure to the LCs. The LCs were allowed and encouraged to question the researcher about anything which they were uncertain about. Then, a refresher course on lactation management and counselling was conducted. During this session, the LCs were guided on the common breastfeeding issues according to the postpartum timeline, as well as guidance on how lactation counselling via telephone should be done. A hands-on practical session on conducting telephone counselling was not done as the LCs could not spend much of their time on re-learning counselling skills. However, the LCs were encouraged to enquire any doubts or uncertainties directly with the researcher at any time during the study period.

The LCs were all given the (i) standard operating protocol for lactation counsellors (Appendix I), (ii) a handbook on breast feeding for working mothers published by the Malaysian Lactation Advisors and Consultants Association, (iii) the Counselling Guideline for the Telephone Lactation Counselling and Breast Feeding Practices Study which was adapted from the

WIC BF Peer Counselling Training Manual (Appendix J) and (iv) a reference guide on solving breastfeeding problems (Appendix K) to maintain the uniformity and quality of intervention. Although these steps were taken, it is important to note that the conduct of counselling will somewhat differ between providers on the basis that it involves (in-depth) human communication, which greatly depends on the personality of the persons involved in the counselling session.

3.2 Qualitative Study

This qualitative study was conducted to complete the assessment of the intervention. To assess a complex intervention in health such as this breastfeeding support, it was recommended that quantitative and qualitative analyses build upon one another (eq. qualitative data could be used to explain the quantitative findings) (G. F. Moore et al., 2015). The views from the mothers who had received the intervention were explored in the RCT. Thus it is imperative that the views from the lactation counsellors who provided the service need also be perused.

A qualitative study regarding the mothers' views on the intervention was not conducted as some information regarding this matter has been answered in the additional follow up interviews at fourth month postpartum. It was also presumed that to achieve data saturation, many subjects (i.e. mothers) will need to be recruited as every mother are unique and will report differently on their experiences about this intervention. The Principal Investigator has limited time to conduct a thorough and sound qualitative study for this group.

3.2.1 Theoretical Framework for Qualitative Study

The intention of the research question was to explore the Lactation Counsellors' experience of providing pro-active telephone-based lactation counselling, of which they had initiated the contact with mothers who had delivered a healthy infant and discharged from the hospital's maternity wards. A qualitative approach has been adopted to understand the content and complexity of socially constructed meanings. By using qualitative approaches, the researcher was allowed to be more sensitive to the multiple interpretations that individuals may make of experiences in an attempt to gain some sense of meaning (Smith, 2004). The aim of qualitative research is thus to understand and represent the experiences and actions of people as they encounter, engage and live through situations (Smith & Osborn, 2008). This qualitative study was embarked on the basis that the PI needs to understand the intervention under study, based as much as possible on the perspective of those being studied. In this particular topic to explore the experiences of lactation counsellors providing pro-active telephone-based counselling, of which there was little previous research done, qualitative analysis is particularly effective, especially since there may be variables that are difficult to identify or are not yet identified (Morrow, 2007). A programme evaluation does not only need to be done via quantitative methods, but could also be done qualitatively as it tells the program's story by capturing and communicating the participants' stories (Patton, 2001). Patton (2001) also explained that understanding the program's and participants' stories is useful to the extent that they illuminate the processes and outcomes of the program for those who must make decisions about the program. Qualitative findings in any evaluation will illuminate the

people behind the numbers and put faces on the statistics to deepen the researcher's understanding on the subject matter (Patton, 2001).

3.2.2 Design

3.2.2.1 Researcher

The researcher have met all the Lactation Counsellors (who participated in the intervention study) during both professional meetings and functions held in Maternity Hospital Kuala Lumpur. The Lactation Counsellors acknowledged the Researcher as the Principal Investigator for the intervention study, who is also a medical doctor by profession and a post-graduate student. Prior to conducting the IDIs the researcher was concerned that the Lactation Counsellors would not share information openly with her if they perceived her as one who would judge their views. However, during the course of the IDIs this concern was abated since the counsellors shared information openly and especially voiced their discomforts. From the researcher's point of view, the LCs were more than willing to disclose information freely during these discussions.

3.2.2.2 Participants

Information regarding the participants is included in Table 3.1. Six participants were recruited for the research project. There was no exclusion criterion, and the inclusion criteria were Lactation Counsellors from MHKL who had participated in the intervention study providing telephone-based lactation counselling to mothers. The Lactation Counsellors were selected

based on purposive sampling method (Groenewald, 2004), from the total group of twelve who had participated in the intervention study. Smith and Osborn (2008) suggest that IPA sampling tends to be purposive and broadly homogenous as a small sample size can provide a sufficient perspective given adequate contextualization (Smith & Osborn, 2008). The Lactation Counsellors were informed regarding the purpose of the qualitative study during one of the meetings with me, and later was contacted by telephone and e-mail to fix the interview dates and time. Further explanation was given to them before each interview and they were informed that refusal to participate or withdrawal from the discussion could be done at any time during the interview (refer Appendix N). Sampling size was determined by the first six Lactation Counsellors who agreed to and were able to spend the time for the IDIs. Written informed consent was obtained from all participants (Appendix O).

Table 3.1 Participants Information

Participant	Age	Ethnicity	Work Position at time of IDI	Years of experience as a Nursing Staff	Years of Experience as Lactation Counsellor
LC1	54	Malay	Head Nurse	29	4
LC2	45	Malay	Head Nurse	20	7
LC3	57	Indian	Head Nurse	31	16
LC4	55	Malay	Head Nurse	31	13
LC5	49	Malay	Head Nurse	25	7
LC6	41	Malay	Staff Nurse	18	7

3.2.3 Procedure

3.2.3.1 Data collection

This study was conducted in August 2011 and included a total of six in-depth interviews (IDIs) with the Lactation Counsellors (LCs) who had participated in the RCT. Arrangements were made between the researcher and the participants to meet at a mutually convenient time at their place of work. The IDIs were conducted by the first author during the working hours of the LCs, conducted at the Breastfeeding Room in MHKL. In-depth interviews are used to explore the meanings of social phenomena as experienced by individuals, in their natural context. The interviews were conducted in the LCs first language, Malay language (with five LCs) and English (with one LC), which lasted between 30-40 minutes. Each of the interviews was recorded on audio recorder using a Sony audio recorder (model no. TCM-939) and then transcribed verbatim and translated into English by the interviewer. To verify the accuracy of the transcription and translation, the interviewer read the transcripts checking them against the audio recorded interviews. In the IDI,

the counsellors were asked to describe their experiences regarding their involvement conducting the proactive telephone lactation counselling. Constant comparative method was applied to look for emerging patterns and themes.

3.2.3.2 Materials

A semi-structured interview design was developed from list of elicitation questions based on the Integrated Behavioural Model for the IDI (Montaño & Kasprzyk, 2008). The semi-structured interview questions and an interview guide were prepared in English and later translated to Malay language. Suitability of the questions was discussed with supervisor. The IDI questions are listed in Table 3.2. The researcher had also prepared an interview guide to be used during the IDIs (refer to Appendix P) and also a field notes form to be filled during and after the IDIs (refer Appendix Q).

Table 3.2: Elicitation questions explored during the in-depth interviews

Construct	Elicitation Questions
Experiential attitude	How do you feel about the idea of telephone lactation counselling? What do you like/ dislike about telephone lactation counselling? Tell me about the good or the bad experiences you had when you handle the counselling sessions with the mothers Tell me what you think if this programme were to be done in a bigger scale?
Instrumental attitude	What are the benefits/ advantages of you doing the telephone lactation counselling? What are the negative effects/ disadvantages of you doing the telephone lactation counselling?
Normative influence	Who would support you doing telephone lactation counselling? What conditions makes you feel supported/ motivated to conduct the counselling? Who would be against you doing telephone lactation counselling? What conditions makes you feel unsupported/ de-motivated to conduct the counselling?
Perceived control	What makes things easier for you to conduct telephone lactation counselling? Tell me about things that made it easier for you being a counsellor in this study What makes it harder for you to conduct telephone lactation counselling? Tell me about the difficulties that you had being a counsellor in this study
Self-efficacy	Before you conduct any counselling sessions, how certain are you that you can? Do you feel capable to handle difficult situations with the mothers? Do you feel competent enough to counsel the mothers? What kinds of things that would help you overcome any barriers in conducting telephone lactation counselling?

3.2.3.3 Analytic strategy

Each audio-recorded interview was transcribed verbatim and given line numbers and the transcripts were subjected to IPA (Smith, Jarman, & Osborne, 1999; Smith, 1996). In this study, the qualitative data analysis consisted of two processes. The first involved identifying, coding, and categorizing themes found in the data (Silverman, 2010; Strauss & Corbin, 1990). Each interview was analysed systematically in turn, and the analysis of the next transcript commenced only when closure was achieved of the previous one. The transcript was read several times to gain familiarity with the material, studied in detail and notes on points of interest, preliminary themes and ideas that emerged relating to the experience of supervision processes and the impact these had on the participants were made in the left hand margin (Smith, Flowers, & Larkin, 2009; Smith et al., 1999). The participants' reflections, conveyed in their own words, strengthen the validity and credibility of the research (Patton, 2001). The identified preliminary themes were amended, developed and refined and noted in the right hand margin of the transcript together with further thoughts and connections. Subsequently, the analysis of the next transcript then began. The list of themes from Participant 1 was used and studied to identify further instances of these themes, contradictor or related themes and any additional themes for the other transcripts. For each theme and participant, a separate sheet was used; with line number identifiers and verbatim quotes were recorded on each sheet. The themes were then analysed with frequent reference to the original text to check the validity of the interpretations and where they appeared to be linked and related. The themes were clustered together to produce a list of super-ordinate themes. The second process of analysis used the elements of Integrated Behavioural Model (Montaño &

Kasprzyk, 2008) as an analytical framework from which identified themes were considered. A table of super-ordinate themes together with their related sub-ordinate themes was then drawn up.

3.2.3.4 Ethical implications of study

When considering the ethical implications of the research, because all of the participants were Lactation Counsellors with extensive experience in clinical nursing and breastfeeding education, it was felt that:

- The research procedure was not likely to be stressful or distressing
- The research materials were not of a sensitive, discriminatory or otherwise inappropriate nature
- The participants were not members of a vulnerable group
- The research design was sufficiently well-grounded so that the participant's time was not wasted
- Access to confidential records was felt to be part of the investigator's normal professional duties.

Before the interviews took place the researcher confirmed with the participants that they were aware of the Malaysian Guideline for Good Clinical Practice (Ministry of Health Malaysia, 2011a). The participants were informed that they were free to withdraw from the interview at any time and asked to sign a consent form. Due to the small number of participants involved in the research project, participants were offered the opportunity to receive feedback of the results through follow-up interviews and/or receive a summary of the report. Confidentiality and the anonymity of the participants were maintained throughout

the research project and potentially identifying material was removed from the research report. Each tape-recording of the interviews was given a numerical identifier rather than the name of the participant and the transcriptions were anonymised and pseudonyms used. The transcription and analysis of the interviews was conducted by the researcher alone.

3.2.3.5 Data storage and feedback

All the data were stored securely. The participants signed consent forms, contact details, audio recordings and transcripts are securely stored and tapes will be destroyed after examination of the project.

University of Malaya

CHAPTER 4: RESULTS

This chapter presents the results obtained from both the RCT and Qualitative study. For each study design, a detailed report on the results and a brief summary of the findings were presented in different sections of this chapter.

4.1 Results from Randomized Controlled Trial

The results of this RCT are presented initially with the recruitment of participants, followed by the baseline demographic factors and the employment status of the participants. The early breastfeeding practice in the hospital is presented next, and subsequently the antenatal and postnatal support received by the mothers. The result of the intervention analysis, particularly on the intervention dose and accessibility is presented before the results of breastfeeding outcomes. In the breastfeeding outcome results, the breastfeeding practice among the participants and the effects of the intervention towards successful breastfeeding outcome is presented. This is then followed by the results of infant feeding practice by type of feeding, the reasons why mothers discontinued breastfeeding and the factors which affect the breastfeeding outcomes. A summary of the results obtained from this RCT is presented in the last sub-chapter.

4.1.1 Recruitment of Participants

A total of 512 eligible participants were approached after initial selection was made from the daily ward registry. A total of 364 mothers agreed to participate in the study, however, a further 7 mothers had to be disqualified from the study (reasons: baby passed away = 7, planned to give baby away for adoption = 3, preterm baby = 2, non-Malaysian = 1). Finally, 357 participants were recruited

and randomly divided into the intervention or control group using a computer-derived sequence (intervention: n = 179; control: n = 178). The randomization process was only known to the Principal Investigator and blinded to the Research Enumerator throughout the study. Assignment of Lactation Counsellors to the mothers in the intervention groups was made on a fixed rotation basis and the sequence was only known to the Principal Investigator.

Follow up of all participants was completed on January 2011. Follow up at the 1, 4 and 6 month postpartum was made using telephone questionnaires by the Research Enumerator and the Principal Investigator. At the first month follow up, a total of 330 participants were successfully contacted, and the number decreased at fourth and sixth month (327 and 318). The follow up rate decreased by month but remained comparable between the intervention and control groups at first month (6.15% vs. 8.9%), fourth month (3.57% vs. 1.85%) and sixth month (1.23% vs. 0.63%). The total loss to follow up of throughout the study was 10.9% (7.56%, 2.73% and 0.93% at first, fourth and sixth month respectively). Comparison between the participants who responded to the follow up questionnaires were made with those who didn't, within and across treatment group in terms of age, level of education, ethnicity, religion, gender of baby, working status, intention to work again and exclusive breastfeeding intention at baseline. None of these differences was statistically significant (data not shown). A summary of the flow chart of the participants' enrolment in the study has been shown in Figure 3.1 (chapter 3.1.6).

4.1.2 Baseline Characteristics of Participants

Baseline socio-demographic characteristics of the participants are shown in Table 4.1. The mean age of mothers was 28.6 years old, and their mean prenatal Body Mass Index (BMI) falls within the normal to overweight weight range (23.7 ± 4.36). The mean antenatal weight gain was 9.73 ± 4.99 kg. The majority of the mothers recruited in the study comprised of Malay ethnicity (88.2%) while other ethnicity include the Chinese (5.3%), Indian (4.5%), East Malaysian natives (1.1%) and others (0.8%). The reason why more Malays were recruited was because while majority of the patients in the maternity wards were Malays (72% of all maternity patients in MHKL in the year 2010), and many of the mothers from other ethnic groups refused to participate in the study. Thus the majority of the participants recruited were Muslims. Among the mothers, 97.8% of them were married and almost all of them were breastfed when they were babies themselves (98.0%). Almost all of them were non-smokers (99.7%) and non-alcohol drinkers (99.4%). More than a quarter of the mothers had completed a higher education level (i.e. obtained an undergraduate or postgraduate degree) while 69.5% of them completed secondary school. Only 0.8% of the mothers never schooled or did not complete their primary school.

Table 4.1: Mothers' socio-demographic characteristics

<i>Characteristics</i>	<i>Values</i>	<i>All N=357</i>	<i>Intervention group n (%)</i>	<i>Control group n (%)</i>
<i>Mother's age, years</i>	mean \pm s.d	28.58 \pm 5.51	28.45 \pm 4.29	23.68 \pm 4.43
<i>Mother's height, m</i>	mean \pm s.d	1.55 \pm 0.53	1.56 \pm 0.05	1.55 \pm 0.05
<i>Mother's prenatal weight, kg</i>	mean \pm s.d	57.46 \pm 11.19	57.62 \pm 10.85	57.31 \pm 11.56
<i>Mother's prenatal BMI</i>	mean \pm s.d	23.73 \pm 4.36	23.78 \pm 4.29	23.68 \pm 4.43
<i>Antenatal weight gain, kg</i>	mean \pm s.d	9.73 \pm 4.99	9.52 \pm 4.47	9.94 \pm 5.48
<i>Number of mother's other children</i>	mean \pm s.d	2.43 \pm 1.47	2.42 \pm 1.53	2.44 \pm 1.41
<i>Ethnicity</i>	Malay	315 (88.2%)	160 (89.39%)	155 (87.08%)
	Chinese	19 (5.3%)	7 (3.91%)	12 (6.74%)
	Indian	16 (4.5%)	8 (4.47%)	8 (4.49%)
	Others	3 (0.8%)	2 (1.12%)	1 (0.56%)
	Peribumi Sabah Sarawak	4 (1.1%)	2 (1.12%)	2 (1.12%)
<i>Religion</i>	Islam	317 (88.8%)	159 (88.83)	158 (88.76%)
	Christian	6 (1.7%)	4 (2.23)	2 (1.12%)
	Buddhist	19 (5.3%)	8 (4.47)	11 (6.18%)
	Hindu	14 (3.9%)	8 (4.47%)	6 (3.37%)
	Others	1 (0.3%)	0	1 (0.56%)
<i>Marital status</i>	Not married	8 (2.2%)	4 (2.23%)	4 (2.23%)
	Married	347 (97.2%)	173 (96.65%)	174 (97.75%)
	Divorced	2 (0.6%)	2 (1.12%)	0
<i>Mother was breast fed when she was a baby</i>	Yes	350 (98.0%)	175 (97.77%)	175 (98.31%)
	No	2 (0.6%)	1 (0.56%)	1 (0.56%)
	Didn't know	5 (1.4%)	3 (1.68%)	2 (1.12%)
<i>Mother's education level</i>	Never schooled or didn't complete primary school	3 (0.8%)	3 (1.68%)	0
	Completed primary school	7 (2.0%)	4 (2.23%)	3 (1.69%)
	Completed secondary school	248 (69.5%)	115(64.25%)	133 (74.72%)
	Completed higher education level	99 (27.7%)	57 (31.84%)	42 (23.60%)
All parameters were not statistically different at $p>0.05$				

Table 4.2: Mothers' biophysical characteristics

<i>Characteristics</i>	<i>Values</i>	<i>All N=357</i>	<i>Intervention group n (%)</i>	<i>Control group n (%)</i>
<i>Mother is a smoker</i>	Yes	1 (0.28%)	0	1 (1.56%)
	No	356 (99.72%)	179 (100%)	177 (99.44%)
<i>Mother is an alcohol drinker</i>	Yes	2 (0.56%)	1 (0.56%)	1 (0.56%)
	No	355 (99.44%)	178 (99.44%)	177 (99.44%)
<i>Any prenatal medical problem*</i>	Yes	8 (2.2%)	1 (0.56%)	7 (3.93%)
	No	349 (97.8%)	178 (99.44%)	171 (96.07%)
<i>Type of prenatal medical problem</i>	Cardiovascular	2 (25.0%)	1 (100%)	1 (14.29%)
	Hypertension	1 (12.5%)	0	1 (14.29%)
	Asthma	2 (25.0%)	0	2 (28.58%)
	Anaemia	1 (12.5%)	0	1 (14.29%)
	Hepatitis	1 (12.5%)	0	1 (14.29%)
	Thyroid problem	1 (12.5%)	0	1 (14.29%)
<i>Any antenatal medical problem</i>	Yes	61 (17.1%)	30 (16.76%)	31 (17.42%)
	No	296 (82.9%)	149 (83.24%)	147 (82.58%)
<i>Antenatal medical problem</i>	Cardiovascular	2 (4.25%)	1 (4.55%)	1 (4.0%)
	Hypertension	3 (6.38%)	1 (4.55%)	2 (8.0%)
	Asthma	1 (2.13%)	0	1 (4.0%)
	Anaemia	16 (34.04%)	6 (27.27%)	10 (40.0%)
	Thyroid	1(2.13%)	0	1 (4.0%)
	Diabetes	24 (51.06%)	14 (63.64%)	10 (40.0%)

*: Statistically different at p<0.05. All other parameters were not statistically different at p>0.05

Table 4.2 shows the participants' biophysical characteristics. Only 2.2% of all mothers had prenatal medical problem, which include cardiovascular problem, hypertension, bronchial asthma, anaemia, hepatitis and thyroid problems. During antenatal period, 17.1% of the mothers experienced medical problems, which were mainly anaemia, diabetes and hypertension. 54.06% of the mother gave birth to a baby boy, and the average baby birth weight was 3.04 ± 0.37 kg. 93.6% of the babies were born via spontaneous vaginal delivery, while the rest of them were born via assisted vaginal delivery (either vacuum or forceps). 38.1% of the mothers were first time mothers. All of these figures were not significantly different between the intervention and control group, except the existence of

antenatal problems between the two groups (more mothers in the control group has antenatal medical problem compared to the intervention group, 3.93% vs. 0.56%, $p<0.05$).

Table 4.3: Characteristics of the baby

<i>Characteristics</i>	<i>Values</i>	<i>All N=357</i>	<i>Intervention group n (%)</i>	<i>Control group n (%)</i>
<i>Baby's birth weight, kg</i>	mean \pm s.d	3.04 \pm 0.37	3.04 \pm 0.38	3.01 \pm 0.35
<i>Baby's sex*</i>	Male	193 (54.06%)	107 (55.44%)	86 (44.56%)
	Female	164 (45.94%)	72 (43.9%)	92 (56.1%)
<i>Type of vaginal delivery</i>	Normal SVD	334 (93.56%)	165 (92.18%)	169 (94.94%)
	Assisted SVD	23 (6.44%)	14 (7.82%)	9 (5.06%)
<i>Mother has any other child</i>	Yes	221 (61.90%)	109 (60.89%)	112 (62.92%)
	No	136 (38.1%)	70 (39.11%)	66 (37.08%)

*: Statistically different at $p<0.05$. All other parameters were not statistically different at $p>0.05$

Table 4.3 shows the characteristics of the infants born by the participants. The infants mean weight was 3.04 ± 0.37 , and the majority of them were born via the spontaneous vaginal delivery. A majority of the mothers were multiparous. All of these figures were not significantly different between the intervention and control group, except in the baby's gender born by the mothers (more male babies were born in the intervention group than in the control group, 55.44% vs. 44.56%, $p<0.05$).

Table 4.4: Breastfeeding intention among mothers

<i>Characteristics</i>	<i>Values</i>	<i>All N=357</i>	<i>Intervention group n (%)</i>	<i>Control group n (%)</i>
<i>Antenatal breastfeeding intention</i>	Yes	354 (99.2%)	178 (99.44%)	176 (98.88%)
	No	3 (0.8%)	1 (0.56%)	2 (1.12%)
<i>Postnatal breastfeeding intention</i>	Yes	354 (99.2%)	179 (100%)	175 (98.31%)
	No	3 (0.8%)	0	3 (1.69%)
<i>Exclusive breastfeeding intention</i>	Yes	203 (56.9%)	104 (58.1%)	99 (55.62%)
	No	154 (43.1%)	75 (41.90%)	79 (44.38%)
<i>Intention of breastfeeding period, month</i>	up to 2 months	12 (3.4%)	3 (1.7%)	9 (5.1%)
	>2 to 6 months	120 (33.6%)	64 (35.8%)	56 (31.5%)
	>6 to 12 months	74 (20.7%)	41 (22.9%)	33 (18.5%)
	>12 months	151 (42.3%)	71 (39.7%)	80 (44.9%)
All parameters were not statistically different at $p>0.05$				

Table 4.4 shows the breastfeeding intentions among the mothers. 99.2% of them have had breastfeeding intentions since antenatal period; however, only 56.9% of them had the intention to breastfeed exclusively. Their intention of breastfeeding period varies, a minority planned to breastfeed only up to 2 months period (3.4%), 33.6% (between 2 to 6 months), 20.7% (more than 6 months up to 12 months) and most of them planned to breastfeed for more than a year (42.3%).

Table 4.5 below shows the household characteristics of the participants. Almost half of the mothers were working prior to the delivery (48.5%) and more than a quarter of them were working in the private sector, while 18.5% were government servants. 45.9% of the mothers expressed their intention to work after this current delivery. The mean income of working mothers was $RM1502.72 \pm 959.44$, while the average monthly household income was $RM2543.68 \pm 1410.46$. This figure meant that the households included in the study was way below the average household income in Kuala Lumpur (which was RM4105 in 1999), but comparable to the average household income in the country (RM2472 in 1999).

This explained why about 20.5% of the mothers in the study had to take up a second job to further support the family financially. Majority of the households were headed by the participants' husbands (92.9%) while in some of the other household, the head of the household was either the participants' father or father-in-law.

Table 4.5: Household characteristics of participants

<i>Characteristics</i>	<i>Values</i>	<i>All N=357</i>	<i>Intervention group n (%)</i>	<i>Control group n (%)</i>
<i>Head of household</i>	Patient's husband	325 (92.86%)	163 (93.68%)	162 (92.05%)
	Patient's father	4 (1.14%)	3 (1.72%)	1 (0.56%)
	Patient's father-in-law	17 (4.86%)	6 (3.45%)	11 (6.25%)
	Patient's older child	3 (0.86%)	2 (1.15%)	1 (0.56%)
	Patient's boyfriend	1(0.29%)	0	1 (0.56%)
<i>Work status of Husband/Partner</i>	Civil servant	103 (29.43%)	56 (32.18%)	47 (26.70)
	Private sector employee	184 (52.57%)	89 (51.15%)	95 (53.98%)
	Self-employed	61 (17.43%)	28 (16.09%)	33 (18.75%)
	Not working	2 (0.57%)	1 (0.56%)	1 (0.56%)
<i>Mother does extra job</i>	Yes	73 (20.5%)	34 (19.1%)	39 (21.91%)
	No	283 (79.5%)	144 (80.9%)	139 (78.09%)
<i>Working mother's income, RM</i>	mean ± s.d	1502.72 ± 959.44	1533.10 ± 684.67	1471.26 ± 1182.17
<i>Household income, RM</i>	mean ± s.d	2543.68 ± 1410.46	2658.08 ± 1462.21	2428.63 ± 1350.77
All parameters were not statistically different at $p>0.05$				

4.1.3 Employment Status among Participants

Among the participants recruited in this study, a total of 48.5% of them were working prior to the current delivery. There was no significant difference between the intervention and the control group ($p>0.05$). The participants were either working at a government sector, private sector or self-employed. Among the intervention group 20.1% of the mothers worked at the government sector prior to delivery, while less mothers in the control group worked as a civil servant

(18.5%). There was almost similar percentage of mothers who worked at the private sector or were self-employed in both groups. More than half of mothers from both groups were either housewives or were studying. The differences however were not statistically significant (Refer Table 4.6).

Table 4.6: Employment status of participants before delivery

<i>Characteristics</i>	<i>Values</i>	<i>All N=357</i>	<i>Intervention group n (%)</i>	<i>Control group n (%)</i>
<i>Mother is working</i>	Yes	173 (48.5%)	88 (49.16%)	85 (47.75%)
	No	184 (51.5%)	91 (50.84%)	93 (52.25%)
<i>Mother's working sector</i>	Civil servant	66 (18.5%)	34 (18.99%)	32 (17.98%)
	Private sector employee	99 (27.7%)	55 (30.73%)	44 (24.72%)
	Self-employed	10 (2.8%)	3 (1.68%)	7 (3.93%)
	Studying while working	1 (0.3%)	1 (0.56%)	0
	Still studying	3 (0.8%)	1 (0.56%)	2 (1.12%)
	Housewife	177 (49.6%)	84 (46.93%)	93 (52.25%)
	Pensioner	1 (0.3%)	1 (0.56%)	0
<i>Intention to work again after delivery</i>	Yes	164 (45.9%)	86 (48.04%)	78 (43.82%)
	No	193 (54.1%)	93 (51.96%)	100 (56.18%)
All parameters were not statistically different at $p>0.05$				

At the **first month postpartum**, only 2.25% and 3.7% of mothers from the intervention and control groups who had worked prior to delivery had returned to work, and all of those who had done so were working at the private sector or self-employed. Thus, the other factors related the employment at this period was not explored.

By the **fourth month postpartum**, more than half of the mothers who had worked prior to delivery returned to work. More mothers from the intervention group returned to work compared to mothers from the control group (58.94% vs. 47.92%, $p>0.05$). Majority of these working mothers worked in a fixed office

hours, which usually started in the morning and ends by the evening (75.56% vs. 83.78%, $p>0.05$). About 24.44% of working mothers from the intervention group worked in shift hours compared to 16.2% in the control groups. All of these mothers however, worked in a fixed shift hour's system. During work time, more mothers in the intervention group had their infants cared for in their own house compared to mothers in the control group (51.2% vs. 40.6%, $p>0.05$). Infants of these working mothers were also cared for outside their own house while the mothers were working. 19.8% of infants in the intervention group were put in a day-care or nursery centres compared to 26.6% among infants from the control group, while 29.1% and 32.8% of mothers from both groups placed their infants for care at someone else's house, usually a babysitter. These differences of placement of baby care while the mothers were working were not statistically significant. A majority of these working mothers stated that there was indifference in the support for breastfeeding at their workplace. More mothers in the intervention group responded that they a supportive workplace for breastfeeding compared to the controls (13.5% vs. 6.7%, $p>0.05$) and non-supportive workplace (8.11% vs. 0%, $p>0.05$). These percentages however, were not statistically significant (refer Table 4.7).

Table 4.7: Participants' Employment Related Factors at 4 months postpartum

Employment Factors		Intervention	Control	Total	OR	p
Returned To Work	Yes	89 (58.94%)	69 (47.92%)	158 (53.56%)	3.601	0.05
	No	62 (41.06%)	75 (52.08%)	137 (46.44%)		
Job Status	Civil	23 (14.74%)	16 (10.88%)	39 (12.87%)	1.024	0.59
	Private Sector Or Self Employed	59 (37.82%)	57 (38.78%)	116 (38.28%)		
	Studying Or Housewife	74 (47.44%)	74 (50.34%)	148 (48.84%)		
Type Work-shift	Fixed Office Working Hours	68 (75.56%)	62 (83.78%)	130 (79.27%)	1.673	0.19
	Fixed Shift Working Hours	22 (24.44%)	12 (16.22%)	34 (20.73%)		
Baby Care while Working	Cared For In Own House	44 (51.16%)	26 (40.63%)	70 (46.67%)	1.788	0.40
	Day-care Or Nursery Centres	17 (19.77%)	17 (26.56%)	34 (22.67%)		
	Cared For In Someone Else's House	25 (29.07%)	21 (32.81%)	46 (30.67%)		
Workplace Support	Supportive	10 (13.51%)	3 (6.67%)	13 (10.92%)	5.599	0.06
	Indifferent	58 (78.38%)	42 (93.33%)	100 (84.03%)		
	Not Supportive	6 (8.11%)	0 (0.00%)	6 (5.04%)		

At the **sixth month postpartum**, significantly more mothers in the intervention group who had previously worked before delivery had returned to work compared to mothers in the control group (98.8% vs. 85.25%, $p < 0.05$). It was also noted that significantly more mothers from the intervention group worked in the government sector and the private sector compared to controls (18.18% vs. 13.39%; 44.70% vs. 33.07%), and significantly more mothers in the control group were housewives compared to intervention group (53.5% vs. 37.1%). Majority of these working mothers worked in a fixed office hours, which usually started in the morning and ends by the evening (74.7% vs. 81.5%, $p > 0.05$). About 25.3% of working mothers from the intervention group worked in a fixed shift hours

compared to 18.46% in the control groups. During work time, more mothers in the intervention group had their infants cared for in their own house compared to mothers in the control group (55.3% vs. 42.9%). Infants of these working mothers were also cared for outside their own house while the mothers were working. 12.9% of infants in the intervention group were put in a day-care or nursery centres compared to 23.8% among infants from the control group, while 31.8% and 33.3% of mothers from both groups placed their infants for care at someone else's house. These differences of placement of baby care while the mothers were working were not statistically significant. A majority of these working mothers stated that there was indifference in the support for breastfeeding at their workplace. More mothers in the intervention group responded that they a supportive workplace for breastfeeding compared to the controls (12.9% vs. 6.5%) and non-supportive workplace (7.79% vs. 0%). These percentages however, were not statistically significant (refer Table 4.8).

Table 4.8: Participants' Employment Related Factors at 6 months postpartum

Employment Factors		Intervention	Control	Total	OR	p
Returned To Work	Yes	82 (98.80%)	52 (85.25%)	134 (93.06%)	9.988	0.00
	No	1 (1.20%)	9 (14.75%)	10 (6.94%)		
Job Status	Civil Servant	24 (18.18%)	17 (13.39%)	41 (15.83%)	7.048	0.02
	Private Sector Or Self Employed	59 (44.70%)	42 (33.07%)	101 (39.00%)		
	Studying Or Housewife	49 (37.12%)	68 (53.54%)	117 (45.17%)		
Type Work-shift	Fixed Office Working Hours	62 (74.70%)	53 (81.545)	115 (77.70%)	0.984	0.32
	Fixed Shift Working Hours	21 (25.30%)	12 (18.46%)	33 (22.30%)		
Baby Care while Working	Cared For In Own House	47 (55.29%)	27 (42.86%)	74 (50.00%)	3.580	0.16
	Day-care Or Nursery Centres	11 (12.94%)	15 (23.81%)	26 (17.57%)		
	Cared For In Someone Else's House	27 (31.76%)	21 (33.33%)	48 (32.43%)		
Workplace Support	Supportive	10 (12.99%)	3 (6.52%)	13 (10.57%)	5.416	0.06
	Indifferent	61 (79.22%)	43 (93.48%)	104 (84.55%)		
	Not Supportive	6 (7.79%)	0 (0.00%)	6 (4.88%)		

4.1.4 Early Breastfeeding Practice in the Hospital

MHKL is certified as a Baby Friendly Hospital since 1993 and has maintained the status until now. Thus, it is a common practice in this hospital that teats, pacifiers, milk bottles and infant formula are prohibited in the hospital and all the attending mothers are explained on this policy. Among the participants, all of them practiced rooming-in on the baby. The majority of the babies born by the participants were initiated on breastfeeding within one hour after birth (86.8%), while 12.0% were initiated between 1 to 24 hours after delivery, 0.3% (initiated after one day) and 0.8% of the mothers had not initiated breastfeeding at time of

their recruitment into the study. 3.6% of the babies were given pre-lacteal feed. The common pre-lacteal feed given was plain water (56.25%), infant formula (37.5%) and honey (6.25%). All of the early breastfeeding practices were statistically similar between the two groups, except that among mothers who gave pre-lacteal feeding, more mothers from the intervention group gave plain water (56.25%) while the control group gave more infant formula (55.56%). Table 4.9 summarizes the above findings.

Table 4.9: Early Breastfeeding Practice at the Hospital

<i>Values</i>		<i>All N=357</i>	<i>Intervention group n (%)</i>	<i>Control group n (%)</i>
<i>Time of baby-to-breast</i>	Within 1 hour after birth	310 (86.8%)	157 (87.71%)	153 (85.96%)
	Between 1-24hour after birth	43 (12.0%)	18 (10.06%)	25 (14.04%)
	After a day	1 (0.3%)	1 (0.56%)	0
	Never breast fed yet	3 (0.8%)	3 (1.68%)	0
<i>Pre-lacteal feed given</i>	Yes	13 (3.6%)	8 (4.47%)	5 (2.81%)
	No	338 (94.7%)	170 (94.97%)	168 (94.38%)
	Didn't know if given	6 (1.7%)	1 (0.56%)	5 (2.81%)
<i>Type of pre-lacteal feed*</i>	Other milk	6 (37.5%)	1 (14.29%)	5 (55.56%)
	Plain water	9 (56.25%)	6 (85.71%)	3 (33.33%)
	Honey	1 (6.25%)	0	1 (11.11%)

*: Statistically significant at $p < 0.05$. All others were not statistically significant at $p > 0.05$

4.1.5 Antenatal Breastfeeding Support Received by Mothers

Among all of the participants, 92.18% of them had received breastfeeding education during their routine antenatal check-ups. The current breastfeeding antenatal breastfeeding education provided by the public hospital in Malaysia include multiple topics regarding breastfeeding conveyed to the mothers through several methods, such as short pep talks, lectures, video viewing, pamphlets and others. The breastfeeding information received by the mothers who participated in

this study include breastfeeding position (92.18%), expressing breast milk (86.03%), breastfeeding myths (13.97%), discussion on exclusive breastfeeding (65.92%) and maintaining breastfeeding when mother is away from baby (64.25%). Only 15.64% of them received any breastfeeding information from viewing any breastfeeding video. The differences between the type of information received by the mothers in the intervention and the control group are not statistically different (refer Table 4.10).

Table 4.10: Antenatal Lactation Education Received by Mothers, according to the Intervention Groups

			Intervention	Control	Total	OR	p
Received Antenatal Breastfeeding Education	Yes		165 (92.18%)	157 (88.20%)	322 (90.2%)	1.596	0.21
	No		14 (7.82%)	21 (11.80%)	35 (9.8%)		
Breastfeeding Position	Yes		165 (92.18%)	166 (93.26%)	331 (92.71%)	0.154	0.69
	No		14 (7.82%)	12 (6.74%)	26 (7.28%)		
Expressing Breast Milk	Yes		154 (86.03%)	163 (91.57%)	317 (88.8%)	2.753	0.09
	No		25 (13.97%)	15 (8.43%)	40 (11.2%)		
Breastfeeding Myths	Yes		25 (13.97%)	23 (12.92%)	48 (13.45%)	0.084	0.77
	No		154 (86.03%)	155 (87.08%)	309 (86.55%)		
Discussion on Exclusive Breastfeeding	Yes		118 (65.92%)	118 (66.29%)	236 (66.11%)	0.005	0.94
	No		61 (34.08%)	60 (33.71%)	121 (33.89%)		
Maintain Breastfeeding When Away From Baby	Yes		115 (64.25%)	124 (69.66%)	239 (66.95%)	1.184	0.28
	No		64 (35.75%)	54 (30.34%)	118 (33.05%)		
Breastfeeding Video	Yes		28 (15.64%)	33 (18.54%)	61 (17.09%)	0.529	0.47
	No		151 (84.36%)	145 (81.46%)	296 (82.91%)		

During the antenatal period up to the time before delivery, mothers in this study reported that only 1.18% of them received lactation support from the specialists and 10.12% from the non-specialist doctors. More than a third of them received support from the Breastfeeding Team. A majority of the mothers however, reported receiving lactation support from the ward nurses when they were admitted prior to delivery (61.9%) and also the midwife or delivery nurse (64.88%), while waiting for labour process in the delivery suite. Trainee nurses

also contributed in providing antenatal lactation support, of which 7.78% of the mothers reported of receiving information from this group. The antenatal support received by the mothers up until the time to delivery did not differ according to the group of personnel (refer Table 4.11).

Table 4.11: Antenatal Lactation Support Received by Mothers, according to Group of Personnel (up until the time before delivery)

		Intervention	Control	Total	OR	p
Specialist	Yes	2 (1.18%)	1 (0.61%)	3 (0.90%)	0.295	0.587
	No	168 (98.82%)	162 (99.39%)	330 (99.10%)		
Non-Specialist Doctor	Yes	17 (10.12%)	22 (13.58%)	39 (11.82%)	0.948	0.330
	No	151 (89.88%)	140 (86.42%)	291 (88.18%)		
BFST Team	Yes	61 (36.31%)	55 (33.95%)	116 (35.15%)	0.201	0.654
	No	107 (63.69%)	107 (66.05%)	214 (64.85%)		
Midwife/Delivery Nurse	Yes	104 (61.90%)	86 (53.08%)	190 (57.58%)	2.626	0.105
	No	64 (38.10%)	76 (46.91%)	140 (42.42%)		
Ward Nurse	Yes	109 (64.88%)	95 (58.64%)	204 (61.81%)	1.360	0.244
	No	59 (35.12%)	67 (41.36%)	126 (38.18%)		
Trainee Nurse	Yes	13 (7.78%)	15 (9.32%)	28 (8.54%)	0.247	0.620
	No	154 (92.22%)	146 (90.68%)	300 (91.46%)		

4.1.6 Postnatal Lactation Support Received By Mothers at the Hospital

After delivery, mothers usually stayed in the hospital wards until they were deemed fit to be discharged. Postnatal care in the wards also includes continuous breastfeeding support from the health staff. Among all of the mothers, 41.9% of them reported that they had received help to breastfeed after delivery at this hospital. 36.87% of the mothers who had given birth before had received help to breastfeed after delivery at the previous hospital (refer Table 4.12).

Table 4.12: Postnatal Breastfeeding Support Received by Participants at the Hospital

		Intervention	Control	Total	OR	p
Received Breastfeeding Help At Current Hospital (MHKL)	Yes	75 (41.9%)	58 (32.58%)	133 (37.25%)	3.313	0.07
	No	104 (58.1%)	120 (67.42%)	224 (62.75%)		
Received Breastfeeding Help At Previous Hospital	Yes	66 (36.87%)	61 (34.27%)	127 (35.57%)	0.560	0.76
	No	51 (28.49%)	57 (32.02%)	108 (30.25%)		
	Not Applicable	62 (34.64%)	60 (33.71%)	122 (34.17%)		

Among the participants, none of the mothers reported of receiving lactation support from the specialists. Only about 11.82% of the mothers received breastfeeding support from the medical officers, and 35.1% from the Breastfeeding Team members. The nursing staff contributed more towards providing postnatal breastfeeding support, of which 57.58% of mothers reported receiving them from the Midwife/ Delivery Nurse while waiting at the delivery suite before being sent back to the wards, 61.82% from the ward nurses and 8.54% from the trainee nurses. Some of the participants also reported gaining support from their family members or friends during this period. The postnatal support received by the mothers up until before their discharge from the hospital did not differ statistically according to the group of personnel (refer Figure 4.1).

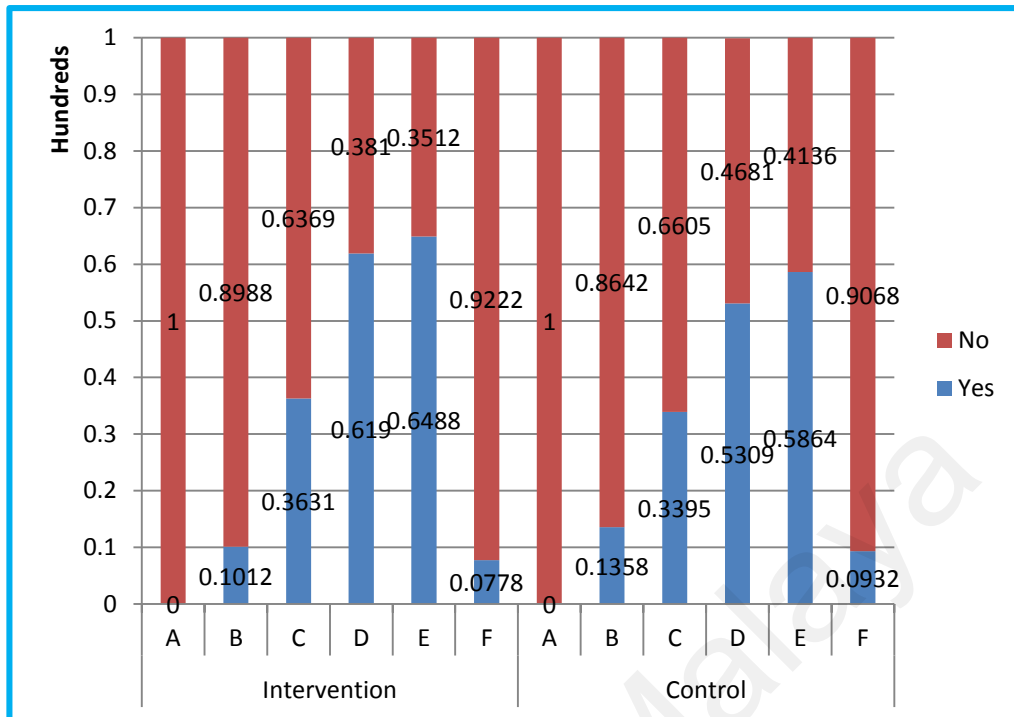


Figure 4.1: Lactation Support Received at the Hospital Prior to Discharge, According to the group of Personnel by percentage value

A: Specialist Doctor, B: Non-Specialist Doctor, C: Doctor/ Nurses of BF Team, E: Ward Nurses, F: Family/ Friends

4.1.7 Intervention Analysis

4.1.7.1 Intervention Dose and Accessibility

Analysis of the intervention received by the mothers in the intervention group revealed that this intervention was well received by the mothers at the beginning of the study but reduced with time. The average of total minutes called per participant was 58.43 ± 38.49 minutes (range= 0-210 minutes), while the average number of successful calls per participant was only 4.33 ± 3.14 times/participant (range 0-12 times). Data regarding the intervention status was taken from the individual participants' log book/ telephone records held by their respective Lactation Counsellors. The participants' telephone intervention statuses were classified into different groups i.e. (i) received call and received counselling, (ii)

received call but refused counselling, (iii) telephone calls by LC were unanswered more than three times consecutively, (iv) telephone number not in service, (v) unanswered calls made by the PI after status iii, and (vi) answered calls made by PI after status iii.

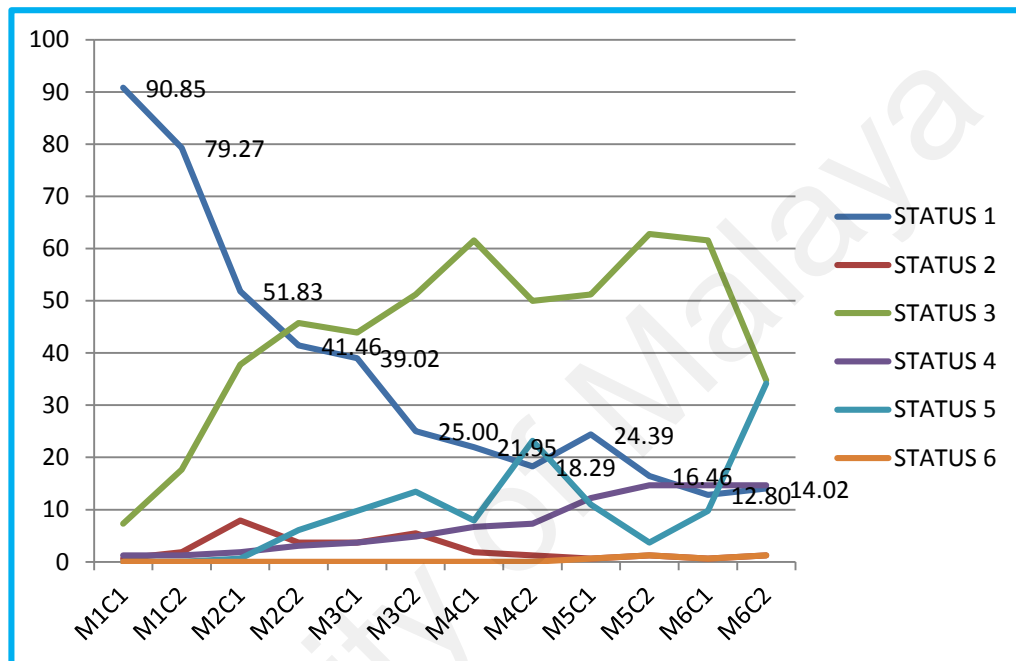


Figure 4.2: Percentage of Participants' Telephone Intervention Statuses by Month

Note: M = month, C = appointed telephone call for the particular month
 Status 1: Received Call, Received Counselling, Status 2: Received Call, Refused Counselling,
 Status 3: Calls Unanswered More Than 3 Times, Status 4: Telephone Number Not In Service,
 Status 5: Unanswered Calls made by PI after Status 3, Status 6: Answered Calls made by PI after Status 3

Figure 4.2 shows the percentage of participants' intervention statuses by month. The number of participants who answered and received lactation counselling for the first month was very good (90.85%, 79.27%: 1st call of the month, 2nd call of the month). About 1.22% of the participants were not contactable from the first month due to their telephone number were no longer in service. Starting from the second month postpartum, the percentage of participants who answered and received telephone counselling dropped from 51.83% to only 14.02% by the end

of the sixth month postpartum. The percentage of participants who did not answer the telephone calls made by their LC for three times or more rose steadily from 7.32% during the first telephone call at the first month to 61.59% at the sixth month postpartum. To ensure that the participants benefit from this study, the names of participants who did not answer the telephone calls by their LC were submitted to the PI. The PI tried to contact the participants in order to remind them about the telephone calls from the LCs. However, the percentage of participants who answered the calls from PI was small (up to 1.22% only) and many of them maintained not to answer any calls even from the PI (up to 34.15% at sixth month postpartum) (refer Figure 3.6).

These statuses were then analysed to ascertain the accessibility of the participants towards their respective LC in conducting the lactation counselling. Accessibility of the participants towards their respective LC is determined by whether contacts were successfully made between the two irrespective of the length of time and/or counselling, whereby:

- i. Accessible = (received call and received counselling) or (received call but refused counselling)
- ii. Inaccessible = (telephone calls by LC were unanswered more than three times consecutively) or (telephone number not in service) or (contacts had to be attempted by PI)

In a nutshell, participants who were classified into the accessible group towards their respective LCs dwindled progressively from 96.34% during the first month postpartum to only 18.29% at 6 month postpartum (refer Figure 4.3).

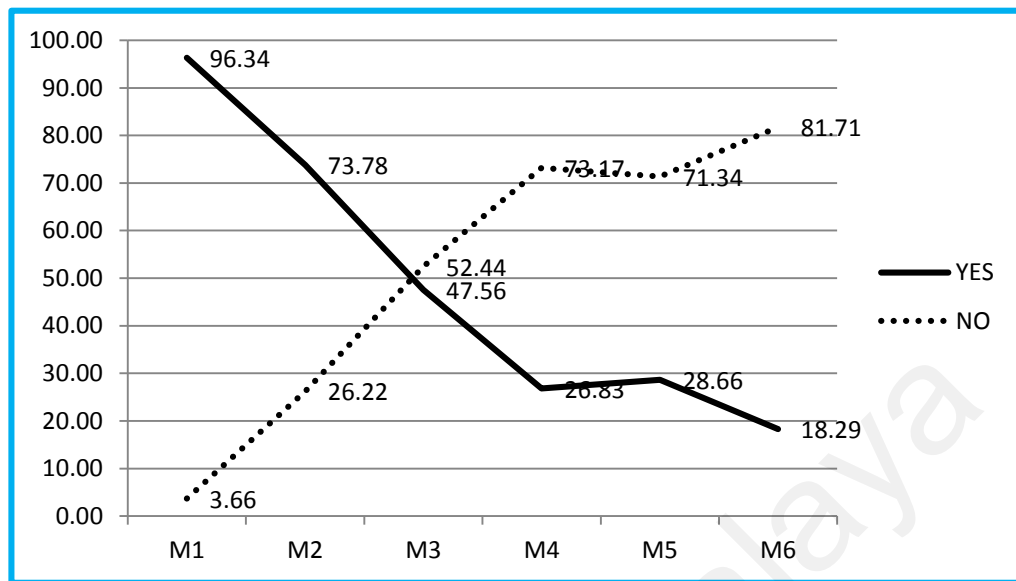


Figure 4.3: Accessibility of the Participants towards Their Respective Lactation Counsellors, according to month

4.1.7.2 Dose-effect response

Direct and multiple logistic regression was performed to assess the impact of (i) the total duration of counselling sessions (in minutes) and (ii) the total number of successful counselling sessions received, on the likelihood that the respondents would (i) not exclusively breastfeed their infants and (ii) stop breastfeeding at six months postpartum. The period of six month postpartum was chosen as the timeline as the total duration of counselling sessions, and the total number of counselling sessions received was based on the accumulated counts at the end of the follow up.

Impact of intervention dose on exclusive breastfeeding at six months

At six months postpartum, both of the intervention dose parameters were found not to cause an effect on exclusive breastfeeding based on a simple (direct) logistic regression. Multiple logistic regressions produced similar results. The

results from the simple and multiple logistic regression analyses are presented in Table 4.13.

Table 4.13: Logistic regression on intervention dose parameters' effect towards exclusive breastfeeding at six months postpartum

Simple Logistic Regression						
	Hosmer & Lemeshow test, <i>p</i>	Cox & Snell R ²	Nagelkerke R ²	B	Exp (B) (95% CI)	ROC (95% CI)
<i>Total duration of calls (minutes)</i>	0.966	0.027	0.05	-0.012	0.988 (0.977, 1.000)	0.369 (0.244, 0.514)
<i>Total number of successful sessions</i>	0.260	0.024	0.045	-0.136	0.873 (0.761, 1.001)	0.386 (0.234, 0.537)
Multiple Logistic Regression						
<i>Total duration of calls (minutes)</i>	0.936	0.027	0.051	-0.047	0.954 (0.718, 1.268)	0.377 (0.227, 0.527)
<i>Total duration of calls (minutes)</i>				-0.008	0.992 (0.969, 1.015)	
Probabilities were for not exclusively breastfeeding at six months postpartum ROC actual positive state: exclusive breastfeeding						

Impact of intervention dose on continuation of breastfeeding at six months

At the six months postpartum, both of the intervention dose parameters were found not to cause an effect on continuation of breastfeeding based on a simple (direct) logistic regression. Multiple logistic regressions done resulted in similar results. The results from the simple and multiple logistic regression analyses are presented in Table 4.14.

Table 4.14: Logistic regression on intervention dose parameters' effect towards continuation of breastfeeding at six months postpartum

Simple Logistic Regression						
	Hosmer & Lemeshow test, <i>p</i>	Cox & Snell R ²	Nagelkerke R ²	B	Exp (B) (95% CI)	ROC (95% CI)
<i>Total duration of calls (minutes)</i>	0.377	0.001	0.003	-0.003	0.997 (0.981, 1.013)	0.46 (0.286, 0.634)
<i>Total number of successful sessions</i>	0.276	0.007	0.014	-0.012	0.903 (0.725, 1.124)	0.449 (0.288, 0.609)
Multiple Logistic Regression						
<i>Total duration of calls (minutes)</i>	0.459	0.013	0.028	-0.287	0.751 (0.477, 1.181)	0.416 (0.271, 0.561)
<i>Total duration of calls (minutes)</i>				0.016	1.016 (0.984, 1.048)	
Probabilities were for not breastfeeding at six months postpartum ROC actual positive state: still breastfeeding						

4.1.8 Breastfeeding Outcomes

4.1.8.1 Breastfeeding Practices among Participants

Among the total participants, the exclusive breastfeeding rate at the first month postpartum was 79.6%. This figure dropped to 40.5% at the fourth month postpartum and only 12.3% at sixth month postpartum. The percentage of mothers who practiced predominant breastfeeding was 7.3%, 10.3% and 1.6% at the first, fourth and sixth months postpartum. About 6.7% of mothers had practised complementary breastfeeding at the first month, but this figure increased substantially to a staggering 38% by the fourth month and further increased to 74.5% at sixth months postpartum. At the first month postpartum, only 6.4% of mothers who participated in the study had discontinued breastfeeding, and this figure increased to 11.2% and 11.6% at the fourth and sixth months postpartum (refer Figure 4.4).

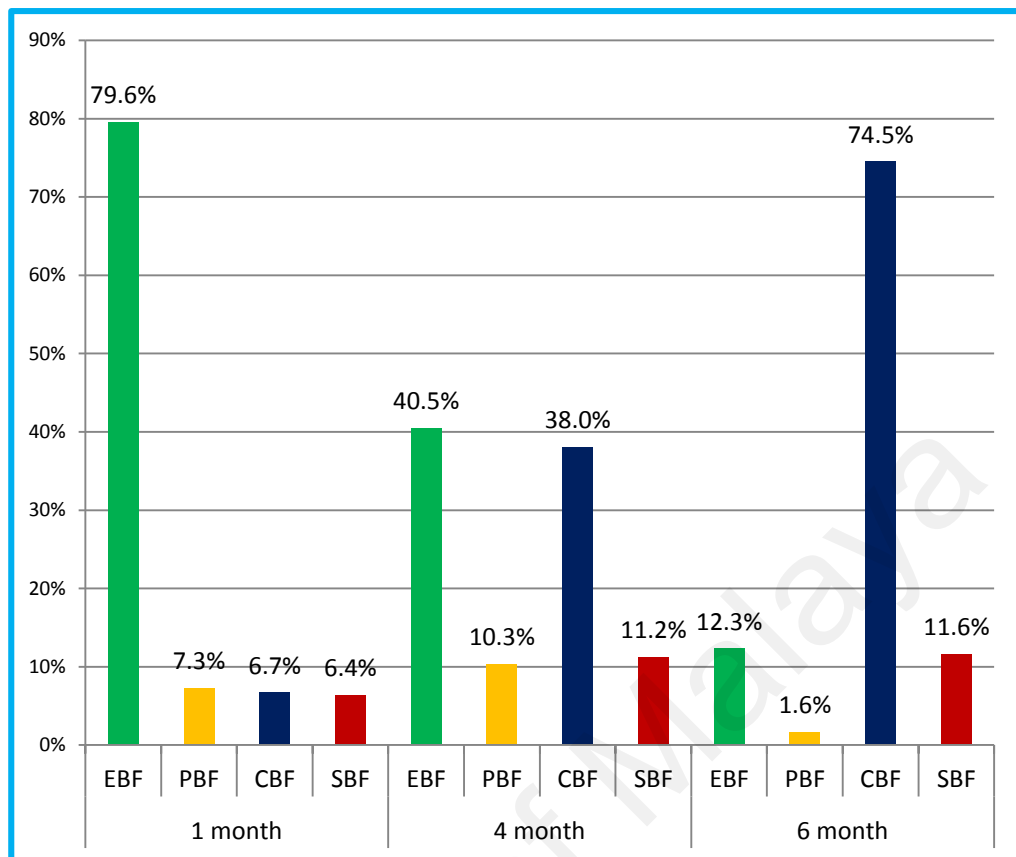


Figure 4.4: Percentage of Breastfeeding Practice by Month, among the Total Participants

Note: EBF: Exclusive Breast Feeding PBF: Predominant Breast Feeding
 CBF: Complementary Breast Feeding SBF: Stopped Breast Feeding

A comparison of breastfeeding practices outcomes between the intervention groups were also made at one, four and six month postpartum and is shown as in Table 4.15. At the **first month postpartum**, a higher number of mothers in the intervention group practiced exclusive breastfeeding compared to mothers in the control group (84.3% vs. 74.7%). More mothers in the control group gave plain water in addition to breast milk to their infants compared to the intervention groups (7.59% vs. 5.42%), started weaning their infants at this period of time (8.23% vs. 4.82%), and completely discontinued breastfeeding their infants

(7.59% vs. 5.42%). However, these differences were not statistically significant (refer Table 4.15).

Table 4.15: Breastfeeding Practice Outcomes at 1, 4 & 6 month Postpartum between Intervention Groups

Month	Breastfeeding Practice	Intervention	Control	Total	p
1	Exclusive BF	140 (84.3%)	121 (74.7%)	261 (79.6%)	0.36
	Predominant BF	9 (5.4%)	15 (9.3%)	24 (7.3%)	
	Complementary BF	8 (4.8%)	14 (8.6%)	21 (6.7%)	
	Stopped BF	9 (5.42%)	12 (7.4%)	21 (6.4%)	
4	Exclusive BF	68 (42.0%)	62 (39.0%)	130 (40.5%)	0.26
	Predominant BF	12 (7.4%)	21 (13.2%)	33 (10.3%)	
	Complementary BF	66 (40.7%)	56 (35.2%)	122 (38.0%)	
	Stopped BF	16 (9.9%)	20 (12.6%)	36 (11.2%)	
6	Exclusive BF	20 (12.5%)	19 (12.0%)	39 (12.3%)	0.63
	Predominant BF	3 (1.9%)	2 (1.3%)	5 (1.6%)	
	Complementary BF	122 (76.3%)	115 (72.8%)	237 (74.5%)	
	Stopped BF	15 (9.4%)	22 (13.9%)	37 (11.6%)	

*Definitions of breastfeeding categories were based on WHO definitions (1991)

At the **fourth month postpartum**, the percentage of mother who practiced exclusive breastfeeding between the two groups was almost similar (intervention, control: 41.98% vs. 38.99%). More mothers in the control group was practicing predominant breastfeeding (13.2% vs. 7.41%) and completely stopped breastfeeding (12.58% vs. 9.88%) at this time when compared to the intervention group. However, it was noted that a slightly higher percentage of mothers in the intervention group were practicing complementary breastfeeding than mothers in the control group (40.74% vs. 35.22%). These differences at four month postpartum were not statistically significant (refer Table 4.15).

By the **sixth month postpartum**, the percentage of mother who exclusively breastfed their infants were similar (12.5% vs. 12.02%). There was also a similarity in the percentage of mothers who practiced predominant breastfeeding and complementary breastfeeding between the intervention and control group (1.88% vs. 1.26%, 76.25% vs. 72.78% respectively). Slightly more mothers in the control group had completely stopped breastfeeding their infants at this stage than the mother from the intervention group (13.92% vs. 9.37%) (Refer Table 4.15). Although it was noted that the exclusive breastfeeding rates between groups declined over time, the rates of mothers still breastfeeding in both groups were quite good. More than 85% of mothers recruited had maintained breastfeeding their infants up to six months postpartum (95.83% vs. 92.59%, 90.12% vs. 87.42%, 90.63% vs. 86.08%; rates at 1, 4 & 6 months, intervention vs. control group respectively). Figure 4.5 is a graphical presentation of the outcomes at the different months.

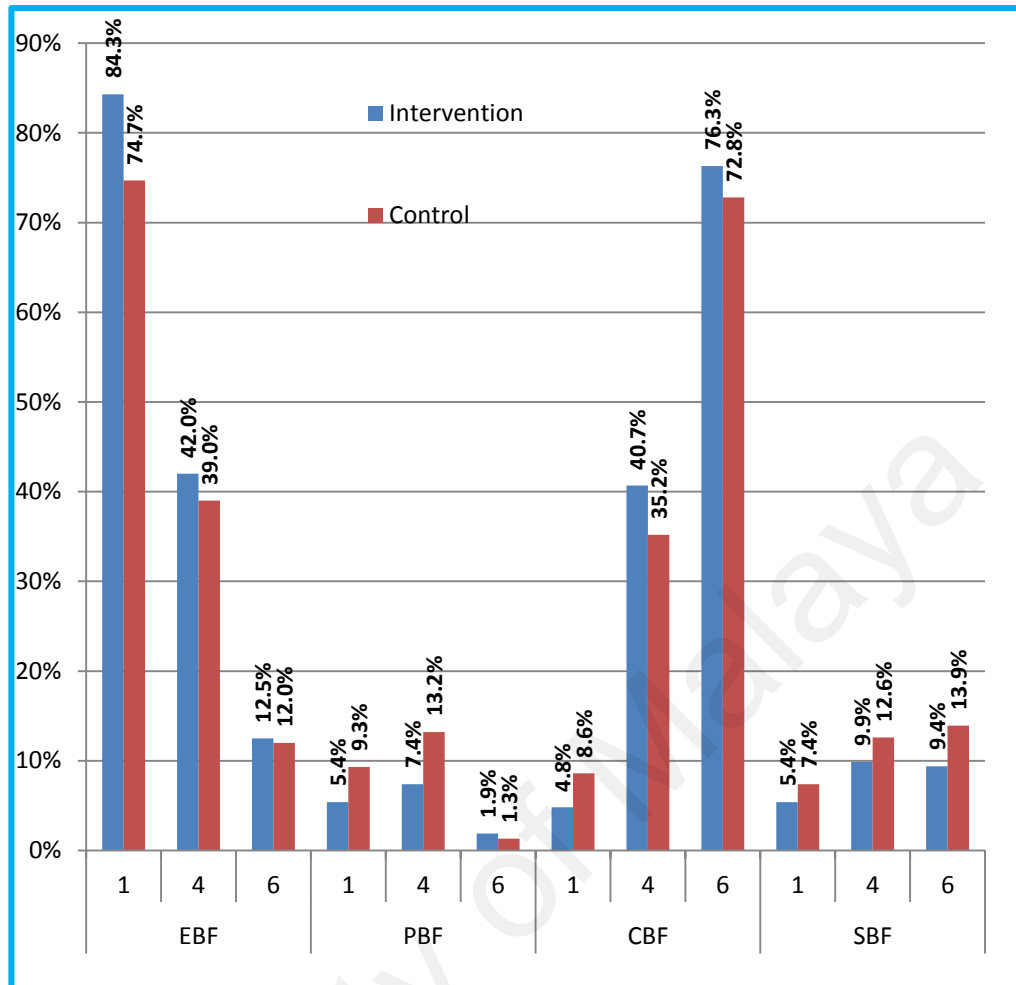


Figure 4.5: Bar Chart Comparing the Breastfeeding Practices between the Intervention Groups, According to the Post-Partum Period

Note: EBF: Exclusive Breastfeeding, PBF: Predominant Breastfeeding, CBF: Complementary Breastfeeding, SBF: Stopped Breastfeeding

4.1.8.2 Effect of Intervention towards Successful Breastfeeding Outcome

This analysis was conducted based on the intention-to-treat analysis. Missing values were analysed, and showed that the missing data were at random (Little's MCAR test: $\chi^2 = 0.612, p = 0.736$). For categorical categories, the missing values were coded by the researcher as missing data. Table 4.16 summarizes the findings of analysis of association.

Table 4.16: Association of Telephone Lactation Counselling with Breast Feeding Practices across Time showing Relative Risks, effect size, Number Needed to Treat and Odds Ratio

Exclusive Breastfeeding* vs. Non-exclusive Breastfeeding									
Month	Intervention	Control	RR	χ^2	p	Phi	NNT	Unadjusted OR	Adjusted OR [§]
1	140 (84.3%)	121 (74.7%)	1.129 (1.010,1.262)	4.119	0.042	0.12	11	1.825 (1.054, 3.157)	1.627 (0.822, 3.220)
4	68 (42.0%)	62 (39.0%)	1.076 (0.825, 1.404)	0.185	0.667	0.03	33	1.132 (0.825, 1.404)	1.173 (0.708, 1.943)
6	20 (12.5%)	19 (12.0%)	1.039 (0.577, 1.872)	0.017	0.897	0.007	200	1.045 (0.535, 2.043)	ω
Breastfeeding [#] vs. Stopped Breastfeeding									
1	159 (95.8%)	150 (92.6%)	1.035 (0.981, 1.092)	1.055	0.304	0.07	31	1.840 (0.706, 4.797)	1.318 (0.376, 4.625)
4	146 (90.1%)	139 (87.4%)	1.031 (0.954, 1.114)	0.348	0.555	0.043	37	1.313 (0.654, 2.637)	ω
6	145 (90.6%)	136 (86.1%)	1.053 (0.972, 1.141)	1.188	0.276	0.071	22	1.564 (0.779, 3.139)	ω

* Definitions of breastfeeding categories were based on WHO definitions (1991)(World Health Organization, 1991)
[#] Breast Feeding = Exclusive Breast Feeding + Predominant Breast Feeding + Complementary Breast Feeding
[§] Adjusted to significant covariates at referred postpartum months, which was analysed using multiple logistic regression
 ω Adjusted OR was not computed as no significant covariates were found to be associated with the outcome at the specific time

Significant covariates for Exclusive Breastfeeding at one month: religion, working status prior to delivery, intention to work again after delivery, using teats, using pacifier, have breastfeeding problems, received breastfeeding information before discharged, received support from hospital before discharged, received support at home
Significant covariates for Exclusive Breastfeeding at four month: intention to work again after delivery, using teats
Significant covariates for Breastfeeding at one month: ethnicity, using pacifier

Association of Telephone Lactation Counselling with Exclusive Breastfeeding:

At **one month** postpartum period, there was a higher probability for mothers in the intervention group to exclusively breastfeed their infant. The unadjusted odds ratio stood at 1.83 and a chi-square test for independence (with Yates Continuity Correction) indicated a significant association between intervention group and exclusive breastfeeding status ($\chi^2 = 4.119$, $p = 0.042$). This difference however has a little effect size ($\phi = 0.12$). The number of patients needed to treat to prevent one occasion of not exclusively breastfeeding at this period is 11. When adjusted to the significant factors related to exclusive breastfeeding at one month, the odds for mothers in the intervention group to exclusively breastfeed was 1.63 (not significant, 95% CI 0.822, 3.22) .

At **four months** postpartum period, the probability for mothers in the intervention group to exclusively breastfeed their infant compared to the control group was almost equal. A chi-square test for independence (with Yates Continuity Correction) indicated no significant association between group and exclusive breastfeeding status at four month ($\chi^2 = 0.185$, $p = 0.667$, $\phi = 0.03$). The number of patients needed to treat to have one mother to exclusively breastfeed her infant at this period was 33. When adjusted to the significant factors related to exclusive breastfeeding at four months, the likeliness for mothers in the intervention group to exclusively breastfeed was also quite similar to the control group at 1.173 (not significant, 95% CI 0.708, 1.943).

At **six months** postpartum period, the probability for mothers in the intervention group to exclusively breastfeed their infant compared to the control group was also almost equal. A chi-square test for independence (with Yates Continuity Correction) indicated no significant association between group and exclusive breastfeeding status at four month ($\chi^2 = 0.017$, $p = 0.897$, $\phi = 0.007$). The number of patients needed to treat to produce one occasion of exclusive breastfeeding at this period was 200.

Association of Telephone Lactation Counselling with Breastfeeding (Exclusive + Predominant + Complementary Breastfeeding):

There was a 1.8 times higher probability for the intervention group to breastfeed (exclusive, predominant or complementary breastfeeding) their infant at one month postpartum when compared with mothers in the control group. However, a chi-square test for independence (with Yates Continuity Correction) indicated no significant association between group and exclusive breastfeeding status ($\chi^2 = 1.055$, $p = 0.304$, $\phi = 0.007$). The odds for mothers in the intervention group to breastfeed their infant during this period was 1.318 (95% CI 0.376, 4.625) after adjusted for the significant factors related to still breastfeeding status. A total of 31 mothers need to be treated to prevent one mother from stopping breastfeeding her infant.

The probability for the intervention group to breastfeed (exclusive, predominant or complementary breastfeeding) their infant at four month postpartum was also quite similar as mothers in the control group. A chi-square test for independence (with Yates Continuity Correction) indicated no

significant association between group and exclusive breastfeeding status ($\chi^2 = 0.348$, $p = 0.555$, $\phi = 0.043$). The relative risk for mothers in the intervention group to still breastfeed their infant during this period was 1.313 after adjusted for the significant factors related to still breastfeeding status. However, this figure was not significant (95% CI 0.654, 2.637). A total of 37 mothers need to be treated to prevent one mother from not breastfeeding her infant.

At six months postpartum period, the probability for the intervention group to breastfeed (exclusive, predominant or complementary breastfeeding) their infant was also quite similar as mothers in the control group (RR 1.039, 95% C.I. 0.577, 1.872). A chi-square test for independence (with Yates Continuity Correction) indicated no significant association between group and exclusive breastfeeding status ($\chi^2 = 1.188$, $p = 0.276$, $\phi = 0.071$). A total of 22 mothers need to be treated to have one mother still breastfeeding her infant at this period of time.

A survival analysis was not conducted, as the follow up questionnaires did not ask the participants on the exact date of stopping breastfeeding or weaning. The available data on breastfeeding practices was acquired only on the exact dates of the interview. The actual date of stopping breastfeeding or started weaning was not asked to avoid posing any questions which could be perceived as 'intimidating' by the mothers, as this may result in poorer response to further follow-up. The actual date was also not asked to avoid any recall and attention biases.

4.1.9 Infant Feeding Practices

The frequency of breastfeeding in the intervention and the control group declined steadily over time. At the first month, mothers from both groups breastfed their infants about 8 times in a day (8.44 ± 2.85 , 8.00 ± 3.00 ; intervention, control group respectively), while at the fourth month, they breastfed 7 times in a day (7.25 ± 2.31 , 7.31 ± 2.29 ; intervention, control group respectively). However, at six month postpartum, mothers in the intervention group breastfed slightly more compared to mothers in the control group (6.08 ± 2.75 , 5.91 ± 3.14 ; $p > 0.05$). Slightly more mothers in the control group gave **formula milk** to their infants at the first month postpartum compared to mothers in the intervention group (0.73 ± 1.95 vs. 0.45 ± 1.64). However, the difference was not significantly different. The frequency of giving other milk feeding had risen steadily over time, with no significant difference noted in the frequency given by mothers in the intervention or control group (refer Table 4.17).

Table 4.17: Frequency of Milk and/or other milk feeding of Infants at 1, 4 and 6 months Postpartum

Time	Frequency of feeding, in means \pm s.d. (95% C.I.)			
	Breast Feeding		Other Milk Feeding	
	Intervention	Control	Intervention	Control
1 month	8.44 ± 2.85 (-0.20857, 1.07973)	8.00 ± 3.00 (-0.20922, 1.08039)	0.45 ± 1.64 (-0.68078, 0.11152)	0.73 ± 1.95 (-0.68211, 0.11284)
4 month	7.25 ± 2.31 (-0.58907, 0.48163)	7.31 ± 2.29 (-0.58896, 0.48153)	1.40 ± 1.96 (-0.38799, 0.54051)	1.32 ± 2.02 (-0.38831, 0.54083)
6 month	6.08 ± 2.75 (-0.48191, 0.82162)	5.91 ± 3.14 (-0.48251, 0.82222)	2.49 ± 2.34 (-0.66781, 0.37682)	2.64 ± 2.40 (-0.66789, 0.37692)
p	>0.05		>0.05	

Mothers were also interviewed on other types of feeding for their infants (if given). At every follow up, mothers were asked whether they had given their infants breast milk, other milk, plain water, medications, other sugary juices, solid or semi-solid food within 24 hours of interview time.

At the first month, significantly more mothers from the control group were noted to give **plain water** compared to mothers in the intervention group (20.37% vs. 9.52%, $p < 0.05$). The percentage of mothers who gave plain water to their infants rose dramatically at the fourth and sixth month postpartum. At four month, more than half of the mothers in the control group gave plain water while about 46.3% from the intervention did so. The percentage increase slightly at the six month, with slightly more mothers in the control gave plain water compared to intervention (57.59% vs. 55.0%).

Surprisingly, some mothers had started **weaning** their infants at this early period. 1.19% of mothers from the intervention group had weaned their infants on semi solids at the first month compared to 3.08% among those in the control group. This difference was not statistically significant. At four month, the percentage of mothers who gave solid or semi solids to their infants was similar from both groups. A higher percentage of mothers from the intervention group gave solid or semi solids compared to the other group at six month (80.0% vs. 77.36%). However, this difference was not statistically significant ($p > 0.05$).

About one percent of mothers gave **medications** and other **sugary juices** to their baby at the first month. During the four month postpartum, it was noted that there was an increase in the percentage of mother who gave other sugary juices in both groups, but declined at the sixth month, with percentages in the control group slightly higher than the intervention group on both accounts (10.49% vs. 13.21%, 4.38% vs. 6.96%; intervention vs. control group respectively).

Almost half of the mothers were also noted to give **bottle teats** at the first month (47.02% vs. 49.38%; intervention vs. control group respectively), and the percentage increased during the fourth and sixth months (55.48% vs. 53.96%, 76.25% vs. 74.05%). Almost a third of the mothers gave **pacifiers** to their babies at the first month (30.36% vs. 31.48%; intervention vs. control group respectively). The percentage remained similar during the fourth month but increased at six month (48.12% vs. 43.67%; intervention vs. control respectively). However, these differences were not statistically significant (refer Table 4.18).

Table 4.18: Infant Feeding Practices at 1, 4 & 6 Months Postpartum, n (%)

Month	Practice	BREAST MILK		OTHER MILK		PLAIN WATER		MEDICATIONS		OTHER SUGARY JUICES		SOLIDS/SEMI SOLIDS		BOTTLE TEATS		PACIFIER	
		Tx	Cx	Tx	Cx	Tx	Cx	Tx	Cx	Tx	Cx	Tx	Cx	Tx	Cx	Tx	Cx
1	yes	161 (95.8)	150 (92.6)	17 (10.1)	27 (16.7)	*16 (9.5)	33 (20.4)	0 (0)	2 (1.2)	0 (0)	1 (0.6)	2 (1.2)	5 (3.1)	79 (47.1)	80 (49.4)	51 (30.4)	51 (31.5)
	no	7 (4.2)	12 (7.4)	151 (89.9)	135 (83.3)	152 (90.5)	129 (79.6)	168 (100)	160 (98.8)	168 (100)	161 (99.4)	166 (98.8)	157 (96.9)	89 (52.9)	82 (50.6)	117 (69.6)	111 (68.5)
4	yes	146 (90.1)	139 (87.4)	82 (50.6)	76 (47.8)	75 (46.3)	82 (51.6)	4 (2.5)	3 (1.9)	17 (10.5)	21 (13.2)	43 (26.5)	41 (25.8)	81 (55.5)	75 (54.0)	53 (36.3)	44 (31.7)
	no	16 (9.9)	20 (12.6)	80 (49.4)	83 (52.2)	87 (53.7)	77 (48.4)	158 (97.5)	156 (98.1)	145 (89.5)	138 (86.8)	119 (73.45)	118 (74.2)	65 (44.5)	64 (46.0)	93 (63.7)	95 (68.3)
6	yes	145 (90.6)	136 (86.1)	103 (64.4)	104 (65.8)	88 (55.0)	91 (57.6)	3 (1.9)	5 (3.2)	7 (4.4)	11 (6.9)	128 (80.0)	123 (77.4)	122 (76.3)	117 (74.1)	77 (48.2)	69 (43.7)
	no	15 (9.4)	22 (13.9)	57 (35.6)	54 (34.2)	72 (45.0)	67 (42.4)	157 (98.1)	153 (96.8)	153 (95.6)	147 (93.1)	32 (20.0)	36 (22.6)	38 (23.7)	41 (25.9)	83 (51.8)	89 (56.3)

*significantly different, p<0.05. All others are not significantly different, p>0.05. Tx=Intervention Group Cx=Control Group

4.1.10 Reasons Why Mothers Discontinued Breastfeeding

Information regarding the reasons why mothers completely stopped breastfeeding their infants were collected during telephone interviews and compared between groups. However, not all mothers who completely stopped breastfeeding their infant responded to this question. At the first month postpartum, a total of 21 mothers responded to this query. Half of them stopped breastfeeding because of low or no breast milk supply (55.5% vs. 50.0%; intervention vs. control respectively). Some of the mothers stopped breastfeeding because of their plan to start working soon after their confinement leave (22.2% vs. 33.3%; intervention vs. control respectively). One mother from each treatment group stopped breastfeeding because of painful nipple, while one mother from the intervention group stopped breastfeeding because she was used to breastfeed only for one month for her older children. One mother from the control group said that her baby refused breastfeeding, making her stop doing it completely. At the fourth and six month postpartum, half of the mothers from both groups stopped breastfeeding because they had started working again (50.0% vs. 55.0%, 50.0% vs. 57.1%) (refer Table 4.19).

Table 4.19: Reasons why mothers had completely stopped breastfeeding, comparing between groups

Reasons for Completely Stopping Breastfeeding*	Month 1		Month 4		Month 6	
	Ix	Cx	Ix	Cx	Ix	Cx
No Breast Milk	5 (55.5%)	6 (50.0%)	7 (43.8%)	8 (40.0%)	7 (43.8%)	8 (38.1%)
Starting to Work Soon	2 (22.2%)	4 (33.3%)	-	-	-	-
Painful Nipple	1 (11.1%)	1 (8.3%)	-	-	-	-
Custom To BF Only in Short Period	1 (11.1%)	0	-	-	-	-
Baby Refused	0	1 (8.3%)	-	-	-	-
Pregnant	-	-	1 (6.2%)	1 (5.0%)	1 (6.2%)	1 (4.8%)
Had Started Working	-	-	8 (50.0%)	11 (55.0%)	8 (50.0%)	12 (57.1%)
Total	9	12	16	20	16	21

* not all mothers who completely stopped breastfeeding responded to the question

Note: Ix = Intervention group, Cx = Control group

4.1.11 Factors Affecting Breastfeeding Outcomes

4.1.11.1 Factors Affecting Exclusive Breastfeeding Outcome

Direct logistic regression was performed to assess the impact of a number of factors on the likelihood that the respondents (i) would not exclusively breastfeed their infants and (ii) would completely stop breastfeeding at the first, four and six months postpartum. Different categories of covariates were analysed, namely the maternal and infant factors, breastfeeding intention and feeding practices, breastfeeding support and working factors.

At the **first month** postpartum, the factors found to cause an effect on exclusive breastfeeding based on a simple (direct) logistic regression were age group, ethnicity, religion, mothers who were breastfed when they were babies, has intention to work after delivery, multiparae, intention of breastfeeding period, use of bottle teats at first month, use of pacifiers at first month,

hospital breastfeeding encouragement during stay at the maternity ward, mothers received information before discharged, mothers received support from the hospital staff before discharged, received support from partner, received support at home and received support from the Breastfeeding Team at home. However, multiple logistic regressions done had found that the significant factors which were related to exclusive breastfeeding at the first month postpartum were religion, use of bottle teats and pacifiers, mothers received information before discharged, mothers received support from the hospital staff before discharged and received breastfeeding support at home.

At the **fourth month** postpartum, the factors found to cause an effect on exclusive breastfeeding based on a simple (direct) logistic regression were age, ethnicity, religion, has intention to work after delivery, infants has other sibling(s), period of hospital stay, use of bottle teats at fourth month, use of pacifiers at fourth month, mothers received information before discharged, mothers received antenatal breastfeeding education, received support at home, received support from family or friends, the type of working hours and the time mothers returned to work. However, multiple logistic regressions done had found that the significant factors which were related to exclusive breastfeeding at the fourth month postpartum were the intention to work after delivery and the use of bottle teats.

At the **sixth month** postpartum, no factors were found to significantly affect the exclusive breastfeeding outcomes based on either the simple (direct) logistic regression or multiple logistic regressions.

Therefore, only modelling of the significant factors to exclusive breastfeeding at the first month was conducted. To find the best explanatory models showing the impact of multiple contributing factors to exclusive breastfeeding outcomes, the backward stepwise method of the multiple logistic regressions were used. The independent variables that were entered in the regression model included significant maternal/ infant pair factors, significant breastfeeding intention/ practice, significant lactation support factors and a combination of these in the full model. The full logistic regression prediction model is explained as in Figure 4.6.

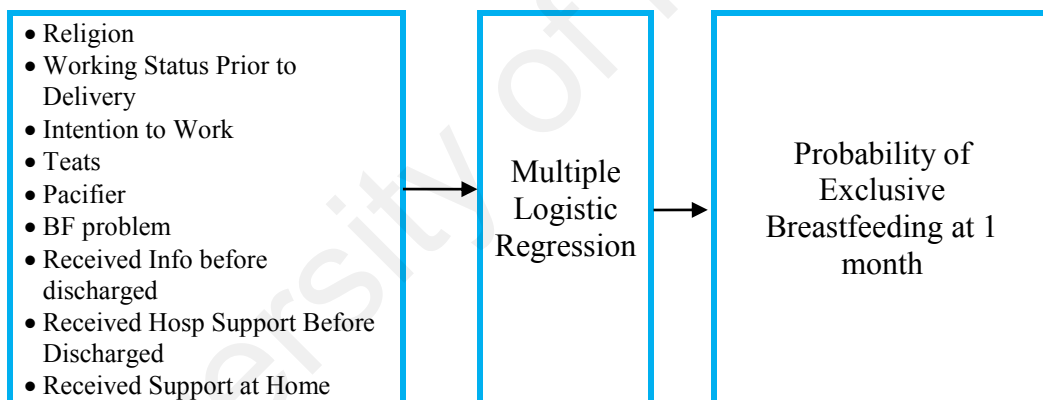


Figure 4.6: The Logistic Regression Prediction Model for Probability of Exclusive Breastfeeding at First Month

The overall logistic regression of this full model containing all predictors was shown to be significant ($p \leq .001$) by the chi-square omnibus tests for model coefficients. The Hosmer and Lemeshow test also showed the model to be a good fit for the data with a significance of 0.185. It is desirable for the Hosmer and Lemeshow test to be $>.05$ in order to *accept* that there are differences in probable group membership based on the model. The model as a whole was

explained between 27.2% (Cox and Snell R squared) and 43.3% (Nagelkerke R squared) of the variance in exclusive breastfeeding status.

Table 4.20: Logistic Regression Predicting Likelihood of Reporting an Exclusive Breastfeeding Outcome at First Month

Covariates	B	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
						Lower	Upper
Intercept	-1.099	3.8556	1	0.0496			
Religion [1]	2.4255	23.597	1	0.0000	11.3085	4.249933	30.0904
Working Status Prior to Delivery [1]	0.8172	3.9811	1	0.0460	2.26419	1.014564	5.05296
Intention to Work [1]	-1.565	6.2903	1	0.0121	0.20906	0.061531	0.71033
Use Bottle Teats [1]	-0.786	3.9700	1	0.0463	0.45559	0.210249	0.98724
Use Pacifier [1]	-1.031	7.2168	1	0.0072	0.35678	0.168209	0.75677
BF problem [1]	-0.839	4.8014	1	0.0284	0.43229	0.204173	0.9153
Received Info before discharged [1]	0.7461	3.9224	1	0.0476	2.10877	1.007782	4.41258
Received Hosp Support Before Discharged [1]	1.2692	7.2662	1	0.0070	3.55807	1.413921	8.95374
Received Support at Home [1]	1.0389	6.8233	1	0.0089	2.82616	1.296138	6.16229

Reference: Religion = Malays, All other covariates = yes

As shown in Table 4.20, only nine factors made a unique statistically significant contribution to the model. The strongest predictor of reporting an exclusive breastfeeding at the first month was religion (being a Muslim), recording an odds ratio of 11.3, while the lowest was the mother's intention to work after delivery with a recorded odds ratio at 0.21. The Receiver Operating Characteristic Curve (ROC area) in this full model was 0.7177 (95% CI 0.6490, 0.7863), which means that 71.8% of all possible pairs of subjects in which one was exclusively breastfeeding and the other not exclusively breastfeeding, the model will assign a higher probability to the subject who had exclusively breastfed. The optimal specificity and sensitivity in this model was 96.14% and 42.86% respectively, while the positive predictive value

(PPV) and negative predictive value (NPV) was 72.97% and 87.37% respectively (refer Figure 4.7).

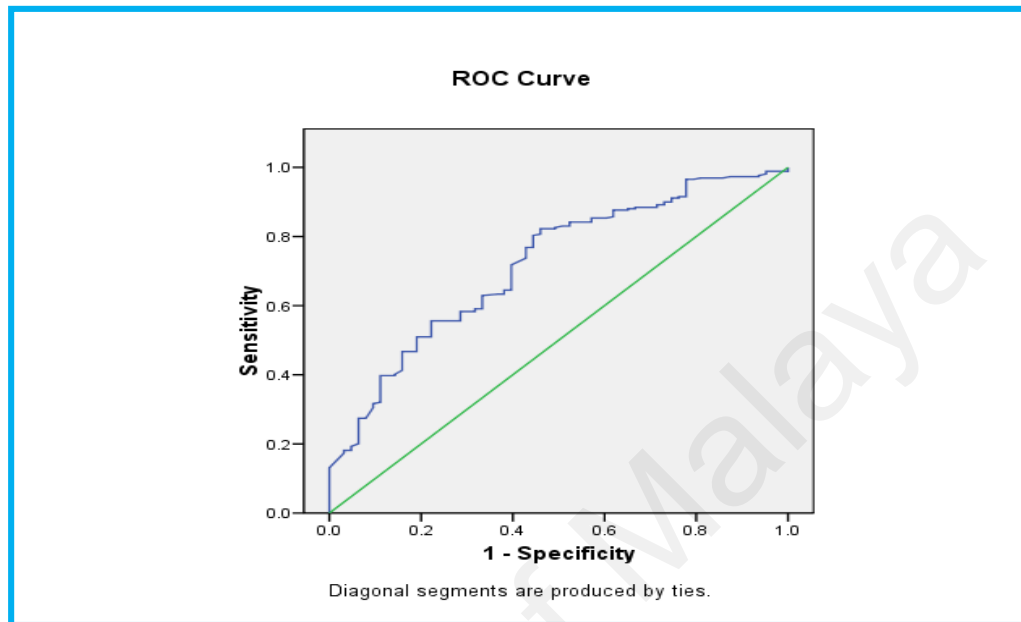


Figure 4.7: ROC Curve of Full Model Predicting Exclusive Breastfeeding at First Month Postpartum

Thus, from this model it was possible to predict the probability of exclusive breastfeeding outcome based on the equation below:

$$\text{Prob (EBF}_{1\text{month}}) = 1 / 1 + e^{-z} \quad \text{where } e \text{ denotes the exponential function}$$

$$\text{with } z = -1.099 + (2.4255 * \text{Religion}[1]) + (0.8172 * \text{Working Status Prior to Delivery [1]}) + (-1.565 * \text{Intention to Work [1]}) + (-1.031 * \text{Use Bottle Teats [1]}) + (-0.786 * \text{Use Pacifier [1]}) + (-0.839 * \text{BF problem [1]}) + (0.7461 * \text{Received Info before discharged [1]}) + (1.0389 * \text{Received Support at Home [1]})$$

4.1.11.2 Factors Affecting Continuity of Breastfeeding (Any Breastfeeding) Outcome

Direct logistic regression was performed to assess the impact of a number of factors on the likelihood that the respondents would completely stop

breastfeeding at the first, four and six months postpartum. Different categories of covariates were analysed, namely the maternal and infant factors, breastfeeding intention and feeding practices, breastfeeding support and working factors. At the first month postpartum, the factors found to cause an effect on continuing 'any breastfeeding' based on a simple (direct) logistic regression were age, ethnicity, religion, mothers who were breastfed when they were babies, mothers had breastfed other child, infants who has other siblings, intention of breastfeeding period, use of pacifier, mothers received hospital support prior to discharge and partner's support. However, multiple logistic regressions done had found that the significant factors which were related to 'any breastfeeding' at the first month postpartum were ethnicity and use of pacifiers at the first month.

At the fourth and sixth month postpartum, no factors were found to significantly affect the 'any breastfeeding' outcome, based on either the simple (direct) logistic regression or multiple logistic regressions.

Therefore, only modelling of the significant factors to 'any breastfeeding' at the first month was conducted. To find the best explanatory models showing the impact of multiple contributing factors to 'any breastfeeding' outcomes, the backward stepwise method of the multiple logistic regressions were used. The independent variables that were entered in the regression model included significant maternal/ infant pair factors, significant breastfeeding intention/ practice, significant lactation support factors and a combination of these in the

full model. The full logistic regression prediction model is explained as in Figure 4.8.



Figure 4.8: The Logistic Regression Prediction Model for Probability of Any Breastfeeding at First Month

The overall logistic regression of this full model containing all predictors was shown to be significant ($p \leq .001$) by the chi-square omnibus tests for model coefficients. The Hosmer and Lemeshow test also showed the model to be a good fit for the data with a significance of 0.766. The model as a whole was explained between 12.5% (Cox and Snell R squared) and 35.0% (Nagelkerke R squared) of the variance in exclusive breastfeeding status.

Table 4.21: Logistic Regression Predicting Likelihood of Reporting any Breastfeeding Outcome at First Month

Covariates	B	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
						Lower	Upper
Intercept	-2.9911	0.54453	1	0.00001	0.050231		
Ethnicity[1]	2.5862	22.2659	1	0.00000	13.279242	4.53574	38.87749
Use pacifier[1]	-1.7692	8.34188	1	0.00387	0.1704711	0.05132	0.566311

Reference: Ethnicity=Malay, Use pacifier= yes.

As shown in Table 4.21, only two factors made a unique statistically significant contribution to the model. The strongest predictor of reporting ‘any breastfeeding’ at the first month was ethnicity (being a Malay), recording an odds ratio of 13.3, while the other factor was the use of pacifier at the first month, with a recorded odds ratio at 0.17. The Receiver Operating

Characteristic Curve (ROC area) in this full model was 0.852 (95% CI 0.7503, 0.9546), which means that 85.2% of all possible pairs of subjects in which one was still breastfeeding and the other who stopped breastfeeding, the model will assign a higher probability to the subject who had continued to ‘any breastfeeding’. The optimal specificity and sensitivity in this model was 99.07% and 42.11% respectively, while the positive predictive value (PPV) and negative predictive value (NPV) was 57.14% and 96.5% respectively (Refer Figure 4.9).

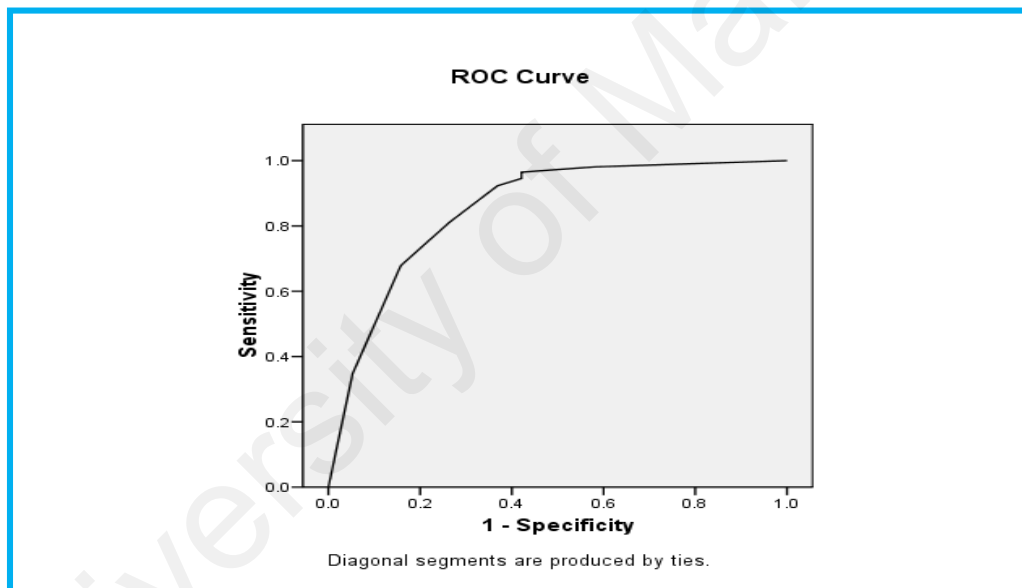


Figure 4.9: ROC Curve of Full Model Predicting Still Breastfeeding at First Month Postpartum

Thus, from this model it was possible to predict the probability of exclusive breastfeeding outcome based on the equation below:

$$\text{Prob (Still BF}_{1\text{month}}) = \frac{1}{1 + e^{-z}} \quad \text{where } e \text{ denotes the exponential function}$$

$$\text{with } z = -2.5607 + (2.5862 * \text{Ethnicity}[1]) + (-1.7692 * \text{Use pacifier}[1])$$

4.1.12 Results from the Additional Interview Regarding the Acceptance of Intervention by Mothers

A total of 51 mothers in the intervention group gave their verbal consent to answer the additional interview by the PI. The response rate was 73.9% (51 of 69 mothers contactable), which could be considered as acceptable given the total loss to follow up of throughout the initial study (RCT) was 10.9%. Younger mothers responded to the questionnaire at a proportionally higher rate than older mothers. Fifty-seven percent of respondents were in the 21-30 years age group. Majority of mothers who responded to the survey was from the Malay ethnicity (92%), were multiparae (61%), and had completed secondary school (65%). Unfortunately, statistics on the specific level of education of all mothers in Kuala Lumpur is not recorded, for a comparison to be made with the sample of mothers who responded. About half of the mothers (49%) who responded had returned to work after delivery. More than half (57%) of the mothers had the intention to exclusively breastfeed their infant during their antenatal period; while thirty-five percent of them planned to breastfeed for up to six months, twenty-three percent planned to breastfeed for more than six month to one year and thirty-seven percent for more than one year. Only four percent of the mothers had initially planned to breastfeed for only two months or less. Among these mothers, twenty-five percent of them had felt that they had achieved their breastfeeding duration target as mentioned. Table 4.22 summarizes the participants' characteristics.

Table 4.22: Socio-demographic characteristics of respondents

Characteristics of respondents		Number (%), n=51
Age, in years	<20	0(0)
	21-30	29(56.86)
	31-40	20(39.22)
	>41	2(3.92)
Ethnicity	Malay	47(92.16)
	Chinese	2(3.92)
	Indian	1(1.96)
	Others	1(1.96)
Baby's sex	Male	28(54.90)
	Female	23(45.10)
Parity	Multipara	31(60.78)
	Primipara	20(39.22)
Education level	Never schooled or didn't complete primary school	0(0)
	Completed primary school	3(5.88)
	Completed secondary school	33(64.71)
	Completed higher education level	15(29.41)
Mother returned to work after delivery	Yes	25(49.02)
	No	26(50.18)
Exclusive breastfeeding intention	Yes	29(56.86)
	No	22(43.14)
Intention of breastfeeding period (regardless of exclusivity)	up to 2 months	2(3.92)
	>2 to 6 months	18(35.29)
	>6 to 12 months	12(23.53)
	>12 months	19(37.26)
Mothers had achieved their breastfeeding duration target	Yes	13(25.49)
	No	38(74.51)

The breastfeeding practices of these respondents at the first, fourth and sixth month postpartum were cross-linked with the data from the initial RCT and presented in Figure 4.10.

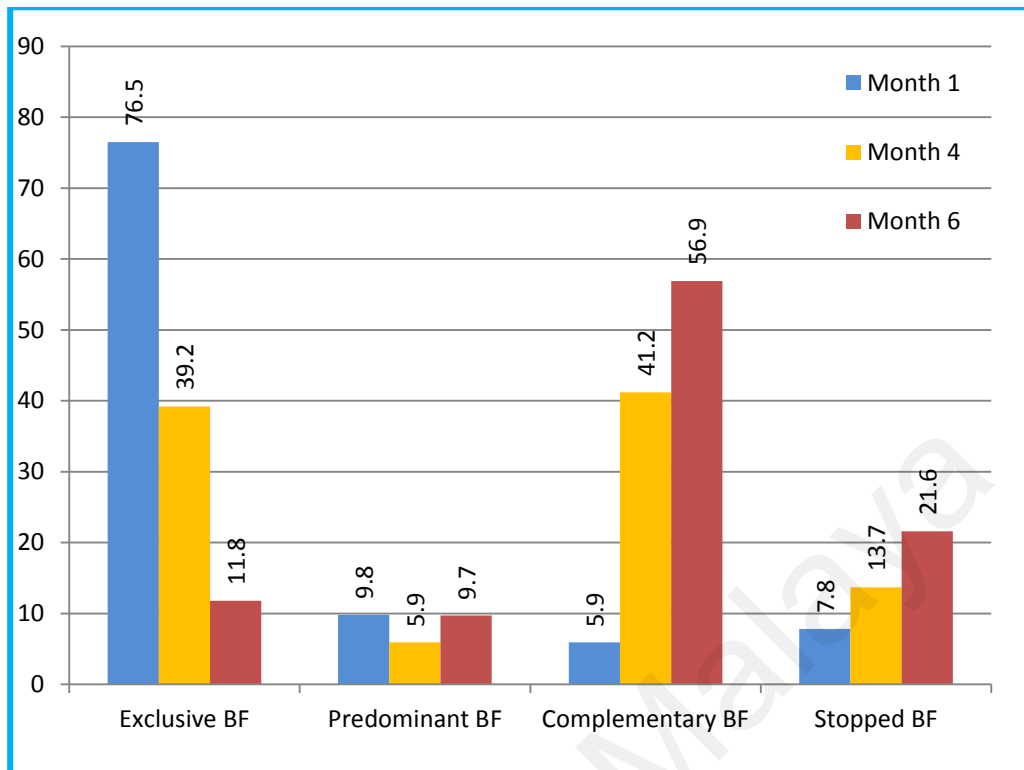


Figure 4.10: Breastfeeding Practices (in percentage) among the respondents at the first, fourth and sixth months postpartum (n=51)

4.1.12.1 Mothers' breastfeeding experience

In order to gain insights into the context of the respondent's breastfeeding experience, questions were asked about how the reality has compared to expectations about breastfeeding, the timing of the decision to breastfeed, and family support or attitudes to breastfeeding. More than half the mothers responded that breastfeeding had been more difficult (58%) than expected. The majority of mothers (91%) made a conscious choice about infant feeding and breastfeeding, and 69% of mothers made this decision before delivery. Results suggest that there is a high level of community support for mothers to breastfeed, particularly from partners and family (Table 4.23). However, 4%

of partners and 7% of families were not supportive, presenting the potential for stress and conflicting emotions in coping with breastfeeding problems.

Table 4.23: Community support for breastfeeding received by respondents

Level of support	Number (%) n=51			
	Husband/ Partner	Family	Friends	Community Health Staff
<i>very supportive</i>	44 (86.27)	21(41.18)	11(21.56)	14(27.45)
<i>supportive</i>	3(5.88)	12(23.53)	20(39.22)	36(70.59)
<i>ambivalent</i>	2(3.92)	11(21.56)	18(35.29)	1(1.96)
<i>unsupportive</i>	2(3.92)	4(7.84)	0(0)	0
<i>very unsupportive</i>	0(0)	0	0(0)	0
<i>unavailable</i>	-	3(5.88)	2(3.92)	-

Mothers were asked to identify, from a list of breastfeeding issues, the ‘main problem’ they had confided with their lactation counsellors, and then in a separate question, to identify any additional or other problems which they had talked with the counsellors. Mothers were also asked about other problem which was not revealed to their counsellors. Table 4.24 demonstrates that thirty-three percent of respondents identified lacking in breast milk supply as the main problem which they had confided with their lactation counsellors. Pain associated with breastfeeding (painful breast, painful nipple or cracked nipple) were the next most common ‘main problem’ which mothers had confided and discussed with their lactation counsellors. Breastfeeding problems related with the infants constituted about one third of the ‘main

problem' experienced by these respondents. Besides these main problems, mothers had also confided other breast-feeding related problems such as blocked ducts, too frequent feeding, how to express breast milk, how to maintain breastfeeding when the mother returned to work, how to give expressed breast milk. Less than ten percent of mothers had admitted to their lactation counsellors that they had actually stopped breastfeeding or started weaning before the completion of six month. Mothers had also admitted that some of the problems were not confided to their counsellors. These problems were mainly when they had actually stopped breastfeeding or started weaning before the completion of six month, cracked nipple, maintaining breastfeeding while working and retracted nipple. Table 4.24 summarizes the findings on the breastfeeding related problems experienced and confided by mothers to their lactation counsellors.

Table 4.24: Breastfeeding related problems experienced and confided by mothers to their lactation counsellors

Breastfeeding-Related Problems	Number (%) n=51		
	Main problem confided to LC	Other problems confided to LC	Problems not confided to LC
<i>Poor breast milk supply</i>	17 (33.33)	4 (7.84)	0
<i>Painful breast</i>	16 (31.37)	4 (7.84)	0
<i>Nipple pain/cracked nipple</i>	6 (11.76)	12 (23.53)	5 (9.80)
<i>Baby not sucking well</i>	6 (11.76)	2 (3.92)	0
<i>Engorged breast</i>	5 (9.80)	6 (11.76)	0
<i>Baby not attaching well</i>	5 (9.80)	4 (7.84)	2 (3.92)
<i>Unsettled baby</i>	5 (9.80)	3 (5.88)	0
<i>Blocked ducts</i>	5 (9.80)	9 (17.65)	0
<i>Mastitis/ breast infection</i>	4 (7.84)	1 (1.96)	0
<i>Baby refusing breast</i>	3 (5.88)	5 (9.80)	0
<i>Retracted nipple</i>	2 (3.92)	1 (1.96)	3 (5.88)
<i>Expressing breast milk</i>	0	8 (15.69)	0
<i>Too frequent feeding</i>	0	8 (15.69)	0
<i>How to give expressed breast milk</i>	0	6 (11.76)	1 (1.96)
<i>Maintaining breastfeeding when returning to work</i>	0	8 (15.69)	4 (7.84)
<i>Had actually stopped breastfeeding</i>	0	4 (7.84)	5 (9.80)
<i>Had started giving supplementary feeding</i>	0	5 (9.80)	6 (11.76)

*mothers could answer more than one
*LC=Lactation Counsellor

4.1.12.2 Mothers' impressions of the lactation counselling

Mothers were required to rate their level of satisfaction with the support provided. On the global rating of satisfaction, where a rating of 1 indicated total dissatisfaction with the support service and 7 total satisfaction, the mean satisfaction rating was 5.78 (95% CI = 5.46-5.85). Mothers were also asked about their impression on the counselling support they had received from the lactation consultant (Table 4.25). When asked what they liked about the support service, fifty-six percent of mothers felt that useful advice was given or provided by counsellors. Other commonly reported likes included the mode of contact being seen as convenient (52.9%); being able to solve their breastfeeding problem (51%); being able to breastfeed more comfortably (45.1%); the ability to ask questions (35.3%); and the chance to learn more about breastfeeding (33.3%). About one-third of mothers had also felt that the consultation time was adequate, gained more confidence in breastfeeding, or more determined to breastfeed longer. Mothers had also liked the contact with the counsellors, with twenty-two percent of the felt that they were being listened to by their counsellors. Twenty percent of mothers had felt that they listened to the lactation counsellor's advice more than their family members' advice, and had confronted lactation counsellors with problems other than breastfeeding (11.8%) and liked the personality of the counsellor (9.8%) (refer Table 4.25).

Table 4.25: Mothers' impression on what they had liked about the telephone lactation counselling

LIKES	
Mothers felt:	Number (%), n=51
<i>useful advice was given</i>	29 (56.86)
<i>the mode of communication is convenient to them</i>	27 (52.94)
<i>they were able to solve their breastfeeding problem</i>	26 (50.98)
<i>more comfortable to breastfeed</i>	23 (45.09)
<i>they could ask more questions about breastfeeding</i>	18 (35.29)
<i>they learnt more about breastfeeding</i>	17 (33.33)
<i>consultation time was adequate</i>	17 (33.33)
<i>they were able to breastfeed longer</i>	16 (31.37)
<i>they gained more confidence in breastfeeding</i>	15 (29.41)
<i>more determined to breastfeed longer</i>	15 (29.42)
<i>more satisfied with breastfeeding</i>	12 (23.53)
<i>more confident to continue breastfeeding while working</i>	12 (23.53)
<i>they were listened to by the LC</i>	11 (21.57)
<i>they listened to the LC's advice more than their family members' advice</i>	10 (19.61)
<i>that they would like to have the same support in the future</i>	10 (19.61)
<i>they could confide any other problems that they had with LC</i>	6 (11.76)
<i>they liked the personality of the counsellor</i>	5 (9.80)
*mothers could respond to more than one of the statements	
*LC=Lactation Counsellor	

Dislikes about the timing of calls were reported by forty-five percent of women, while ten percent of them had felt that their personal life had somehow been invaded. About eight percent of them felt that they could manage breastfeeding by themselves even without the lactation counsellor's support. Only one mother felt contact with the counsellor did not support her breastfeeding and three mothers responded that the counselling session(s) did not solve their breastfeeding problems. One particular mother had disliked the personality of her lactation counsellor and the way the consultation(s) was conducted (refer Table 4.26).

Table 4.26: Mothers' impression on what they had disliked about the telephone lactation counselling

DISLIKES	
Mothers' felt:	Number (%), n=51
<i>they disliked the timing when the telephone calls were made</i>	23 (45.09)
<i>their personal life had somehow been invaded</i>	5 (9.80)
<i>they could manage breastfeeding by themselves even without the LC support</i>	4 (7.84)
<i>their breastfeeding problems was not solved</i>	3 (5.88)
<i>the consultation given was inadequate</i>	2 (3.92)
<i>they disliked the personality of the counsellor</i>	1 (1.96)
<i>disliked the way the counselling was conducted</i>	1 (1.96)
<i>their breastfeeding was not supported</i>	1 (1.96)

*mothers could respond to more than one of the statements
 *LC=Lactation Counsellor

4.1.12.3 Difficulties or problems faced by the mothers during the consultation process

Mothers were asked to report on the difficulties or problems they had faced during the consultation process (Table 4.27). Majority of the respondents had difficulty to talk with their lactation counsellors for a longer period due to other commitments (41.2%). They had also experienced difficulty to talk with their counsellors without the interruption of others (37.3%). Other difficulties faced by the mothers were somehow related to the mode of communication via telephone, of which they had difficulties to answer the telephone calls when at work or at home (33.3%, 25.5% respectively), to imagine the breastfeeding techniques explained over the telephone (15.7%) and to describe the breastfeeding problem to their counsellors (9.8%). About twelve percent of respondents had felt embarrassed when confiding their problems to the counsellors; while three mothers had somehow felt that they were afraid when the lactation counsellors contacted them (reason was not specified by any of them).

Table 4.27: Difficulties or problems faced by the mothers during the consultation process

Mothers had:	Number (%), n=51
<i>difficulty to talk with LC for a longer period due to other commitments</i>	21 (41.18)
<i>difficulty to talk with LC without interruption of others</i>	19 (37.25)
<i>difficulty to answer telephone calls when at work</i>	17(33.33)
<i>difficulty to answer telephone calls when at home</i>	13 (25.49)
<i>difficulty to imagine the breastfeeding techniques explained by the LCs</i>	8 (15.69)
<i>felt embarrassed when confiding their breastfeeding problems</i>	6 (11.76)
<i>difficulty to describe the breastfeeding problem to the LC</i>	5 (9.80)
<i>felt afraid when contacted by their LC</i>	3 (5.88)

**mothers could respond to more than one of the statements*
LC=Lactation Counsellor

4.1.12.4 Mothers' suggestion(s) to improve the service

Majority of the mothers had wanted a more frequent contact during the first month postpartum (n=37, 72.7%), while eleven percent had suggested for a face-to-face introduction with the lactation counsellors before they were discharge from the hospital. Other suggestions include sending short message services (sms) to fix the time for consultation (n=5, 9.8%), inclusion of home-visiting by the counsellor as a package with the telephone counselling service (n=4, 7.8%), and provision of breastfeeding-related handbooks or leaflets which mothers could refer to at home (n=4, 7.8%). However, only 6 percent (n=3) of women wanted the duration of the service extended beyond six month, and four percent of respondents had wanted the ability to contact with their lactation counsellor when faced with impending problems. Two mothers had wanted to receive counselling from counsellor from the same ethnicity group as the mother.

4.1.13 Performance of Each Lactation Counsellor

A sub-group analysis was conducted amongst those who had received the intervention, to evaluate the performance of each Lactation Counsellors against the Exclusive Breastfeeding and Breastfeeding outcomes at the first, fourth and sixth months postpartum (refer Figure 4.11). It was noted that the performance of the LCs differ from each other. For example, three LCs had all mothers under their care maintain breastfeeding until six months (LC2, LC10 & LC12). However, at the sixth month none of the mothers under the care of LC12 was exclusively breastfeeding. Three other LCs who had zero mothers exclusively breastfeeding at sixth months postpartum include LC1, LC7 and LC11. While some of the LCs had achieved more than 20% of exclusive breastfeeding rate among mothers under their care as in the cases of LC2, LC8 and LC10. The different patterns of outcome from the LCs may be related to the way the intervention was provided. Thus, it is deemed imperative to explore their views about this intervention.

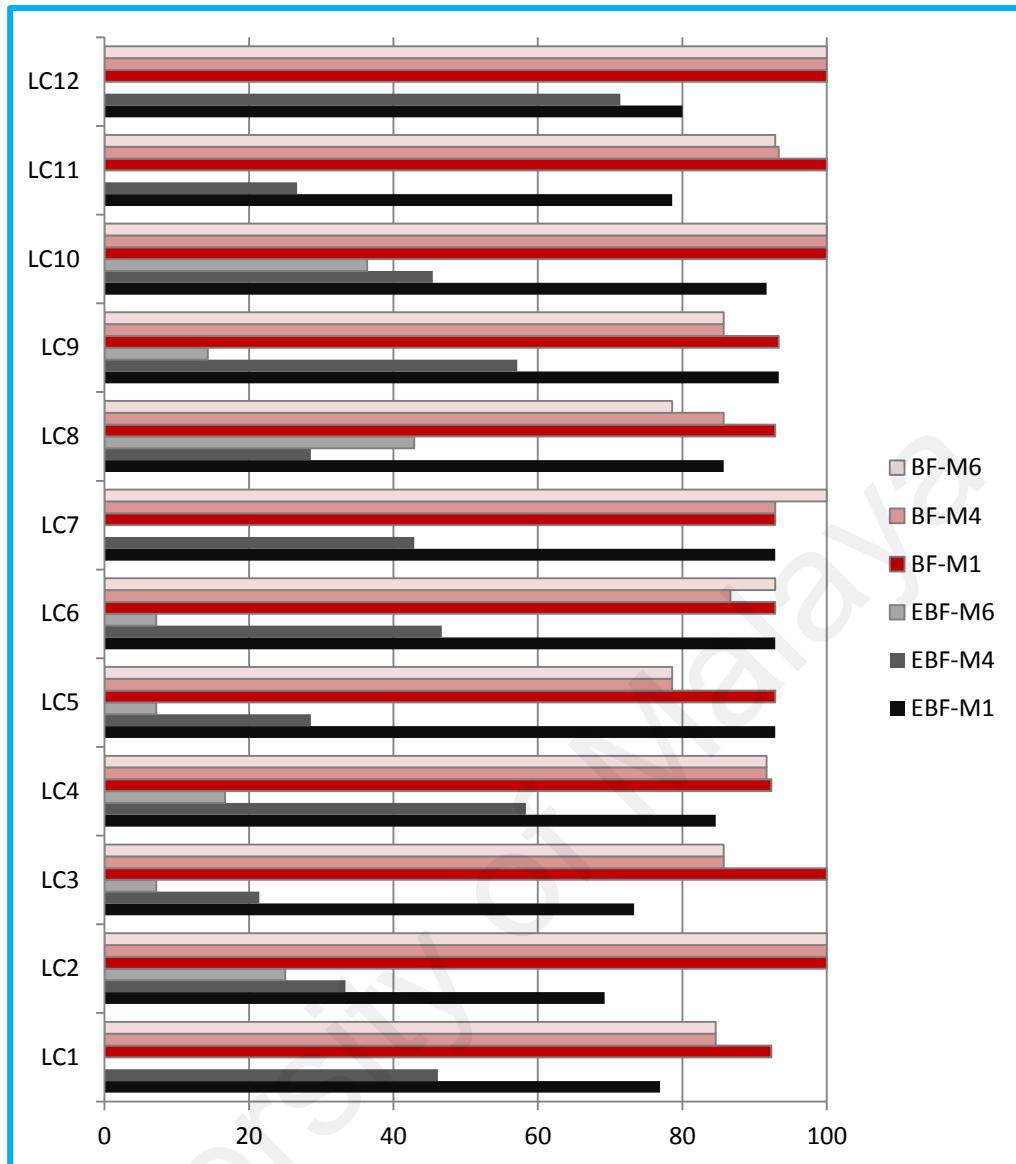


Figure 4.11: Performance of each Lactation Counsellor in the first, fourth and sixth months postpartum, measured by the Exclusive Breastfeeding and Breastfeeding Rates of mothers assigned to them.

Note: BF = any breastfeeding, EBF = exclusive breastfeeding

4.1.14 Summary of Results from RCT

This trial has been able to answer the hypothetical questions posed before the conduct of study. One of the study's hypotheses was that mothers who received the new intervention would have a significantly higher exclusive breastfeeding rate compared to the control group. It was shown from the results that this hypotheses could be accepted as telephone lactation counselling was associated with exclusive breastfeeding outcome i.e. telephone lactation counselling was effective in increasing the exclusive breastfeeding rate. Among mothers who were subjected to receive the telephone lactation counselling, they were 1.8 times more likely to exclusively breastfeed their infants at the first month. However, this effect has little effect size and not significant after adjusted for significant factors. However, this finding was only relevant to the first month postpartum period. The intervention was not effective at the fourth and sixth months postpartum. These mothers were also more likely to continue breastfeeding throughout the study. Telephone lactation counselling was also able to prevent mothers from giving plain water to their infants. As evidenced by this study, it was found that during the first month, significantly more mothers from the control group were noted to give plain water compared to mothers in the intervention group (20.37% vs. 9.52%, $p < 0.05$) and the percentage of mothers (from the control group) who gave plain water to their infants rose dramatically at the fourth and sixth month postpartum.

This study was also able to find the factors which influence the breastfeeding practice among the participants. At the first month postpartum, several factors

influence the outcome of exclusive breastfeeding. The factors which caused a positive influence include: Muslim religion, working mother, received hospital support before being discharged from the hospital, received information on breastfeeding before being discharged from the hospital, and received breastfeeding support at home. The factors which caused a negative influence include: mother's intention to work again after delivery, presence of breastfeeding problems, and the use of pacifiers and bottle teats. However, only two factors influence the mothers to breastfeed (any breastfeeding) at the first month which includes Malay ethnicity (positive influence) and the use of pacifier (negative influence).

The common reasons of discontinuing breastfeeding among participants were low breast milk and painful nipple. Besides these reasons, mothers had also cited that they had stopped breastfeeding in view that they were going to work again after their confinement period or that they had started working again.

Thus, it would be suffice to conclude that telephone lactation counselling was effective in increasing exclusive breastfeeding outcome at the first month postpartum period, but not at the fourth and sixth month postpartum period.

Postnatal telephone based lactation counselling as one of the ways to promote breastfeeding has its advantages and disadvantages. It was proven to be helpful to breastfeeding mothers, improve the mother's satisfaction with breastfeeding and the mother's sense of comfort with breastfeeding. Although the mode of communication is feasible, it has also hindered the counsellor-

client interaction unlike in a proper traditional counselling session. The acceptability of the intervention also relied on the personality and skills of the counsellor.

4.2 Results from the Qualitative Study

Individual tables of themes and the theoretical memos that were developed from the tables were analysed. A master table of super-ordinate and subordinate themes was developed (see Table 4.28).

Six super-ordinate themes were identified:

- A. The Counsellors' experience
- B. Providing the service has its advantages and disadvantages
- C. Perceived control
- D. Mothers' influence in service provision
- E. Compatibility to provide service
- F. Features of telephone lactation counselling

Pseudonyms and participants age have been used to illustrate the participants' comments to support the themes developed (in [LCn, age] format).

Table 4.28: Master table of themes, sub-themes and related quotes, from the perspectives of the lactation counsellors

Themes & Sub-themes		No of coded response	Quotes from interviews
1	The counsellors' emotional experience		
1.1	<i>Positive emotional experiences</i>	21	<p><i>"I felt very happy, it feels like all the effort was worth it,"</i> [LC4, 55]</p> <p><i>"...that makes me feel good."</i> [LC3, 57]</p> <p><i>"I feel very proud..."</i> [LC5, 49]</p> <p><i>"Overall I [have] enjoyed the sessions"</i> [LC1, 54]</p>
1.2	<i>Negative emotional experiences</i>	15	<p><i>"I feel like I am the only one who wanted to ...like a one-sided affair."</i> [LC1, 54]</p> <p><i>"I feel frustrated. I feel angry too, sometimes"</i> [LC4, 55]</p> <p><i>"It's sad...[pause]...very sad when I think of them"</i> [LC3, 57]</p>
2	Providing service has its merits		
2.1	<i>Advantages of providing service</i>	11	<i>"I feel like I am more skilled than before ... as I progress, I don't feel that awkward anymore, it feels okay"</i> [LC6, 41]
2.1	<i>Disadvantages of providing service</i>	9	<i>"I don't think that giving counselling has [its] disadvantagesno...because we're giving help"</i> [LC5, 49]
3	Perceived control		
3.1	<i>Facilitating factors to providing the service</i>	18	<p><i>"if we are really interested, have the passion..."</i> [LC4, 55]</p> <p><i>"... mother who is interested to breastfeed, it is easier to counsel her, she usually asks more questions... I know she will somehow practise what I teach her, and I know what she wants from me."</i> [LC6, 41]</p> <p><i>"The guideline really helped"</i> [LC4, 55]</p>

Themes & Sub-themes		No of coded response	Quotes from interviews
3.2	<i>Barriers to providing the service</i>	32	<p>“... <i>have a lot of other work to do</i> during office hours.” [LC2, 45]</p> <p>“Mothers here, <i>they don't want to want to ask, or get help</i>” [LC2, 45]</p> <p>“...they <i>have their own ideas on breastfeeding...quite difficult to change their mind set.</i>” [LC4, 55]</p> <p>“...<i>family influence</i> is there...mostly it's the <i>family influence.</i>” [LC3, 57]</p>
4	Mothers' influence in service provision		
4.1	<i>Positive influence posed to counsellors</i>	12	“... <i>they give co-operation, their responses were okay</i> ...then <i>I feel good about myself</i> ” [LC1, 54]
4.2	<i>Negative influences posed to counsellors</i>	8	<p>“<i>It's very sad</i>, because we sincerely wanted to help them, but some of them were <i>quite ignorant</i>” [LC2, 45]</p> <p>“...the same <i>mother who's not motivated</i> previously, I feel a bit <i>queasy</i>... it's <i>not fun anymore</i>” [LC5, 49]</p>
5	Compatibility to provide service		
5.1	<i>Self-efficacy</i>	8	<p>“Sometimes I <i>need to refer back to the manual, the guidelines</i> [pause] because I <i>don't want to miss anything important</i>. Some mothers are smart...<i>if I didn't say the right things they will know.</i>” [LC5, 49]</p> <p>“.....So we as counsellors <i>had to adjust.</i>” [LC2, 45]</p>
5.2	<i>Knowledge and skills</i>	14	<p>“....have to <i>coax</i> them...” [LC1, 54]</p> <p>“....<i>how we talk</i> to the mothers...<i>how we listen to them, our intonations</i>... that we <i>do care</i></p>

Themes & Sub-themes		No of coded response	Quotes from interviews
5.2.2	<i>method of approach</i>	17	about them... ” [LC5, 49]
5.2.3	<i>time management</i>	6	“.....I usually call my mothers on weekends ” [LC1, 54]
	<i>handling difficult</i>		“...have to be smart to find the time ” [LC4, 55]
5.2.4	<i>situations</i>	7	“... have to accept behaviour, their manners. It’s part of counselling , we listen, help all we could.” [LC2, 45]
	<i>passing information</i>		
5.3	<i>Habits of counselling</i>	8	“.....we have been giving the breastfeeding support in the wards all this while. ” [LC3, 57] “This is what I do almost every day... ” [LC1,54]
6	Features of telephone lactation counselling		
6.1	<i>Saliience of service</i>		“.....proactively, it’s better [pause] that to wait for the mothers to call us.not many of them called us when our names are at the back of the pamphlets.” [LC5, 49]
6.1.1	<i>highlights</i>	12	
6.1.2	<i>downsides</i>	7	“..... it’s good that I get to call them. ..by calling them, [it] shows [that] somebody cares... ” [LC3, 57] “If we do it face-to-face... It’ll be much easier.... rather than explaining it over the phone. It’ll be easier for the mother to understand , especially on things like positioning, latching... ” [LC2, 45]
6.2	<i>Technical problems of contacting via telephone</i>	23	“The only problem was when I tried to contact them, the telephone was engaged... or sometimes it was the wrong number , it’s not the patients’ own number. ..it was quite difficult” [LC5, 49] “...the people nowadays, they change their hand phone numbers easily , because it’s cheap”. [LC2, 45]

4.2.1 The Counsellors' emotional experience

In any forms of service, the emotional feelings felt by the provider before, during and after provision of the service are important. This super-ordinate theme developed as the participants reflected on their experiences of being a lactation counsellor in this programme and two sub-ordinate themes were identified that seemed to contribute to an understanding of this experience. During the interviews all of the counsellors reported experiencing both positive and negative emotions when counselling mothers. It was noted that their emotions were closely related to the outcome of the mothers' breastfeeding practice, and the mothers' behavioural responses towards the counsellors' advice or suggestions.

4.2.1.1 Positive emotional experiences

In regards to positive emotional experiences, the interview revealed that all the lactation counsellors experienced happiness when mothers had successfully breastfeed or when mothers were able to overcome their breastfeeding problems upon acting on the counsellors' guidance. During the interviews, it was noted by the researchers that the counsellors' faces lit up, and they smiled whenever a story of successfully breastfeeding mother was brought up. One of them specifically mentioned that due to the 'seldom occasions' of exclusive breastfeeding among mothers, it brought her pleasure whenever she thought the mothers under her care who had successfully done that.

“I asked a mother, and she said that she is still breastfeeding....I felt very happy, it feels like all the effort was worth it, you know...I can’t really describe the feeling, but yes....it felt it was all worth it.” [LC4, 55]

“If they survived [referring to overcoming breastfeeding problems]....that makes me feel good.” [LC3, 57]

“...when mothers continued to breastfeed, and they told me that their babies’ weight is increasing, baby is healthy, [becomes] chubby....I feel very proud....” [LC5, 49]

They have also enjoyed the interactions with the mothers and in general, had enjoyed giving the counselling to the mothers. Some of the counsellors admitted that their role had expanded to more than just being a counsellor, but they explained that it could have been so because the mothers had trusted them. One of the counsellors had reported that she was contacted by mothers who wanted to get some ‘emotional relief’ from marriage dispute. Although she realised that the reasons of contact by the mothers was clearly not related with breastfeeding, she still provided the emotional support needed by the mothers because she claimed that “a mother who is feeling depressed or having pressure would not be able to breastfeed fully”.

“Overall I [have] enjoyed the sessions...I like to have a chat with them, make it informal... when it’s informal then they will tell us a lot more.” [LC1, 54]

“I have mothers who would contact me when they have problems...they didn’t wait for me to call...It made me happy that they felt I would be able to help them...sometimes it’s flattering thinking that they trusted me so much.” [LC6,

41]

During the interviews, the counsellors had also reported experiencing hopefulness, useful, helpful, appreciated by mothers, felt welcomed by mothers, empathy, the desire to want to help their clients, and were accepting of their clients decision despite their client's infant-feeding choices.

“When my patient told me I was a great help to her... and she would like to have more sessions like this if she delivered again... that made me feel good....it felt like she takes me in, feels welcomed... ” [LC4, 55]

“I feel there is a purpose to this counselling.....to help mothers” [LC2, 45]

“When I did the counselling, and the mother co-operates well...I feel [pause] satisfied...it's not that I wanted any rewards...but [I] feel satisfied because I could help” [LC4, 55]

“It was a wonderful experience to be able to help them....especially the primips, when they didn't know that their [breastfeeding] problems can actually be solved.” [LC5, 49]

4.2.1.2. Negative emotional experiences

In regards to negative feelings counsellors experienced, they reported feeling sadness, frustration, rejection, helpless, inadequacy, overwhelmed, hopeless, apprehensive, distress, ambivalence, and tiring. All of the counsellors reported on how sad or frustrated they were when the mother had stopped breastfeeding, gave mixed feeding or weaned before the appropriate time. Some of the negative emotional experiences felt by the counsellors were related to the mothers' responses which the counsellors had perceived as being 'rejected'. However, they had also acknowledged that their role as a nursing profession may somehow be related to the 'rejection', as some of the mothers

or their husbands had refused to talk when they introduced themselves as lactation counsellors from ‘the hospital’. They explained that despite their efforts to offer support during their busy ‘core work’ schedule, a few of the mothers seemed ‘ungrateful’ for the ‘free help’. The facial expressions and vocal intonations shown by the counsellors when they talked about these topics were congruent with their negative emotional experiences. Their sincerity to help breastfeeding mothers is evident, despite the many obstacles faced during the study period. The counsellors negative experiences which emerged because of technical problems related with calling by telephone (i.e. unanswered calls, unreturned calls, wrong numbers, number no longer in service) were less evident, as they had said that it was expected for. Furthermore, some of the counsellors had reiterated that the frustrations with the mothers were felt with a more profound sense of emotion, when compared to the technical glitches. Perhaps, it was caused by the counsellors’ high hopes expected from the mothers who had initially agreed to participate in the study; the counsellors’ had somehow related the mothers’ willingness to participate in the study equates to willingness to try their best to breastfeed.

“I feel like I am the only one who wanted to breastfeed...who wants the mother to breastfeed, but the mother doesn’t seem interested to do it...it’s like a one-sided affair.” [LC1, 54]

“Sad...in fact, very sad when mothers stopped breastfeeding ...maybe [mothers] they are still not up to the date knowledge-wise...we tried our best, we only can try...we cannot force... breastfeeding cannot be forced” [LC3, 57]

“I do feel frustrated sometimes...with mothers’ attitude.” [LC2, 45]

“At times I feel so stressed up, with mothers who are just so... difficult to accept my views, my advices...because for her [referring to the mother]...she has more experience than me.” [LC2, 45]

“When a mother stops [breastfeeding], or starting mixing...I felt down.” [LC4, 55]

4.2.2 Providing the service has its merits

This super-ordinate theme developed as the counsellors relate that they acknowledged that provision of the service has its advantages and disadvantages, both to the counsellors and the mothers. Their role as health provider which was nurtured and instilled within them has made them felt that there were more advantages than disadvantages to providing the service.

4.2.2.1 Advantages of providing the service

The lactation counsellors had agreed that the most beneficial effect from providing the service was that more mothers would get help with breastfeeding. The mothers who participated actively during the counselling sessions were more likely to have benefitted from the advice and guidance. The mothers do not only gain breastfeeding support, but also support handling their postpartum period as a whole. This may be related to the overall satisfaction level reported by mothers in Phase Two study towards the support by the Lactation Counsellors.

“As far as I know...both sides benefit from this. Mothers get [the] help...it is not every day that they have the chance to be supported like this...sometimes not even during their stay in the ward because they get discharged within one day if everything is normal.” [LC4, 55]

“It’s like giving support not only for breastfeeding, but for the whole [spectrum of] postpartum support, like emotionally...like when mothers get baby blues, when we called them during those times then eventually the feelings they have will become much less...I do believe it’s like that.” [LC6, 41]

They had also stated that besides the mothers, the counsellors had also benefited from the sessions, citing that they had noticed that their counselling skills had improved, they became better negotiators, and they became more aware with their own ability to help. The counsellors has also adapted the counselling skills learned during their 40-hour lactation counselling training for this service, as they claimed the bulk of the training focused on face-to-face counselling with mothers.

“When we repeatedly give counselling like this...our counselling skills...the hands on approach, it becomes better. The more we do it, the better we get...to answer to their questions spontaneously, becomes less hesitant than before...that means we’re doing it better, more effective, right?” [LC1, 54]

“I feel like I am more skilled than before...initially I feel I was a bit awkward to give counselling over the phone...because I had done it with mothers in the wards, it’s different with this [referring to telephone counselling]...but as I progress, I don’t feel that awkward anymore, it feels okay” [LC6, 41]

“It’s true that we had learned how to give counselling. But during that time it was more for face-to-face [counselling]....not telephone....so for this

[intervention] we need to adjust...learn to adapt with the situation...it's not easy, but later on we get the hang of it" [LC2, 45]

4.2.2.2 Disadvantages of providing the service

When probed openly into this topic, the counsellors were not very explicit about the disadvantages. They had iterated that every support towards breastfeeding is something that is beneficial. However, when asked directly how the conduct of this service had affected their core job or their time, all of them agreed to some extent that the service had cost them their time.

They had implied that their utmost priority was still their core job as appointed by the head of department, thus making them resort to doing the counselling during their time-off, on weekends or stayed back after their working hours. However as one of them had stated firmly that, as they all had agreed to be the Lactation Counsellors 'in-action' for the study, hence they need to give their best try and effort to continue despite whatever obstacles they had to face (LC, 55 years old). Thus it was apparent that the counsellors' insights regarding disadvantages were directed more towards the lack of time for themselves.

"I don't think that giving counselling has [its] disadvantages....no...because we're giving help..." [LC5, 49]

“Initially when I tried to call...I was disturbed by a meeting. So when it happened like that, I thought that I have to do something else...I have to stay back after work then, that is the only way that I could make this [counselling] happen. So sometimes I stayed until 6.30 pm...Sometimes I do it at home at night time.” [LC4, 55]

4.2.3 Perceived control

This super-ordinate theme developed while the counsellors talked about things which had facilitated them in providing the counselling.

4.2.3.1 Facilitating factors to providing service

There were several factors which had facilitated the counsellors during the study period. The counsellors' answers revealed that there were two types of facilitating factors: 'internal' factors and 'external' factors. Their own passion to help breastfeeding mothers was a profound 'internal' factor which has helped them to pursue with the intervention. They admitted that their determination to convince the mothers and the commitment to provide the support and guidance for breastfeeding mothers as the most important factor that has helped them 'to get going'. Several examples were provided by the counsellors to emphasize their commitment, mainly through acts of repetitively trying to contact the mothers, indirectly contacting the mothers (through the mothers' husband, mother-in-law, etc.), sending short-message-services (sms) prior to calling, making appointments for an agreed time to counsel etc. Thus it was sufficient to say that these counsellors have tried to

the best of their limited capacity to be in contact with the mothers and provide support and guidance for those who needed so.

“It all depends on the counsellor, on ourselves...if we are really interested, have the passion, and then of course we can do it. The other jobs...well, it’s never-ending I guess, but we have to be a bit clever and find the time, don’t you think? So for me, as long as the passion is there...it is possible to continue with the counselling.” [LC4, 55]

“Of course...there should be some commitment to proceed with this project. If there was adequate time, it would be nice you see...to do this, help the mothers.” [LC4, 55]

“There will always be a challenge, in whatever things we do...even in counselling like this. So it’s up to us ourselves, to take the initiatives....whether we want it to work out or not.” [LC6, 41]

The mothers’ inquisitive attitude towards breastfeeding was the most profound ‘external’ facilitating factor to the lactation counsellors in providing the service. The effect of this was it flourished into a better and positive environment for counselling: the more inquisitive the mother, the more the counsellors guide; the more mothers knew what they didn’t know, thus the more detailed the questions, which leads to provision of more detailed answers. Subsequently, the mothers gained more knowledge, and the counsellors’ counselling skills get better.

“Yes...there were mothers who asked a lot of questions...they were quite a joy to handle you know, knowing that they have the interest to breastfeed fully.”

[LC6, 41]

“Those mothers who really want to breastfeed, they usually wanted to know more, they will ask a lot more questions...sometimes they searched the internet and ask me about things...they want to clarify.” [LC3, 57]

“When I called the primips, it seems they wanted to know more...they show more concern, they like to ask questions.” [LC2, 45]

“When I get mother who is interested to breastfeed, it is easier to counsel her, she usually asks more questions...I feel at ease because I know she will somehow practise what I teach her, and I know what she wants from me.”

[LC6, 41]

“Even before we called up the mothers...especially after repeats, we have already known from history which type of mother she is...If it's the turn to call the co-operative ones...I myself feel very motivated...I want to know what has happened to her since the last call. But when it's time [to call] the difficult ones....I know she was not very keen on breastfeeding, not motivated....so I feel very uneasy before calling her.” [LC5, 49]

All of them had agreed that the provision of a guideline booklet has helped them during the counselling session. In fact, it was this factor that made a profound difference from a face-to-face counselling, as there was no way during face-to-face counselling that they could use any guideline book to avoid being seen as ‘incompetent’. The counsellors had explained that they guideline provided by the researcher was used especially before and during counselling sessions; to prepare them ‘mentally’ on the possible guides or

answers before making the telephone calls, or to help them when they were pressed for words.

“The guideline really helped, especially when I had thought blocks at certain times...like, ermmm, what I should be saying now...you know, but with the guideline, it’s easier.” [LC4, 55]

“The guideline was easy to use, when the patients tell me about their problems...at the same time I could flip through to the related pages. So when we give them the advice, guide them on what to do...we wouldn’t miss on the important things you know. The mothers....they could sense whether we really know about things or not, whether we are confident...” [LC5, 49]

“Oh, it’s adequate enough [referring to the guideline]....but sometimes I have to add on certain things, because all the mothers are different, they have different problems, different combinations of situations....so we have to know how to adapt. I didn’t rely totally on the guideline which you gave me, depending on the situation.” [LC1, 54]

4.2.3.2 Barriers to providing service

The barriers felt by the counsellors in providing the service could also be grouped into internal and external barriers. The external barriers were apparently causing more barriers towards provision of good support to the mothers. The counsellors felt that they were somehow ‘limited’ to provide counselling sessions during their working time, as they give priority to the core job. Some of them expressed that it would be much easier if they were given a more flexible time by the management to incorporate the service within their working hours. A pre-conceived idea and belief that doing the

counselling as a part-timer is burdensome may be a factor which hinders the provision of service by the counsellors.

“This intervention could work, yes, of course, but I think it would be better if there are specific people who do it. You know, a person allocated specifically to do counselling like this, unlike us all who did-it part-time. It’s a bit difficult for us, because we have a lot of other work to do during office hours.” [LC2, 45]

“I think that if we were given some time off from the ward, to specifically do this counselling, it would be much better. We want to give, help, but too many things to do with so limited time...there’s nothing much that I can do during those working hours. I can’t wait forever for a patient to answer the phone call, can I?” [LC4, 55]

The counsellors’ actions were deeply suppressed with mothers who seemed unbothered to seek help. They expressed disbelief with some of the mothers’ attitude, who were quite difficult in accepting their opinions regarding breastfeeding. These kinds of attitudes may have led the counsellors to stereotype the mothers as being the ‘difficult ones’, hence the rigour of approach to these mothers may dwindled or increased according to the counsellors’ motivation level. Although the counsellors have tried to their best capacity to guide the mothers, the ultimate decision-making power still remains in the mother’s hands. This fact was agreed upon by all of the LCs, with one of the counsellors who consciously said that breastfeeding is a voluntary act and it could not be forced upon mothers.

“We asked what problems were they having...they sometimes do not want to ask any questions. Although I gave them my number, and told that she could call me anytime...nobody contacted me to ask anything.” [LC3, 57]

“I felt that this counselling could work, it’s achievable, but there should be co-operation you see...especially from the mothers. The mother co-operates with the counsellor, when we call them up, they answer the call...then it would be much easier.” [LC1, 54]

“It’s very sad, because we sincerely wanted to help them, but some of them were quite ignorant... [pause] I have encountered one mother who said straight-on that she refused to breastfeed her baby anymore because she had so much pain. I advised her against that, to try solving her problem first but she refused.” [LC2, 45]

“Mothers here, they don’t want to want to ask, or get help. Maybe they think that by switching to formula, it would solve whatever problems they had.” [LC2, 45]

“Sometimes mothers who were multips...they have their own ideas on breastfeeding, so it was quite difficult to change their mind set.” [LC4, 55]

Although the counsellors have tried to their best capacity to guide the mothers, the ultimate decision-making power still remains in the mother’s hands. This fact was agreed upon by all of the counsellors, with one of the counsellors who consciously said that breastfeeding is a voluntary act and it could not be forced upon mothers.

“Sad...in fact, very sad [when mothers stopped BF] ... we tried our best, we only can try...we cannot force, breastfeeding cannot be forced.” [LC3, 57]

“At the end of the day, the truth is, it’s still up to the mothers. We helped them all we could, but the choice is still theirs. That is the reality...” [LC4, 55]

“The mothers, if they have made the decision to breastfeed, if they willingly want to endure all the trouble...then everything else will come naturally. We don’t have to force them; they will try to get help from anybody if they wanted it.” [LC1, 54]

Other barriers felt by the counsellors were the influence posed by the mothers’ family members, particularly from their own mothers or mother-in-law. They speculated that the influence by these people greatly affect the course of breastfeeding in any mothers. The pressure to ‘obey’ the elderly is still deeply rooted in the local culture, especially more obedience is expected when a mother is taken care of by the elderly during the early days of confinement.

“Another common problem was that, these mothers, when we asked them whether they have any problems or not...they do not want to tell us. I don’t know, maybe they’re shy...But I suspect that they do ask around, from people near to them... not the hospital staff.” [LC1, 54]

“It’s quite difficult for them to brush off their mothers’ suggestions, you see...they don’t want to be seen as a rude daughter. It’s still there, the ‘listen to your mother, respect the elderly’ thing...the culture. So unless the mother is determined enough to say no at that time... the mother has to make the decision.” [LC5, 49]

“Quite a number of them went back to their parents’ house for confinement. When they’re there, they listened to their mothers, you see. They said their mother had said the baby was crying because there was not enough milk, the baby is hungry...that’s when they gave-in [LC2, 45]

Cultural differences were also seen as a barrier in certain situations. The cultural differences were not only confined to the practices of breastfeeding between, but also include the language barriers, and preference to talk to somebody from the same race. Communication barriers which were related to cultural differences have an influence to the delivery of health services in some extent (Robinson, 2002). In this current study, it was noted that the use of cultural stereotypes had been applied by the LCs. Problematic communication experiences with a few individuals of different ethnicity in the past may have strengthened the cultural stereotyping towards the whole ethnicity group. Depersonalizing and stereotyping the mothers according to their ethnicity may have influenced the equity of service provision, in this case, the telephone lactation counselling. It raises question whether these acts equals to being racist, however, as mentioned by one of the counsellors that this preference to the same ethnicity is unavoidable in a multi-ethnic society (LC3, 57).

Another concern noted from this study was that the lactation counsellors were aware of the different meanings of words or phrases in different cultures. Description of breastfeeding problems by the mothers may not be interpreted correctly by the LCs, and any explanation given by the LCs may have not been understood by the mothers. Miscommunication which arises from the different meanings of semantic expression does not only occur between different ethnic groups, but may occur within the same ethnicity but has different ancestral roots.

“There was quite a difficulty especially our Chinese community... that’s a real problem that we had because the Chinese community, they never breastfeed...they don’t breast feed, most of them don’t breastfeed... they always have formula milk, they always come with the best milk and everything (referring to formula milk)...we had quite a difficult time with them.” [LC3, 57]

“There were mothers from other races, sometimes when we talk to them; we had to repeat many times. She understood simple, plain Malay language, but maybe it was quite difficult for her to listen to lengthy Malay sentences. I would always make sure that I don’t use any medical terms. I don’t know, there are times when we speak, they responded like “emm..emmm” but when I asked them to repeat what I had said, only then they said “oh, it’s quite hard for me to say”maybe they didn’t understand anything I said from the beginning!” [LC6, 41]

“Maybe they have this thing about race...sorry, but you know, Malays want to talk to Malays, Chinese talk to Chinese...I have a feeling like that...because the patients here are mostly Malays, right...when they hear an Indian name they would go have preference to Malay counsellors ...I’m not talking about racism...but it’s a reality here...patients want to feel more comfortable, they can converse more easily (referring to conversation with counsellors from the same race)” [LC3, 57]

‘Internal’ barriers expressed by the counsellors revolve around their limited time, and limited energy to provide a more in-depth counselling after a busy day of work. As a normal human being, the counsellors also have a limit with their own patience to continuously call up patients who refused to answer the telephone calls. Some of the counsellors had internally believed that telephone

counselling is inferior to face-to-face, but some of them felt there was indifference between the two methods.

“If I was not that busy during the working hours, then it’s manageable. But sisters like me, we have other things to do, besides clinical stuff, we also handle managerial work. That was the glitch, had to take some time and spend it on counselling.” [LC2, 45]

“I only have problems with time, which was the entire problem [I had] because I work on shifts, so I have to adjust the timing to call to my time and the mothers’. I have to call at the convenient time, but when I worked on night shifts I feel so tired during the day. How do I call the mothers and counsel them, when I was sleepy myself?” [LC6, 41]

“Initially when I get two, three mothers to call, it was still manageable. I still have time to do proper counselling then. But when the numbers get bigger, then the pressure expanded. I feel that it was difficult for me to do it at home, because I have growing children...but at the work place I have limited time. I had to lock myself in my room to properly do it.” [LC2, 45]

“I think that face-to-face [counselling] is more effective than this [telephone counselling].” [LC4, 55]

“How we do it, it doesn’t matter, telephone, or face-to-face....it depends on how we talk to the mothers...how we listen to them, our intonations...when the mothers sense that we do care about them, that we are sincere, then they will accept.” How stubborn could they be, right?” [LC5, 49]

4.2.4 Mothers’ influence in service provision

This theme developed when the counsellors had voiced out their concern on the effect that mothers’ had towards the success of providing the service.

4.2.4.1 Positive influence posed to counsellors

The mothers posed certain positive influence towards the counsellors. Positive responses towards the counsellors' advice, their co-operation to be guided through the session, their co-operation to answer and receive the telephone calls, gave a profound effect towards the motivation to perform within the counsellor. Exhibition of behaviours of trust towards the counsellors had magnified their confidence and feeling of self-competence to provide better support for the mothers.

“When I talked to them, and they give co-operation, their responses were okay...then I feel good about myself. Of course I’m happy with that, I wouldn’t mind talking to mothers like that.” [LC1, 54]

“Yes...there were mothers who asked a lot of questions...they were quite a joy to handle you know, knowing that they have the interest to breastfeed fully.” [LC6, 41]

“It gives me pleasure when I think of this mother, she trusted me so much...telling me personal things, and her problems with her husband, which I think have affected her feeding. I talked to her for quite a long time, because I feel that I’m obligated to help her.” [LC6, 41]

4.2.4.2 Negative influence posed on counsellors

The counsellors were also affected by the negative influence projected by the mothers. They found it especially disturbing when dealing with mothers who have their own concept of infant feeding, be it the mothers' own ways of breastfeeding, the appropriate time to wean, or their indifference towards formula feeding. One of the counsellors was taken aback when a mother had

somehow 'reminded' her that she has had more experience than the counsellor and her children were doing fine despite not complying to what the 'hospital' had advised. Mothers who posed these negative feelings do affect the counsellors emotionally, up to the point that they felt uneasy before contacting the mother again and had forebode the outcomes of counselling.

“There was one mother, when I wanted to give advice, guide her...she 'advised' me back. She cut me off. She said she has more babies than me, so I don't have to teach her new things like this. So what more can I do? I certainly don't have to waste my time, it's better to talk to others who wanted to listen.” [LC2, 45]

“When I check the mother's name to call...I could remember which mother is this, from previous experiences. So when it's time to call the co-operative ones, I feel excited, very enthusiastic. But when I know that the mother I'm calling is the same mother who's not motivated previously, I feel a bit queasy...It's not that I'm afraid to call her, but it's not fun anymore.” [LC5, 49]

“It's very sad, because we sincerely wanted to help them, but some of them were quite ignorant... [pause] I have encountered one mother who said straight-on that she refused to breastfeed her baby anymore because she had so much pain. I advised her against that, to try solving her problem first but she refused.” [LC2, 45]

4.2.5 Compatibility to provide the service

This theme developed as the counsellors shared how they manage the counselling sessions while doing their core work in the hospital.

4.2.5.1 Self-efficacy

The counsellors expressed that by joining this service group, they realized that they had to be seen and heard by the mothers as ‘the person’ to refer pertaining to breastfeeding. Thus, they had felt the need to prove their competence; to a certain higher degree expected when compared to the mothers they had managed in the wards. Although they said they are capable of conducting counselling on usual basis, they had felt the need to tailor to the mothers’ need far greater during telephone counselling. The traditional autonomy of counsellors during telephone counselling is non-existent, and the counsellors had to adapt to that situation as well.

“The mothers....they could sense whether we really know about things or not, whether we are confident...” [LC4, 55]

“Sometimes I need to refer back to the manual, the guidelines [pause] because I don’t want to miss anything important. Some mothers are smart; they have already checked the internet. So if I didn’t say the right things they will know.” [LC5, 49]

“Patients in the ward, they’re different. In the ward they somehow had to listen to us. Because it’s ‘our’ place.... But once they’re back home, they’re in their own safety zone. So we as counsellors had to adjust.” [LC2, 45]

4.2.5.2 Knowledge and skills

The lactation counsellors had also shared their knowledge and skills applied for the service during the interview. Majority of the counsellors had implied that the way of approaching the mother is the most important aspect to

conduct any counselling. Besides talking in a calming manner, they also had to project empathy towards the mothers. Empathetic counselling were used as much as possible, with many of them used coaxing methods when dealing with mothers who seemed to have given up trying to breastfeed, or being persuasive when mothers were undecided during the counselling session. However, the lactation counsellors had also shared that there were times when they had a hurried counselling. Hurried counselling occurred when the counsellors were pressed for time, or when the mother requested for the counselling to end before it's due. Counsellors had also manoeuvred the handling of certain situations to gain more trust from the mother and be seen as competent.

“It depends on how we talk to the mothers...how we listen to them, our intonations...when the mothers sense that we do care about them, that we are sincere, somehow they will accept. How stubborn could they be, right?”
[LC5, 49]

“These mothers...they're sensitive you know, especially during the confinement period. So the way we talk to them...must be very careful. The tone, the way we respond to them [pause] must be appropriate.” [LC6, 41]

“We should never judge. That's been taught to us every time, but [pause] it's quite difficult to juggle that, because we are human too. But then again...we don't know exactly for sure anything that's happening at their home, right? So whatever happens, it had happened for a reason.” [LC3, 57]

“Most of the times, I have to coax them. When they were thinking of quitting [breastfeeding], that's when I coaxed the mothers.” [LC1, 54]

“I think it was probably the way I had approached them. You see, if we approach them correctly...there should be no problem. I never had any patients who ask me to call again at some other time, never.” [LC4, 55]

“Some mothers are in a hurry. When I called and we talked for a while, then she said ‘stop, stop...my baby is crying already’. So we had to stop. If I did it during work time, I will forever be disturbed by someone, the nurses, the cleaner...there’s never a quiet moment in my office.” [LC5, 49]

Time management was also another important aspect in providing the service. Due to the lack of suitable time during their working hours, the lactation counsellors conducted the counselling during their weekends or during their time-off from work. Besides juggling to find the time to call the mothers, they also had to tailor to individual mother’s suitable time. This was to ensure that the patient is comfortable and ready enough to be in part of the counselling. Several of the counsellors had improvised on the methods of communication, by using the short message service to fix an appointment date and time. Some of the counsellors had also admitted that they made ‘preparations’ before calling up the mothers, to facilitate them during the counselling session.

“It’s quite a challenge to call working mothers. When I talk to them during their working hours, they couldn’t talk for long. So I have to wait for them to be at home. That means I have to work [referring to counselling] in the evening or night too.” [LC6, 41]

“Time is limited during working days. To talk and really get to know the mothers, it takes time. I usually call my mothers on weekends; it’s more relaxing on those days.” [LC1, 54]

“Before I make the call, I prepared my mind first, what to say to her [pause] or else sometimes I might lose the idea, you know.” [LC4, 55]

“What I did was...I send sms to them before I called them up. Some of them replied, they gave me their preferred time. Then they would usually answer when I called, because they know it’s me.” [LC1, 54]

They had also had to handle difficult situations, in cases where there is a language barrier, or handling different types of personalities among the mothers. Handling the different types of mothers’ responses and behaviour towards breastfeeding was accepted by the counsellors as the part and parcel of counselling.

“Hmmm....it’s normal right, everyone is different. So we have to accept behaviour, their manners. It’s part of counselling, we listen, help all we could.” [LC2, 45]

“Not every mothers act like that, some are very nice to us. Probably it was also related to their experience during their hospital stay. If they liked the nurses during that time, then the image is there. If they were mistreated then, the image of the bad nurse will forever be in their mind.” [LC3, 57]

Two of the lactation counsellors however, expressed the difficulty of passing certain types of information related to breastfeeding over the telephone. They were unable to convey the message to the mother because the problem need to be solved using a hands-on approach.

“If we do it face-to-face, we could always show on the spot the things which we wanted them to learn. It’ll be much easier for me....rather than explaining it over the phone. It’ll be easier for the mother to understand, especially on things like positioning, latching...” [LC4, 55]

4.2.5.3 Habits of counselling

The lactation counsellors had developed a habit of giving lactation counselling even before their participation in the study. They had continuously guide mothers in the maternity ward and labour room to initiate breastfeeding during their working hours, thus making them fieldwork ‘experts’ in breastfeeding counselling. By frequently doing counselling in the maternity wards, the lactation counsellors need only to adapt and adjust their learned skills for the telephone-based intervention.

“All of us in this study....we have been giving the breastfeeding support in the wards all this while. Take me for instance, during ward rounds or whenever I walked into my ward and I see a mother struggling with [breast] feeding I will go and help.” [LC3, 57]

“This is what I do almost every day, since I am in charge of the breastfeeding unit. I take calls from the mothers, and counsel them. Not many of them called, but at least I know these mothers really wanted to breastfeed because they called me.” [LC1,54]

“Even as a nurse in the labour room, I still help the mothers to breastfeed. While waiting for the labour to progress...provided there’s not so many cases at that time, it’s good to talk with the mothers about breastfeeding.” [LC6,41]

4.2.6 Features of telephone lactation counselling

This theme developed as the counsellors explained why they had failed to reach to certain mothers. They explained that while telephone counselling does feature certain highlights better than face-to-face counselling, it also has its downsides.

4.2.6.1 Salience of service

The counsellors had given an appreciation to telephone-based counselling, as they recognized it as an alternative to the current breastfeeding telephone helplines. The counselling when done via telephone provided anonymity to both sides, it helps mothers overcome their shyness, and it conceals any insecurity feelings from both parties. It was also touted that this form of intervention is probably a good tool for an early detection for mothers at risk to stop breastfeeding, thus an early intervention in the form of vigorous support could be provided for this group of mothers.

“I feel that when we do these calls proactively, it’s better [pause] that to wait for the mothers to call us. It’s better..., because not many of them called us when our names are at the back of the pamphlets.” [LC5, 49]

“I like it that we have done it this way, before this even when my name is on the pamphlet, nobody called me about breastfeeding. So it’s good that I get to call them. Even if they may have decided to stop breastfeeding, but by calling them...it shows that somebody does care. Maybe they switched back to breastfeeding because we called.” [LC3, 57]

Despite the ease and comfort of using telephone as a mode of communication, it also has its downsides. Some of the counsellors felt that this method is not as superior as the conventional face-to-face counselling. They believed that it was important to have direct contact with the mother, as certain issues or breastfeeding problems would be better explained with practical hands-on session. Mothers would also hold the autonomy during any telephone counselling, as they have may choose either to respond or ignore the telephone calls.

“I think that face-to-face [counselling] is more effective than this [telephone counselling]...because when we call up the mother, we don't exactly know how her condition is at that time. Whether she was bathing her children, sitting the baby, things like that....they may have said that it's okay to talk, but we on the other side will never know for sure.” [LC4, 55]

“Sometimes when I have talked long enough, I became quite conscious with time, whether I have talked too long, whether I have disturbed her from something. So I still feel that face-to-face is more effective.” [LC5, 49]

“If we do it face-to-face, we could always show on the spot the things which we wanted them to learn. It'll be much easier for me too....rather than explaining it over the phone. It'll be easier for the mother to understand, especially on things like positioning, latching...” [LC2, 45]

4.2.6.2 Technical problems using the telephone

The counsellors also expressed the technical problems faced while using the telephone as the mode of communication. It was recognized as the main hindrance to provide counselling. Among the technical problems were (in

accordance to the number of times they were repeated by counsellors): mothers' changed their mobile telephone number, wrong telephone number, number no longer in service, the husband holds the number, and the mother was not at their own home during confinement (for mothers who only has direct land-lines).

“The only problem was when I tried to contact them, the telephone was engaged...or sometimes it was the wrong number, it's not the patients' own number..it was quite difficult” [LC5, 49]

“I've got wrong numbers, number not in service...that's the problems I faced. Sometimes it's ringing, but she didn't answer or it's engaged. Then I tried again, call other people, then revert back to the first number.” [LC1, 54]

“I wish there is a way, a better way to contact the mothers. Telephone is okay, but when things like this happens [pause] we as counsellors can't do much. The people nowadays, they change their hand phone numbers easily, because it's cheap. Maybe they change the telephone numbers on purpose...[pause]because they didn't want us to contact them anymore...who knows?” [LC2, 45]

4.2.7 Summary of Results from Qualitative Study

This qualitative study has given an insight on telephone-based lactation counselling from the Lactation Counsellors' perspective. Postnatal telephone based lactation counselling as one of the ways to promote breastfeeding has its advantages and disadvantages. It was proven to be helpful to breastfeeding mothers, improve the mother's satisfaction with breastfeeding and the mother's sense of comfort with breastfeeding. Although the mode of

communication is feasible, it has also hindered the counsellor-client interaction unlike in a proper traditional counselling session. The acceptability of the intervention also relied on the personality and skills of the counsellor.

Based on these findings, an analytical framework which explains the Lactation Counsellors' views on the telephone lactation counselling could be drawn up as in Figure 4.12. This analytical framework was drawn based on the Integrated Behavioural Model (Montaño & Kasprzyk, 2008), of which the behaviour in discussion is providing the telephone lactation counselling. Since this intervention was a modified form of counselling (a behaviour), thus it was thought that it was appropriate to analyse the qualitative data based on suitable behavioural models. It could be seen from the depicted framework the numerous factors which influence provision of telephone lactation counselling from the providers' point of view. It was apparent during the in-depth interviews with the researcher that the most troubling factors for the LCs which causes a form of barrier towards providing the intervention were: the technical problems using telephone, limited time, the lack of control, and the mothers' behaviours.

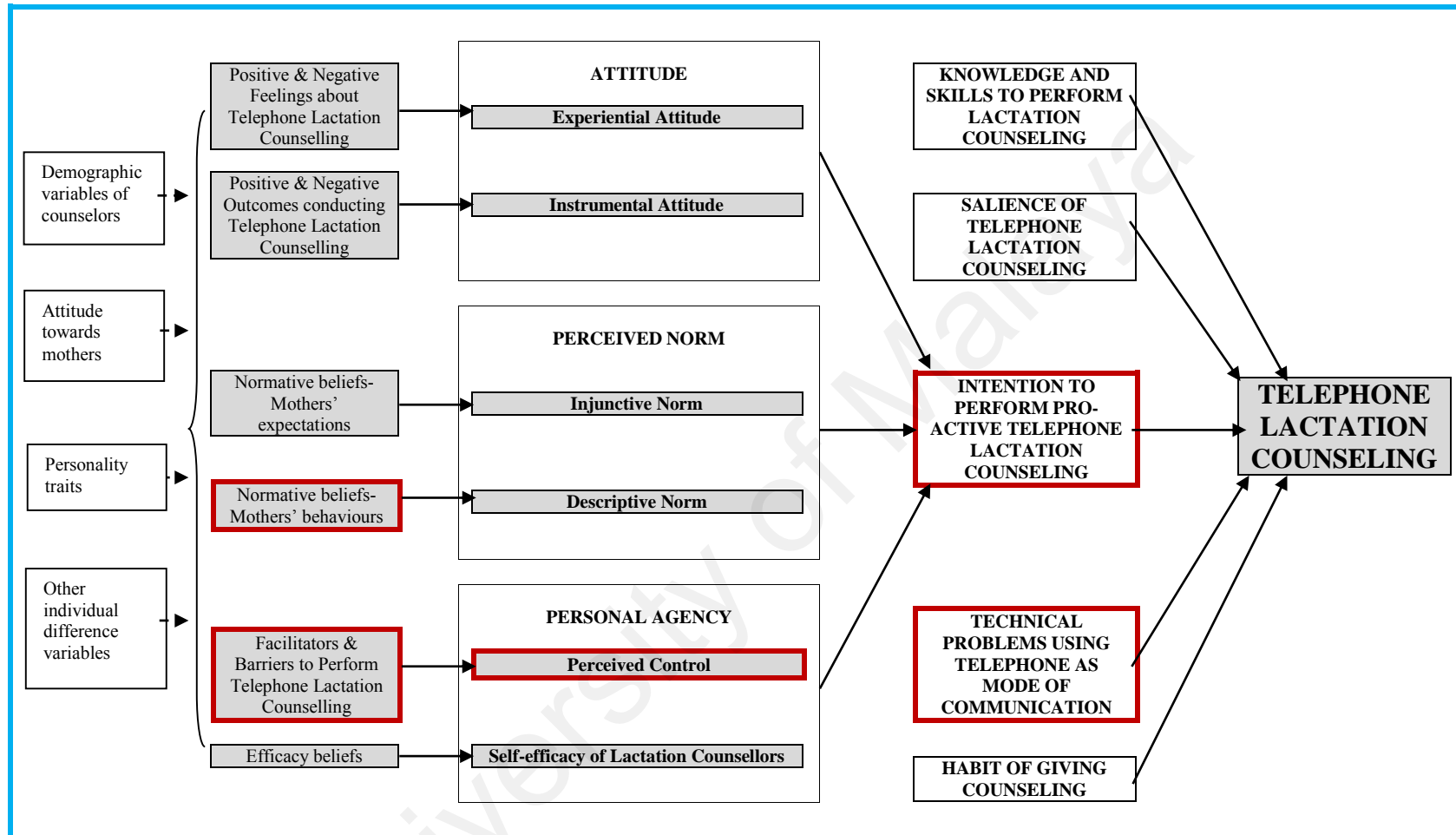


Figure 4.12: Analytical Framework on the Lactation Counsellors' perspectives of Performing Telephone Lactation Counselling, adapted from Integrated Behaviour Model (Montaño & Kasprzyk, 2008)

CHAPTER 5: DISCUSSION

This chapter discusses the findings from the RCT and the qualitative study. The main focus for this thesis is to evaluate lactation counselling via telephone as a tool to increase exclusive breastfeeding practice. In this research thesis, the type of evaluation has built a program theory; of which the RCT was used to present evidence about the effectiveness of the intervention and its causal mechanism, while the qualitative studies were used to reveal the stakeholders' mental models on how the intervention works and its causal mechanisms (Rogers & Goodrick, 2010).

5.1 The Participants and the Breastfeeding Setting in MHKL

In this study, the inclusion and exclusion criteria for the potential participants were chosen as to reduce the likelihood of mothers not to breastfeed. As found in the literature, factors associated with non-breastfeeding or breastfeeding cessation include adolescent mothers, mothers who delivered a premature infant, delivery of twins or more, mothers who had no intention to breastfeed, mothers who had medical problems, mothers who delivered via Caesarean section, and prolonged care in a Special Care Nursery. Other inclusion criteria such as being able to understand and communicate in spoken Malay Language or English, have received at least once any prenatal BF education programme and had telephone access were the steps taken to ensure the feasibility to conduct this study.

Among the participants, their mean age was around 29 years old, with the youngest participant was 18 and the oldest was 41 years old. In the year 2010,

majority of the patients who delivered in MHKL were from the Malay ethnicity (70.4%), followed by Indians (9.44%), Chinese (3.68%) and other ethnicities (16.5%). This explains the percentage of the ethnicity groups amongst participants recruited in this study, which consisted of Malays (88.2%), Chinese (5.3%), Indian (4.5%), East Malaysian natives (1.1%) and others (0.8%). During the recruitment, many of the eligible Indian and Chinese mothers approached had declined to be participants, mainly because they could not understand spoken Malay language or English. It was also noted that quite a number of the Indian mothers approached had delivered via Caesarean section.

It was also found that among the participants, the average monthly household income was RM2543.68 ± 1410.46. This figure meant that the households included in the study were way below the average household income in Kuala Lumpur (which was RM5011 in 2004). The participants' household income could be grouped within the bottom 40% and middle 40% of the Malaysian population income class in 2009 (Department of Statistics Malaysia, 2004; Economic Planning Unit. Prime Minister's Department Malaysia., 2010). This finding is very important to take into consideration, as the level of economic status influences the decisions related to maternal and child health, such as the choice of place of antenatal follow ups, delivery, and postnatal follow ups, the decision to return to work after delivery, the decision on continuity to breastfeed and others. Mothers from the middle 40% or the top 20% economic classes may opt to get their health services from the private health providers as they could afford to do so. Majority of these private health centres are not

certified as Baby Friendly Hospital, and cater their services according to the patients 'wants' and not 'needs', ensuring that the patients were treated as comfortable as possible to ensure good business returns. Thus, it is quite difficult for these private health centres to implement the ten steps recommended by the WHO.

Almost all of the mothers who were recruited in the study have made the decision to breastfeed during the antenatal period, but only half of them had the intention to exclusively breastfeed. Surprisingly, many of them had planned to breastfeed for more than six months or more than six months. Their intention could be verified to be true based on the high percentage of continuing breastfeeding at six months postpartum. Could this mean that the mothers knew the benefits of breastfeeding, had wanted to provide breast milk to their babies but had found maintaining exclusivity a burden? It could also mean that the rigour in promoting exclusive breastfeeding has not reached its peak.

About half of the participants (48.46%) were working prior to the current delivery, while 45.9% of the mothers expressed their intention to work after this current delivery. It has been shown from numerous literatures that working status does have a significant impact on the breastfeeding practices among mothers (Chatterji & Frick, 2005; Chen, Wu, & Chie, 2006; Lakati et al., 2002; Mohd Amin et al., 2011; G. Ong, Yap, Li, & Choo, 2005). In Malaysia, a working mother in a government sector is entitled to get a sixty day paid maternity leave with an additional option to apply for a continuum of

non-paid maternity leave for another ninety days. However, this entitlement is only applicable to the first five babies born while in the government service. It was only recently (not during the study period) that mothers from the government sector were allowed to get a ninety days paid maternity leave (Public Service Department, 2010). This change in policy intended to help mothers cope with the duties of caring for a newborn, especially so if the mothers were also experiencing any medical problems during the confinement period. However, the longer maternity leave could also mean that the mothers were able to breastfeed their infants longer and hopefully the rates of exclusive breastfeeding and full breastfeeding would increase in the future.

The maternity wards in MHKL practiced the steps recommended by the WHO in attaining the Baby Friendly Hospital. All mothers were not allowed to bring any infant formula, milk bottles and nipples. All newborns in the study had been roomed-in with their mother. All of the early breastfeeding practices were statistically similar between the two groups, except that among mothers who gave pre-lacteal feeding, more mothers from the intervention group gave plain water while more mothers from the control group gave infant formula. Among the participants, only 4.48% of them had given pre-lacteal feed to their infants. MHKL is a hospital which has been certified as a Baby Friendly Hospital since 20th October 1997. Second and third re-evaluation has been done on 14th June 2004 and 28th January 2008. The year 2011 has been the fifth consecutive time that MHKL being certified as a Baby Friendly Hospital. The Malaysian Breastfeeding Policy has been displayed in all the maternity wards and clinics within the vicinity so that it could be read by all the patients

and visitors of MHKL. The Breastfeeding Committee of MHKL have been keeping abreast with the continuous activities and courses for the staff and mothers through multiple approaches.

The frequency of breastfeeding in the intervention and the control group declined steadily over time. It was interesting to note that despite the numerous campaigns to mothers not to give plain water to the infants during the postnatal period, mothers continued to do so. From the study it was noted that at the first month, significantly more mothers from the control group were noted to give plain water compared to mothers in the intervention group and the percentage who gave plain water rose dramatically at the fourth and sixth month postpartum in both groups. If these infants were not given plain water by their mothers or caretakers, the exclusive breastfeeding rates might be even higher than the current result. This result however could not be compared with other studies in Malaysia due to the different data captured or reported. Thus it could be said that the message not to give plain water to the infants was not successfully instilled. This could be due to a multiple factors, among others the influence of the grandmothers who believed that plain water is needed after each feed to 'clean' the mouth, the belief that the breast milk did not have adequate water in it, the custom to alternate the fluid intake practice. Mothers from the study had also given bottle teats and pacifiers to their infants despite them being advised against the practice during the antenatal and postnatal breastfeeding education. It was also possible that more explanation need to be given during counselling sessions regarding the risks from partial or non-exclusive breastfeeding, including a higher rate of infant morbidity and

mortality from diarrhoea and respiratory illness (G. Becker, Remington, & Remington, 2011).

Among the participants in this thesis research, 92.18% of them received breastfeeding education at antenatal check-ups, while the remaining of them received breastfeeding education when they were admitted to the antenatal wards prior to delivery or at the delivery suite. The antenatal education received among mothers in this study is higher than a recorded study by Chan & Asirvatham (2001) conducted in Manjung District Hospital, whereby 86.7% mothers recruited had received antenatal education in the form of talks based on the step 3 in the Global Criteria for the BFHI, conducted in Malay with the help of flip charts, a breast model and a baby-sized doll (Chan & Asirvatham, 2001). It was noted that the participants in this thesis research received different types of breastfeeding education and methods. The most common information they had received were regarding breastfeeding position (92.18%), expressing breast milk (86.03%), breastfeeding myths (13.97%), discussion on exclusive breastfeeding (65.92%) and maintaining breastfeeding when mother is away from baby (64.25%). While the majority of them received this information through individual or group teachings, about 15.64% of them received any breastfeeding information from viewing any breastfeeding video. It was noted that during the antenatal period up to the time before delivery, mothers in this study reported that majority of them had received lactation support from the nursing personnel, be it the midwife or delivery nurses or the ward nurses. Doctors remained as the least personnel giving lactation support to the mothers during antenatal period. It would be

appropriate if the attending doctors could contribute more towards breastfeeding support, as reports had stated that support from medical professionals was effective in improving breastfeeding practices (Hannula et al., 2007). It was noted during the researcher's visit to the maternity clinic, the breastfeeding video which was aired for the mothers was not locally made, and used English language as the medium and no translation in local language was available. The effect of these antenatal breastfeeding educations on the mothers' knowledge, interest and intention to breastfeed is unknown. It would be interesting if a study could be conducted to assess the effectiveness of these modules especially on the mothers' knowledge on breastfeeding before and after they had attended any of these breastfeeding education sessions. The postnatal support received by the mothers up until before their discharge from the hospital. Among the participants, it was noted that the majority of them was given postnatal breastfeeding support by the midwifery and ward nurses. This figure again confirms the importance of the nursing personnel as the key informant and educator on breastfeeding in the hospital. The mothers may have received more information from the nurses rather than the doctors as the amount of time spent and contact with the nurses was far greater compared with the doctors.

5.2 The Intervention

In this study the intervention was well received by the mothers at the beginning of the study but declined drastically with time. Those who were accessible towards their respective LCs dwindled progressively from 96.34% during the first month postpartum to only 18.29% at 6 month postpartum. The percentage of participants who answered and received lactation counselling

for the first month was very good, maybe because the mothers were at the early postpartum period and felt the need to get the support provided. However, the percentage of participants who answered and received the lactation counselling began to decline starting from the second month postpartum. Although every measure was taken by the lactation counsellors and the Principal Investigator to be in contact within the service system, the problems concerning the inability to contact mothers due to the wrong telephone numbers and change of telephone numbers could not be resolved. Mothers who purposely refused to answer the attempted calls could somehow be 'coaxed' to respond to the system by sending short message service (sms) prior to calling. The average of total minutes called per participant was 58.43 ± 38.49 minutes (range= 0-210 minutes), of which the average number of successful calls per participant was only 4.33 ± 3.14 times/participant (range 0-12 times). The length for each counselling session was not fixed in the study protocol, as it is crucial to hold on to the principles of counselling i.e. providing support on the based on the clients' need (McLeod, 2009a). Thus, it was assumed that the lactation counsellors in the study had used their expert skills and knowledge in managing the mothers appropriately and in accordance to their assessment of the mothers' situation. It was noted by the researcher from her assessment of the log book entries for the mothers that; mothers who reported of having no breastfeeding issues had received shorter duration of telephone calls when compared to mothers who had reported having had breastfeeding issues. Mothers who had successfully resolved their breastfeeding issues were noted to receive lesser duration of telephone counselling compared the time when breastfeeding issue was reported. Thus it

could be safe to deduce that the lactation counsellors had tailored the counselling based on the mothers' need at the particular point of time. The intervention was most intensive during the first month postpartum period, as the mothers were easier to contact and they were still in their traditional confinement period. Among the Malays the confinement period lasts to a maximum of 100 days; although the majority of the mothers practice this for 40 days. During this period, mothers usually have someone to take of their postnatal needs, thus allowing the time and space needed for recuperating from the delivery. Anecdotally mothers had shared information into revealing that the complexity of their lives increased between the second and the third month, particularly among those who had to return to work after sixty days of maternity leave. Thus, it was expected that the mothers would be becoming more difficult to reach after these period and the intensity of intervention would also be decreased.

5.3 Factors Affecting Breastfeeding Outcomes

Multiple logistic regressions done had found that the significant factors which were related to exclusive breastfeeding at the first month postpartum among the participants in the RCT were: Muslim religion, use of bottle teats and pacifiers, working status prior to delivery, intention to work, had breastfeeding problem, received information before discharged from the hospital, and received breastfeeding support at home. At the fourth month postpartum, the significant factors which were related to exclusive breastfeeding were the intention to work after delivery and the use of bottle teats. At sixth month, no factors were found to significantly affect the exclusive breastfeeding outcomes based on either the simple (direct) logistic regression or multiple logistic

regressions. These significant factors were different from the factors of exclusive breastfeeding found by Tan KL (2011), most probably because of the different sample of mothers from the different locality. Tan KL (2011) had recruited 682 mother infant pairs who attended Maternal and Child Health government clinics in Klang, Selangor of which one clinic was selected from each of the urban and rural area. He reported that significant variables associated with exclusive breastfeeding include area of residence, maternal ethnicity, maternal occupation, maternal smoking status, parity, infant gestational age, husbands support on breastfeeding and bed-sharing practice (Tan, 2011). Meanwhile in this thesis research, it was found that among the significant factors of exclusive breastfeeding at the first month, three were related to breastfeeding support. This result provides an important input, that is, the breastfeeding support for mothers prior to discharge from the hospital and the support at home is beneficial and important in determining the success of exclusive breastfeeding among mothers. Besides giving mothers the information during antenatal period, it is crucial for the hospital staff to empower them with the skills to breastfeed comfortably at home. If possible, mothers should also be taught on the possible problems which may occur during breastfeeding, as to prepare them mentally for the situation. Mothers who had anticipated the problems may be better at finding solutions to the problems, be it getting help from the lactation counsellors, health practitioners, local community midwives, from friends who had experienced the same situation, or even searching solutions from the internet medium.

5.4 Breastfeeding Outcomes

The primary outcome for the RCT was the rates of exclusive breast feeding up to six months after delivery. The exclusive breastfeeding rate among the total participants was better than the prevalence rate from the NHMIS III (Fatimah et al., 2010) data at the fourth month (40.5% vs. 19.3%), but was lesser than the NHMIS III at the sixth month postpartum (12.3% vs. 14.5%). This may indicate that the level of awareness among the mothers regarding exclusive breastfeeding and breastfeeding in general has increased throughout the years as a result from continuous lactation education, but more emphasis is needed to support the mothers to continue exclusive breastfeeding up until the completed sixth month postpartum. This indication is further supported by the rates of predominant breastfeeding, complementary breastfeeding and stopped breastfeeding among the total participants, of which, at the fourth and sixth month postpartum were at all times lower than the rates reported in the NHMIS III (Fatimah et al., 2010).

The specific objective and the expected effects of the study intervention, which was to increase the exclusive breastfeeding rates by 16%, were not reached. Nevertheless, this study found that lactation counselling using telephone by lactation counsellors from the nursing profession had improved the exclusive breastfeeding rates at the first month postpartum period among the participants who attended a public hospital where the breastfeeding initiation rates were high. The probability of exclusively breastfeeding among mothers who had received the intervention was 1.63 and 1.17 at the first and fourth month postpartum, after adjusting for the significant factors. Even with the cautions imposed by the statistical limits, these observations would be

suffice to suggest that an intervention with at least two telephone calls in the early postnatal period could have extended or increase the exclusive breastfeeding rate. This finding contrasts with the results by Fallon et al (2005) by which in his study, counsellor-initiated postnatal telephone-based lactation support did not cause any significant effect on exclusive breastfeeding rates among mothers from the public hospital at 4.5 weeks postnatal period. The different results produced at these different periods may be related to the mothers' accessibility to the intervention, the total minutes of counselling received, the total number of successful counselling or the Lactation Counsellor assigned to the mothers. However, further sub-group analyses in the RCT for this thesis had rejected this possibility, as there was no significant relationship between exclusive breastfeeding with the above mentioned factors.

This study further proves that a single-method breastfeeding intervention was not effective if conducted for a prolonged period of time in Malaysia, regardless of its feasibility to conduct in an urban setting. This raises question whether continuation of breastfeeding support should be modelled differently according to the differing needs during the postpartum period timeline. Britton et al (2009) had reported that single breastfeeding interventions, either antenatal or postnatal, had generally been ineffective in populations with high initiation rates (Britton et al., 2007). It has also been reported from systematic reviews that breastfeeding intervention which used various methods of education and support from well-trained professionals were more effective than interventions concentrating on a single method (de Oliveira, Camacho, &

Tedstone, 2001; Hannula et al., 2007). However, it has also been shown that support strategies which lack face-to-face interaction was unsuccessful in promoting breastfeeding success (de Oliveira et al., 2001; Sikorski, Renfrew, Pindoria, & Wade, 2003). This study also raises question whether a combination of support forms would be beneficial to breastfeeding mothers in Kuala Lumpur, particularly in increasing the rate of exclusive breastfeeding. However, previous studies involving different models of lactation support combinations had shown different results (Coffield, 2008; Kang, Song, Hyun, & Kim, 2005; McDonald et al., 2010). These study results further affirmed that exclusive breastfeeding practice is indeed influenced by multiple other factors, and not influenced by lactation support alone.

In this study, women in the intervention group received postnatal interventions in addition to routine ambulatory and inpatient hospital care, while all other aspects of management were similar. The findings can therefore be generalised to any setting where women's pregnancy and delivery are managed in a public hospital setting. When compared to the local prevalence data (Fatimah et al., 2010), the exclusive breastfeeding rate among the total participants was much better at the fourth month but slightly lower at the sixth month postpartum (40.5% vs. 19.3%; 12.3% vs. 14.5% respectively). This may indicate that the level of awareness among the mothers regarding exclusive breastfeeding and breastfeeding in general has increased throughout the years as a result from continuous lactation education, but more emphasis is needed to support the mothers to sustain exclusive breastfeeding up until the completed sixth month postpartum. This indication is further supported by the

rates of predominant breastfeeding, complementary breastfeeding and stopped breastfeeding among the total participants, of which, at the fourth and sixth month postpartum were at all times lower than the rates reported in the NHMIS III (Fatimah et al., 2010).

This research has shown that this intervention was not effective in increasing the exclusive breastfeeding rate at four and six months. There are several issues that may explain this situation. In this research, 48.5% of participants had been working before delivery. However, among participants who were still contactable at follow up periods, more than half of them (58.9%) had returned to work by four month and 98.8% had done so by the sixth month. The reason on why a staggering percentage of mothers had returned to work or joined the workforce after delivery of a child could be due to financial constraints related to the increasing inflation rate in the country during the period of research. In the year 2009, the inflation rate was 0.6, and had steadily increase to 1.7 (2010) and 3.2 (2011) (Department of Statistics Malaysia, 2015). Another issue which may be related to the intervention not shown to be effective was the marked reduction in the number of mothers who could be reached by their Lactation Counsellors. This was especially so after the 2nd month postpartum, as most of the mothers who planned to continue working with their previous employers would do so after the sixty days maternity leave. This may be true as shown in the analysis of percentage of mothers in the intervention group who were able to be contacted by the LCs. During the first and second month, 96.2% and 73.8% of these mothers were

contactable, however the percentage declined to 47.6% and 26.8% in the third and fourth month postpartum.

The results could have been improved if several measures were taken during the implementation of the intervention. For example, mothers may be recruited from the antenatal period (i.e. during the last antenatal visit at the clinic) so that an earlier face-to-face introduction to their respective lactation counsellors could be made. However, in this current study, mothers who came to the hospital's antenatal clinic were mothers who were referred for tertiary care, whilst majority of the mothers attended antenatal follow up at their respective clinics at district level for primary or secondary care. It would have caused further increase in the human resource used for this study if recruitment was to be made during antenatal period, as in Kuala Lumpur alone, there are 29 Community Clinics under the government scheme, 14 Clinics by DBKL and numerous private clinics which mothers attended for their routine antenatal check-ups, and to identify those who would probably deliver in MHKL. It was also possible to recruit mothers when they were admitted for delivery; however this raises the question whether there would be ample time for the mothers to meet with their lactation counsellors before delivery commences. Other forms of comprehensive antenatal lactation education could also be introduced to the mothers if they are recruited at the antenatal period.

This study result further affirmed that breastfeeding practices are indeed influenced by multiple other factors, and not influenced by lactation support

alone. It was found that the main reasons mothers in this study stopped breastfeeding differ according to timelines. In the earlier postpartum period, the main reasons stated by them (more than fifty percent) were mostly related to the perceptions of low or no breast milk supply, while in the later postpartum period returning to work was the reason more than half of the respondents stopped breastfeeding. Tan KL (2011) had conducted a cross-sectional study involving 682 mother-infant pairs with infants up to six months attending maternal and child health section of the government health clinics in Klang, Malaysia, which is situated within the same Klang Valley as is Kuala Lumpur. The author reported that the prevalence of exclusive breastfeeding among mothers with infants aged between one and six months was 43.1% (95% CI: 39.4, 46.8). In this study, exclusive breastfeeding in Klang area was positively associated with rural residence, Malay mothers, non-working and non-smoking mothers, multiparous mothers, term infants, mothers with husbands who support breastfeeding and mothers who practice bed-sharing (Tan, 2011). Thus, future studies in Malaysia should attempt to focus on interventions that seek to increase exclusive breastfeeding among women who are at risk of early discontinuation of breastfeeding.

Culture may have also played some role in shaping the attitudes of the breastfeeding mothers. Among the Malays, it was a custom for a postpartum mother to stay with their elderly during the confinement period. This practice may begin as early as the first day after delivery and may last in several weeks or months. Mothers who are working in the urban or sub-urban area will opt to either staying temporarily at their parents' or in-laws' house, or have their

elderly come to stay over in their house. Unfortunately, many of the maternal parents of current mothers have internalized the formula-feeding messages that were widespread in the 1970s by Western medicine. Formula feeding is perceived as the modern, westernized and superior infant feeding method by mothers of the 1970s. Thus, these breastfeeding mothers (current time) may have been encouraged by their extended family to supplement feedings within the first few days after birth. It was also noted from personal observation that at the current moment, more Malay women in Malaysia are practicing the Islamic ways of life as compared during the 1970s, such as more were noted to wear hijabs and has the ability to attend or listen to religious classes or teachings. Globally, the increasing awareness and knowledge of the teachings in the Quran and Prophet Muhammad's (peace be upon him) which emphasized on the importance of mothers to breastfeed their children for up to two years is taking its role as one of the most powerful promotional material in persuading new mothers to continue breastfeeding. The edicts from religious scholars, in addition to the numerous scientific evidences of breastfeeding benefits may have also played a role in the mothers' attitude in breastfeeding. However, these views are limited to Muslim Malay mothers only. It is not clear whether the culture would play an important role the effectiveness of this intervention because every mother and family is unique and they may have practiced different norms at home according to their own beliefs.

The poor impact of telephone lactation counselling on exclusive breastfeeding practice may also be addressed from another sociological perspective. Backett

et al (1989) had argued in an article “Changing the Public Health” that public health should be primarily concerned with those factors in the social structure which impinge on health status, rather than focussing narrowly on trying to persuade individuals to change their behaviour. They had identified the pre-requisites for behaviour change that could be utilized as a framework for health promotion programmes. The pre-requisites for self-initiated change as identified by Backett et al (1989) include:

- i. The behaviour needs to become salient, allowing the person to think about it-
- ii. The way the behaviour becomes salient should not trigger a reaction or denial
- iii. The person needs time to think about the behaviour
- iv. Change is more likely when individual’s abilities to cope are not already under strain
- v. The climate of opinion should be supportive to change
- vi. It should be possible to make the change, implying that the individual has the skills to do so
- vii. Change will be harder if the behaviour the person might change plays a role in her coping strategies.

Based on the arguments by Backett et al (1989), there might be some sociological explanation on the results of the RCT. Some of the mothers may have not regarded exclusive breastfeeding as a very important matter. They may have thought that there was no significant difference in giving exclusive breastfeeding when compared to giving breast milk mixed with other fluids.

This may explain why the rate of exclusive breastfeeding in both groups were similar and the rate in the intervention group was not significantly different from the control group at the later period of postpartum, while the rate of (any) breastfeeding was maintained at a higher rate until the end of study. Majority of the mothers in this study have thought about breastfeeding their baby. While 99.2% of them had the intention to breastfeed since antenatal period, only 56.9% of them had the intention to exclusively breastfeed. It was assumed that these mothers have had ample time to make their decision on breastfeeding during pregnancy. However, these mothers may have answered in favour of giving 'the right answer' to the researcher when approached at the maternity wards. It was also possible that these mothers were not given a long period of time to think about participating in the study, as the researcher had a limited time to meet and approach the mothers before they were discharged from the maternity wards (the period of being discharge from the maternity ward in MHKL after a normal SVD is approximately one day, provided both mother and infant were healthy). It is also important to note that a mother's ability to exclusively breastfeed depends on her coping abilities cope with the newborn and any existing strain at home. Thus, the role of the Lactation Counsellors may need to extend beyond the scope of being a lactation counsellor per se at the crucial period of early postpartum, but to be able to be a 'family counsellor' when necessary. Although the mothers have received solid support from the Lactation Counsellor to exclusively breastfeed, her surrounding environment may have not favoured her to do so. An important conclusion that can be drawn from this is that, future attempts to promote

breastfeeding in the society need to address factors in women's lives and social environment that may affect their infant feeding behaviour.

5.4 Telephone Counselling As The Medium Of Breastfeeding Support: Evaluation Of The Intervention From The Providers' And Clients' Views.

Breastfeeding support and education offered by knowledgeable health professionals can enable mothers and families to overcome breastfeeding obstacles and is often cited in the literature as one of the ways to promote breastfeeding (Britton et al., 2007; Chung et al., 2008; de Oliveira et al., 2001; Hannula et al., 2007; Wambach et al., 2011). One of the ways of support is by providing counselling services to the mothers. The CDC Guide to Breastfeeding Interventions (Shealy, Li, Benton-Davis, & Grummer-Strawn, 2005) defines professional support as any “counselling or behavioural interventions to improve breastfeeding outcomes, such as helping with a lactation crisis or working with other health care providers” (p. 23). Gustad (1953) has defined counselling as *“a learning-oriented process which is carried on in a simple, one-to-one social environment, in which a professionally competent counsellor in relevant skills and knowledge, seeks to assist the client, by methods appropriate to the latter's needs and within the context of the total personnel program, to learn more about himself and to accept himself, to learn how to put such understanding into effect in relation to more clearly perceived, realistically defined goals to the end that the client may become a happier and more productive member of his society”* (Gustad, 1953). Counselling and giving advice is quite different from each other, as giving advice is to tell someone what to do while counselling is concerned with the way counsellors professionally approach a mother by listening to her,

trying to understand her, and then with their skills and knowledge, offer the mother help to plan and take decisions regarding certain matters. Thus counselling helps mothers to be strong enough to deal with pressure, and increasing her self-confidence and self-esteem (WHO/ UNICEF, 1993). Reports regarding the effectiveness of face-to-face interventions in supporting breastfeeding were equivocal (de Oliveira et al., 2001; Sikorski et al., 2003), while telephone-based support interventions was found ineffective (Fallon et al., 2005; Sikorski et al., 2003). The Breastfeeding Best Practice Guideline for Nurses emphasized that nurses should provide information, emotional and physical support to breastfeeding mothers with an attitude that conveys support for breastfeeding (Registered Nurses Association of Ontario, 2003).

The themes identified in from this thesis research could be presented in an analytical framework (refer Figure 5.1). This figure represents the theory related to the provision of telephone lactation counselling based on the qualitative study and descriptive study findings. Based on this analytical framework, it could be seen that telephone lactation counselling is in fact, just a nifty part of the support network which could be provided to the mothers; when all the while the mothers' breastfeeding practices are also affected by other factors surrounding her internal and external environment. The factors which are closely related to the successful provision of telephone lactation counselling was modelled based on the Integrated Behavioural Model (Racine, Frick, Guthrie, & Strobino, 2009). The perspectives from the lactation counsellors who had been involved in the intervention provided plausible explanation for their conduct of providing telephone-based lactation

counselling. In Integrated Behaviour Model, the most important determinant is the intention to perform the behaviour. A person is unlikely to perform the behaviour should there be any lacking in motivation to do so. There are also four other components which are directly affecting behaviour; of which three of these is important in determining whether behavioural intention could result in behavioural performance. Besides having a strong behavioural intention, a person needs to have the knowledge and skills to perform the behaviour. There should be no or few environmental constraints that make behavioural performance very difficult or impossible to conduct, and the behaviour should be salient to the person. With experience, performing the behaviour becomes habitual, thus intention becomes less important in determining behavioural performance for that individual (Pechlivani et al., 2005). Thus, it could be postulated that successful telephone lactation counselling is most likely to occur if (1) the lactation counsellor has a strong intention to perform it and the knowledge and skill to do so, (2) there is no serious external constraints preventing performance, (3) telephone lactation counselling is salient, and (4) the lactation counsellor has performed counselling previously. However, from this qualitative study, it was found that the greatest determinant which affected the provision of telephone-based lactation counselling was the intention of Lactation Counsellors, followed by external constraints. Considering that the external constraints could not be controlled by the Lactation Counsellors, strong intentions and motivation are required for the counsellors to perform telephone lactation counselling. Other determinants such as demonstration of counselling skills and ample knowledge on breastfeeding, salience of the

intervention and the habits of conducting counselling were deemed sufficient to influence the conduct of telephone lactation counselling.

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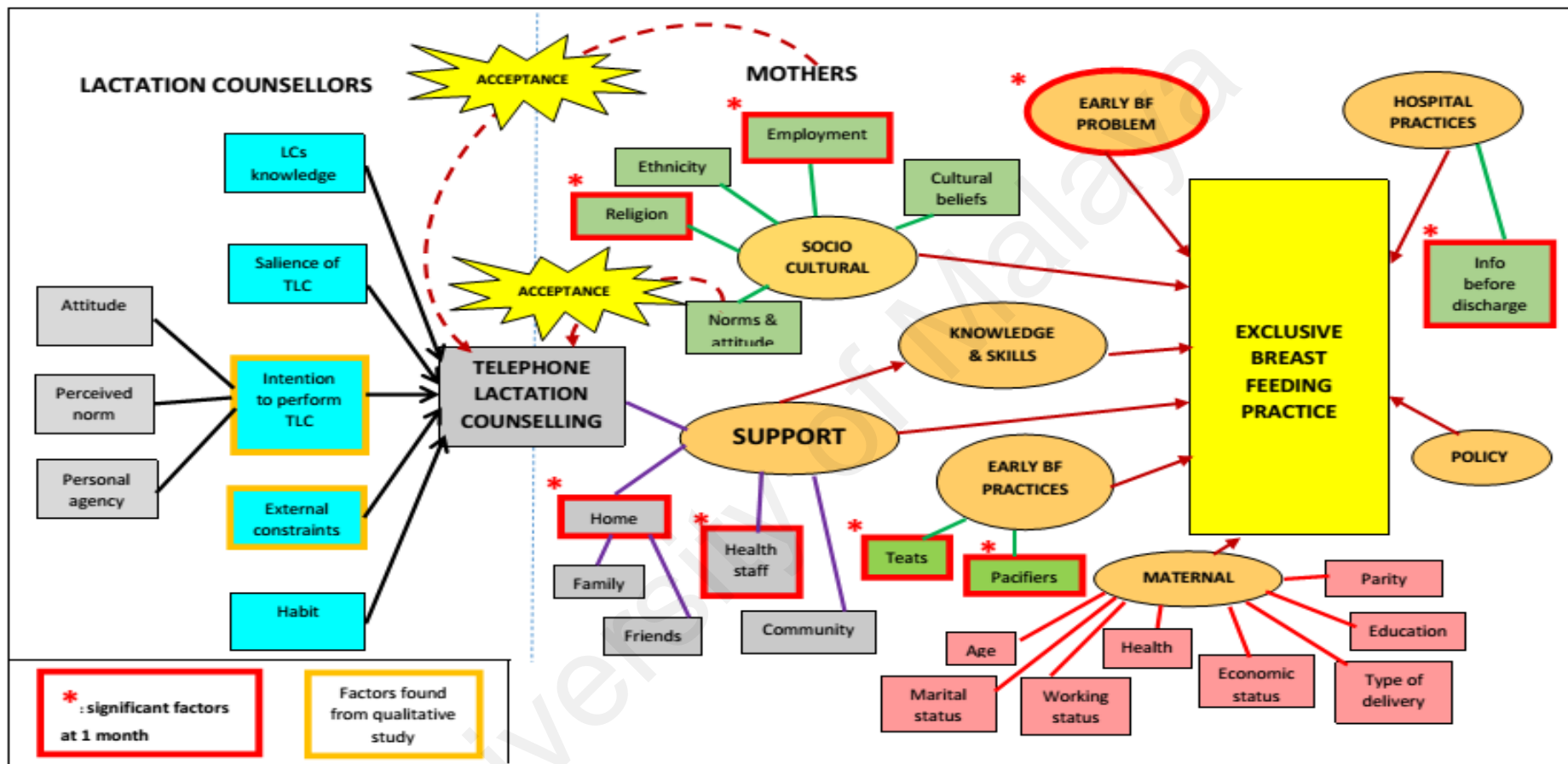


Figure 5.1: Factors which affected the exclusive breastfeeding outcome in this research based from the findings of RCT among the mothers and qualitative study among the lactation counsellors

Rosenfield (1997) has stated some of the advantages which telephone counselling can bring compared to face-to-face counselling include: the counsellor can work with a wide ranging geographic spread of clients; counsellors do not have to admit strangers to the home/ office; neither party has to travel anywhere, be physically mobile or be 100 percent well to participate; telephone counselling is ecologically efficient; there is greater equality between the client and counsellor as the relationship develops; the counsellor must check any assumptions made by either counsellor or client; the counsellor must be aware and sensitive to her voice patterns and intonations and its possible impact on the client; clients can feel safe to talk more readily about deeply personal issues, emotions and experiences (Rosenfield, 1997b). It was noted however, that the tradition that counselling takes place on the counsellor's terms is challenged. The counsellors could only work on what the mother had chosen to tell and what the counsellor can hear in the background (Rosenfield, 1997c).

The lactation counsellors in this study had undergone the 40-hour lactation management and counselling course, which had included a few theoretical and practical sessions of face-to-face lactation counselling. This module barely touches on the topic of providing counselling via telephone and no practical session on telephone counselling methods was included. The LC who was appointed as the person in-charge of the Breastfeeding Room in MHKL was given the task to man the hospital's breastfeeding telephone helpline. Thus the skills to provide counselling via telephone were adapted from the knowledge and skills they had learned from face-to-face counselling sessions. Lactation

counsellors who were designated in the wards had fewer encounters with telephone calls from the mothers. Their names were inserted as the hospital's breastfeeding support team in the breastfeeding pamphlet but rarely did mothers call them up for help. It could be said that the level of exposure towards providing counselling via telephone varies between the lactation counsellors, but all the LCs were already trained as face-to-face counsellors.

Rosenfield (1997) had stated in her book that there is a difference between 'telephone counselling skills' and giving 'counselling by telephone'. 'Counselling skills' telephone work requires active listening, the use of open questions, paraphrasing, summarising and empathy. Whereas 'counselling by telephone' requires all of the 'counselling skills' as well as understanding of negotiating a contract and an understanding of the counselling process, which may include working with fantasy or projection, an awareness of problem-solving strategies and an appreciation of a variety of counselling and therapeutic approach. Counselling by telephone must include a high level of personal awareness and of one's personal prejudices, and a willingness to commit oneself to, and work within, an on-going relationship (Rosenfield, 1997d). Using this definition, it raises question on whether the intervention provided by the Lactation Counsellors in this study had been merely 'breastfeeding support using telephone counselling skills' or 'breastfeeding counselling by telephone'. It would be difficult for an assessor to justify this as the intensity of help needed by the mothers differ; some mothers may need specifically-tailored guidance on breastfeeding while others may be

comfortable of just having someone who could listen, or felt comfortable just knowing that they have somebody 'out there' to help.

Telephone-based lactation counselling is lacking in the face-to-face interaction, thus it became 'conversational' and lack in immediacy of contact. This lacking in non-verbal manifestation of high affect through telephone counselling (i.e. maintaining eye contact, leaning closer, touching, smiling, maintaining a relaxed body posture, and attending to voice inflection) may have built an invisible divider between the mother and the counsellor. While counsellors in face-to-face consultations often demonstrate immediacy through non-verbal means, counsellors in telephone-based services may be required to project immediacy exclusively through verbal expressions such as addressing by the mothers' name, engaging in humour, giving praises and encouragements. However, demonstration of verbal expressions of immediacy demands highly skilled and experienced counsellors in the specific area of interest to project an affect of warmth and likeability within their telephone communication. Based on the social presence theory (Short, Williams, & Christie, 1976), lactation counsellors need to demonstrate a higher level of social presence in an online environment such as telephone counselling (i.e. attributes that are more sociable, more personal, more sensitive, and warmer), so that they will be perceived by mothers as a "real person." The results of this study underline the need for closer relationship between the counsellor and mothers, particularly by forging verbal immediacy through telephone communication; in order to make this intervention more acceptable by the patients. Hence, the objective to impart knowledge and skills regarding

breastfeeding and exclusive breastfeeding to the mothers could be met. It is also important that the needs and expectations of the mothers be met when designing any interventional support in the future.

The additional interview conducted among mothers who had received the intervention has shown that telephone lactation counselling provided by counsellors from the nursing professionals has been beneficial in helping mothers cope with their breastfeeding problems, even if it wasn't proven to significantly increase the exclusive breastfeeding rates. Reports regarding the effectiveness of face-to-face interventions in supporting breastfeeding were equivocal (de Oliveira et al., 2001; Sikorski et al., 2003), while telephone-based support interventions was found ineffective (Fallon et al., 2005; Sikorski et al., 2003). It was found that the difficulties faced by the mothers during this study were closely related to the nature of the counselling itself. Using telephone as the way of communication, the counselling therapy became 'conversational' and there was lacking in immediacy of contact. This lacking in non-verbal manifestation of high affect through telephone counselling i.e. maintaining eye contact, leaning closer, touching, smiling, maintaining a relaxed body posture, and attending to voice inflection; may have built an invisible divider between the mother and the counsellor. While counsellors in face-to-face consultations often demonstrate immediacy non-verbally, counsellors in telephone-based services may be required to project immediacy exclusively through verbal expressions such as engaging in humour, addressing by the mothers' name, giving praises and encouragements. However, demonstration of verbal expressions of immediacy demands highly

skilled and experienced counsellors in the specific area of interest to project an affect of warmth and likeability within their telephone communication. Based on the social presence theory (Short et al., 1976), lactation counsellors need to demonstrate a higher level of social presence in an online environment such as telephone counselling (i.e. attributes that are more sociable, more personal, more sensitive, and warmer), so that they will be perceived by mothers as a “real person.” This theory explained that effective communication will occur when the communication medium has the appropriate social presence required for the level of interpersonal involvement required for a task (Short et al., 1976). On a continuum of social presence, the face-to-face medium is considered to have the most social presence and written, text-based communication the least. It is assumed in social presence theory that in any interaction involving two parties, both parties are concerned both with acting out certain roles and with developing or maintaining some sort of personal relationship.

Communication gaps were likely to be important contributing factors in the observed mothers’ dislikes regarding the intervention. Good communication between mothers and their counsellors can influence information exchange, satisfaction with care, and adherence to the advice given. Verbal behaviours such as encouragement, support, and positive reinforcement have been found to influence mothers’ decisions about breastfeeding continuation. Communication that is centered more on patients and their concerns, as opposed to biomedical-driven conversations, may enhance information gathering and relationship building. A patient-centered approach in dealing

breastfeeding related interaction may encourage the mothers to disclose any breastfeeding problems and may reduce the communication gaps around issues which mothers have kept in secrecy from their counsellors. Finally, another way in which these counsellors can bridge communication gaps with their breastfeeding mothers is through the use of motivational interviewing, a patient-centered approach to counselling and health promotion that has been studied extensively in promoting preventive health behaviours such as smoking cessation (Britt, Hudson, & Blampied, 2004). This finding suggests that there is a need to study the application of motivational interviewing and other patient-centered communication approaches in breastfeeding support.

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to study the application of motivational interviewing and other patient-centered communication approaches in breastfeeding support.

While the results of the intervention study found that the frequency and intensity of lactation counsellors' contacts were not associated with breastfeeding outcomes, these activities were significantly related to mothers' perceptions of their breastfeeding support experience. In general, the more frequently the telephone sessions and the longer the lactation counsellor/mother relationship continued, the more positively the mother evaluated her experience. Of the few mothers who were dissatisfied with the support received, a limited relationship was the most frequently reported reason for discontentment (language barriers, cultural barriers, individual personality). Thus, the quantity of contacts may have been an indirect measure of the quality (or lack thereof) of the relationship. It should be noted, however, that the quality of the relationship may not only be enhanced through increased interactions but also through more sensitive matching criteria; this might address the 'relationship' or 'cultural' barriers that was described by both mothers and lactation counsellors. As such, it would be fruitful to investigate further the importance of matching the mothers and LCs from a social comparison perspective.

Counselling via telephone is also affected by the client's control. However good a counsellor may be, the ability to conduct the consultation still depends on the client's own perception on the help they needed and their acceptance to receive the help. It was also important to take into account that traditionally,

counselling is a two-person activity which arises when one person seeks help of another. McLeod J (2009) in his book stated that “*counselling is an activity that can only happen if the person seeking help, the client, wants it to happen. Counselling takes place when someone who is troubled invites and allows another person to enter into a kind of particular relationship with them....The person seeking counselling is regarded as actively engaged in finding ways of overcoming his/ her problems, and as a co-participant in the counselling process, rather than as a passive recipient of interventions*” (McLeod, 2009b). Hence, telephone lactation counselling might produce better effects when mothers are the ones who seek the lactation counsellors rather than vice versa.

Not many of the breastfeeding mothers in this study discussed breastfeeding after returning to work with their lactation counsellors; however, few lactation counsellors recalled giving advice on specific ways to do so. Returning to work has been found to be associated with lower rates of breastfeeding continuation. Thus, lactation counsellors are encouraged to provide counselling for breastfeeding mothers who plan to return to the workplace. In addition to discussing whether a mother plans to breastfeed after returning to work, they should consider discussing infant-feeding patterns, various options for feeding or pumping after returning to work, and guidelines for expression and storage of breast milk.

Lactation counselling and support occurred through the provision of both perceived and received support. In this trial, mothers gave different indications that their lactation counsellors provided them with the belief that they were

socially attached (House & Kahn, 1985) and that reliable support was available if required. Several studies have demonstrated that perceived support may have a more efficacious effect on specific health outcomes than the actual receipt of support (Wethington & Kessler, 1986; Wills & Shinar, 2000). However, this does not fully explain why the intervention was only effective only during the first month of postnatal period and not thereafter. Should the mothers in the intervention group have perceived the support and it was theoretically able to be as efficacious as getting the actual support, then the results would not be as reported earlier. Therefore, it was equally important to note that although most mothers thought that they had sufficient contact with their lactation counsellors, some were able to converse when they experienced difficulties and some did not raised the problems to their respective lactation counsellors.

From the qualitative inquiry, the lactation counsellors themselves gave rich insight into the intervention that they delivered. The researcher found that based on their activity logs, the lactation counsellors demonstrated their commitment to support a breastfeeding mother as almost all of them complied with the researcher's request to initiate contact within one week of hospital discharge when attrition rates are highest. The findings that, first, almost half of the LC/mother relationships continued into 3 months postpartum, second, the average of total minutes called per participant was 58.43 ± 38.49 minutes, and third, several lactation counsellors had referred mothers to a nearby clinic for their problem or met face-to-face suggest that the lactation counsellors put a substantial amount of time and effort into supporting these breastfeeding

mothers. This finding also indicates that telephone lactation counselling is potentially a longer lasting form of assistance compared with the current professional breastfeeding support, providing initial evidence that enduring support may assist women to breastfeed longer. However, it should be acknowledged that maintaining a lactation counselling program is not easy and that these lactation counsellors demonstrated extraordinary commitment. They had also viewed their experience positively. They reported that their short refreshers course on lactation counselling before the commencement of the intervention study and the guidelines given had provided them with the necessary information and anticipatory guidance. Although the need for extensive training has not been demonstrated, specific intervention modifications have been clearly shown. As suggested by the LCs in this trial, they would have appreciated opportunities to meet the mothers before they were discharged from the hospital. However, it was also noted by the researcher that motivation and recognition is the key to sustain the LCs to provide telephone lactation counselling. Therefore efforts could be made to tie motivation for volunteering to recognition. For example, a lactation counsellor who is motivated by a desire for more knowledge or self-growth may appreciate the opportunity to attend a conference or workshop on a related issue. Similarly, those who want to be part of a group may welcome a social event related with breastfeeding, and one who wants to feel needed or appreciated might value personal appreciation from the mother she is helping. Formal recognition methods should be delivered consistently, and informal methods provided in a timely and appropriate manner. The results from this study suggest that both mothers and lactation counsellors perceived their

experiences positively. From a maternal perspective, the only intervention modification requirement was to ensure that the lactation counsellors actually provided the support in timely manner. From the lactation counsellors' perspective several changes would be desirable, ranging from opportunities to interact with the mothers before discharge, improvement in the telephone system and ensuring all enrolled mothers truly want their support.

During the development of this thesis, several studies have been conducted around the world which assessed on various methods of modern technologies in promoting health or altering medical treatments. Wei J et. al. (2011) conducted a systematic review on the effectiveness of telephone text messages in the clinical management or preventive modification of some diseases. It was reported that there was significant improvement or positive changes with text messages interventions. Although this review was compromised by methodological limitations and is inconclusive, the author reported that text messaging received good acceptance and showed early efficacy in most studies (Wei, Hollin, & Kachnowski, 2011). This review however did not report on the application of such intervention with breastfeeding outcome. The most recent study on telephone messages was conducted by Jiang et.al (2014). These authors report a quasiexperimental study which assessed the effect of mobile phone short message service (SMS) intervention on infant feeding practices. In this study, mothers in the intervention group received weekly SMS messages about infant feeding from the third trimester to 12 months' post-partum. The intervention resulted in a significantly higher rate of EBF at 6 months (AOR, 2.67 [95% CI, 1.45-4.91]) and a significantly lower rate of

the introduction of solid foods before 4 months (AOR, 0.27 [95% CI, 0.08-0.94]) (Jiang et al., 2014). Another study conducted an assessment of internet breastfeeding support websites (Giglia, Cox, Zhao, & Binns, 2014a). This study assessed a breastfeeding support internet intervention on breastfeeding outcomes on women living in regional Western Australia. 207 mothers in the intervention group were given access to the study website which provided best practice infant feeding information and evidences on infant feeding recommendations at the time, with the opportunity for mothers to 'post' on the discussion forums, initiate email conversations with other group members, and contact a certified lactation consultant or the chief investigator online (and using webcam). The control group (n=207) accessed a website which redirected them to helpful parenting and infant feeding websites which had been assessed for accuracy of information. It was reported that this breastfeeding support intervention study demonstrated a positive effect on longer term exclusive breastfeeding enrolled in the intervention group. The authors also noted that together with traditional methods of support, the internet provides another possible method for promoting positive long term breastfeeding outcomes. Thus, it seemed appropriate that with the rapid development of mobile gadgets, mobile applications and internet websites, the efforts to provide breastfeeding support could incorporate these methods with the traditional methods (face-to-face contact, verbal contact).

5.5 Limitations of the Study

This thesis research has several imitations. Although measures have been taken to maximize the quality and uniformity of the intervention, it was not possible to achieve these during the RCT. The researcher was adequately aware that intervention biases may have occurred. For example, compliance bias may have occurred when there were differences in participants' adherence to the planned intervention. Proficiency bias may have occurred when the intervention were not applied equally to the mothers, which could have been due to skill differences among the LCs. For the RCT, the intervention was conducted as a part-time counselling service by the LCs, as they were also tied up with their primary job doing clinical nursing and administrative works. Hence, the intervention could only be provided based on the availability of time to spend by the counsellors, of which it had also to coincide with the mothers' time deemed suitable to receive the counselling sessions. Selection of telephone as the communication tool posed some limitations to the intervention. Although it was deemed as feasible, easily accessible, and widely received by the population, the lack of bodily interaction had affected the desired effect and outcome from a counselling session. It is important to note that traditionally, counselling is a two-person activity which arises when one person seeks help of another (McLeod, 2009b).

The problem regarding the wrong telephone numbers given by the mothers to the Principal Investigator/ Research Enumerator was overlooked during the earlier stage of recruitment, and measures were taken to ensure that mothers had given the correct telephone numbers by double checking before the mothers were discharged from the hospital. The ease to acquire new mobile

telephone numbers at retail outlets had also contributed to the problem as mothers may have changed their contact number for multiple reasons unknown to the Investigator.

The most apparent limitation in this intervention study however, was that the final decision maker in receiving the counselling lies in the mothers hand. It depends greatly on the mothers' acceptance towards their appointed Lactation Counsellors and also towards the mode of communication. Despite the measures taken by the Lactation Counsellors and the Principal Investigator to reach the mothers, the 'ball remains in their court'. The RCT results could only be generalized to the selected group: mothers who live in an urban area, who came from the lower to middle income households, and delivered in a public hospital. This group of mothers represents only part of mothers, who reside in Kuala Lumpur which has a multiracial residence structure with different levels of household income. Mothers who are from the higher income groups, or with breadwinner working in the private sector, or have health insurance, tend to deliver in private hospitals. The private hospitals may practice different breastfeeding policy compared to the public hospitals in Malaysia.

Mothers recruited in this study had attended antenatal follow up at their respective local health clinic or private practitioners. Although the breastfeeding policy remains the same amongst government clinics, the implementation of breastfeeding education and programme in each clinic may differ. The health personnel who provided the information on breastfeeding

during this antenatal follow ups also differ in their background. Thus it could be assumed that the knowledge regarding exclusive breastfeeding gained by mothers from the antenatal programme also differ to a certain degree.

The additional telephone interview performed by the PI was conducted only among mothers who received the intervention. It was not a comparative study between either the telephone lactation counselling with the current lactation counselling practiced in the field. Thus, the findings may be limited because of the insights of mothers who received the intervention within the specified time by the specified lactation counsellors. Their views on the service may differ should they be subjected to a different Lactation Counsellor. Since the survey was conducted using telephone questionnaire, the limitations pertaining to the method used were mainly problems with recall bias. This survey has several limitations. The results may only be generalized to the mothers who had delivered at a public hospital and who were outreached by the lactation counsellors to receive lactation counselling. These findings are not reflective of the current telephone advisory services provided by the health professionals in Malaysia whereby the contact is initiated by the patients. The quality of data obtained by self-report method is also questionable as the respondents may have wanted to impress the investigator regarding the service. There is also a possibility that there is under-reported 'dislikes' and 'difficulties' faced by the mothers as Asian mothers are culturally shy in expressing their negative views on others.

The rich and in-depth descriptions presented in this study are valuable in understanding the Lactation Counsellors' experiences of providing telephone

lactation counselling to the mothers who had returned home. The qualitative study conducted among the Lactation Counsellors also has several limitations. The researcher's own belief, feelings, values and viewpoints may have influenced the interpretation of the participants' narratives. The reflections resulted from the interaction with the participants long before the conduct of this qualitative study, the preparation of the interviews, literature reviewed as well as the observations made during the interview. As a researcher, this topic was motivated by personal interests. Therefore, the findings of this study are tinted with the researcher's own interpretation at that particular time of interview and analysis. The descriptive nature of phenomenology does not provide proof of any of the features under discussion. Therefore, generalizability of the findings is limited to the specific group of person, who had provided similar counselling services. Although an experimental quantitative study may give different information, but it will not be able to access the intimate and personal descriptions provided by this research. It is hoped that the themes extracted from these voices will stimulate further research on this topic and give valuable insights for the policy makers and planners.

5.6 Strengths of the Study

This study was rigorously conducted in a tertiary hospital which has a non-research setting. Compliance with the assigned interventions was documented in the case record files and monitored by the principal investigator. Though the study was pragmatic and carried out in a non-research setting in a busy tertiary hospital, good clinical practice guidelines were followed. This study has also complied with the sample size calculations to ensure enough power

subjected to the study. It is vital that the study has an adequate sample size, to ensure that the study has a good chance of detecting a statistically significant result if this is the true effect and also to ensure that adequate resources are allocated. A study that has an inadequate sample size will have a low probability of detecting a statistically significant result and therefore represents a waste of valuable resources. The RCT was deployed in the field in *routine circumstances*. Mothers were not given any financial incentives to be part of the study. Instead, they were explained during recruitment on the benefits which they might gain by joining the interventional study. Hence, the results from both the RCT could be portrayed as the 'true' representation of effectiveness of the intervention towards promoting exclusive breastfeeding. The RCT was also the first ever conducted related to the topic within the Malaysian context. The qualitative and descriptive studies provide invaluable information about the Lactation Counsellors' view about the intervention and the mothers' experiences, their perceptions and hopes regarding telephone-based lactation counselling, which complements the evaluation on the effectiveness of the intervention.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

This chapter presents the conclusions and recommendations made based on the findings from all the three phases of the study. The conclusions and recommendations are however, restricted and limited to the local setting in Kuala Lumpur, Malaysia and may not be applicable elsewhere.

6.1 Conclusion of the research

Telephone lactation counselling given by certified lactation counsellors from the nursing professionals was effective in increasing the exclusive breastfeeding rate at the first month postpartum, but was not effective at the fourth and sixth months. Among mothers who were subjected to receive the telephone lactation counselling, they were 1.8 times more likely to exclusively breastfeed their infants at the first month compared to those who were not given the intervention support. Although the effect size at the first month was small, it is worth considering this intervention as one of the strategies to improve the exclusive breastfeeding rates among mothers, particularly when judging against the small number needed to prevent one non-exclusive breastfeeding with the benefits of exclusive breastfeeding at this crucial infancy period. Mothers who received the intervention were also more likely to continue breastfeeding throughout the study, but the probabilities were also found to be not significant. Studies which encompass multiple methods of postnatal support aiming to increase exclusive breastfeeding especially among mothers who are at higher risk to discontinue breastfeeding should be the main focus of future researchers in Malaysia. Further evaluation of the intervention

from the providers' and receivers' point of view is necessary to seek the explanation to the findings.

At the first month postpartum, several factors influence the outcome of exclusive breastfeeding. The factors which caused a positive influence include: Muslim religion, working mother, received hospital support before being discharged from the hospital, received information on breastfeeding before being discharged from the hospital, and received breastfeeding support at home. The factors which caused a negative influence include: mother's intention to work again after delivery, presence of breastfeeding problems, and the use of pacifiers and bottle teats. However, only two factors influence the mothers to breastfeed (any breastfeeding) at the first month which includes Malay ethnicity (positive influence) and the use of pacifier (negative influence).

Postnatal telephone based lactation counselling as one of the ways to promote breastfeeding has its advantages and disadvantages. The mothers had somehow felt satisfied with the intervention as it was found to be helpful to breastfeeding mothers, improve the mother's satisfaction with breastfeeding and the mother's sense of comfort with breastfeeding. Although the mode of communication is feasible, it has also hindered the counsellor-client interaction unlike in a proper traditional counselling session. The acceptability of the intervention also relied on the personality and skills of the counsellor.

The common breastfeeding problems discussed among the mothers with their respective LCs include lacking in breast milk supply and pain associated with

breastfeeding (painful breast, painful nipple or cracked nipple). Not many of the mothers had utilised this opportunity to inquire about expressing breast milk or maintaining breastfeeding after returning to work. The common problems which may have caused 'interruptions' to a smooth counsellor-client interaction include difficulty to talk for a longer period due to other commitments, interruptions from others and also the mode of communication via telephone itself.

The Lactation Counsellors has provided their views regarding the provision of telephone lactation counselling. In general, they have appreciated the experiences and benefits gained from the service. Their passion, commitment, and compatibility to help breastfeeding mothers are undeniable. However, external factors pose major impact towards the conduct of counselling. Factors which positively influence the provision of telephone lactation counselling include the LCs internal commitment and the mothers' positive behaviour towards the intervention. Meanwhile, problems with contacting the mothers and the mothers' negative behaviours towards intervention diminish the LCs motivation to be provided rigorous support, thus affecting the intervention negatively. It could be safe to conclude that although telephone-based lactation counselling in itself has its pros and cons as the method of choice; the mothers' influence and behaviour play an apparent role in the success of telephone counselling.

I may also conclude that this thesis has helped me understand the dynamics of breastfeeding counselling, especially so when the motivation to embark on this topic was from a personal experience. The lack of breastfeeding knowledge

and skill during my early years of motherhood was due to multiple reasons, and the difficulty to get the support from knowledgeable, experienced people had sparked the idea of introducing telephone counselling as one of the means to support exclusive breastfeeding. The process of conducting the research, communicating with both the mothers and the lactation counsellors, experiencing the obstacles and challenges to complete all three phases of study had all made me a better person in understanding the mountainous task ahead as a public health personnel. The finding from these researches has affirmed my confidence in trying new methods to promote better breastfeeding support for women in Malaysia. I may also conclude that with given time, future brainstorming's involving multiple sectors regarding ways to increase exclusive breastfeeding, adequate resources and training, the exclusive breastfeeding rate in Malaysia could be improved.

6.2 Recommendations

6.2.1 Public health & policy implications of the findings

The findings of these studies have implications for public health practice in Malaysia which go beyond the specific research questions asked. In particular, they point to ways that breastfeeding support, from whatever source, may be made more effective within the Malaysian context. The negative results of the randomised controlled trial during the later postnatal period do not justify extending this model of individual breastfeeding counselling to all mothers. It merely suggests that this intervention is workable provided that certain improvements be made in its initial planning and execution. Although counsellor-initiated telephone lactation counselling is relatively easy to

provide, the findings suggest it is unlikely to be effective in the long term and do not justify investment in this. It is more likely to be accepted by mothers who are more motivated to breastfeed and does not offer the LCs an opportunity to observe a mother feed or help with positioning. Sikorski and Renfrew's meta-analysis of studies employing telephone support also endorses this conclusion (Sikorski et al., 2003). The sustainability of the program is also an important consideration to consider.

The National Breastfeeding Policy should be regularly explained and interpreted into layman terms so as the practices improve due to public acceptance and not due to enforcement which is usually short term in nature. The current breastfeeding policy should also be explained in lay-man's terms. For example, the mothers need to understand that exclusive breastfeeding up to six months meant that they need to fully breastfeed their infants solely with breast milk until the completed six months of life and weaning should only be introduced on the first day of the seventh month. Although every public hospital has set up their own breastfeeding support group, mothers need to be aware that these groups exist and active promotion of the breastfeeding group help-line is necessary. The importance of this policy should also be disseminated widely in the community, and not restricted only at the health setting. Mass media including the newspapers, magazines, television and radio networks, as well as the internet must be utilized to impart the message to the public.

The study reinforces that single intervention such as telephone counselling needs to be further strengthened with holistic policies on breastfeeding such as leave for mothers from employment till the babies are six months and above. As returning to work has been found to be a significant factor which affects exclusive breastfeeding rates, there is a need to revamp the breastfeeding policy especially tailored to the working mothers. In 1998, the paid-maternity leave for mothers who worked in the Malaysian public service had been increased from 45 days to 60 days, which started on the first day of delivery, and it was eligible only for a maximum of five children throughout her entire service with the government. It was later adjusted to allow mothers to choose for the paid-maternity leave to either begin within fourteen days before the expected delivery date. The current public service circular which was revamped in 2010 stated that, mothers who give birth are given the flexibility to choose their paid- maternity leave between sixty to ninety days for each delivery, but every mother is only eligible to a total of 300 days of paid-maternity leave throughout her entire service period with the government (Public Service Department, 2010). Mothers who wish to continue their leave after the chosen paid-maternity leave, they may do so by applying for an unpaid- maternity leave or an unpaid- breastfeeding leave. If calculated, with the current circular, mothers who work in the Malaysian public sector is deprived of their rights to have longer paid-maternity leave for breastfeeding purposes. A mother is only eligible to have three children born with a paid-maternity leave throughout her service with the public sector, if she chose to use her ninety days paid-maternity leave for all deliveries. Mothers are put in a dilemma should she choose to concentrate on breastfeeding the infant at home,

whether to opt for the sixty day paid-maternity leave and add on with the unpaid leaves (so that a mother could possibly plan to have up to five children but thus deprive the family financially), or take up the ninety days paid-maternity leave and only have three children born with paid-maternity leave. The perception among the mothers in the public sector towards the current circular was that, it was just a re-structuring of the previous paid-sixty days maternity leave, with no profound specialty given to mothers who wish to concentrate on breastfeeding their infants. It was also noted that the main objective in increasing the paid-maternity leave to ninety days was to ensure mothers had ample time to recuperate after giving birth, and nowhere in the circular stated the need to encourage breastfeeding as one of the objectives of the policy. It is recommended that the policy makers revise the policy on paid maternity leave, as to provide better maternity protection to breastfeed their infants, and extend the policy to include both the public and private sector. Financial aids could be proposed to mothers and families to encourage mothers to stay at home and breastfeed exclusively.

It is also crucial to take into account that to promote exclusive breastfeeding, trans-disciplinary approach to breastfeeding is necessary. Examples of policy actions in support of breastfeeding that demand coalitions of support include gaining the commitment from the government and non-governmental bodies using women's and children's rights as arguments for change. Relevant authorities need to aggressively implement the Code of Ethics for Infant Formula & Food Products. Rigorous actions need to be taken on the producers of such items against their slick advertising and promotion of infant formula.

Coalitions including labour unions and business coalitions, such as the Congress of Unions of Employees in the Public and Civil Services (CEUPACS) and the Malaysian Trade Union Coalition (MTUC) could partner with breastfeeding and feminist groups to help formulate a better workplace breastfeeding policy.

There is also a need to allocate a specialized service/unit should this intervention be introduced in the general population. The effectiveness of the intervention when conducted by a full-time team has not been assessed, thus any plans of implementation for this type of intervention would need to wait until further research is conducted.

It is also necessary for policy makers to take into account the importance of breastfeeding support in the structuring of the 1Care policy. 1Care is a proposal of restructuring the national health system which is responsive and provides choice of quality health care, ensuring universal coverage for health care needs of population based on solidarity and equity. The proposed 1Care has several targets, mainly to provide a universal coverage, to integrate the health care delivery system, to provide an affordable & sustainable health care, be equitable in access & financing, with efficient, higher quality care & better health outcomes. It was also targeted to be a responsive health care system, which caters for client satisfaction and provide personalised care. It was said that the proposed 1Care somewhat mimics the National Health Service (NHS) in England. However, these statements remain uncertain as 1Care Bill is still at its discussion stage and have not been passed by the

Cabinet members. If 1Care is to adapt from the NHS, thus, it is deemed necessary that the policy makers should include breastfeeding and breastfeeding support in its priority list. Family doctors should be assigned to look after the breastfeeding needs of the family or community. The family doctors should also integrate Lactation Counsellors, peer counsellors and other NGOs advocating for breastfeeding within their network of healthcare for the community. Active involvement from the community or family doctor may help increase and prolong the duration of breastfeeding in the community as they should have established good rapport and closer relationship with the community. Family doctors will be able to provide a one-to-one care for the mother-infant dyad, ensuring a continuity of care for the family, and later be able to impart any strategic plans to improve the health status of the family.

The qualitative study of the lactation counsellors' views on breastfeeding support describes how they feel it could be improved. This has implications for breastfeeding advocates, which are discussed further below.

6.2.2 How can we improve the breastfeeding support programme?

Prenatal breastfeeding education in Malaysia still needs to be emphasized. It has been shown from the results that although the participants had received some form of antenatal breastfeeding education, it was still inadequate in preparing the mothers to embark on the journey of breastfeeding. Professional support interventions extending through pregnancy, birth, and after birth has been found to be more effective than interventions concentrating on a shorter period (Hannula et al., 2007). Breastfeeding program executers need to think

of fun ways to capture mothers to continue breastfeeding. The current educational tools used in the government clinics are out-dated; they have been re-cycled and repeatedly used over time. Breastfeeding should be portrayed as an attractive solution for mothers in feeding their infants. Thus the alliance with any corporate bodies may be made to help ease the burden of promoting breastfeeding. Advocacy for 'Corporate Social Responsibility' programmes to include breastfeeding promotions towards improving the health of infants and mothers may result in more creative programmes for creating the awareness among the public. Rewards or incentives could be given out to mothers who attend these programmes or successfully breastfeed their infants exclusively.

Programme planners need to take note regarding the low uptake of the hospital's breastfeeding support helpline as reported by the Lactation Counsellors previous experiences, which suggests that services that rely on women to ask for help will miss those who are less committed to breastfeeding and needed the support most. Because of this, it is better to integrate other forms of breastfeeding support into routine postnatal care, rather than provide it as an alternative which women have to request. The lukewarm response by mothers towards the current telephone helpline or support group provided by hospitals may actually be because of their unawareness of such services, hence aggressive promotion of the support group and the helpline must be planned by the relevant parties.

Evidence from a range of sources, the declining exclusive breastfeeding rates, and the findings of this study suggests there is a crisis in postnatal care. While

it was recognized that postnatal care issues does exist, there seems to be some sense of despair among the healthcare providers and policy planners- that nothing can be done to improve the situation. Government initiatives, such as the National Lactation Centre, implementation of BFHI and the National Breastfeeding Policy, more recently, the Malaysian Breastfeeding Peer Counsellor Program have attempted to bring people together, at both national and local levels to improve breastfeeding support, but too often this is seen in isolation from other postnatal care. The descriptive study on women's experiences of support emphasized the need for practical help with certain problems such as positioning and expressing breast milk. This requires time, patience and practical skills, but the mother's comments revealed that for some of them, postnatal telephone lactation counselling was inadequate. Thus, collaboration with the peer counsellor groups may help tackle this issue. Peer counsellors may be recruited as part of the hospital's postnatal support team and be assigned to mothers who are identified by the Lactation Counsellor as having a higher risk to stop breastfeeding. For example in Malaysia, Susulbu.com is an NGO which has been actively involved in providing peer support for breastfeeding, and has been empowered by UNICEF to carry out a project called Malaysian Breastfeeding Peer Counsellor Program (MalaysianBFPC.Org) to address the need for better postnatal support for breastfeeding mothers in Malaysia. In the current practice, breastfeeding support groups would be formed by hospital nurses, rather than the community. This adds strain to the workload of the healthcare professional, without adequately meeting the needs of mother support. Furthermore, mothers are normally discharged from hospitals only 1 or 2 days

after delivery. Thus it is advisable that any breastfeeding support programmes or initiatives should also include participation from organizations such as the peer support groups.

There is a case for a fundamental review of postnatal care, bringing together those involved and consider how best to support women, both during the first few hours in hospital and then at home. Currently, the maternity wards were the focus of breastfeeding support, but now women are discharged much earlier and neither hospital support nor brief home visits by overworked midwives adequately meet their needs. It was noted that postnatally, not much support activities can be done within the hospital's set up. An enquiry whether the pattern of postnatal care provided by the current health system have met the needs of Malaysian women needs to be conducted. This review needs to consider both the resources needed to make seamless postnatal support effective and the professional issues of who should be doing this. Phase Two study demonstrated high levels of satisfaction with support from lactation counsellors and this justifies the inclusion of lactation counsellors, supporters or lactation consultants within plans for a new model of postnatal care.

These studies have raised, but not fully answered a number of questions about the role of lactation counsellors in breastfeeding support. Many women were very positive about their support, but the lactation counsellors sensed that some were uncertain about role of the lactation counsellors in helping them achieve successful breastfeeding. Motivation has been considered as one of the factors to become a counsellor, which is often a desire to assist others with

something they have valued. However, it is necessary for both the top management and the lactation counsellors themselves to identify and fulfil the needs of the lactation counsellors as has been theorized by Maslow's Hierarchy of Needs, in order to be motivated to provide the counselling. Financial compensation could be provided, but it may hamper the true meaning of helping and supporting others for a good cause. The lactation counsellors who volunteered to be part of this intervention study have had additional responsibility when agreeing to be part of the support group. However the extent of their role as lactation counsellors in a hospital setting such as MHKL remains questionable. At the end of the day, the top managers retain a veto on how much of a commitment to make and lactation counsellors need to be able to decide for themselves on how their role should develop. There is also an issue of to what extent could or would the lactation volunteers be able to cross the cultural barriers between social groups? Most of the lactation counsellors in this study are Malays, and reflects the general situation of the available Lactation Counsellors in public hospitals in Peninsular Malaysia. Thus, their contribution may not be as well received in other settings i.e. private hospital patients, women from other ethnicity.

The programme planners also need to incorporate family members as part of the team in breastfeeding support. Immediate family members (such as husbands or partners, grandmothers) as well as friends of the lactating mother should be invited to participate in activities related to breastfeeding. Postnatal care at home often missed addressing breastfeeding issues, especially if the mother was cared by their elderlies who did not practice any breastfeeding or

exclusive breastfeeding. Thus families must be adequately informed that routine postnatal care should include taking care of breastfeeding issues.

Although consistent, evidence-based advice is important for specific problems, reliance on a “medical” problem-solving approach is not enough. Lactation counsellors need to help women negotiate the difficulties they encounter. Improving professional practice requires a number of parallel initiatives, including organisational change, educational programmes, audit and the provision of adequate resources. The descriptive study reported in chapter four has identified the key priorities which could be used to develop an audit tool to assess how effectively the support programme meets mothers' needs.

6.2.3 Training

The findings from these studies had proven that there is a need to improve and emphasize on the training related to counselling skills. It was noted that although the Lactation Counsellors had undergone a 40-hour Lactation Management and Counselling Training, the module include only face-to-face counselling with mothers, and did not address issues or necessary skills needed in order to conduct telephone-based lactation counselling. Counselling approaches may increase women's confidence in their ability to breastfeed exclusively and reduced the proportion who felt they did not have enough milk. Models of behaviour change, such as the Theory of Planned Behaviour identify the ability to carry out intentions as a discrete factor in behaviour and the results of the trial suggest that counselling enhanced exclusive breastfeeding practice during the early postnatal period. Many of the Lactation

Counsellors who had undergone this training was listed in the hospitals' pamphlets as the hospital's breastfeeding support group that could be reached by mothers if the need arises. However, the response to this so called 'help-line' was reported to be poor (anecdotal claims by those who are in the said support group). The reasons for the poor response remains uncertain, but it could also be due to the experiences felt by mothers when they had been in contact with such service. Good products are usually self-promoted by the consumers by word-of-mouth. Thus, it is possible to assume that the help-line was not adequately promoted by the providers or the end-users.

The descriptive analysis of women's comments suggested ways in which lactation counselling practice should be improved. Both initial and in-service training should help lactation counsellors improve their inter-personal and counselling skills, perhaps employing video techniques and role-playing. Lactation counsellors should ask women antenatally about their knowledge and experience with breastfeeding and allow time to discuss how they expect it to be. They should discuss how women will access support and the role her partner may play in this. Mothers' comments revealed variations in the quality of help they received via telephone, positioning, which suggests that lactation counsellors need much more specific training on this. Helping mothers with positioning is a practical skill and may be best learnt from mothers, or in joint consultations with experienced midwives. Thus the lactation counsellors must be recognized within the health system for autonomy to refer mothers who are in need of dire help.

The Health training and services improvement necessitate cooperation and partnership among State Health Departments, health professional associations, accrediting organizations, and academic faculties to ensure that preventive medicine, breastfeeding, and attention to women's equity are included in undergraduate training for all health workers. Although currently the basic knowledge on breastfeeding is imparted to the potential health care workers, there is a need to emphasize on the necessary skills to educate, promote and advocate breastfeeding as part of their undergraduate training. Listening and negotiating skills must be made part of the core training programme among the healthcare workers.

6.2.4 Future research

Reviewing the literature revealed a great amount of research on breastfeeding, but much of it is of poor quality. Many studies of both the benefits of breastfeeding and interventions have problems with confounding factors, different outcome measurements, inadequate assessment of outcome and small sample size. Future studies need to address the methodological concerns raised more effectively. There is also a need to plan future interventions based on qualitative studies to ensure that the mothers' need and expectations are met during execution of the intervention.

A better design of the study intervention may also have a different effect on the outcome. The telephone frequency at the first month postpartum should have been done more than twice per month, e.g. twice weekly during the first month, then subsequently reduced to once weekly during the second month

thereafter. The telephone frequency could also be tailored to the patients' need. However, tailoring to the patients need would introduce none uniformity of the intervention among the participants. Pre-assessment of the mothers prior to recruitment to ascertain their level of knowledge on breastfeeding could also have been done, so as to ensure that only mothers who has adequate knowledge or determination to breastfeed was recruited into the study. However, the result on the outcome would not be a true effect of the intervention alone if this step was taken.

The findings from this study could positively guide future researchers in designing breastfeeding support intervention research. Coffield K (2008) reported regarding a model service developed in the City of Kingston, Melbourne, of which a Maternal and Child Health Nurse Lactation Consultant (MCHN/LC) was employed for 16 hours per week and provided breastfeeding support to mothers and babies. This Service model provided both home visits and telephone support, by one MCHN/LC, to provide continuity of care. Through this service, there was an increase in the proportion of babies fully breastfeeding, and an increase in babies attaching to the breast for some of their feeds, 2 weeks after contact with the Service. The authors also concluded that most mothers need breastfeeding support during the first six weeks postpartum based on the respondents utilisation of the service at much higher rates in their first two weeks of breastfeeding(Coffield, 2008). However, McDonald et al (2010) had also reported a randomized controlled trial of an extended midwifery support programme that did not succeed in improving full breast-feeding or any breastfeeding rates at six months postpartum in a setting

where there was high initiation of breast feeding. This particular programme had offered a one-to-one postnatal educational session and weekly home visits with additional telephone contact by a midwife until their baby was six weeks old (McDonald et al., 2010).

If this intervention were to be introduced in the population, there will be a need to develop a standard guideline for tele-counselling services. A quality framework for telephone counselling service for breastfeeding should be constructed prior to the commencement of the service, specifying on the specific objectives and aims, determining the potential clients, planning of the service delivery, quality control and surveillance of the service. In order to develop these, collaboration with existing quality assurance network which are related to counselling, telephone helplines, breastfeeding associations and medical sociology is needed. As a suggestion, a different design of study intervention may have produced an improved result. For example, mothers may be recruited at the later-phase of antenatal period so that an earlier face-to-face introduction to their respective lactation counsellors could be made. It was also possible to recruit mothers when they were admitted for delivery; however this raises the question whether there would be ample time for the mothers to meet with their lactation counsellors before delivery commences. The telephone frequency at the first month postpartum could be increased, then subsequently reduced to once weekly for the second month thereafter. The telephone frequency could also be tailored to the patients need. However, tailoring to the patients need would introduce none uniformity of the intervention among the participants. Pre-assessment of the mothers prior to

recruitment to ascertain their level of knowledge on breastfeeding could also be done, so as to ensure that only mothers who has adequate knowledge or determination to breastfeed was recruited into the study. However, the result on the outcome would not be a true effect of the intervention alone if this step was taken. Thus, future studies in Malaysia should attempt to focus on interventions involving a combination of support forms that seek to increase exclusive breastfeeding among women who are at risk of early discontinuation of breastfeeding, emphasizing on the different needs of mothers throughout their postpartum period. In the era of vast mobile technology and internet services and applications, the breastfeeding support programmes may incorporate the most recent technologies with the traditional form of breastfeeding support (Giglia et al., 2014a; Sama, Eapen, Weinfurt, Shah, & Schulman, 2014)

Currently, there is no study conducted on the cost-effectiveness of telephone lactation counselling, let alone one which specify on counsellor-initiated interventions. Salient points which could be taken into consideration before designing any forms of breastfeeding intervention study include:

- i. Combining forms of breastfeeding support during the antenatal period with postnatal period. For example, mothers may be recruited from the antenatal period (i.e. during the last antenatal visit at the clinic) or when they were admitted for delivery
- ii. Emphasize on rigour of the intervention during the high attrition period especially in the first month postpartum, and during the time when mothers normally go back to work (usually at the beginning of the

third month). From this study, it was best if the telephone frequency at the first month postpartum scheduled to more than twice per month, e.g. twice weekly on the first month, then subsequently reduced to once weekly for the second month thereafter.

- iii. Tailoring the counselling session based on the mothers need.
- iv. Pre-assessment of the mothers prior to recruitment to ascertain their level of knowledge on breastfeeding
- v. Focus on interventions involving a combination of support forms that seek to increase exclusive breastfeeding among women who are at risk of early discontinuation of breastfeeding, emphasizing on the different needs of mothers throughout their postpartum period.
- vi. If this intervention were to be implemented, several improvements on the intervention are necessary, particularly on training the LCs on matters related to telephone counselling. A better system of telecommunication has to be in place before the service is offered. A needs-based study exploring the mothers' expectations of the LCs should be conducted among the multi-ethnicity groups. It is best if the LCs and the mothers were introduced to each other before the mother is discharged home to foster the engagement towards the counselling sessions. However, more emphasize need to be made for antenatal lactation education, as this would allow the mothers to be more prepared to embrace breastfeeding and knowledgeable enough to seek help when the need arises. In-corporation of the family members during the antenatal lactation education is also essential as they pose the greatest influence on breastfeeding during the postpartum period.

The results of this study underline the need for closer relationship between the counsellor and mothers, particularly by forging verbal immediacy through telephone communication; in order to make this intervention more acceptable by the patients. Hence, the objective to impart knowledge and skills regarding breastfeeding and exclusive breastfeeding to the mothers could be met. It is also important that the needs and expectations of the mothers be met when designing any interventional support in the future. Further research is required to determine if such a telephone lactation counselling program is sustainable.

Several other telecommunication methods which may be introduced or combined with the lactation counselling via telephone include using mobile text messaging and internet intervention. Mobile phone technology is being used by many all around the world and is increasingly used in the health sector for delivering health care services, health promotion intervention and disease prevention programmes. A review of the use of mobile telephone messaging in clinical and healthy behaviour intentions has been reported by Wei J et.al. (2010). This systematic review reported that text messaging was well accepted and had shown early efficacy in most studies reviewed. The main advantage of using this intervention in either interventional or behaviour modification programmes was that the investigators may customize the text messages to deliver reminders, support and education to patients, and offer an effective platform to collect adherence, test results and self-monitored data (Wei et al., 2011). However, this review did not include any studies related with promoting breastfeeding. A community-based intervention study has been

conducted in Shanghai China to evaluate the effectiveness of short text messaging service to promote breastfeeding and impart key messages regarding breastfeeding during antenatal and postnatal period. It was reported that the exclusive breastfeeding rate at 6 months in the intervention group was 15.1% as compared to the control group, 6.3% (AOR 2.67, 95%CI. 1.45-4.91) (Jiang et al., 2014). It was noted during this research period that a similar strategy could have been incorporated to improve the effectiveness of the telephone counselling or the exclusive breastfeeding rate. However, it was deemed not applicable as the use of the text messaging may introduce only one-sided interaction, may show lack of empathy towards mothers who may have felt the need for breastfeeding support, and could also impose some financial limitations on the mothers part if the text message service were not free of charge. The use of internet based websites in providing support for breastfeeding mothers have been demonstrated as having some positive effect on exclusive breastfeeding rate (Giglia, Cox, Zhao, & Binns, 2014b). Breastfeeding support programmes which incorporate both traditional methods of support and new communication technologies may provide a wider horizon of strategies of disseminating information and knowledge, and hence the possibility in increasing the exclusive breastfeeding rate might be achievable in many areas of the world.

During the course of the qualitative analysis, it became clear that the themes identified could form the basis of an instrument to evaluate the quality of health promotion activity. This work could be derived directly from the priorities given by the lactation counsellors and could then be used to audit

services. However, carrying this out might involve reviewing the data to identify phrases that relate to particular themes to be incorporated in a questionnaire, designing the questionnaire, and testing the validity and reliability of the questionnaire in a number of maternity settings.

The descriptive survey findings showed that the way breastfeeding support was given is of great importance for women. Many of them wanted hands-on guidance and empathetic care when dealing with breastfeeding problem. This suggests that practical training in breastfeeding management is important and there is a case for educational research to identify what works best in teaching how to convey this skill. The mothers were very positive about the support they received from the lactation counsellors and felt it was very important that their feelings were acknowledged. There may be a case for further research on the applicability of counselling approaches to midwifery practice. It may be relevant to study on the impact of both lactation counsellors from the nursing professionals and peer counsellors support towards the breastfeeding practices in Malaysia. In particular, a qualitative study which explores the mothers' and the counsellors' perspective on breastfeeding support would complement any gaps found in the intervention provided by the lactation counsellors from the nursing professionals. There is a need for a fundamental review of postnatal care before and after the implementation of BFHI in Malaysia.

There was no research on the feeding behaviour and needs of different ethnic groups in Malaysia. Because of this, there is a strong case for including questions related with ethnicity practices in the next National Health and

Morbidity Survey. However, research on ethnicity should not just focus on differences between different groups - instead it would be more useful to know how well services meet the needs of different groups and to learn about the cultural processes which sustain, or undermine breastfeeding in different ethnic groups.

The review of research on the benefits of breastfeeding identified a number of gaps in the evidence, but also the difficulties of answering some questions, such as whether breastfeeding protects against atopic disorders. There is a need for some further work on the health benefits, which should include further meta-analyses to draw together research on topics such as infections. Doing this will enable researchers to quantify the benefits of breastfeeding and give mothers more specific information. It might then be worth investigating whether giving women a clearer picture of the actual benefits alters their motivation to both initiate and continue breastfeeding.

Table 6.1 represents a simplified layout of the current situation regarding matters related with breastfeeding in Malaysia and the recommendations to improve the breastfeeding practices locally, which have been discussed above.

Table 6.1 Summary of recommendations to improve the breastfeeding situation in Malaysia

	Current situation in Malaysia	Recommendations
1	Policy	
1a	National Breastfeeding Policy	<p>Explain policies regularly and interpreted into layman terms</p> <p>Disseminate the importance of policy in the community at large, utilising mass media as the main tool.</p>
1b	Paid maternity leave	<p>To revise the current legislation/policy for maternity protection and longer paid leave in both public & private sector</p> <p>Holistic policies on breastfeeding such as leave for mothers from employment till the babies are six months and above.</p> <p>Financial aids to mothers and families to encourage mothers to stay at home and breastfeed exclusively.</p>
1c	Healthcare system	<p>Recognition of Lactation Counsellors within the health system for policy changes in postnatal care</p> <p>Specialized unit for breastfeeding counselling which employs full-time lactation counsellors</p> <p>Attention to social support for birth spacing and motherhood</p>
1d	Code of Ethics for Infant Formula & Food Products	Rigorous actions to be taken on infant formula and food products as a protection against aggressive and slick advertising of infant formula
1e	Workplace policy on breastfeeding	Coalitions including labour unions and business coalitions, such as the Congress of Unions of Employees in the Public and Civil Services (CUEPACS) and the Malaysian Trade Union Coalition (MTUC)
1f	Proposal of 1Care to replace the current health system	Family doctor to be actively involved in providing the support for breastfeeding, continuity of care from antenatal throughout postnatal period, to include breastfeeding support in priority list

Table 6.1 continued: Summary of recommendations to improve the breastfeeding situation in Malaysia

	Current situation in Malaysia	Recommendations
2	Breastfeeding support programme	
2a	Breastfeeding support groups are segregated by different community, e.g. medical team, peer groups, NGOs	Collaboration with peer counsellors, NGOs as part of the hospital's postnatal support team
2b	Antenatal breastfeeding education sessions	Use updated tools for education sessions
		Include corporate bodies in promoting breastfeeding through 'Corporate Social Responsibility' programmes
		Provide rewards or incentives to mothers who attended the breastfeeding education programme or successful in breastfeeding
2c	Lactation counsellors provide support on volunteer basis	Financial compensation could be provided to Lactation Counsellors
2d	Antenatal lactation education often omit the family members in its activities	In-corporation of the family members during the antenatal lactation education
2e	Postnatal care at home often miss to address breastfeeding issues	To integrate multiple forms of breastfeeding support into routine postnatal care
2f	Mothers are not aware of self-help telephone lines or the hospitals support group for breastfeeding	Aggressive promotion of the support group and the self-help lines
3	Training	
3a	40-hour Lactation Management and Counselling Training -the module include only face-to-face counselling with mothers, and did not address issues or necessary skills needed in order to conduct telephone-based lactation counselling	To add in the training module: (i) training to improve the counsellors' inter-personal and counselling skills (ii) training on counselling via telephone

Table 6.1 continued: Summary of recommendations to improve the breastfeeding situation in Malaysia

	Current situation in Malaysia	Recommendations
3b	Breastfeeding topics has been included in undergraduate training for all health workers	To emphasize on supporting breastfeeding and development of counselling and negotiating skills Health training and services improvement necessitate cooperation and partnership among State Health Departments, health professional associations, accrediting organizations, and academic faculties to ensure that preventive medicine, breastfeeding, and attention to women's equity are included in undergraduate training for all health workers
4	Research	
4a	Telephone lactation counselling intervention was conducted by part time counsellors	To study the effectiveness of the intervention when conducted by a dedicated full-time team
4b	Telephone lactation counselling was conducted as a single form of intervention during postnatal period	Integration of telephone counselling with other forms of breastfeeding support Combining multiple forms of breastfeeding support during the antenatal period with postnatal period
4c	The actual cost implementing telephone lactation counselling intervention or any other forms of breastfeeding support has not been conducted	Cost-effective analysis of the intervention, or any other forms of breastfeeding support module
4d	Telephone lactation counselling was conducted at a regular intervals of contact, irrespective of the time after the delivery	Emphasize on rigour of the intervention during the high attrition period especially in the first month postpartum, and during the time when mothers normally go back to work

Table 6.1 continued: Summary of recommendations to improve the breastfeeding situation in Malaysia

	Current situation in Malaysia	Recommendations
4e	Lack of qualitative study which explores the needs of breastfeeding mothers in Malaysia	<p>Qualitative study which explores the mothers' and peer counsellors' perspective on breastfeeding support would complement any gaps found in the intervention provided by the lactation counsellors from the nursing professionals</p> <p>Key priorities identified by women could be used to develop an audit tool to assess how effectively support meets mothers' needs</p>
4f	Declining exclusive breastfeeding rates	exploring other countries' experiences on their achievements of increasing exclusive breastfeeding rates

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LIST OF PUBLICATIONS

The following papers have been published or submitted from this thesis:

Conference:

No	Title	Conference
1	(Oral) The Effects of Telephone Lactation Counselling on Breast Feeding Practices: Results from an RCT (<i>Norzakiah MT; Nabilla AS</i>)	International Health Conference IIUM 2011 on the 7-8 th Dec 2011
2	(Poster) Antenatal and Antepartal Lactation Support Received By Mothers in Kuala Lumpur - Results from an RCT (<i>Norzakiah MT; Nabilla AS</i>)	International Health Conference IIUM 2011 on the 7-8 th Dec 2011
3	(Poster) Infant Feeding Practices among Mothers Who Delivered in a Public Hospital in Kuala Lumpur - Results from an RCT (<i>Norzakiah MT; Nabilla AS</i>)	International Health Conference IIUM 2011 on the 7-8 th Dec 2011
4	(Poster) Telephone Lactation Counselling: Are They Effective in Promoting Exclusive Breastfeeding? (<i>Norzakiah MT; Nabilla AS</i>)	1 st International Public Health Conference & 18 th National Public Health Colloquium

Journal:

No	Title	Journal
1	Does Telephone Lactation Counselling Improve Breastfeeding Practices? : A Randomized Controlled Trial (RCT) Study (<i>Norzakiah MT; Nabilla AS</i>)	International Journal of Nursing Studies. 2013. 50, 16-25 http://dx.doi.org/10.1016/j.ijnurstu.2012.09.006 ISSN: 0020-7489
2	Telephone-Based Lactation Counselling- A Qualitative Study on The Lactation Counsellors' Perspectives (<i>Norzakiah MT; Nabilla AS; Maznah D</i>)	Arts & Social Sciences Journal. 2015. 6(4) http://dx.doi.org/10.4172/2151-6200.1000125 ISSN: 2151-6200

Appendix A

Screening Form for Eligibility in RCT Study

University of Malaya

SCREENING FORM FOR ELIGIBILITY IN RCT STUDY

INCLUSION CRITERIA	EXCLUSION CRITERIA
<ul style="list-style-type: none"> mothers who had just given birth to a normal baby in MHKL age 18 years old and older delivered a single infant at 37 weeks gestation or more has the intention to breast feed able to understand and communicate in spoken Malay language or English have received at least once any prenatal BF education programme and have telephone access 	<ul style="list-style-type: none"> multiple pregnancies medical problems which may hinder breastfeeding underwent Caesarean section whose babies subsequently required prolonged care in a Special Care Nursery

NO	PATIENT'S NAME	R/N	WARD	ALL INCLUSION CRITERIA EXIST (√ / X)	NO EXCLUSION CRITERIA EXIST (√ / X)

Appendix B

Guideline on taking an informed consent

These guidelines was provided as a double-sided document in English and Malay language, laminated in waterproof plastic for ease of Research

Enumerator

University of Malaya

TAKING AN INFORMED CONSENT FROM THE PATIENT.

Greet the patient	Greet the patient by their name & introduce yourself
Invitation	Explain that the individual is being asked to take part in a research study TELEPHONE LACTATION COUNSELING AND BREAST FEEDING PRACTICES
What is the purpose of the study?	To obtain information on the breast feeding practice among mothers in Kuala Lumpur, mainly: <ul style="list-style-type: none"> • study the effects of the breast feeding promotion practices by the health staff • determine the proportion of different breast feeding patterns, • determine the factors associated with the different breast feeding patterns among mothers, • to know why there is failure of exclusive breastfeeding among mothers and to know the common problems of breast feeding
Why have the patient been invited to participate?	<ul style="list-style-type: none"> • total of 350 patients • eligible patients are: <ul style="list-style-type: none"> ○ age >18 ○ normal delivery, with normal baby ○ has intention to breast feed the baby ○ no medical illness ○ has telephone access
Does she have to take part?	Explain that taking part in the research is entirely voluntary. For example, you could say: - <i>'It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason'.</i>
What will happen to her if she takes part?	After patient have agreed and given their consent to the researcher to be a participant in this study, she will be needed to follow some procedures. The procedures will include: <ol style="list-style-type: none"> 1. Interview by the relevant team members on breast feeding practice 2. Getting responses by using the self-administered questionnaire on the first day after delivery 3. <u>Possibility</u> to be followed up by a certified Lactation Counselors from HKL for six months consecutively (depending on the grouping of the patient) 4. A follow up using interview ± questionnaire for about six months from the day of delivery of the index child. The follow up schedule would be on the <u>one month</u>, <u>four month</u> and at <u>six month after delivery</u> and they would be contacted by telephone by a relevant team member.

The possible disadvantages and risks of taking part?	During the study period, the patient may not feel comfortable with some of the questions posed during the telephone interview, particularly on the social aspects of their life/ family.
The possible benefits of taking part?	<ul style="list-style-type: none"> • Provide an opportunity for the patient to be equipped with knowledge on breast feeding • By breast feeding the child, both the patient and her child could benefit tremendously. • The benefits of breast feeding to the mother include: <ul style="list-style-type: none"> ○ preventing prolonged bleeding after delivery, ○ as a means of family planning, better bonding with the child, ○ lower the risk of breast and ovarian cancer, ○ faster recuperation after delivery ○ convenience • Having knowledge in breast feeding <ul style="list-style-type: none"> ○ will help the patient in initiating and maintaining breast feeding, ○ recognizing problems of breast feeding and ○ be resourceful in getting help with breast feeding problems
Confidentiality	Explain that all information collected about the individual will be kept strictly confidential (subject to legal limitations) and describe how confidentiality, privacy and anonymity will be ensured in the collection, storage and publication of research material
What should I do if I want to take part?	The patient would need to read and sign the consent form for the study, and agree to adhere to the procedures of the study.
What will happen to the results of the research study	The results of the research will be analyzed and used by the investigator to help her in writing a thesis related to the matter, and pursue a degree in Doctorate of Public Health
Who is organising and funding the research?	The research is funded by the Postgraduate Research Fund, University Malaya
Who has reviewed the study	Research has been approved by the Research Ethics Committee, University Malaya Medical Centre
Contact for Further Information	Should the patient have any enquiries regarding this study, she may contact the Principal Investigator, Dr Norzakiah Mohd Tahir at Department of Social & Preventive Medicine, Faculty of Medicine University Malaya Kuala Lumpur, at 03-7967 7512 or at 019-623 0311.
Thank the patient	Thank the patient for listening (± agreeing to participate in the study)

MENGAMBIL KEBENARAN BERTULIS DARIPADA PESERTA.

Pengenalan	Beri salam kepada pesakit dan kenalkan diri.
Pelawaan	Jelaskan kepada pesakit bahawa dia dipelawa untuk menyertai kajian KAUNSELING LAKTASI DAN KAEDAH PENYUSUAN SUSU IBU
Tujuan kajian ini	<p>Mendapatkan maklumat mengenai penyusuan susu ibu di kalangan ibu-ibu di Kuala Lumpur:</p> <ul style="list-style-type: none">• Mengkaji kesan promosi penyusuan susu ibu oleh kakitangan kesihatan• Mengkaji peratusan antara kaedah-kaedah penyusuan susu ibu faktor-faktor yang berkaitan dengannya,• Mengkaji mengapa kegagalan untuk menyusu secara eksklusif berlaku dan• Mengkaji masalah-masalah utama yang membelenggu ibu yang sedang menyusui susu ibu
Kenapa pesakit ini terpilih?	<ul style="list-style-type: none">• Seramai 350 orang pesakit akan dipilih• Pesakit yang layak adalah:<ul style="list-style-type: none">○ umur >18○ bersalin secara normal, mendapat bayi yang normal○ mempunyai keinginan untuk menyusu dengan susu ibu○ tidak mempunyai masalah kesihatan○ ada akses telefon
Adakah dia perlu menyertai kajian ini	Sebarang penyertaan kajian ini adalah secara sukarela. Pesakit boleh keluar dari menyertai kajian ini pada bila-bila masa sepanjang tempoh kajian. Pesakit juga boleh menolak untuk menjawab soalan sekiranya dia tidak bersedia untuk menjawabnya.
Prosedur kajian ini	<p>Apabila pesakit telah menyatakan persetujuan untuk menyertai kajian ini, akan dikehendaki untuk menjalani beberapa prosedur, antaranya:</p> <ul style="list-style-type: none">• Temuramah oleh ahli penyelidik mengenai penyusuan susu ibu• Menjawab beberapa soalan melalui borang soal kaji selidik pada hari pertama selepas melahirkan bayi• Kemungkinan akan dihubungi melalui telefon oleh Kaunselor Laktasi bertauliah selama enam bulan• Temuramah susulan melalui telefon oleh ahli penyelidik untuk menjawab beberapa soalan pada bulan pertama, keempat dan keenam selepas melahirkan bayi. Tempoh keseluruhan kajian ini adalah selama enam bulan dari tarikh anda menyatakan persetujuan.
Kesan buruk kajian ini	<p>Kajian ini sebenarnya tidak akan memberikan masalah kepada ibu-ibu sekiranya panduan penyusuan susu ibu yang diberikan telah difahami dan dipraktikkan.</p> <p>Semasa kajian ini, pesakit mungkin akan tidak selesa dengan beberapa soalan mengenai aspek sosial mereka dan keluarga mereka.</p>

<p>Faedah menyertai kajian ini</p>	<ul style="list-style-type: none"> • mendapat peluang untuk menambah ilmu pengetahuan mengenai penyusuan susu ibu • Dengan memberikan susu ibu, anda dan bayi anda akan mendapat faedahnya. • Antara faedah memberi susu ibu kepada ibu adalah: <ul style="list-style-type: none"> ○ mengelakkan pendarahan berpanjangan selepas bersalin, ○ sebagai satu cara merancang kehamilan semula, ○ ikatan yang lebih kuat dengan bayi anda, ○ mengurangkan risiko barah payudara dan ovari ○ pemulihan kesihatan dan badan yang lebih cepat selepas bersalin • Dengan pengetahuan yang akan diperolehi <ul style="list-style-type: none"> ○ dapat membantu pesakit memulakan dan meneruskan penyusuan susu ibu ○ mengenalpasti masalah yang mungkin dihadapi semasa penyusuan ○ lebih berusaha untuk mendapatkan bantuan jika diperlukan
<p>Kerahsiaan</p>	<p>Maklumat yang diperolehi semasa kaji selidik adalah rahsia dan hanya akan digunakan untuk tujuan kajian ini. Ahli penyelidik data mungkin akan menghubungi anda lagi selepas tamat tempoh kajian jika perlu</p>
<p>Apa yang pesakit perlu lakukan jika ingin sertai kajian ini</p>	<p>Pesakit harus membaca, memahami dan menandatangani surat kebenaran untuk menyertai kajian, dan bersetuju untuk mengikut prosedur kajian seperti yang telah diterangkan.</p>
<p>Keputusan kajian</p>	<p>Kajian ini akan membantu penyelidik utama kajian ini untuk mendapatkan maklumat yang dikehendaki dengan lebih mendalam. Hasil kajian ini akan dapat membantu beliau dalam menyediakan tesis yang berkenaan, dalam usahanya mendapatkan Ijazah Doktor Kesihatan Awam</p>
<p>Biaya kajian</p>	<p>Kajian ini dibiayai oleh Peruntukan Penyelidikan Pascasiswazah University Malaya</p>
<p>Kelulusan untuk kajian</p>	<p>Kajian ini telah diluluskan oleh Jawatankuasa Etika Penyelidikan Klinikal Pusat Perubatan Universiti Malaya, Pengarah Hospital Kuala Lumpur dan juga NMRR</p>
<p>Maklumat lanjut</p>	<p>Sekiranya anda mempunyai sebarang persoalan, anda boleh menghubungi Penyelidik Utama, Dr Norzakiah Mohd Tahir di Jabatan Perubatan Kemasyarakatan dan Pencegahan, Fakulti Perubatan Universiti Malaya Kuala Lumpur di nombor telefon 03-7967 7512 atau 019-623 0311.</p>
<p>Penghargaan</p>	<p>Ucap terima kasih kepada pesakit kerana sudi mendengar (± setuju sertai kajian ini)</p>

Appendix C

Consent form for RCT

UNIVERSITY MALAYA MEDICAL CENTRE	
CONSENT BY PATIENT FOR CLINICAL RESEARCH	
I, Identity Card No. (Name of Patient)	
of (Address)	
hereby agree to take part in the clinical research (clinical study/questionnaire study/drug trial) specified below:	
Title of Study: Telephone Lactation Counseling and Breast Feeding Practices: A Randomized Controlled Trial	
the nature and purpose of which has been explained to me by Dr. Norzakiah Mohd Tahir (Medical Officer, Candidate for Doctor of Public Health)	
and interpreted by (Name & Designation of Interpreter)	
to the best of his/her ability in language/dialect.	
I have been told about the nature of the clinical research in terms of methodology, possible adverse effects and complications (as per patient information sheet). After knowing and understanding all the possible advantages and disadvantages of this clinical research, I voluntarily consent of my own free will to participate in the clinical research specified above.	
I understand that I can withdraw from this clinical research at any time without assigning any reason whatsoever and in such a situation shall not be denied the benefits of usual treatment by the attending doctors.	
Date:	Signature or Thumbprint (Patient)
IN THE PRESENCE OF	
Name)
Identity Card No.)
Designation)
	Signature (Witness for Signature of Patient)
I confirm that I have explained to the patient the nature and purpose of the above-mentioned clinical research.	
Date	Signature (Attending Doctor)
CONSENT BY PATIENT FOR CLINICAL RESEARCH	R.N. Name Sex Age Unit

Appendix D

Patient Information Sheet

This document was provided in both English and Malay language for the participants

University of Malaya

PATIENT INFORMATION SHEET

Please read the following information carefully, do not hesitate to discuss any questions you may have with your Doctor.

Study Title

TELEPHONE LACTATION COUNSELING AND BREAST FEEDING PRACTICES: A RANDOMIZED CONTROLLED TRIAL

Introduction

Breast feeding is the recommended nutrition for all infants as one of the ways to obtain maximal health. The antenatal breast feeding programme within the Malaysian public health care system can be considered as good as almost all of the public hospitals have been certified as Baby Friendly Hospital. However, it was noted from studies that the breast feeding rates in Malaysia is low compared to other countries, despite the implementation of the National Breast Feeding Policy and the Baby Friendly Hospital Initiative.

What is the purpose of this study?

The purpose of this study is to obtain information on the breast feeding practice among mothers in Kuala Lumpur. This study would like determine the proportion of different breast feeding patterns, determine the factors associated with the different breast feeding patterns among mothers, to know why there is failure of exclusive breastfeeding among mothers and to know the common problems of breast feeding.

This information will be reviewed and evaluated in order to improve the health services in our country.

What are the procedures to be followed?

After you have agreed and given your consent to the researcher to be a participant in this study, you will be needed to follow some procedures.

The procedures will include:

1. Interview by the relevant team members on breast feeding practice
2. Getting responses by using the self-administered questionnaire on the first day after delivery
3. A follow up using interview \pm questionnaire for about six months from the day of delivery of the index child. The follow up schedule would be on the one month, four month and at six month after delivery and you would be contacted by telephone by a relevant team member.

The information obtained from the interview will be **confidential** and used only for the purpose of this study. The data collection team members will also contact you again at a later time if there is a need to do so.

Who should not enter the study?

Mothers who had multiple pregnancies, who underwent Caesarean section, have medical problems which may hinder breastfeeding or whose babies

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required prolonged care in a Special Care Nursery.

What will be benefits of the study:

(a) to you as the subject?

Being a participant in this study will provide an opportunity for you to be equipped with knowledge on breast feeding. By breast feeding your child, both of you and your child could benefit tremendously. The benefits of breast feeding to the mother include preventing prolonged bleeding after delivery, as a means of family planning, better bonding with the child, lower the risk of breast and ovarian cancer, faster recuperation after delivery and convenience. Having knowledge in breast feeding will help you in initiating and maintaining breast feeding, recognizing problems of breast feeding and be resourceful in getting help with breast feeding problems.

(b) to the investigator?

This study will help the investigator to gain more knowledge and insight on the breast feeding practices and its associated factors in depth. The investigator hopes that this research will help her in writing a thesis related to the matter and pursue a degree in Doctorate of Public Health.

What are the possible drawbacks?

The drawbacks of this study is not on the breast feeding itself (if ample knowledge has been received by the mother) but on the surrounding factors that may influence the mother's will to continue breast feeding such as inadequate support by the family, at the workplace, the health status of the infant or others. If a mother does not have knowledge on breast feeding or was not given enough support, then consequences are the mother may resort to the (presumed) easier alternative i.e. infant formula. During the study period, you may not feel comfortable with some of the questions posed during the telephone interview, particularly on the social aspects of your life/family.

Can I refuse to take part in the study?

Your participation in this study is voluntary. You may withdraw from this study if you do not wish to continue with the follow up. You may also refuse to answer the questions if you are not willing to.

Who should I contact if I have additional questions during the course of the study?

If you have any enquiries regarding this study, you can contact our Principal Investigator, Dr Norzakiah Mohd Tahir at Department of Social & Preventive Medicine, Faculty of Medicine University Malaya Kuala Lumpur, at 03-7967 7512 or any officers at our operational room at the same address, or by telephone at 03-7967 4929.

Doctor's Name: Dr Norzakiah Mohd Tahir

Tel: 019-6230311

PENERANGAN UNTUK PESERTA

Sila baca keterangan berikut dengan teliti, dan anda digalakkan untuk mengemukakan sebarang kemusykilan atau soalan dengan doktor anda.

Tajuk Kajian

KAJIAN KAUNSELING LAKTASI MELALUI TELEFON DAN KAEDAH PENYUSUAN SUSU IBU.

Pengenalan

Penyusuan susu ibu adalah pemakanan yang sangat digalakkan untuk bayi sabagai salah satu cara untuk mencapai tahap kesihatan terbaik. Program mempromosi penyusuan susu ibu kepada ibu-ibu di dalam sistem khidmat kesihatan awam di Malaysia boleh dikatakan agak baik, dengan hampir kesemua hospital kerajaan telah dinobatkan sebagai Hospital Rakan Bayi. Walaubagaimanapun, kajian telah mendapati bahawa peratusan kadar penyusuan susu ibu di Malaysia ini masih rendah berbanding dengan negara-negara lain di sebalik pelaksanaan Polisi Penyusuan Susu Ibu Kebangsaan dan Inisiatif Hospital Rakan Bayi.

Apakah tujuan kajian ini?

Tujuan kajian ini adalah untuk mendapatkan maklumat mengenai penyusuan susu ibu di kalangan ibu-ibu di Kuala Lumpur. Antaranya adalah peratusan antara kaedah-kaedah penyusuan susu ibu, faktor-faktor yang berkaitan dengannya, untuk menyelidiki mengapa kegagalan untuk menyusu secara eksklusif berlaku dan menyelidiki masalah-masalah utama yang membelengu ibu yang sedang menyusui susu ibu.

Maklumat yang diperolehi akan diselidiki dan dianalisa untuk membolehkan penambahbaikan perkhidmatan kesihatan di negara kita.

Apakah prosedur yang perlu saya ikuti?

Apabila anda telah menyatakan persetujuan untuk menyertai kajian ini, akan dikehendaki untuk menjalani beberapa prosedur, antaranya:

1. Temuramah oleh ahli penyelidik mengenai penyusuan susu ibu
2. Menjawab bebarapa soalan melalui borang soal kaji selidik pada hari pertama selepas melahirkan bayi
3. Temuramah susulan melalui telefon oleh ahli penyelidik untuk menjawab beberapa soalan pada bulan pertama, keempat dan keenam selepas melahirkan bayi. Tempoh keseluruhan kajian ini adalah selama enam bulan dari tarikh anda menyatakan persetujuan.

Maklumat yang diperolehi semasa kaji selidik adalah **rahsia** dan hanya akan digunakan untuk tujuan kajian ini. Ahli penyelidik data mungkin akan menghubungi anda lagi selepas tamat tempoh kajian jika perlu.

Siapakah yang dikecualikan dari menyertai kajian ini?

Ibu-ibu yang melahirkan bayi kembar, ibu yang menjalani pembedahan Caesarean, menghadapi masalah kesihatan yang boleh menghalang

penyusuan susu ibu atau bayinya memerlukan penjagaan di Unit Rawatan Rapi.

Apakah kebaikan kajian ini kepada:

(a) anda sebagai peserta?

Dengan menyertai kajian ini, anda akan mendapat peluang untuk menambah ilmu pengetahuan mengenai penyusuan susu ibu. Dengan memberikan susu ibu, anda dan bayi anda akan mendapat faedahnya. Antara faedah memberi susu ibu kepada ibu adalah ia akan mengelakkan pendarahan berpanjangan selepas bersalin, sebagai satu cara merancang kehamilan semula, ikatan yang lebih kuat dengan bayi anda, mengurangkan risiko barah payudara dan ovari dan juga pemulihan kesihatan dan badan yang lebih cepat selepas bersalin. Dengan pengetahuan yang akan anda perolehi, ia akan dapat membantu anda memulakan dan meneruskan penyusuan susu ibu, mengenalpasti masalah yang mungkin dihadapi semasa penyusuan dan lebih berusaha untuk mendapatkan bantuan jika diperlukan.

(b) kepada penyelidik?

Kajian ini akan membantu penyelidik utama kajian ini untuk mendapatkan maklumat yang dikehendaki dengan lebih mendalam. Penyelidik kajian ini berharap maklumat yang diperolehi nanti akan dapat membantu beliau dalam menyediakan tesis yang berkenaan, dalam usahanya mendapatkan Ijazah Doktor Kesihatan Awam kelak.

Apakah masalah yang mungkin dihadapi?

Kajian ini sebenarnya tidak akan memberikan masalah kepada ibu-ibu sekiranya panduan penyusuan susu ibu yang diberikan telah difahami dan dipraktikkan. Walaubagaimanapun, beberapa faktor lain mungkin akan menyebabkan masalah untuk meneruskan penyusuan antaranya kurang sokongan dari keluarga, di tempat kerja atau bayi yang menghadapi masalah kesihatan. Terdapat kemungkinan ibu yang akan memilih untuk memberi susu formula sekiranya tidak terdapat sokongan dan kesungguhan dari pihak ibu sendiri. Semasa kajian ini, anda mungkin akan tidak selesa dengan beberapa soalan mengenai aspek sosial anda dan keluarga anda.

Bolehkah saya menolak dari menyertai kajian ini?

Sebarang penyertaan kajian ini adalah secara sukarela. Anda boleh keluar dari menyertai kajian ini pada bila-bila masa sepanjang tempoh kajian. Anda juga boleh menolak untuk menjawab soalan sekiranya anda tidak bersedia untuk menjawabnya.

Siapakah yang boleh saya hubungi sekiranya saya mempunyai soalan tambahan sepanjang kajian ini berlangsung?

Sekiranya anda mempunyai sebarang persoalan, anda boleh menghubungi Penyelidik Utama, Dr Norzakiah Mohd Tahir di Jabatan Perubatan Kemasyarakatan dan Pencegahan, Fakulti Perubatan Universiti Malaya Kuala Lumpur di nombor telefon 03-7967 7512 atau mana-mana pegawai di alamat yang sama dan atau melalui telefon di 03-7967 4929.

Nama doktor: Dr Norzakiah Mohd Tahir

Tel: 019-6230311

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Appendix E

Record List for Patients who Consented to Participate in the Study

University of Malaya

PATIENTS WHO CONSENTED TO PARTICIPATE IN THE STUDY

NO	PATIENT'S NAME	R/N	I/C NO	TEL NO (PT)	OTHER TEL NO NO	OTHER TEL NO

Appendix F

Self-Administered Questionnaire for Day One Postpartum

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**BORANG SOAL SELIDIK KAJIAN PENYUSUAN SUSU IBU
QUESTIONNAIRE FOR BREAST FEEDING PRACTICES STUDY**

**HARI PERTAMA SELEPAS BERSALIN
FIRST DAY POST DELIVERY**

Tarikh/ Date: _____
No. Pendaftaran Hospital/ Hospital Registration No. : _____

BAHAGIAN 1 PART 1		SOSIO DEMOGRAFI SOCIO-DEMOGRAPHY
BAHAGIAN 1A PART 1A		MAKLUMAT PERIBADI PERSONAL BACKGROUND INFORMATION
No. Soalan Q No.	Soalan Tapisan Questions & Filters	Kategori Kod Coding Category
1	Siapa nama anda? <i>What is your name?</i>	_____
2	Apakah nombor pengenalan anda? <i>What is your identification number?</i>	No. KP Baru/ <i>New IC</i> : _____ No. KP Lama/ <i>Old IC</i> : _____ No. KP Lain/ <i>Other ID No</i> : _____ (Bulatkan yang berkaitan) (Tentera/ Polis/ Lain-lain) (<i>Please circle</i>) (<i>Army/ Police/ Others</i>) No. Pasport/ <i>Passport</i> : _____ Lain-lain/ <i>Others</i> , <i>Nyatakan/ specify</i> : _____
3	Bilakah tarikh lahir anda? <i>When is your date of birth?</i>	Hari/ <i>Day</i> Bulan/ <i>Month</i> Tahun/ <i>Year</i> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
4	Apakah bangsa anda? <i>What is your ethnicity?</i>	1. Melayu/ <i>Malay</i> 2. Cina/ <i>Chinese</i> 3. India/ <i>Indian</i> 4. Lain-lain/ <i>Others</i> : <i>Nyatakan/ specify</i> : _____
5	Apakah agama anda? <i>What is your religion?</i>	1. Islam/ <i>Islam</i> 2. Kristian/ <i>Christianity</i> 3. Buddha/ <i>Buddhism</i> 4. Hindu/ <i>Hinduism</i> 5. Lain-lain/ <i>Others</i> : <i>Nyatakan/specify</i> : _____
6	Apakah taraf perkahwinan anda? <i>What is your marital status?</i>	1. Belum berkahwin/ <i>Not married</i> 2. Berkahwin/ <i>Married</i> 3. Janda/ <i>Divorcee</i> 4. Balu/ <i>Widow</i>
7	Adakah anda diberi susu ibu semasa kecil? <i>Were you breastfed as a child?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> 3. Tidak tahu/ <i>Don't know</i>
8	Selama 12 bulan yang lalu, adakah anda merokok? <i>In the past 12 months, did you smoke?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> Jika Ya, berapakah purata pek setiap minggu? _____ <i>If Yes, on the average how many packs per week?</i>
9	Selama 12 bulan yang lalu, adakah anda minum	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i>

	minuman beralkohol? <i>In the past 12 months, did you drink alcohol?</i>	Jika Ya, berapakah purata pek setiap minggu? <i>If Yes, on the average how many packs per week?</i>
10	Apakah taraf pendidikan anda yang paling tinggi? <i>What is your highest education level?</i>	<ol style="list-style-type: none"> 1. Tidak bersekolah/ <i>Never schooled</i> 2. Tidak tamat sekolah rendah/ <i>Never completed primary school</i> 3. Tamat sekolah rendah/ <i>Completed primary school</i> 4. Tamat Tingkatan 3/ <i>Completed Form 3</i> 5. Tamat Tingkatan 5/ <i>Completed Form 5</i> 6. Sijil/ <i>Certificate, A-Level/ STPM/HSC, Diploma</i> 7. Ijazah Pertama/ <i>First Degree</i> 8. Ijazah lanjutan/ <i>Post-Graduate</i> 9. Lain-lain, nyatakan/ <i>Others, specify</i> <p>_____</p> <p>_____</p>
11	Adakah anda mempunyai sebarang pekerjaan sekarang?	<ol style="list-style-type: none"> 1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> <p>Jika Ya, pergi ke soalan 12/ <i>If Yes, go to question 12</i></p> <p>Jika Tidak, terus ke bahagian 1B/ <i>If No, skip to part 1B</i></p>
12	Apakah status pekerjaan anda sekarang? <i>What is your current job status?</i>	<ol style="list-style-type: none"> 1. Pekerja kerajaan/ <i>Civil servant</i> 2. Pekerja swasta/ <i>Private sector employee</i> 3. Bekerja sendiri/ <i>Self-employed</i> 4. Bekerja sambil belajar/ <i>Studying and working</i> 5. Masih belajar/ <i>Still studying</i> 6. Surirumah/ <i>Housewife</i> skip to Part 1B
13	Berapakah anggaran atau purata <u>pendapatan anda sebulan?</u> <i>What is your average personal monthly income?</i>	RM _____
14	Adakah anda akan bekerja/ bekerja semula selepas tamat waktu berpantang? <i>Do you intend to work/ continue to work after the confinement period?</i>	<ol style="list-style-type: none"> 1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> <p>Jika Ya, bilakah anggaran waktu anda akan kembali bekerja? <i>If Yes, when is the estimated time that you will resume working?</i> _____ bulan/ <i>month</i></p>
BAHAGIAN 1B PART 1B		MAKLUMAT ISIRUMAH HOUSEHOLD BACKGROUND INFORMATION
15	Berapa ramaikah orang yang tinggal di rumah anda termasuk anda dan bayi ini? <i>How many people are living in your household including yourself and the baby?</i>	_____ orang/ <i>person (s)</i>
16	Adakah anda merupakan ketua isirumah anda (penyumbang ekonomi utama dalam isirumah)? <i>Do you consider yourself the head of the household, i.e. the person who provides economically for your family?</i>	<ol style="list-style-type: none"> 1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> <p>Jika Ya, sila ke Soalan 19/ <i>If Yes, please skip to Question 19</i></p> <p>Jika Tidak, sila ke soalan seterusnya/ <i>If No, please go to the next question</i></p>
17	Siapakah ketua dalam isirumah anda? <i>Who is the head of the</i>	<ol style="list-style-type: none"> 1. Suami anda/ <i>Your husband</i> 2. Bapa anda/ <i>Your father</i> 3. Ibu anda/ <i>Your mother</i>

	<i>household?</i>	4. Saudara kandung anda/ <i>Your sibling</i> 5. Bapa mertua anda/ <i>Your father-in-law</i> 6. Ibu mertua anda/ <i>Your mother-in-law</i> 7. Lain-lain/ <i>Others: Nyatakan/ please specify</i> _____
18	Apakah status pekerjaan ketua isirumah anda sekarang? <i>What is the current employment status of the household head?</i>	1. Pekerja kerajaan/ <i>Civil servant</i> 2. Pekerja swasta/ <i>Private sector employee</i> 3. Bekerja sendiri/ <i>Self-employed</i> 4. Bekerja sambil belajar/ <i>Studying and working</i> 5. Surirumah/ <i>Housewife</i>
19	Adakah anda membuat pekerjaan tambahan untuk menambah pendapatan (contoh: menjahit, jualan sampingan dsb)? <i>Do you do anything to make additional income in your home (e.g. sewing, direct selling etc.)?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i>
20	Berapakah anggaran atau purata jumlah <u>pendapatan isirumah</u> anda <u>sebulan</u> ? <i>What is average total household income monthly?</i>	RM_____
BAHAGIAN 2 PART 2		MAKLUMAT SEJARAH KESIHATAN HEALTH INFORMATION
BAHAGIAN 2A PART 2A		MAKLUMAT KESIHATAN IBU MATERNAL HEALTH BACKGROUND
21	Berapakah ketinggian anda? <i>How tall are you?</i>	_____meter
22	Berapakah berat badan anda sebelum mengandung? <i>How much did you weigh before you become pregnant?</i>	_____kg
23	Berapa banyakkah peningkatan berat badan anda semasa mengandung? <i>How much weight did you gain during your pregnancy?</i>	_____kg
24	Adakah anda menghadapi sebarang masalah kesihatan sebelum mengandung?/ <i>Do you have any medical problems before the pregnancy?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> Jika ya, sila nyatakan/ <i>If yes, please state</i> _____ _____
25	Adakah anda menghadapi sebarang masalah kesihatan semasa mengandung?/ <i>Do you have any medical problems during the pregnancy?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> Jika ya, sila nyatakan/ <i>If yes, please state</i> _____ _____
BAHAGIAN 2B PART 2B		MAKLUMAT KELAHIRAN BAYI INFORMATION ON DELIVERY OF BABY
26	Bilakah bayi anda ini dilahirkan? <i>When was your baby born?</i>	Hari/ <i>Day</i> Bulan/ <i>Month</i> Tahun/ <i>Year</i>

27	Berapakah berat bayi semasa dilahirkan? <i>What was the baby's birth weight?</i>	_____ kg						
28	Apakah jantina bayi anda ini? <i>What is your baby's gender?</i>	1. Lelaki/ <i>Male</i> 2. Perempuan/ <i>Female</i>						
29	Bagaimanakah bayi anda dilahirkan? / <i>How was your baby born?</i>	1. Kelahiran secara normal/ <i>Spontaneous vaginal delivery</i> 2. Kelahiran dengan forsep atau vakum/ <i>Assisted vaginal delivery with forceps or vacuum</i>						
30	Adakah anda mempunyai anak kandung lain selain dari bayi ini?/ <i>Do you have other child/children borne before this baby?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> Jika ya, sila nyatakan berapa ramai/ <i>If yes, please state how many</i> _____ orang/children						
BAHAGIAN 3 PART 3		PEMAKANAN BAYI INFANT FEEDING						
BAHAGIAN 3A PART 3A		MAKLUMAT PENYUSUAN BAYI INFORMATION ON INFANT FEEDING						
31	Semasa <u>mengandung</u> , adakah anda bercadang untuk menyusukan anak ini dengan susu ibu? <i>Do you have intentions to breastfeed this baby while at the pregnant stage?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i>						
32	Adakah anda bercadang untuk menyusukan anak dengan susu ibu <u>sekarang</u> ? <i>Do you have intentions to breastfeed this baby now?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i>						
33	Adakah anda bercadang untuk menyusukan anak dengan susu ibu <u>secara eksklusif</u> ? <i>Do you have intentions to exclusively breastfeed this baby?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> Penyusuan eksklusif bermaksud: memberikan susu ibu sahaja (termasuk susu perahan) dan membenarkan bayi menerima sebarang ubat, vitamin atau mineral. Air, susu formula, lain-lain cecair atau makanan pepejal tidak diberikan sama sekali. <i>Exclusive breast feeding means: practice of feeding only breast milk (including expressed breast milk) and allows the baby to receive vitamins, minerals or medicine. Water, breast milk substitutes, other liquids and solid foods are excluded.</i>						
34	Berapa lamakah anda bercadang untuk menyusukan bayi ini dengan susu ibu? <i>How long do you plan to breastfeed this baby?</i>	_____ minggu/ <i>week(s)</i> atau/ _____ bulan/ <i>month(s)</i> atau/ _____ tahun/ <i>year(s)</i>						
35	Selepas bayi ini dilahirkan, bilakah anda menyusukannya dengan susu badan buat pertama kalinya? <i>How soon after birth was this baby put to the breast?</i>	1. Dalam masa 1 jam selepas bersalin/ <i>Within 1 hour after birth</i> 2. Antara 1-24 jam selepas bersalin/ <i>Between 1-24 hours after birth</i> 3. Selepas 1 hari/ <i>After a day</i> 4. Tidak pernah menyusukan badan lagi/ <i>Never</i>						

		<i>breast fed yet</i>
36	Adakah bayi anda menerima sebarang makan / minuman lain sebelum dimulainya penyusuan susu ibu? <i>Did your infant receive anything to drink before s/he was put to the breast?</i>	<ol style="list-style-type: none"> 1. Ya/ Yes 2. Tidak/ No 3. Tidak tahu/ <i>Don't know</i> <p>Jika ya, sila ke soalan 37 / <i>If yes, please go to question 37</i> Jika tidak, terus ke Bahagian 3B/ <i>If not, please go to Part 3B</i></p>
37	Apakah yang diberi kepada anak anda sebelum dimulainya penyusuan susu ibu? <i>What was given to your baby before s/he was put to the breast??</i>	<ol style="list-style-type: none"> 1. Susu lain (susu formula, susu tepung/ susu segar/ susu soya) / <i>Other milk (infant formula/ powdered/ fresh/ soya)</i> 2. Air kosong/ air masak/ air mineral / <i>Plain water/ boiled water/ mineral water</i> 3. Air glukos/ air bergula/ jus/lain-lain jenis air/ <i>Glucose drink/ sugared drink/ juice/ other fluids</i> 4. Madu/ <i>Honey</i> 5. Makanan pepejal/ separa pepejal (bubur/ bijirin/ buah) / <i>Solid or semi solid foods (porridge/ cereal/ fruit)</i> <p>Mengapa? / <i>Why?</i></p> <ol style="list-style-type: none"> 1. Ibu masih dalam kesakitan/ <i>mother still in pain</i> 2. Ibu separa sedar/ belum sedar dari ubat bius/ <i>mother still half conscious/ unconscious from the anaesthesia</i> 3. Masih belum ada susu ibu/ <i>no breast milk produced yet</i> 4. Risau bayi kelaparan/ <i>worried baby was hungry</i> 5. Mengikuti amalan tradisi/ <i>followed cultural ritual</i> 6. Mengikuti amalan keagamaan/ <i>followed religious ritual</i>
BAHAGIAN 3B PART 3B		SOKONGAN PENYUSUAN SUSU IBU BREAST FEEDING SUPPORT
38	Bagaimanakah pendapat pasangan anda/ bapa bayi ini mengenai keputusan anda untuk menyusukan bayi dengan susu ibu? <i>How do your partner/ baby's father feel about your decision to breastfeed?</i>	<ol style="list-style-type: none"> 1. Sangat bersetuju/ <i>strongly agrees</i> 2. Bersetuju/ <i>agrees</i> 3. Tiada pendapat/ <i>neither agree nor disagree</i> 4. Tidak bersetuju/ <i>disagrees</i> 5. Sangat tidak bersetuju/ <i>strongly disagrees</i> 6. Pasangan tidak terlibat dalam keputusan ini/ <i>partner not involved in this decision</i>
39	Adakah terdapat halangan dari ahli keluarga? <i>Is there any restriction from your family?</i>	<ol style="list-style-type: none"> 1. Ya/ Yes 2. Tidak/ No <p>Jika Ya, nyatakan siapa yang menghalang anda? <i>If Yes, please state who restricted you from doing so?</i></p> <p>_____</p> <p>_____</p> <p>Mengapa mereka menghalang anda dari memberi susu ibu kepada bayi anda? <i>Why did they restrict you from breast feeding your baby?</i></p> <p>_____</p> <p>_____</p>

40	Adakah anda menerima sebarang konsultasi/ penerangan khusus mengenai penyusuan susu ibu <u>semasa mengandung</u> ? <i>Have you received any breast feeding consultation <u>during this pregnancy</u>?</i>	1. Ya/ Yes 2. Tidak/ No Jika ya, sila ke Soalan 42/ <i>If yes, go to question 42</i> Jika tidak, sila ke soalan 41/ <i>If no, go to question 41</i>																					
41	Nyatakan sebab mengapa anda tidak menerima sebarang penerangan khusus mengenai penyusuan susu ibu <u>semasa mengandung</u> <i>Please state your reason why you haven't received any breast feeding consultation <u>during this pregnancy</u></i>	_____ _____ _____ _____																					
42	Siapakah yang memberi penerangan khusus mengenai penyusuan susu ibu <u>semasa mengandung</u> ? <i>Who gave you the breast feeding consultation <u>during this pregnancy</u>?</i> (Anda boleh menjawab lebih dari satu/ <i>You can answer more than one</i>)	1. Doktor Pakar / <i>Specialist</i> 2. Doktor Perubatan (bukan pakar)/ <i>Medical Officer (non-specialist)</i> 3. Doctor atau jururawat dari pasukan sokongan penyusuan susu ibu/ <i>Doktor or nurse from Breast Feeding Support Team</i> 4. Jururawat bersalin atau bidan/ <i>Delivery nurse or midwife</i> 5. Jururawat wad/ <i>Ward nurse</i> 6. Lain-lain/ <i>Others</i>																					
43	Apakah penerangan yang diberikan kepada anda (semasa mengandung)? <i>What were you taught about (during this pregnancy)?</i> Sila tandakan (✓) pada yang berkenaan <i>Please tick (✓) where relevant</i>	<table border="1"> <thead> <tr> <th></th> <th>Ya/ Yes</th> <th>Tidak/ No</th> </tr> </thead> <tbody> <tr> <td>1. Informasi mengenai posisi untuk penyusuan ibu/ <i>Information on positions for breast feeding</i></td> <td></td> <td></td> </tr> <tr> <td>2. Informasi mengenai pemerahan susu ibu/ <i>Information on pumping breast milk</i></td> <td></td> <td></td> </tr> <tr> <td>3. Menonton video penyusuan susu ibu/ <i>Watched a breast feeding video</i></td> <td></td> <td></td> </tr> <tr> <td>4. Membincangkan kepercayaan karut mengenai penyusuan susu ibu/ <i>Discussed common myths about breast feeding</i></td> <td></td> <td></td> </tr> <tr> <td>5. Membincangkan mengenai penyusuan susu ibu secara eksklusif/ <i>Discussed about exclusive breast feeding</i></td> <td></td> <td></td> </tr> <tr> <td>6. Membincangkan mengenai cara untuk kekal menyusu secara eksklusif sekiranya anda terpaksa meninggalkan bayi untuk bekerja / <i>Discussed about the way how to maintain exclusive breast feeding if you are to leave your baby for work</i></td> <td></td> <td></td> </tr> </tbody> </table>		Ya/ Yes	Tidak/ No	1. Informasi mengenai posisi untuk penyusuan ibu/ <i>Information on positions for breast feeding</i>			2. Informasi mengenai pemerahan susu ibu/ <i>Information on pumping breast milk</i>			3. Menonton video penyusuan susu ibu/ <i>Watched a breast feeding video</i>			4. Membincangkan kepercayaan karut mengenai penyusuan susu ibu/ <i>Discussed common myths about breast feeding</i>			5. Membincangkan mengenai penyusuan susu ibu secara eksklusif/ <i>Discussed about exclusive breast feeding</i>			6. Membincangkan mengenai cara untuk kekal menyusu secara eksklusif sekiranya anda terpaksa meninggalkan bayi untuk bekerja / <i>Discussed about the way how to maintain exclusive breast feeding if you are to leave your baby for work</i>		
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44	<p>Untuk kelahiran kali ini, adakah anda menerima sebarang pertolongan untuk penyusuan susu ibu selepas bersalin di hospital ini? <i>For this current delivery, have you received help with breast feeding in the hospital after the delivery?</i></p>	<ol style="list-style-type: none"> 1. Ya/ Yes 2. Tidak/ No 3. Tidak berkenaan/<i>Not applicable</i> <p>Jika ya, siapakah yang telah menolong anda dalam penyusuan susu ibu selepas bersalin di hospital ini? / <i>If yes, who has helped you with breast feeding at this hospital?</i></p> <ol style="list-style-type: none"> 1. Pakar Obstetrik/ <i>Obstetric Specialist</i> 2. Doktor Perubatan (bukan pakar)/ <i>Medical Officer (non-specialist)</i> 3. Doktor atau jururawat dari Kumpulan Sokongan Penyusuan Susu Ibu/ <i>Doktor or nurse from Breast Feeding Support Team</i> 4. Lain-lain/ <i>Others</i> <p>_____</p>																																				
45	<p>Adakah anda menerima sebarang pertolongan untuk penyusuan susu ibu <u>semasa mengandung/ melahirkan anak yang lalu</u>? <i>Did you receive help assisting you on breastfeeding on any of your previous pregnancies or deliveries?</i></p>	<ol style="list-style-type: none"> 1. Ya/ Yes 2. Tidak/ No 3. Tidak berkenaan/<i>Not applicable</i> 																																				
46	<p>Adakah anda menyusukan <u>anak anda yang dahulu</u> dengan susu ibu (jika berkenaan)? <i>Did you breastfeed your child previously (if any)?</i></p>	<ol style="list-style-type: none"> 1. Ya/ Yes 2. Tidak/ No 3. Tidak berkenaan/<i>Not applicable</i> <p>Jika ya, sila jawab soalan 47/ <i>If yes, please answer question no 47</i></p>																																				
47	<p>Sila isikan maklumat di bawah ini berkenaan penyusuan anak anda yang dahulu <i>Please fill in the information below regarding the feeding of your previous child</i></p> <table border="1"> <thead> <tr> <th>Anak ke- Child number-</th> <th>Jantina Gender</th> <th>Diberi susu ibu? / Given Breast milk? (jawab ya/tidak, answer yes/no)</th> <th>Berapa lama? How long?</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>_____ bulan / <i>months</i></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>_____ bulan / <i>months</i></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td>_____ bulan / <i>months</i></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td>_____ bulan / <i>months</i></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td>_____ bulan / <i>months</i></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Anak ke- Child number-	Jantina Gender	Diberi susu ibu? / Given Breast milk? (jawab ya/tidak, answer yes/no)	Berapa lama? How long?	1			_____ bulan / <i>months</i>	2			_____ bulan / <i>months</i>	3			_____ bulan / <i>months</i>	4			_____ bulan / <i>months</i>	5			_____ bulan / <i>months</i>												
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BAHAGIAN 4 PART 4		MAKLUMAT TAMBAHAN ADDITIONAL INFORMATION																																				
48	<p>Bolehkah anda berikan alamat dan nombor telefon anda untuk dihubungi kemudian oleh pegawai penyelidik dan/ atau pembantu penyelidik kajian ini? <i>Could you please give us your address and telephone number for the research investigator and/or her assistant to call you later?</i></p>	<p>Alamat/ <i>Address</i> : _____ _____ _____</p> <p>No telefon/ <i>Phone no</i>: Rumah/ <i>Home</i>: _____ Bimbit / <i>Mobile</i>: _____</p>																																				

49	<p>Bolehkah anda berikan nama, alamat dan nombor telefon 2 orang yang akan sentiasa dapat menghubungi anda sekiranya anda berpindah? <i>Could you please give us the names and numbers of 2 persons who will always be able to reach you in case you move?</i></p>	<p>(1) Nama/Name _____</p> <p>Alamat/ Address _____ _____ _____</p> <p>No telefon/ Phone no _____</p> <p>Hubungan dengan anda/ Relationship with you _____</p> <p>(2) Nama/Name _____</p> <p>Alamat/ Address _____ _____ _____</p> <p>No telefon/ Phone no _____</p> <p>Hubungan dengan anda/ Relationship with you _____</p>
<p>Terima kasih di atas kerjasama anda di dalam menjayakan kajian ini. Anda akan dihubungi oleh pegawai penyelidik dalam tempoh satu bulan dari tarikh ini untuk kajian selanjutnya. <i>Thank you for your co-operation in this research. You will be contacted by the research officer in one month's time for further evaluation.</i></p>		

<p>* Untuk diisi oleh penyelidik selepas sesi mengisi boring soal selidik/ To be filled by the investigator after the questionnaire-filling session</p> <p>(Tandakan ✓ di ruang yang berkenaan/ Please ✓ at the above space)</p>	<p>Peserta ini BEKERJA/ Participant is WORKING</p>	<p>Peserta TIDAK BEKERJA/ Participant Is NOT WORKING</p>	
	<p>Peserta BERCADANG untuk memberi susu ibu/ Participant HAS INTENTION to breast feed</p>	<p>Peserta TIDAK BERCADANG untuk memberi susu ibu/ Participant HAS NO INTENTION to breast feed</p>	
	<p>Nombor kajian/ Study number:</p>		

BORANG SOAL SELIDIK KAJIAN PENYUSUAN SUSU IBU
QUESTIONNAIRE FOR BREAST FEEDING PRACTICES STUDY

CATATAN REKOD PERUBATAN
MEDICAL RECORD REVIEW

(Untuk diisi semasa temuramah pada hari pertama selepas bersalin oleh pembantu penyelidik)

(To be filled during the first day post delivery interview by the research assistant)

Tarikh/ Date: _____

No. Pendaftaran Hospital/ Hospital Registration No. : _____

Nama Ibu/ Mother's name: _____

1. G____P_____
2. Gestational age of patient when antenatal care was initiated _____ weeks
3. Gestational age at delivery _____ weeks
4. Does mother smoke? YES NO
5. Does mother drink alcohol? YES NO
6. Delivery type:
 - a. Spontaneous vaginal delivery
 - b. Assisted vaginal delivery Reason: _____
7. Analgesia
 - a. None
 - b. Local
 - c. Epidural
 - d. Spinal
 - e. General
8. Medical History

9. Maternal pre-pregnancy weight _____ kg
10. Maternal weight at delivery _____ kg
11. Maternal weight gain during pregnancy _____ kg

Appendix G

Telephone Questionnaire for Follow-up at Months 1, 4 and 6

University of Malaya

**BORANG SOAL SELIDIK KAJIAN PENYUSUAN SUSU IBU
QUESTIONNAIRE FOR BREAST FEEDING PRACTICES STUDY**

**SATU/ EMPAT/ ENAM BULAN SELEPAS BERSALIN
ONE/ FOUR/ SIX MONTH POST DELIVERY**

Nombor kajian/ Study number:	
---------------------------------	--

Tarikh/ Date: _____
 Nama Ibu/ Mother's name: _____
 No. kad pengenalan ibu/ Mother's IC no. : _____
 Nama Penemuramah/ Interviewer's name: _____

BAHAGIAN 1 PART 1		PEMAKANAN BAYI INFANT FEEDING PRACTICE																													
BAHAGIAN 1A PART 1A		MAKLUMAT PEMAKANAN BAYI SEKARANG CURRENT INFANT FEEDING PRACTICE																													
No Soalan Q No.	Soalan Tapisan Questions & Filters	Kategori Kod Coding Category																													
1	Berapakah umur anak anda sekarang? <i>How old is your baby now?</i>	_____ bulan/ month																													
2	Adakah anda masih menyusukan bayi dengan susu ibu? <i>Are you still breastfeeding your baby?</i>	1. Ya/ Yes 2. Tidak/ No Jika ya, terus ke soalan 4. <i>If yes, skip to question 4.</i> Jika tidak, sila ke soalan seterusnya. <i>If no, please go to next question.</i>																													
3	Nyatakan sebab mengapa anda tidak menyusukan bayi dengan susu ibu lagi? <i>Please state your reason why you have stopped breast feeding your baby?</i>	_____ _____ _____ _____																													
4	Dalam tempoh <u>24 jam yang lepas</u> , adakah bayi anda diberi: <i>In the last 24 hours, was your baby given:</i> Sila tandakan (√) pada yang berkenaan/ <i>Please tick (√) where relevant</i>	<table border="1"> <thead> <tr> <th>Bil/ No</th> <th>Makanan/ Food</th> <th>Ya/Yes</th> <th>Tidak/ No</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Susu ibu/ <i>breast milk</i></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Susu lain (susu formula, susu tepung/ susu segar/ susu soya) / <i>Other milk (infant formula/ powdered/ fresh/ soya)</i></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Air kosong/ air masak/ air mineral / <i>Plain water/ boiled water/ mineral water</i></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Vitamin, ubat/ <i>Vitamin, medicines</i></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Air glukos/ air bergula/ jus/lain-lain jenis air/ <i>Glucose drink/ sugared drink/ juice/ other fluids</i></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>Makanan pepejal/ separa pepejal (bubur/ bijirin/ buah) / <i>Solid or semi solid foods (porridge/ cereal/ fruit)</i></td> <td></td> <td></td> </tr> </tbody> </table>		Bil/ No	Makanan/ Food	Ya/Yes	Tidak/ No	1	Susu ibu/ <i>breast milk</i>			2	Susu lain (susu formula, susu tepung/ susu segar/ susu soya) / <i>Other milk (infant formula/ powdered/ fresh/ soya)</i>			3	Air kosong/ air masak/ air mineral / <i>Plain water/ boiled water/ mineral water</i>			4	Vitamin, ubat/ <i>Vitamin, medicines</i>			5	Air glukos/ air bergula/ jus/lain-lain jenis air/ <i>Glucose drink/ sugared drink/ juice/ other fluids</i>			6	Makanan pepejal/ separa pepejal (bubur/ bijirin/ buah) / <i>Solid or semi solid foods (porridge/ cereal/ fruit)</i>		
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5	Dalam tempoh 24 jam yang																														

	lepas, adakah bayi anda diberi apa-apa minuman atau makanan menggunakan botol susu dengan puting (termasuk susu ibu dalam botol)? <i>In the last 24 hours, was your baby given any food or drink using a feeding bottle with teat? (including expressed breast milk)</i>	1. Ya/ Yes 2. Tidak/ No
6	Pernahkah bayi anda menghisap putting kosong? <i>Has your baby ever used a pacifier?</i>	1. Ya/ Yes 2. Tidak/ No
7	Berapa kalikah dalam sehari bayi anda menyusu dengan susu ibu sekarang? <i>In one day, how many times do you breast feed your baby?</i>	_____ kali dalam sehari/ <i>times in a day</i>
8	Berapa kalikah dalam sehari anda memberi bayi anda susu lain selain susu ibu? <i>In one day, how many times do you give your baby other types of milk (besides breast milk)?</i>	_____ kali dalam sehari/ <i>times in a day</i>
BAHAGIAN 1B PART 1B		PEMAKANAN BAYI SELEPAS KELUAR HOSPITAL INFANT FEEDING PRACTICE AFTER DISCHARGED FROM HOSPITAL
9	Selepas bayi anda dilahirkan, berapa lama anda tinggal di hospital? <i>After your baby was born, how long did you stay in the hospital?</i>	1. Kurang dari 24 jam/ <i>less than 24 hours</i> 2. 24 jam- 48 jam/ <i>24 hours - 48 hours</i> 3. Lebih dari 48 jam/ <i>more than 48 hours</i>
10	Adakah bayi anda tinggal di hospital selepas anda pulang ke rumah? <i>Did your baby stay in the hospital after you went home?</i>	1. Tidak/ <i>No</i> 2. Ya/ <i>Yes</i> : Untuk tempoh _____ minggu _____ hari Kerana/because: _____ _____ _____
11	Adakah anda dimasukkan semula ke wad selepas pulang ke rumah? <i>Were you admitted again to the ward after you went home?</i>	1. Tidak/ <i>No</i> 2. Ya/ <i>Yes</i> : Untuk tempoh _____ minggu _____ hari Kerana/because: _____ _____ _____
12	Adakah bayi anda tidur bersama anda di dalam satu bilik semasa di rumah? <i>Is your baby sleeping with you in the same room at home?</i>	1. Ya/ <i>Yes</i> 2. Tidak/ <i>No</i> Jika Tidak, dengan siapakah bayi anda tidur malam? <i>If No, with whom does your baby sleep with at night?</i> (Anda boleh menamakan beberapa orang jika berkenaan/ <i>You can state several persons if relevant</i>)

		_____	_____	_____																				
BAHAGIAN 1C PART 1C		PERKEMBANGAN KESIHATAN BAYI BABY'S GROWTH AND DEVELOPMENT																						
13	Berapakah berat bayi anda semasa dilahirkan? <i>What was your baby's weight at birth?</i>	kg																						
14	Berapakah berat bayi anda sekarang? <i>What is your baby's body weight now?</i>	kg																						
15	Adakah bayi anda mengalami sebarang masalah kesihatan semenjak dilahirkan sehingga sekarang? <i>Does your baby have experienced any medical problems since birth until now?</i>	1. Ya/ Yes 2. Tidak/ No Jika YA, nyatakan masalah yang dihadapi oleh bayi <i>If YES, please state the problem faced by the baby</i>	_____	_____																				
BAHAGIAN 2 PART 2		SOKONGAN PENYUSUAN SUSU IBU BREAST FEEDING SUPPORT																						
16	Semasa anda di hospital , <i>While you were at the hospital,</i> Sila tandakan (✓) pada yang berkenaan/ <i>Please tick (✓) where relevant</i>																							
	<table border="1"> <thead> <tr> <th>Bil/ No</th> <th>Perkara/ item</th> <th>Ya/ Yes</th> <th>Tidak/ No</th> <th>Tidak pasti/ Unsure</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Adakah bayi anda tinggal di dalam bilik bersama anda pada kebanyakan masa? <i>Did your baby remain in the room with you most of the time?</i></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Adakah anda diberi galakan untuk menyusukan bayi dengan susu ibu setiap dua ke tiga jam sekali? <i>Were you encouraged to breastfeed your baby at least every two to three hours?</i></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Sebelum anda pulang ke rumah, adakah anda diberi penerangan di mana untuk mendapatkan bantuan mengenai penyusuan susu ibu sekiranya diperlukan? <i>Before you went home, were you told where to get help with breastfeeding, if you needed it later?</i></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Bil/ No	Perkara/ item	Ya/ Yes	Tidak/ No	Tidak pasti/ Unsure	1	Adakah bayi anda tinggal di dalam bilik bersama anda pada kebanyakan masa? <i>Did your baby remain in the room with you most of the time?</i>				2	Adakah anda diberi galakan untuk menyusukan bayi dengan susu ibu setiap dua ke tiga jam sekali? <i>Were you encouraged to breastfeed your baby at least every two to three hours?</i>				3	Sebelum anda pulang ke rumah, adakah anda diberi penerangan di mana untuk mendapatkan bantuan mengenai penyusuan susu ibu sekiranya diperlukan? <i>Before you went home, were you told where to get help with breastfeeding, if you needed it later?</i>						
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3	Sebelum anda pulang ke rumah, adakah anda diberi penerangan di mana untuk mendapatkan bantuan mengenai penyusuan susu ibu sekiranya diperlukan? <i>Before you went home, were you told where to get help with breastfeeding, if you needed it later?</i>																							

17	<p>Semasa anda di hospital, adakah anda menerima sebarang bantuan, maklumat atau sokongan untuk menyusukan bayi dengan susu ibu dalam tempoh 48 jam selepas bersalin, dan siapakah mereka itu? <i>While you were at the hospital, did you receive help, information or support for breastfeeding during your first 48 hours after delivery, and from whom?</i></p> <p>Sila tandakan (✓) pada yang berkenaan(anda boleh menjawab lebih dari satu) <i>Please tick (✓) where relevant(you can answer more than one)</i></p>	<table border="1"> <thead> <tr> <th>Perkara/ item</th> <th>Ya yes</th> </tr> </thead> <tbody> <tr> <td>Tiada bantuan, maklumat atau sokongan diterima <i>No help, information or support received</i></td> <td></td> </tr> <tr> <td>Doktor Pakar / <i>Specialist</i></td> <td></td> </tr> <tr> <td>Doktor Perubatan (bukan pakar)/ <i>Medical Officer (non-specialist)</i></td> <td></td> </tr> <tr> <td>Doctor atau jururawat dari pasukan sokongan penyusuan susu ibu/ <i>Doktor or nurse from Breast Feeding Support Team</i></td> <td></td> </tr> <tr> <td>Jururawat bersalin atau bidan/ <i>Delivery nurse or midwife</i></td> <td></td> </tr> <tr> <td>Jururawat wad/ <i>Ward nurse</i></td> <td></td> </tr> <tr> <td>Pelatih jururawat/ <i>Trainee nurse</i></td> <td></td> </tr> <tr> <td>Lain-lain/Others _____</td> <td></td> </tr> </tbody> </table>	Perkara/ item	Ya yes	Tiada bantuan, maklumat atau sokongan diterima <i>No help, information or support received</i>		Doktor Pakar / <i>Specialist</i>		Doktor Perubatan (bukan pakar)/ <i>Medical Officer (non-specialist)</i>		Doctor atau jururawat dari pasukan sokongan penyusuan susu ibu/ <i>Doktor or nurse from Breast Feeding Support Team</i>		Jururawat bersalin atau bidan/ <i>Delivery nurse or midwife</i>		Jururawat wad/ <i>Ward nurse</i>		Pelatih jururawat/ <i>Trainee nurse</i>		Lain-lain/Others _____	
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18	<p>Semasa anda di rumah, adakah anda menghadapi sebarang masalah untuk menyusukan bayi dengan susu ibu? <i>Once home, did you have any breastfeeding problems?</i></p>	<p>1. Ya/ Yes 2. Tidak/ No</p> <p>Jika Ya, sila ke soalan 15 <i>If Yes, please go to question 15</i></p> <p>Jika Tidak, terus ke soalan 17 <i>If No, go straight to question 17</i></p>																		
19	<p>Masalah yang anda hadapi adalah: <i>The problem that you had include:</i></p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>(cth: tidak cukup susu, payudara bengkak, saluran susu tersumbat, radang payudara, sakit puting, puting merekah, bayi tidak mahu menyusu, puting tidak keluar)</p>																		
20	<p>Adakah anda mendapatkan bantuan daripada sesiapa mengenai masalah anda di atas? <i>Did you seek help from anybody for your above problem(s)?</i></p>	<p>1. Ya/ Yes 2. Tidak/ No</p>																		

21	<p>Semasa di rumah, dari siapakah anda mendapatkan pertolongan, maklumat atau sokongan mengenai penyusuan susu ibu dan siapakah mereka? At home, from whom did you receive breastfeeding help, information or support and who were they?</p> <p>Sila tandakan (✓) pada yang berkenaan (anda boleh menjawab lebih dari satu) Please tick (✓) where relevant (you can answer more than one)</p>	<table border="1"> <thead> <tr> <th>Perkara/ item</th> <th>Ya yes</th> </tr> </thead> <tbody> <tr> <td>Tiada bantuan, maklumat atau sokongan diterima <i>No help, information or support received</i></td> <td></td> </tr> <tr> <td>Doktor Pakar / <i>Specialist</i></td> <td></td> </tr> <tr> <td>Doktor Perubatan (bukan pakar)/ <i>Medical Officer (non-specialist)</i></td> <td></td> </tr> <tr> <td>Doctor atau jururawat dari pasukan sokongan penyusuan susu ibu/ <i>Doktor or nurse from Breast Feeding Support Team</i></td> <td></td> </tr> <tr> <td>Jururawat wad bersalin atau bidan/ <i>Delivery ward nurse or midwife</i></td> <td></td> </tr> <tr> <td>Jururawat komuniti/ <i>Community nurse</i></td> <td></td> </tr> <tr> <td>Keluarga/ Kawan/ <i>Family/ Friend</i></td> <td></td> </tr> <tr> <td>Bidan kampung/ <i>Traditional midwife</i></td> <td></td> </tr> <tr> <td>Agensi Komuniti/ <i>Community agency</i> (Nyatakan/ <i>Specify</i>) _____ _____</td> <td></td> </tr> </tbody> </table>	Perkara/ item	Ya yes	Tiada bantuan, maklumat atau sokongan diterima <i>No help, information or support received</i>		Doktor Pakar / <i>Specialist</i>		Doktor Perubatan (bukan pakar)/ <i>Medical Officer (non-specialist)</i>		Doctor atau jururawat dari pasukan sokongan penyusuan susu ibu/ <i>Doktor or nurse from Breast Feeding Support Team</i>		Jururawat wad bersalin atau bidan/ <i>Delivery ward nurse or midwife</i>		Jururawat komuniti/ <i>Community nurse</i>		Keluarga/ Kawan/ <i>Family/ Friend</i>		Bidan kampung/ <i>Traditional midwife</i>		Agensi Komuniti/ <i>Community agency</i> (Nyatakan/ <i>Specify</i>) _____ _____	
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22	<p>Adakah anda rasa telah diberikan pertolongan secukupnya dalam hal penyusuan susu ibu semenjak bayi anda dilahirkan? <i>Did you feel you had enough help with breastfeeding since the birth of your baby?</i></p>	<p>1. Ya/ Yes 2. Tidak/ No</p>																				
BAHAGIAN 3 PART 3		MAKLUMAT PEKERJAAN WORKING INFORMATION																				
23	<p>Apakah status pekerjaan anda sekarang? <i>What is your current job status?</i></p>	<p>1. Pekerja kerajaan/ <i>Civil servant</i> 2. Pekerja swasta/ <i>Private sector employee</i> 3. Bekerja sendiri/ <i>Self-employed</i> 4. Bekerja sambil belajar/ <i>Studying and working</i> 5. Masih belajar/ <i>Still studying</i> 6. Surirumah/ <i>Housewife</i></p> <p>Jawapan 5 & 6 tidak perlu menjawab soalan seterusnya. <i>Answers 5 & 6 do not need to proceed with other questions.</i></p>																				
24	<p>Adakah anda telah kembali bekerja? / <i>Have you returned to work?</i></p>	<p>1. Ya/ Yes 2. Tidak/ No</p> <p>Jika Ya, sila ke soalan 21/ <i>If yes, please go to question 21</i> Jika Tidak, anda tidak perlu menjawab soalan seterusnya/ <i>If your answer is no, you do not need to proceed with other questions.</i></p>																				
25	<p>Bilakah waktu anda kembali bekerja selepas bersalin? <i>When was the time you returned to work after the delivery?</i></p>	<p>_____ minggu selepas bersalin / <i>week after the delivery</i></p>																				
26	<p>Berapa jamkah dalam sehari</p>																					

	anda bekerja? <i>How many hours per day do you work</i>	_____ jam/ hours
27	Bagaimanakah jenis waktu kerja anda? <i>What is the type of your working time?</i>	<ol style="list-style-type: none"> 1. Waktu kerja tetap (waktu pejabat)/ <i>Fixed working hours (office hours)</i> 2. Waktu kerja tetap, bershift/ <i>Fixed shift working hours</i> 3. Waktu kerja tidak tetap, tiada shift/ <i>Non-fixed non-shift working hours</i>
28	Bagaimanakah jagaan bayi semasa anda bekerja? <i>How is your baby cared for while you work?</i>	<ol style="list-style-type: none"> 1. Jagaan di rumah sendiri / <i>Cared for in your home</i> 2. Jagaan di pusat jagaan harian/ <i>Daycare</i> 3. Jagaan di rumah orang/ <i>Cared for in someone else's home</i>
29	Berapa ramaikah bayi atau kanak-kanak lain yang dijaga di tempat anak anda dijaga? <i>How many other infants or children are in the setting where your child is cared for while you work?</i>	_____ orang/ person
30	Adakah tempat kerja anda membantu anda menyambung penyusuan susu ibu? <i>How helpful was your workplace to your continuing to breastfeeding?</i>	<ol style="list-style-type: none"> 1. Membantu, menyokong/ <i>Supportive</i> 2. Tiada perbezaan/ <i>Indifferent</i> 3. Tidak membantu atau menyokong/ <i>Not supportive</i> <p>Jawapan 1, sila ke soalan 27/ <i>Answer 1 go to question 27</i></p> <p>Jawapan 3, sila ke soalan 28/ <i>Answer 3 skip to question 28</i></p>
31	Nyatakan apakah yang ada di tempat kerja anda yang dirasakan <u>membantu/ menyokong</u> anda menyambung penyusuan susu ibu? <i>Please describe how your school or workplace <u>supports</u> your continued breastfeeding?</i>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
32	Nyatakan apakah yang berlaku di tempat kerja anda rasakan yang <u>tidak membantu</u> anda menyambung penyusuan susu ibu? <i>Please describe how your school or workplace <u>did not support</u> your continued breastfeeding?</i>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Terima kasih di atas kerjasama anda di dalam menayakan kajian ini. Anda akan dihubungi oleh pegawai penyelidik dalam tempoh _____ bulan dari tarikh ini untuk kajian selanjutnya. <i>Thank you for your o-operation in this research. You will be contacted by the research officer in _____ month's time for further evaluation.</i></p>		

Appendix H

Telephone Questionnaire for Mothers in the Intervention Group - Assessment of the Counselling Intervention

University of Malaya

Telephone Questionnaire for Mothers who Received Telephone Lactation Counselling from the Lactation Counsellors of MHKL

QUESTIONS							
A	Socio-demographic characteristics of respondents						
1	Name:						
2	Age:						
3	Identity Card Number:						
4	Current job:						
5	Have you achieved your own target of breastfeeding your baby? Yes <input type="checkbox"/> No <input type="checkbox"/>						
B	Community support for breastfeeding						
1	How was the breastfeeding support received by you from those named below?						
	Support received	Very supportive	Supportive	Ambivalent	Not supportive	Very not supportive	Not available
	Husband or partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Community Health Staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C Breastfeeding related problems experienced by mothers		
1	What are the main breastfeeding problems which you had confided to or shared with your lactation counsellors? (May tick more than one answer)	
	Main breastfeeding problems	Yes No
	<i>Poor breast milk supply</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Nipple pain/cracked nipple</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Mastitis/ breast infection</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Painful breast</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Engorged breast</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Baby not sucking well</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Baby not attaching well</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Baby refusing breast</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Unsettled baby</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Retracted nipple</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Expressing breast milk</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Blocked ducts</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Too frequent feeding</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>How to give expressed breast milk</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Maintaining breastfeeding when returning to work</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Had stopped breastfeeding</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Giving supplementary feeding</i>	<input type="checkbox"/> <input type="checkbox"/>
	<i>Others (please specify):</i>	<input type="checkbox"/> <input type="checkbox"/>

2 What are the other breastfeeding problems which you had confided to or shared with your lactation counsellors (besides the answer in C1)? (May tick more than one answer)

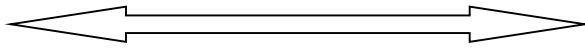
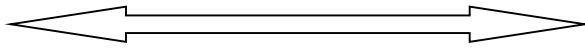
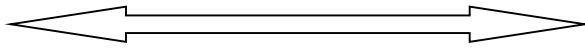
Other breastfeeding problems faced by mother	Yes	No
<i>Poor breast milk supply</i>		
<i>Nipple pain/cracked nipple</i>		
<i>Mastitis/ breast infection</i>		
<i>Painful breast</i>		
<i>Engorged breast</i>		
<i>Baby not sucking well</i>		
<i>Baby not attaching well</i>		
<i>Baby refusing breast</i>		
<i>Unsettled baby</i>		
<i>Retracted nipple</i>		
<i>Expressing breast milk</i>		
<i>Blocked ducts</i>		
<i>Too frequent feeding</i>		
<i>How to give expressed breast milk</i>		
<i>Maintaining breastfeeding when returning to work</i>		
<i>Had stopped breastfeeding</i>		
<i>Giving supplementary feeding</i>		
<i>Others (please specify)</i>		

3 Please specify if you have had any breastfeeding –related problems which you had NOT confided to or shared with your counsellor?

D Mothers' impression on the telephone lactation counselling

1 Based on your experience, what did you **LIKE** about the telephone lactation counselling service given?

2 Based on your experience, what did you **DISLIKE** about the telephone lactation counselling service given?

3	<p>What was your level of satisfaction regarding the lactation counselling received via telephone? (in a scale from 1 to 7, when 1 equals to feeling very satisfied, and 7 equals to feeling very unsatisfied)</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> </tr> <tr> <td>Very satisfied</td> <td colspan="5" style="text-align: center;">  </td> <td>Very not satisfied</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	1	2	3	4	5	6	7	Very satisfied						Very not satisfied	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5	6	7																
Very satisfied						Very not satisfied																
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																
E	Difficulties or problems faced by the mothers during the consultation process																					
1	<p>What were the difficulties which you have faced during the consultation process?</p>																					

F	Suggestions
1	<p>What suggestions do you have to improve on this service?</p>

Thank you for your co-operation in answering these additional questions.

Appendix I

Standard Operating Protocol for the Lactation Counsellors

This protocol was prepared in Malay language, and was adapted from the *Garis Panduan Pelaksanaan Aktiviti Kaunseling Laktasi Untuk Anggota Kesihatan. Cawangan Pemakanan, Bahagian Pembangunan Kesihatan Keluarga. Kementerian Kesihatan Malaysia. 2005*

University of Malaya

GARIS PANDUAN

PELAKSANAAN AKTIVITI KAUNSELING LAKTASI MELALUI TELEFON OLEH KAUNSELOR LAKTASI UNTUK KAJIAN

TELEPHONE LACTATION COUNSELING AND BREAST FEEDING PRACTICE: A RANDOMIZED CONTROLLED TRIAL

oleh

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CALON DOKTOR KESIHATAN AWAM (DrPH)
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**GARIS PANDUAN PELAKSANAAN AKTIVITI KAUNSELING
LAKTASI MELALUI TELEFON OLEH KAUNSELOR LAKTASI
UNTUK KAJIAN
*TELEPHONE LACTATION COUNSELING AND BREAST FEEDING
PRACTICES: A RANDOMIZED CONTROLLED TRIAL***

1. PENGENALAN

Kadar penyusuan susu ibu secara eksklusif masih lagi di tahap yang rendah walaupun pelaksanaan polisi Hospital Rakan Bayi telah dilaksanakan semenjak 1996. Data menunjukkan pada waktu discaj hospital selepas bersalin, seramai 94.1% daripada pasangan ibu/bayi menyusu dengan susu ibu dan sebanyak 89.3% daripada mereka menyusu susu ibu secara eksklusif (HKL, 2007). Walaubagaimanapun, jika diteliti secara keseluruhan, kadar penyusuan susu ibu eksklusif di bawah 4 bulan adalah 19.3% (15.5, 23.9); manakala kadar penyusuan susu ibu eksklusif secara keseluruhan untuk bayi di bawah enam bulan adalah 14.5% (11.7,17.9) (NHMSIII). Apabila dibandingkan dengan Kajian Kesihatan dan Morbiditi Kebangsaan II (1996), terdapat perbezaan peningkatan yang signifikan di dalam kadar pernah menyusu dengan susu ibu (*ever breast feeding*), kadar penyusuan susu ibu secara dominan (*predominantly breast feeding*) dan waktu kali pertama penyusuan susu ibu yang sesuai (*timely first suckling*). Akan tetapi, terdapat penurunan yang signifikan penyusuan susu ibu eksklusif di kalangan bayi di bawah umur empat bulan iaitu 9.7% sahaja yang mengamalkannya. Perbezaan ini menimbulkan persoalan adakah sokongan sewaktu selepas bersalin mencukupi untuk para ibu meneruskan dengan penyusuan susu ibu di rumah, dan mengapakah lebih ramai ibu yang mengamalkan penyusuan susu ibu secara dominan (*predominantly breast feeding*) daripada menyusu secara eksklusif.

Kajian ini adalah satu usaha untuk mencari bukti saintifik bahawa dengan kaedah baru kaunseling laktasi, para ibu akan mempunyai lebih sokongan, ilmu pengetahuan dan kemahiran untuk terus menyusu bayi mereka dengan susu ibu. Sokongan kaunseling laktasi melalui telefon oleh kaunselor laktasi yang bertauliah mungkin dapat membantu kekurangan dan kebuntuan sokongan selepas waktu bersalin yang amat penting untuk para ibu meneruskan penyusuan susu ibu di rumah atau apabila kembali bekerja. Kajian oleh Cochrane mendapati bahawa sokongan daripada kalangan profesional seperti para doktor, jururawat dan warga kesihatan yang lain termasuk ahli pemakanan, adalah efektif dalam membantu memanjangkan tempoh penyusuan susu (Britton dll., 2007). Manakala di kalangan warga kerja kesihatan, terbukti kaunselor laktasi memberi sokongan yang lebih positif berbanding jururawat biasa mahupun doktor (Humenick, Hill & Spiegelberg, 1998).

Pada masa sekarang, masih tidak terdapat data atau kajian mengenai kesan kaunseling laktasi melalui telefon oleh kaunselor laktasi bertauliah selepas waktu bersalin, terhadap amalan penyusuan susu ibu di Malaysia.

2. SKOP GARIS PANDUAN

Garis panduan ini disediakan sebagai panduan dan rujukan kepada kaunselor laktasi yang menyertai Kajian *Telephone Counseling and Breast Feeding Practice: A Randomized Controlled Trial* (mulai ini ditulis sebagai *projek kajian tersebut*). Ia harus digunakan semasa melaksanakan aktiviti kaunseling laktasi kepada kumpulan ibu-ibu yang terbabit. Panduan ini menjelaskan strategi pelaksanaan dan kaedah pengawasan serta pemantauan.

3. OBJEKTIF

Memastikan aktiviti kaunseling laktasi melalui telefon dapat dijalankan dalam satu standard yang seragam di antara kaunselor laktasi yang terlibat.

4. KUMPULAN SASARAN

Ibu-ibu yang baru melahirkan bayi yang sihat secara normal, berhasrat untuk menyusukan bayinya dengan susu ibu, dan telah bersetuju untuk menyertai kajian tersebut.

5. JANGKA WAKTU KAJIAN

Kajian dijangka akan dimulakan sepenuhnya pada bulan Oktober atau November 2009 dan dijangka akan berakhir dalam tempoh lapan bulan selepas itu (Jun / Julai 2010). Ini termasuk dua bulan waktu untuk pemilihan dan pengambilan peserta seramai 600 orang, diikuti dengan waktu susulan setiap peserta selama enam bulan.

6. STRATEGI PELAKSANAAN

6.1. Persediaan

6.1.1. Kategori anggota

Ketua Jururawat atau Jururawat Terlatih yang telah diiktiraf sebagai Kaunselor Laktasi di Hospital Bersalin Kuala Lumpur.

6.1.2. Latihan anggota yang menjalankan kaunseling

Kaunselor Laktasi telah menjalani Kursus Pengurusan dan Kaunseling Penyusuan Susu Ibu selama 40 jam

6.1.3. Kemudahan untuk menjalankan kaunseling

Tujuan:

- Memberi keselesaan dan kemudahan kepada kaunselor
- Menjalankan kaunseling tanpa gangguan
- Menjaga kerahsiaan dan privasi

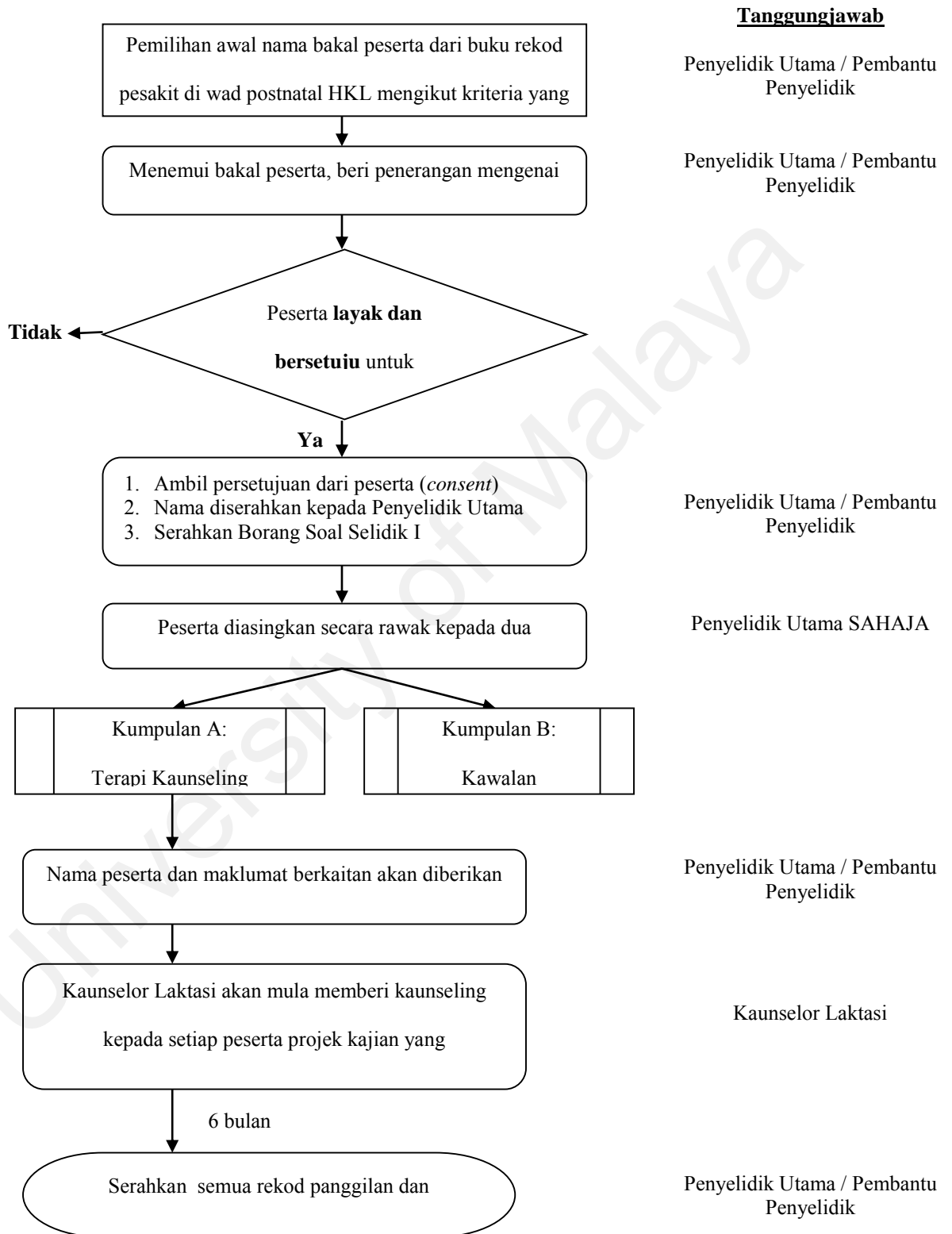
Kemudahan-kemudahan yang akan disediakan sepanjang kajian ini untuk Kaunselor Laktasi adalah:

- Bahan-bahan pendidikan penyusuan susu ibu
- Telefon (direct line) atau kad telefon prabayar
- Buku rekod kaunseling laktasi untuk setiap ibu yang dipertanggungjawabkan kepadanya
- Format Kaunseling Laktasi melalui telefon

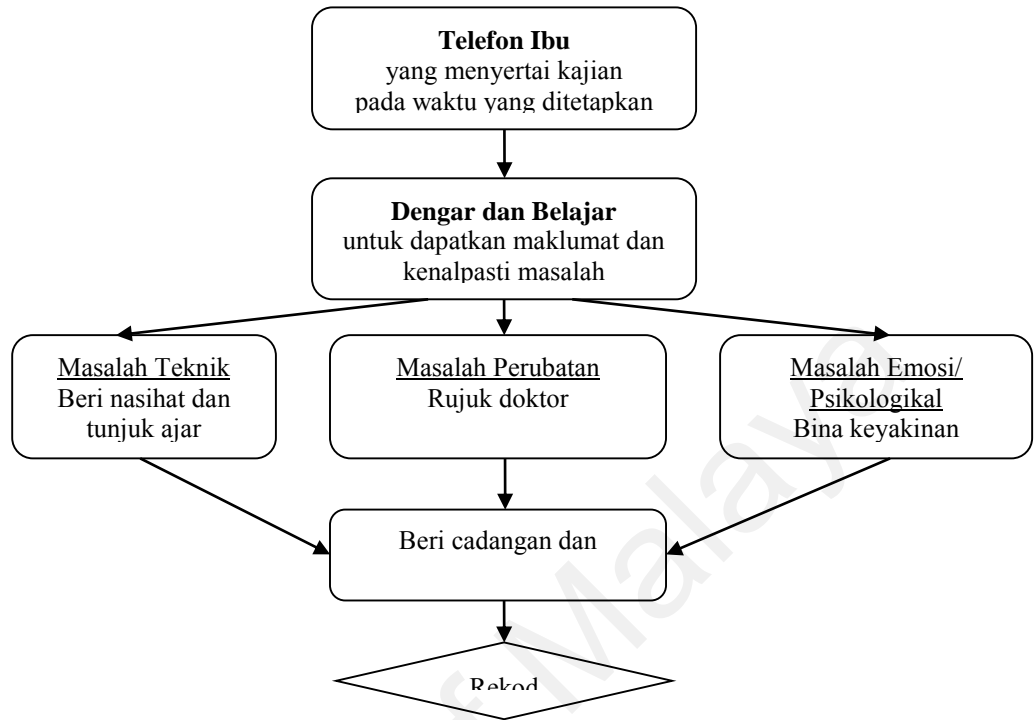
6.2. Pelaksanaan

- 6.2.1. Kaunselor Laktasi yang menyertai Kajian ini harus bersedia untuk memberi kaunseling kepada ibu yang telah dipertanggungjawabkan kepadanya, sebanyak dua kali dalam sebulan, selama enam bulan berturut-turut.
- 6.2.2. Kaunselor laktasi tidak dibenarkan untuk menambah bilangan kaunseling melalui telefon.
- 6.2.3. Memberi khidmat kaunseling yang mesra dan prihatin
- 6.2.4. Bersedia untuk membantu ibu-ibu mencapai sasaran penyusuan susu ibu seperti yang disarankan oleh Polisi Penyusuan Susu Ibu Kebangsaan.
- 6.2.5. Sekiranya panggilan kepada ibu tidak dijawab sehingga sebanyak 3 kali berturut-turut, kaunselor hendaklah memberi nama ibu tersebut kepada Penyelidik Utama untuk tindakan susulan. Kaunselor hendaklah mencatat kegagalan untuk menghubungi ibu tersebut di dalam buku rekod telefon. Namun, kaunselor tidak dibenarkan untuk menghentikan usaha menghubungi ibu untuk giliran panggilan yang seterusnya.
- 6.2.6. Menghentikan kaunseling melalui telefon apabila:
 - ibu-ibu telah membuat keputusan untuk berhenti terus daripada memberi susu ibu kepada bayinya dan menyampaikannya kepada kaunselor.
 - ibu memberitahu tidak mahu lagi meneruskan kaunseling

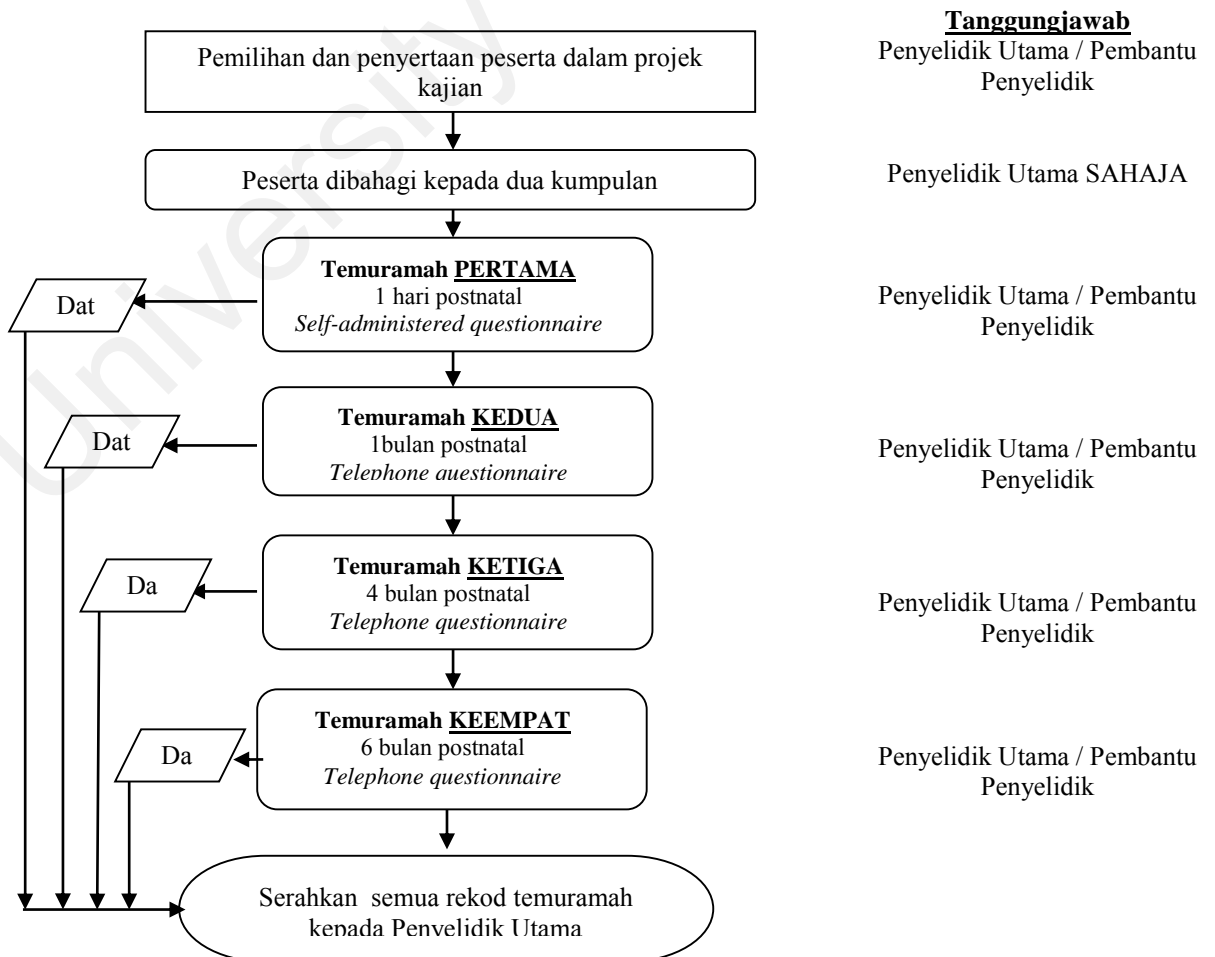
7. CARTA ALIR PENGAMBILAN PESERTA DAN PENGAGIHAN PESERTA KEPADA KAUNSELOR LAKTASI



8. CARTA ALIR MENJALANKAN KAUNSELING LAKTASI OLEH KAUNSELOR LAKTASI



9. CARTA ALIR TEMURAMAH PESERTA PROJEK KAJIAN



10. PENGAWASAN DAN PENILAIAN

- 10.1. Kaunselor laktasi yang menjalankan aktiviti kaunseling laktasi perlu merekod bilangan kes yang dikendalikan setiap hari dalam Buku Rekod Kaunseling Laktasi Individu dan Buku Rekod Telefon Harian (Lampiran)
- 10.2. Buku Rekod Kaunseling Laktasi Individu adalah rekod peribadi setiap kes dan diisi oleh kaunselor sebagai rujukan.
- 10.3. Buku Rekod Kaunseling Laktasi akan disemak secara rawak oleh pegawai penyiasat utama pada bila-bila masa dan akan disemak secara teliti pada setiap dua bulan dan pada waktu kajian tamat dijalankan.
- 10.4. Buku Rekod Kaunseling Laktasi Individu dan Buku Rekod Panggilan Telefon Harian perlu diserahkan kepada pegawai penyiasat utama pada waktu kajian tamat dijalankan.

11. RUJUKAN

- 11.1. Modul Latihan bagi Anggota Kesihatan- Kaunseling untuk Penyusuan Susu Ibu, Institut Kesihatan Umum 1999
- 11.2. Bahan-bahan pendidikan penyusuan susu ibu
- 11.3. Rujukan Ringkas Cara Mengatasi Masalah Penyusuan Susu Ibu
- 11.4. Laporan Tahunan Aktiviti Unit Penyusuan Susu Ibu 2007, Hospital Bersalin Kuala Lumpur (HKL, 2007)
- 11.5. Kajian Kesihatan dan Morbiditi Kebangsaan II (1996) (NHMSII)
- 11.6. Kajian Kesihatan dan Morbiditi Kebangsaan III (2006) (NHMSIII)

12. LAMPIRAN

- 12.1. Buku Rekod Kaunseling Laktasi Individu
- 12.2. Buku Rekod Panggilan Telefon Harian
- 12.3. Format Kaunseling Telefon untuk Individu
- 12.4. Rujukan Ringkas Cara Mengatasi Masalah Penyusuan Susu Ibu

Appendix J

Counseling Guideline for the Lactation Counselors

This counseling Guideline was adapted from the WIC BF Peer Counselling Training Manual available at

<http://www.cdph.ca.gov/programs/wicworks/Pages/WICBFPeerCounselingTrainingManual.aspx>

This guideline served as one of the reference guide on conducting lactation counselling for the Lactation Counselors

Counseling Guideline
for the
Telephone Lactation Counseling
and Breast Feeding Practices Study

3-Steps Counselling Strategy

Introduction to the 3-Step Counselling Strategy

This 3-step counselling strategy was developed by the *Best Start*, a group that has looked at ways to talk to mothers about breastfeeding. They found that most mothers know that breastfeeding is better than formula feeding. So why do mothers choose not to breastfeed if they know it is better? The group found that many mothers feel the challenges of breastfeeding (such as embarrassment, time and pain) outweigh the benefits.

The 3 steps are:

1. Ask open-ended questions
2. Affirm her feelings
3. Educate

The three steps

1. Step 1: Ask open –ended question

The first step is to ask **open-ended questions**. An open-ended question is one that can have many answers. It is a good idea to ask mothers what they think about breastfeeding rather than if they plan to breastfeed.

Open-ended questions help you find out what the mother thinks. It helps start a conversation.

Open-ended questions often start with **What** or **How**. For example:

- “What have you heard about breastfeeding?”
- “What do you know about breastfeeding?”
- “What are your feelings about breastfeeding?”

Closed-ended questions get a yes, no or very short answers. They can begin with is, are, was, were, have, had, do, does or did. For example, “Do you plan to breastfeed?” is a closed-ended question as the answer is either yes or no. The mother will likely think that the right answer is “yes” and not share any real thoughts with you.

Step 1: Follow up questions

After asking an open-ended question, you might need to ask another question to **better understand** what the mother is thinking. Most people do not answer a question with enough information to say what they mean. There are four kinds of “probing” questions you can use to better understand what she is thinking:

Extending questions – Help you get more information

- Could you tell me a little more about that?
- What else can you tell me about breastfeeding?
- When you say breastfeeding hurts, could you tell me a little more about that?

Clarifying questions – Help you find out what the mother really means

- When you say that it would be uncomfortable for you, are you saying it would be uncomfortable for you, or for someone else who might see you?
- When you say breastfeeding hurts, are you saying it hurts the entire time you are breastfeeding?
- Are you saying you think your mother doesn’t want you to breastfeed?

Reflecting questions – Let the mother know you understand what she said

- So you think your mother doesn’t want you to breastfeed?
- So you feel uncomfortable breastfeeding in front of your family?
- So you feel your baby is still hungry after you feed her?

Re-directing questions – Help you find out about something else

- What other concerns do you have about breastfeeding?
- What other questions do you have?
- Can I help you in any other way?

Sometimes it is also a good idea to add extra words that sound kind. For example, “Why not?” may seem mean. A nicer way to say “why not?” could be, “Maryam, what can you tell me about why you don’t think that’s a good idea?” Using the mother’s name, repeating her own words, and adding extra words helps when talking to other people.

2. Step 2: Affirm her feelings

After you have figured out what a mother may be worried about, the next step is to **affirm her feelings**. This will help her know that her feelings are normal or okay. Affirming a mother's feelings is respectful and builds trust. Mothers who feel safe will be more likely to open up and listen to your ideas.

Here are examples of affirming statements:

- "I've heard a lot of women say that."
- "That's a pretty common reaction."
- "I felt that way too."
- "My mother told me the same thing."
- "Most women go through a period like that after the baby is born."

3. Step 3: Educate

In Step 1, you asked open-ended questions to find out what worries a mother may have about breastfeeding. In Step 2, you let her know her feelings are okay. Now, in Step 3, you share helpful information with her.

Only share information that **relates to her worries**. She will pay attention to you if you talk about something that's meaningful to her.

Give information in small amounts. Most new mothers are feeling overwhelmed. It is hard for new mothers to remember a lot of information. If you give her too much information, she may think breastfeeding is too hard.

Have repeated conversations. It was found that the number of times breastfeeding is talked about is more important than the total amount of time spent talking about breastfeeding. This means it is a good idea to talk to mothers several times before and after the baby is born.

Helping Mothers over the Phone

Telephone Manners

- Remember, you cannot see the mother or her baby
- Always be supportive and positive
- Speak clearly
- Always give your name at the start of the call
- Ask if you called at a good time
- If you call the mother at a bad time, politely let her know when you will call her back. Remember to call her back!
- Ask the age of her baby
- Put the mother's needs before your own
- Get as many details as possible
- Suggest changes, don't give orders
- Never say "You should..."
- When in doubt, have the mother come to the clinic or see a health care provider
- Take notes while talking to mothers
- Before ending the call, have her repeat suggestions you made
- Refer mothers to needed resources if necessary

Suggestions for Topics to Cover During the Postnatal Period

First Week after Delivery

- Congratulations. Great you are breastfeeding!
- How is breastfeeding going?
- How is she doing and feeling?
- Is she breastfeeding exclusively? (No formula, water, etc.)
- Importance of colostrum – all that the baby needs for the first few days
- Feeding patterns - How often is baby feeding? How long is baby breastfeeding? Does baby wake for feedings? Remind to feed baby 8 to 12 times in a 24-hour day, usually every 1 to 2 hours.
- Ask about positioning and latch – Is she comfortable? Does she have any pain or discomfort? Review positioning and signs of a good latch
- Breastfeed on cue – review feeding cues
- After the first few days, does she hear baby swallow when breastfeeding?
- Baby's weight – Weight at birth; last known weight and date of last weight
- Diaper count – Have her describe the number and appearance of wet and dirty diapers
- What to expect in the first week – breasts will feel fuller between the 2nd and 5th day
- Breast milk will increase steadily and change in appearance
- Importance of exclusive breastfeeding; avoid bottles and pacifiers the first 3 to 4 weeks
- Did she get formula from the hospital? What are her plans for it?
- What concerns does she have about breastfeeding? Any barriers?
- How do family and friends feel about her breastfeeding?
- Who to contact if she has any questions or concerns
- Offer encouragement and support

Next Follow-Up (around 14 days after birth)

- How is breastfeeding going?
- How is she doing and feeling?
- Is she breastfeeding exclusively? (No formula, water, etc.)
- How are breasts? Softer, feel less full
- Feeding patterns - How often is baby feeding? How long is baby breastfeeding?
Remind to feed baby 8 to 12 times in a 24-hour day, usually every 1 to 2 hours.
- Does she have any pain or discomfort? Nipples and breasts OK? May need to review positioning and latch
- Breastfeed on cue
- Baby's weight – Last known weight and date of last weight
- Remind about growth spurts – 2 to 3 weeks, 6 weeks
- Diaper count – Have her describe the number and appearance of wet and dirty diapers
- Breast milk will increase steadily and change in appearance
- Importance of exclusive breastfeeding; avoid bottles and pacifiers bottles and pacifiers the first 3 to 4 weeks
- Did she get formula from the hospital? What are her plans for it?
- What concerns does she have about breastfeeding? Any barriers?
- How do family and friends feel about her breastfeeding?
- Plans for returning to work or school? Pumping or combo feeding?
- Is she expressing milk? Any concerns?
- Who to contact if she has any questions or concerns

Mothers who plan to start/ continue working/studying, or a busy mother

- When is she planning to start work/ studying again?
- When is she usually busy, which may cause her to leave her baby?
- What is her plan regarding the feeding for the baby? Encourage her to continue breast feeding, do not judge if she has firmly decided on mixing/ completely switch to formula feeding
- Has she discussed the plans to continue breast feeding with the caretaker?
- When is the best time to start expressing breast milk and storing it
- Practice giving the expressed breast milk to the baby, best to be done with the caretaker
- Has she confirm plans with her employer on when and where she will express milk at work
- How to maintain good milk flow
- What concerns does she have about breastfeeding during work time?

Documentation

Documentation is very important for many reasons. Documentation:

- Improves communication—in all health care settings, communication between staff is very important. If another counsellor needs to follow-up with a mother while you are not available, your notes will help that counsellor give the mother better care.
- Saves time—Once you know how to document, it will save you time when you follow-up with a mother. If you have the mother's "chart" in front of you, you will not need to waste time trying to figure out where you left off and what you talked about last time.
- Helps you prepare for your next counselling session—When you follow-up with a mother and begin where you left off, it shows that you are interested and concerned about her and her baby.
- Keeps track of the work you have done—Documenting each participant's contact is a very important part of your job. Your supervisor relies on you to complete this paperwork.

Confidentiality

The participants share personal information when they enrol in this research. They have the right to know that this information will not be shared with anyone except when needed. This means that you are not to:

- Share information with your partner and/or friends
- Leave forms and participant files out where others can see them
- "Gossip" with other staff about mothers that you have counselled

Appendix K

Simplified Reference Guide on Solving Breastfeeding Problems

This simplified reference guide was supplied to the Lactation Counselors as a ‘flip through’ book to help them during counseling sessions. This guide was prepared in Malay Language and was adapted from *Garis Panduan Pelaksanaan Aktiviti Kaunseling Laktasi Untuk Anggota Kesihatan. Cawangan Pemakanan, Bahagian Pembangunan Kesihatan Keluarga. Kementerian Kesihatan Malaysia. 2005* (Implementation Guidelines for Lactation Counseling Activities For Health Personnel. Nutrition Branch of Family Health Development Division, Ministry of Health Malaysia. 2005))

**RUJUKAN RINGKAS
CARA MENGATASI
MASALAH
PEYUSUAN SUSU
IBU**

KAJIAN KAUNSELING LAKTASI MELALUI
TELEFON

1. TIDAK CUKUP SUSU

Salah satu sebab yang kerap diberi kerana berhenti menyusu ialah 'tidak cukup' susu. Si ibu membuat tanggapan bahawa bekalan susunya tidak cukup. Sama ada tanggapan ini betul atau tidak, bekalan susu yang kurang boleh dirawat.

SIMPTOM	PUNCA
Tanggapan	Faktor Penyusuan
a) Ibu memberitahu bahawa bayinya kerap menangis, masih tidak puas menyusu, menyusu terlalu singkat/ lama, enggan menghisap payudara yang 'kosong', mengantuk dan tidak berminat untuk menyusu, juga peningkatan berat badan bayi yang lemah.	a) Lekapan yang lemah menyebabkan hisapan kurang efektif dan pengaliran susu kurang
b) Ibu juga memberitahu payudaranya tidak berasa tegang, tidak mampu memerah banyak atau tidak ada susu.	b) Masa penyusuan terlalu singkat, tidak mempunyai susu akhir
Tanda bayi tidak mendapat cukup susu	c) Jarang menyusu, kurang dari lapan kali sehari
a) Peningkatan berat badan kurang drpd 500g sebulan dan tidak mengikut graf tumbesaran	d) Tidak menyusu di waktu malam
b) Berat badan bayi kurang daripada waktu lahirnya (kecuali yang lahir dgn berat badan yang tinggi)	e) Penggunaan botol atau puting tiruan
c) Air kencing bayi sedikit, warna kuning, berbau dan kurang dari enam kali sehari	f) Pengambilan kafein atau alkohol oleh ibu
d) Najis sedikit, keras, kering, berwarna hijau	Faktor Bayi
e) Kulit bayi berkedut, wajah pula 'bimbang'	a) Sakit
f) Bayi keletihan, mengantuk dan menangis dengan lemah	b) Tidak cukup bulan, bayi lemah untuk menghisap secara efektif
	c) Pertumbuhan mendadak pada umur 6 minggu dan 3 hingga 6 bulan, dimana selera bayi bertambah
	d) Tidak normal seperti bibir sumbing, atau tongue-tie
	e) Otot lemah
	Faktor Psikologi
	a) Kurang keyakinan diri-ibu muda, tidak berpengalaman, pernah mengalami kegagalan untuk menyusu, bimbang bentukpayudara berubah, dan tekanan keluarga atau rakan sebaya
	b) Tidak suka menyusu bayi, bayi enggan menyusu-tidak mendakap bayi dengan erat, sejarah hidup seperti pernah mengalami penderaan seksual/lelih yang teramat sangat
	c) Sedih
	Faktor yang jarang berlaku
	a) Ubat perancang atau hamil
	b) Pernah mengalami pembedahan payudara
	f) Uri masih melekat
	g) Fungsi tiroid yang tidak normal

PENGURUSAN
Perkara yang perlu diambil perhatian ketika mencatat latar belakang ibu/bayi
a) Perasaan ibu mengenai penyusuan, bekalan susu dan bayinya, juga situasi dan sokongan keluarga
b) Kekerapan dan tempoh menyusu
c) Kencing dan najis bayi, peningkatan berat badan dan perubahan sikap
d) Pemberian makanan tambahan, botol susu, pelapik puting
e) Bayi sakit dan tidak normal
f) Ibu sakit, pengambilan ubat-ubatan, pemakanan dan status emosi
g) Pernah mengalami pembedahan payudara, melecur, payudara tidak normal seperti payudara terlalu kecil, atau puting termasuk ke dalam
Penilaian penyusuan
a) Posisi dan lekapan
b) Keberkesanan refleks 'let-down' – payudara terasa berat, bayi menelan, titisan susu
c) Kemesraan antara ibu dan bayi
Rawatan relevan
a) Perbetulkan posisi dan lekapan
b) Ubahsuai ubat-ubatan yang boleh mempengaruhi susu
c) Bercakap dengan ibu sehingga ibu mempunyai keyakinan
d) Rujuk ibu kepada pakar perunding laktasi jika perlukan bantuan pakar
Cadangan yang praktikal
a) Minta ibu menyusukan bayi dengan lebih kerap, sekurang-kurangnya 10 kali dalam tempoh 24 jam
b) Nasihatkan ibu tidur berdekatan bayi dan susui setiap malam apabila tahap prolaktin tinggi
c) Minta ibu perah susu selepas setiap kali penyusuan untuk jangka masa pendek, sehingga bekalan susu meningkat
d) Elakkan penggunaan botol. Guna cawan untuk memberi bayi perahan susu ibu
e) Nasihatkan ibu berehat dan relaks semasa menyusukan bayi

Garis panduan ini diadaptasi dari *Garis Panduan Pelaksanaan Aktiviti Kaunseling Laktasi Untuk Anggota Kesihatan, Cawangan Pemakanan, Bahagian Pembangunan Kesihatan Keluarga, Kementerian Kesihatan Malaysia, 2005.*

2. BENGGAK PAYUDARA

Masalah bengkak payudara akan berkurangan jika ibu menyusu sendiri sejak bayi lahir. Kebengkakan boleh dielak dan mudah diuruskan.

SIMPTOM	PUNCA
a) Payudara- nampak berkilat, sakit, tegang dan keras. Rasa agak panas bila dipegang	Faktor Penyusuan a) Jarang menyusu, kurang dari lapan kali sehari b) Mengehendkan masa menyusu atau penyusuan yang terlalu singkat
b) Puting- leper, bengkak atau merekah	c) Tidak menyusu pada waktu malam d) Ibu tidak bersama bayi
c) Bayi- sukar menyusu, hisapan kurang efektif kerana pengaliran susu yang tidak lancar	e) Hisapan kurang efektif f) Berhenti menyusu g) Beri anak minuman lain pada awal kelahirannya
d) Susu tidak keluar	
e) <i>Let-down</i> mungkin terasa sakit	Faktor Hubungan Ibu a) Tekanan
f) Ibu mungkin demam	b) Psikologi- muda, tidak mendapat sokongan, takut, letih, enggan menyusu bayi c) Rutin hospital- memisahkan anak dengan ibu, lewat dan mengehendkan penyusuan ibu, pemberian susu formula (<i>prelacteal feeds</i>) d) Masalah pengeluaran oksitosin
	Faktor Hubungan Bayi a) Sukar menyusu kerana tidak normal, masalah cara hisapan b) Sakit c) Tidak cukup bulan d) Guna botol atau puting kosong

PENGURUSAN

Perkara yang perlu diambil perhatian ketika mencatat latar belakang ibu/bayi

- Perasaan ibu mengenai penyusuan, bekalan susu dan bayinya, juga situasi dan sokongan keluarga
- Kekerapan menyusu, malam dan siang
- Tempoh menyusu
- Guna botol susu atau puting kosong
- Bercerai susu (balik kerja semula, berpisah atau masuk hospital)

Penilaian penyusuan ibu

- Posisi dan hubungan ibu dan anak
- Hisapan yang efektif- ritma hisapan, penambahan berat badan, kekerapan kencing dan buang air besar
- Berhenti menyusu
- Perubahan pada payudara dan puting- berkilat, merah, ketegangan payudara, puting yang sakit
- Tanda sakit, lemah, tidak bermaya dan masalah anatomi mulut

Rawatan relevan

- Perbetulkan posisi dan lekapan
- Galak penyusuan yang lebih kerap dan tanpa had malam dan siang sekurang-kurangnya 8-12 kali termasuk dua kali di sebelah malam) dan memerah susu ibu jika berpisah, sekurang-kurangnya enam kali sehari dan sekali pada waktu tidur malam
- Galak ibu mengejutkan bayi yang sedang tidur untuk menyusu sekurang-kurangnya 3 jam sekali
- Guna analgesik bagi jangka masa yang singkat jika ibu berasa sakit
- Ubati puting yang bengkak dan merekah (rujuk perkara 6- Sakit Puting)

Cadangan yang praktikal

- Nasihatkan ibu merangsang pengeluaran oksitosin dan *let-down*
- Cadangkan supaya mendapatkan bantuan suami atau keluarga untuk mengurut bahagian tengkuknya sebelum menyusu
- Cadangkan teknik relaks yang sesuai
- Nasihatkan ibu memerah susu secukupnya sebelum menyusubayi untuk melembutkan areolar agar bayi dapat didakap lebih erat
- Mulakan menyusu sebaik saja rasa payudara penuh
- Biarkan bayi habis menyusu di payudara pertamasebelum menukar kpd payudara kedua
- Perah sedikit susu ibu diantara waktu menyusu untuk memberi keselesaan

Garis panduan ini diadaptasi dari *Garis Panduan Pelaksanaan Aktiviti Kaunseling Laktasi Untuk Anggota Kesihatan. Cawangan Pemakanan, Bahagian Pembangunan Kesihatan Keluarga, Kementerian Kesihatan Malaysia. 2005.*

3. SALURAN SUSU TERSUMBAT (blocked ducts)

Banyak faktor yang boleh menyebabkan masalah saluran tersumbat. Walaubagaimanapun, ianya boleh dielak.

SIMPTOM

- a) Payudara- sihat Cuma rasa berketul di satu-satu tempat dan rasa sakit di tempat berkenaan
- b) Nampak kemerahan
- c) Tidak demam, tetapi mungkin selsema

PUNCA

Faktor Penyusuan

- a) Jarang menyusu, kurang dari lapan kali sehari
- b) Mengehendkan masa menyusu atau penyusuan yang terlalu singkat
- c) Tidak menyusu pada waktu malam
- d) Ibu tidak bersama bayi
- e) Hisapan kurang efektif
- f) Berhenti menyusu
- g) Beri anak minuman lain pada awal kelahirannya

Faktor Hubungan Ibu

- a) Tekanan
- b) Psikologi- muda, tidak mendapat sokongan, takut, letih, enggan menyusu bayi
- c) Rutin hospital- memisahkan anak dengan ibu, lewat dan mengehendkan penyusuan ibu, pemberian susu formula (*pr lacteal feeds*)
- d) Masalah pengeluaran oksitosin

Faktor Hubungan Bayi

- a) Sukar menyusu kerana tidak normal, masalah cara hisapan
- b) Sakit
- c) Tidak cukup bulan
- d) Guna botol atau puting kosong

Faktor lain

- a) Trauma/ tekana luaran- coli yang ketat atau tekanan dari jari semasa menyusukan bayi
- b) Lebih bekalan susu
- c) Bintik putih di atas puting (milk blisters)

PENGURUSAN

Perkara yang perlu diambil perhatian ketika mencatat latar belakang ibu/bayi

- a) Perasaan ibu mengenai penyusuan, bekalan susu dan bayinya, juga situasi dan sokongan keluarga
- b) Kekerapan dan tempoh menyusu, malam dan siang
- c) Sakit puting
- d) Situasi dalam keluarga- tekanan, keletihan, sokongan emosi
- e) Pemakanan dan kesihatan ibu

Penilaian penyusuan ibu

- a) Posisi dan lekapan
- b) Tekanan dari pemakaian atau jari ketika menyusu, yang boleh mengganggu pengaliran susu
- c) Bintik putih di atas puting atau perkara tidak normal yang lain

Rawatan relevan

- a) Memperbaiki posisi dan lekapan untuk memastikan pengaliran susu yang lebih efektif
- b) Mengelakkan tekanan
- c) Bintik putih di atas puting mungkin perlu dibuang, jika tidak diselesaikan secara spontan dengan hisapan bayi

Cadangan yang praktikal

- a) Sama seperti bengkak payudara, begitu juga cara ini:
- b) Urut perlahan-lahan di sekeliling payudara hingga ke puting sebelum dan semasa penyusuan, atau semasa memerah
- c) Jika perlu, sokong payudara dengan telapak tangan
- d) Elakkan- tidur meniarap, baju dalam yang ketat, tali penyokong mendukung bayi yang menekan payudara dan puting, juga tekanan jati ke atas payudara
- e) Nasihatkan ibu supaya berehat bersama bayi dan susui bayi dengan kerap- setiap 2 hingga 2½ jam sekurang-kurangnya, makan dengan sempurna dan minum air secukupnya.

Garis panduan ini diadaptasi dari *Garis Panduan Pelaksanaan Aktiviti Kaunseling Laktasi Untuk Anggota Kesihatan. Cawangan Pemakanan, Bahagian Pembangunan Kesihatan Keluarga. Kementerian Kesihatan Malaysia. 2005.*

4. BAYI YANG KERAP MENANGIS

Tangisan boleh mengecewakan hubungan dia antaraibu dan bayi serta menimbulkan tekanan di dalam keluarga. Menangis adalah cara bayi memberitahu sesuatu. Sesetengah bayi menangis tanpa sebab tetapi tangisan yang berpanjangan memerlukan lebih perhatian. Ibu yang bayinya suka menangis kerap hilang keyakinan diri untuk menyusukan bayinya.

SIMPTOM	PUNCA
a) Menangis tanpa sebab atau punca yang jelas	a) Lapar- jarang menyusu, hisapan kurang efektif, penyusuan yang terlalu singkat, selera bertambah
b) Kesukaran menyusu- penyusuan yang terlalu kerap atau enggan menyusu	b) Berpisah- tidak cukup hubungan mesra antara ibu dan anak
c) Kurang berat badan serta sikap bayi yang tidak ceria	c) Lebih rangsangan- terlalu ramai orang yang menjaga bayi, terlalu bising, atau terlalu banyak pancaran cahaya matahari
	d) Tidak sihat atau sakit- sakit telinga, tumbuh gigi, <i>gastro-oesophageal reflux</i> , kesan suntikan imunisasi
	e) Alahan, dermatitis
	f) Kembang- mungkin ada kaitan dengan usus (<i>colic</i>). Bermula secara spontan, membuatkan bayi tidak selesa. Tidak ada kaitan dengan cara pemakanan dan akan berhenti secara spontan selepas bayi berusia 3 bulan
	g) Ubat-ubatan ibu- samada ubat yang diberi oleh doktor atau dibeli di farmasi, dan ubat-ubatan lain yang diambil oleh ibu
	h) Tembakau atau kafein

PENGURUSAN

Perkara yang perlu diberi perhatian ketika mencatat latar belakang ibu/ bayi

- Perasaan ibu mengenai penyusuan dan tangisan bayi (rasa bersalah, marah adan tidak berupaya) dan reaksi keluarga
- Gaya hidup, pemakanan, perubatan dan ubatan, najis, pertambahan berat badan

Rawatan yang relevan

- Periksa bayi untuk melihat tanda sakit
- Perbetulkan posisi dan lekapan
- Awasi pemakanan ibu untuk menilai makana yang menjadi punca tanpa menjejaskan khasiatnya

Cadangan yang praktikal

- Maklumkan pada ibu bahawa makanan tambahan tidak diperlukan
- Biar bayi menyusu payudara pertama untuk mendapatkan susu akhir yang mengandungi lemak dan juga mengenyangkan, barulah beri payudara yang sebelah lagi
- Beri bayi menghisap payudara untuk menenangkan, sekiranya tiada masalah lebih bekalan
- Urut perut bayi secara lembut, dalam posisi menegak jika perut kembang
- Periksa samada bayi selesa- pakaian tidak terlalu ketat, tidak terlalu panas/ sejuk
- Pegang dengan tekanan yang lembut di atas perut bayi untuk mengurangkan mulas perut
- Gunakan cahaya lampu dan muzik lembut untuk membantu menenangkan bayi
- Kurangkan rangsangan kepada bayi tetapi rapatkannya dengan ibubapanya
- Berhati-hati membri ubat-ubatan mulas perut kepada bayi
- Elakkan merokok berdekatan bayi

BERI KEYAKINAN DAN SOKONGAN

Beri jaminan kepada ibu bahawa anakaya sedang membesar dengan baik. Beritahu ibu bahawa terdapat ramai bayi yang melalui tempoh yang tidak stabil seperti ini, tetapi mereka bukanlah "nakal". Bantu ibu memahami tabiat bayi dan beri keyakinan kepadanya bahawa dia boleh menyusukan bayinya dengan berjaya. Cadangkan supaya ibu berbincang dengan ibu-ibu lain untuk berkongsi pengalaman.

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5. RADANG PAYUDARA

Radang payudara perlu diberi perhatian oleh wanita yang sedang menyusu. Simptomnya adalah seperti demam selsema.

<u>SIMPTOM</u>	<u>PUNCA</u>
a) Bahagian payudara akan berasa hangat, merah dan bengkak b) Sakit c) Rasa tidak sihat d) Demam	Sama seperti bengkak payudara dan saluran susu tersumbat. Terbahagi kepada dua iaitu: Radang payudara tidak berjangkit: a) Berlaku berikutan susu keluar daripada tisu atau alveoli, biasanya berlaku kerana bengkak susu yang tidak dirawat dan saluran susu tersumbat Radang payudara berjangkit: a) Pengaliran susu yang tidak sempurna b) Trauma payudara dan puting, yang membenarkan kemasukan bakteria c) Tekanan dan sistem imun yang lemah

PENGURUSAN

Perkara yang perlu diberi perhatian ketika mencatat latar belakang ibu/ bayi Sama seperti bengkak payudara dan saluran susu tersumbat.

Rawatan yang relevan

- Periksa payudara untuk melihat simptom tisu rosak atau puting merekah
- Perbetul pengaliran susu- baiki posisi dan lekapan, serta kekerapan menyusu, sekurang-kurangnya setiap 2 hingga 2½ jam
- Ubati segera jika berlaku sebarang infeksi
- Ubat *anti-inflammatory* atau analgesik jika perlu
- Makan makanan berkhasiat dan minum air dengan banyak
- Berehat sekurang-kurangnya 24 jam

Jika simptom semakin jelas, berlaku rekahan, kerap demam dan pengaliran susu yang kurang sempurna, rawat dengan antibiotik. Rawatan antibiotik hanya untuk mastitis yang sah berjangkit. Jika bimbang mengenai perkara ini, dapatkan rawatan awal dan berterusan selama 10 hari. Mungkin resistant-penicillinase. Hanya antibiotik yang sesuai untuk wanita alaktasi boleh diguna. Nasihatkan ibu mengenai kesan sampingan yang mungkin dialami oleh ibu (*candida*) dan bayi (*diarrhoea*).

Apabila berlaku jangkitan dan pengaliran susu yang tidak mencukupi, nanah akan terkumpul dan berlakunya rekahan puting. Masalah yang jarang dialami ini akan memerlukan sama ada pembedahan untuk memperbetulkan pengaliran susu, atau *needle aspiration* dan terapi antibiotik.

CADANGAN UNTUK MEMBERI KEYAKINAN DAN SOKONGAN

Pastikan ibu bahwa dia boleh menyusu walaupun sedang menghadapi masalah payudara. Terangkan kepadanya sebab perkara itu berlaku dan cara untuk mengelak daripada masalah yang sama berulang. Beri sokongan emosi dan minta ibu membuat pemeriksaan lanjut.

Garis panduan ini diadaptasi dari *Garis Panduan Pelaksanaan Aktiviti Kaunseling Laktasi Untuk Anggota Kesihatan. Cawangan Pemakanan, Bahagian Pembangunan Kesihatan Keluarga, Kementerian Kesihatan Malaysia, 2005.*

Appendix L

Individual Telephone Record

This Individual Telephone Record was given to the Lactation Counselors and served as the Log book for recording each participants' counseling session

University of Malaya

INDIVIDUAL LACTATION COUNSELING RECORD

PARTICIPANT'S NAME : _____

IC NUMBER : _____

TELEPHONE NO : _____

: _____

ADDRESS : _____

TEL NO. OF HUSBAND/ RELATIVE/ FRIEND:

1) : _____

2) : _____

COUNSELOR'S NAME : _____

INDIVIDUAL LACTATION COUNSELING RECORD

No	Postnatal Month	Date	Time Start	Time End	Total Minutes	Issues Discussed	Note
i	1						
ii	1						
iii	2						
iv	2						
v	3						
vi	3						
No	Postnatal Month	Date	Time Start	Time End	Total Minutes	Issues Discussed	Note

vii	4						
viii	4						
ix	5						
x	5						
xi	6						
xii	6						

Note: Please write the reason why counseling is not conducted/ continued if it happens at any time.

Appendix M

Record of Telephone Counseling Sessions for Lactation Counselors

This record book was given to the Lactation Counselors and served as the log book for recording every telephone counseling sessions made by the Lactation Counselors

University of Malaya

DAILY TELEPHONE RECORD BOOK

LACTATION COUNSELING THROUGH THE TELEPHONE STUDY

COUNSELOR'S NAME: _____

FORMAT KAUNSELING LAKTASI MELALUI TELEFON

1. Beri salam atau ucapan kepada peserta
2. Perkenalkan diri sebagai kaunselor laktasi dan tujuan panggilan dibuat
3. Soalan yang perlu ditanya kepada peserta:
 - i. Bagaimana kesihatan ibu dan bayi sekarang?
 - ii. Adakah ibu masih menyusui bayi?
 - iii. Adakah ibu sudah mula bekerja?
 - iv. Adakah ibu memerlukan bantuan kaunselor untuk cara pemerah dan menyimpan susu ibu?
 - v. Adakah ibu menghadapi sebarang masalah dalam penyusuan susu ibu?
4. Tandakan (✓) bagi masalah yang dihadapi:

	Tiada susu / tidak cukup susu		Saluran tersumbat (blocked duct) / mastitis
	Puting merekah (cracked nipple)		Bayi enggan menyusu
	Bengkak payudara (engorged)		Bayi kembong/ kerap menangis
	Puting tenggelam/ leper (inverted/ flat nipple)		Menambah penghasilan susu
	Puting besar/ panjang		Susu terlalu banyak
	Memerah/ menyimpan susu		Makanan pelengkap
	Pantang larang/ kepercayaan		Ibu bekerja
	Tiada sokongan moral daripada keluarga / majikan		Masalah lain

5. Berikan kaunseling, nasihat dan cadangan terhadap setiap masalah yang dikemukakan oleh peserta
6. Rujuk peserta untuk berjumpa kaunselor penyusuan susu ibu atau doktor di hospital sekiranya perlu
7. Ingatkan peserta bahawa dia akan dihubungi lagi untuk sesi seterusnya (kecuali pada sesi terakhir)
8. Ucapkan terima kasih kepada peserta di atas kerjasama yang diberi

DAILY TELEPHONE CALLS RECORD

NAME OF COUNSELOR : _____

TOTAL PARTICIPANTS UNDER CARE: _____

Date	Time	Name of Participant	Call Duration (minute)

Appendix N

Participant Information Sheet for Qualitative Study

University of Malaya

PARTICIPANT'S INFORMATION SHEET

Please read the following information carefully, do not hesitate to discuss any questions you may have with your Doctor.

Study Title

THE LACTATION COUNSELORS' PERSPECTIVES ON TELEPHONE LACTATION COUNSELING: A QUALITATIVE STUDY

Introduction

Breast feeding is the recommended nutrition for all infants as one of the ways to obtain maximal health. The antenatal breast feeding programme within the Malaysian public health care system can be considered as good as almost all of the public hospitals have been certified as Baby Friendly Hospital. However, it was noted from studies that the breast feeding rates in Malaysia is low compared to other countries, despite the implementation of the National Breast Feeding Policy and the Baby Friendly Hospital Initiative.

What is the purpose of this study?

The purpose of this study is to obtain the feedback from Lactation Counselors from Maternity Hospital Kuala Lumpur, who had provided breastfeeding support/ counseling through the telephone. This information will be reviewed and evaluated in order to improve the health services in our country.

What are the procedures to be followed?

After you have agreed and given your consent, you will be needed to answer questions in an in-depth interview regarding your experiences regarding breastfeeding counseling through telephone a few months ago.

The information obtained from the interview will be **confidential** and used only for the purpose of this study. The data collection team members will also contact you again at a later time if there is a need to do so.

What will be benefits of the study:

(a) to you as the subject?

Being a participant in this study will provide an opportunity for you to give your personal feedback based on your own experiences about the telephone-based breastfeeding counseling. Your feedback could be in a positive, negative or constructive in forms and will not be judged by any parties.

(b) to the investigator?

This study will help the investigator to gain more knowledge and insight on the telephone lactation counseling in depth. The investigator hopes that this research will help her in writing a thesis related to the matter and pursue a degree in Doctorate of Public Health.

What are the possible drawbacks?

This study will not pose any intentional problems to you, except taking some of your precious time to answer the questions. However, in the questionnaire, you may not feel comfortable with some of the questions posed during the telephone interview.

Can I refuse to take part in the study?

Your participation in this study is voluntary. You may withdraw from this study if you do not wish to continue with the follow up. You may also refuse to answer the questions if you are not willing to.

Who should I contact if I have additional questions during the course of the study?

If you have any enquiries regarding this study, you can contact our Principal Investigator, Dr Norzakiah Mohd Tahir at Department of Social & Preventive Medicine, Faculty of Medicine University Malaya Kuala Lumpur, at 03-7967 7512 or any officers at our operational room at the same address, or by telephone at 03-7967 4929.

Doctor's Name: Dr Norzakiah Mohd Tahir

Tel: 019-6230311

FPU-DOF-BK-012-04-R00

PENERANGAN UNTUK PESERTA

Sila baca keterangan berikut dengan teliti, dan anda digalakkan untuk mengemukakan sebarang kemusykilan atau soalan dengan doktor anda.

Tajuk Kajian

KAUNSELING LAKTASI MELALUI TELEFON DARI PERSPEKTIF KAUNSELOR LAKTASI

Pengenalan

Penyusuan susu ibu adalah pemakanan yang sangat digalakkan untuk bayi sabagai salah satu cara untuk mencapai tahap kesihatan terbaik. Program mempromosi penyusuan susu ibu kepada ibu-ibu di dalam sistem khidmat kesihatan awam di Malaysia boleh dikatakan agak baik, dengan hampir kesemua hospital kerajaan telah dinobatkan sebagai Hospital Rakan Bayi. Salah satu kaedah yang cuba diperkenalkan untuk mempromosi penyusuan susu ibu ini adalah melalui kaunseling laktasi melalui telefon yang telah dijalankan di Hospital Bersalin Kuala Lumpur.

Apakah tujuan kajian ini?

Tujuan kajian ini adalah untuk mendapatkan maklumat mengenai maklum balas daripada kaunselor laktasi Hospital Bersalin Kuala Lumpur yang telah memberi perkhidmatan kaunseling laktasi melalui telefon. Maklumat yang diperolehi akan diselidiki dan dianalisa untuk membolehkan penambahbaikan perkhidmatan kesihatan di negara kita.

Apakah prosedur yang perlu saya ikuti?

Apabila anda telah menyatakan persetujuan untuk menyertai kajian ini, anda cuma dikehendaki untuk menjawab beberapa soalan melalui satu temuramah mengenai pengalaman anda memberikan perkhidmatan kaunseling beberapa bulan yang lalu.

Maklumat yang diperolehi semasa kaji selidik adalah **rahsia** dan hanya akan digunakan untuk tujuan kajian ini. Ahli penyelidik data mungkin akan menghubungi anda lagi selepas tamat tempoh kajian jika perlu.

Apakah kebaikan kajian ini kepada:

(a) anda sebagai peserta?

Dengan menyertai kajian ini, anda akan mendapat peluang memberi maklumbalas anda berdasarkan pengalaman anda sendiri memberikan perkhidmatan kaunseling laktasi melalui telefon. Maklum balas anda boleh berbentuk positif, negatif atau membina dan tidak akan sama sekali dihakimi oleh mana-mana pihak.

(b) kepada penyelidik?

Kajian ini akan membantu penyelidik utama kajian ini untuk mendapatkan maklumat yang dikehendaki dengan lebih mendalam. Penyelidik kajian ini berharap maklumat yang diperolehi nanti akan dapat membantu beliau dalam menyediakan tesis yang berkenaan, dalam usahanya mendapatkan Ijazah Doktor Kesihatan Awam kelak.

Apakah masalah yang mungkin dihadapi?

Kajian ini sebenarnya tidak akan memberikan masalah kepada anda, kecuali mengambil sedikit daripada masa anda untuk menjawab soalan. Bagaimanapun, semasa kajian ini anda mungkin akan tidak selesa dengan beberapa soalan yang dikemukakan.

Bolehkah saya menolak dari menyertai kajian ini?

Sebarang penyertaan kajian ini adalah secara sukarela. Anda boleh menolak untuk menjawab soalan sekiranya anda tidak bersedia untuk menjawabnya.

Siapakah yang boleh saya hubungi sekiranya saya mempunyai soalan tambahan sepanjang kajian ini berlangsung?

Sekiranya anda mempunyai sebarang persoalan, anda boleh menghubungi Penyelidik Utama, Dr Norzakiah Mohd Tahir di Jabatan Perubatan Kemasyarakatan dan Pencegahan, Fakulti Perubatan Universiti Malaya Kuala Lumpur di nombor telefon 03-7967 7512 atau mana-mana pegawai dialamat yang sama dan atau melalui telefon di 03-7967 4929.

Nama doktor: Dr Norzakiah Mohd Tahir

Tel: 019-6230311

Appendix O

Consent Form for Qualitative Study

University of Malaya

CONSENT BY PATIENT FOR CLINICAL RESEARCH

I, Identity Card No.
 (Name of Patient)

of
 (Address)

hereby agree to take part in the clinical research (clinical study/questionnaire study/drug trial) specified below:

Title of Study: The Lactation Counselors' Perspectives on Telephone Lactation Counseling: A Qualitative Study

the nature and purpose of which has been explained to me by Dr. Norzakiah Mohd Tahir (Medical Officer, Candidate for Doctor of Public Health)

and interpreted by
 (Name & Designation of Interpreter)

to the best of his/her ability in language/dialect.

I have been told about the nature of the clinical research in terms of methodology, possible adverse effects and complications (as per patient information sheet). After knowing and understanding all the possible advantages and disadvantages of this clinical research, I voluntarily consent of my own free will to participate in the clinical research specified above.

I understand that I can withdraw from this clinical research at any time without assigning any reason whatsoever and in such a situation shall not be denied the benefits of usual treatment by the attending doctors.

Date: Signature or Thumbprint
 (Patient)

IN THE PRESENCE OF

Name)
 Identity Card No.) Signature
 Designation) (Witness for Signature of Patient)

I confirm that I have explained to the patient the nature and purpose of the above-mentioned clinical research.

Date Signature
 (Attending Doctor)

Appendix P

Interview Guide for In-depth Interview

University of Malaya

INTERVIEW GUIDE

THE LACTATION COUNSELORS' PERSPECTIVES ON PRO-ACTIVE TELEPHONE LACTATION COUNSELING: A QUALITATIVE STUDY:

1. Introduce the interviewer and explain the reason for conducting interviews.
2. Ask the informant to answer honestly
3. Explain that there are no right or wrong answers
4. Acknowledge the tape recorder.
5. Reassure informant that his or her responses are confidential
6. Tell informant how long discussion will last.
7. Ask informant to introduce herself. The informant can use a pseudonym if he/she feel uncomfortable giving a real name.
8. Obtain general information from the informant (e.g., name, age, occupation, period of work, education).
9. Questions:

Parts	Questions	Note
Ice-breaking	Madam, this interview is being held to assess the telephone lactation counseling programme which was held previously, of which you became one of the counselors involved in that study.	
Transition	From the study, it was shown that telephone lactation counseling had some positive effects in increasing the percentage of Exclusive Breastfeeding especially in the first month postpartum, and more mothers who did not receive this type of counseling had stopped breastfeeding their infants at the sixth month.	
Key	Experiences being involved in the study	
	<ol style="list-style-type: none"> i. How do you feel about the idea of telephone lactation counseling? ii. What do you like/ dislike about telephone lactation counseling? iii. Tell me about the good or the bad experiences you had when you handle the counseling sessions with the mothers iv. Tell me what you think if this programme were to be done in a bigger scale? 	
Key	Instrumental attitude	
	<ol style="list-style-type: none"> i. What are the benefits/ advantages of you doing the telephone lactation counseling? ii. What are the negative effects/ disadvantages of you doing the telephone lactation counseling? 	
Key	Perceptions of the feasibility of the intervention in general	
	<ol style="list-style-type: none"> i. What do you think about this intervention's objective in educating the mothers about breastfeeding? ii. Tell me what you feel regarding the feasibility of the telephone lactation counseling 	
Key	Perceptions and attitudes on the feasibility of the intervention in daily practice	

	<ul style="list-style-type: none"> i. Tell me what you feel about implementing this program in daily practice ii. Do you feel competent enough to counsel the mothers? iii. Before you conduct any counseling sessions, how certain are you that you can? iv. Do you feel capable to handle difficult situations with the mothers? v. What kinds of things that would help you overcome any barriers in conducting telephone lactation counseling? 	
Key	<p>Barriers and enablers to provision of the intervention</p> <ul style="list-style-type: none"> i. Tell me about the difficulties that you had being a counselor in this study ii. Who would be against you doing telephone lactation counselings? iii. What conditions makes you feel unsupported/ demotivated to conduct the counseling? iv. Who would support you doing telephone lactation counselings? v. What conditions makes you feel supported/ motivated to conduct the counseling? vi. Tell me about things that made it easier for you being a counselor in this study 	
Key	<p>Suggestions to improve the intervention</p> <ul style="list-style-type: none"> i. How do you think this program could be improved? 	
Wrap up	<p>From what I have gathered, you have explained:</p> <ul style="list-style-type: none"> i. that the experiences you had while being the lactation counsellor in this study as ____ ii. Of all the needs we discussed, which is most important to you? iii. Suppose you had one minute to talk to the person in charge of this project, what would you tell him/her? iv. Give me one sentence that best describes how you feel about the topic we discussed today 	
Summary	<ul style="list-style-type: none"> i. Is this an adequate summary of our conversation? ii. Did I correctly describe what you said? iii. How well does that capture what you said today? 	
Final	<ul style="list-style-type: none"> i. Have I missed anything? ii. Is there anything else we should have covered but didn't? 	

Appendix Q

Form for Field Notes used in In-depth Interviews

University of Malaya

IDI FIELD NOTES

SUBJECT:

NAME:

AGE:

WORKING EXPERIENCE:

LACTATION COUNSELOR SINCE:

MASA:

No	Questions
1	Experiences being involved in the study
2	Perceptions of the feasibility of the intervention in general
3	Perceptions and attitudes on the feasibility of the intervention in daily practice
4	Barriers and enablers to provision of the intervention
5	Suggestions to improve the intervention
6	Final say from LC
7	Observations by Investigator

Appendix R

Operational Definitions

Phrase	Definition
Average household income	Total income in the form of salary or others which is retrieved in one month time by every household member in the previous working year.
Breastfeeding-exclusive (World Health Organization, 1991)	Requires that the infant receive only breast milk from his/ her mother or a wet nurse, or expressed breast milk, and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines.
Breastfeeding-predominant (World Health Organization, 1991)	Requires that the infant receive breast milk (including milk expressed or from wet nurse) as the predominant source of nourishment, allows the infant to receive liquids (water, and a water-based drinks, fruit juice, oral rehydration salt), ritual fluids and drops or syrups, vitamins, minerals, medicines). Does NOT allow the infant to receive anything else (in particular, non-human milk, food-based fluids)
Breastfeeding-complementary (World Health Organization, 1991)	Requires that the infant receive breast milk and solid or semi-solid, allows the infant to receive any food or liquid including non-human milk
Breastfeeding – ever/any (World Health Organization, 1991)	Requires that the infant receive breast milk given regardless of duration, allows the infant to receive any food or liquid including non-human milk
Breastfeeding - Support Team	A group of people who formed an organization dedicated to providing professional support such as education, information, support and encouragement to women who want to breastfeed. This team may include Lactation Consultant, Obstetrician, Paediatrician, Nurses from Obstetric or Paediatric Department, Community Nurses or Family Physician.
Breast infection	Inflammation of the breast tissue most often caused by a bacterial infection, usually resulting from a plugged duct left untreated or a cracked nipple. Also known as mastitis.
Cared for in someone else's house	The baby is being attended by some one else i.e. family member/ relative, baby sitter at the relative's or babysitter's house AND this does not include a formal institution for the care of the baby eg. nursery
Cared for in the house	The baby is being attended by some one else i.e. family member/ relative, baby sitter or house maid in the baby's house

Phrase	Definition
Civil servant	Working on a fixed basis, temporary basis, probation or contract with the central or local government, including half-government agencies.
Community agency	Decentralized bodies which have the following characteristics: creation by regulation, legal personality, autonomous management bodies, has financial independence, distinct from the community institutions like the Parliament, Council or Commissions, and the staff has defined missions and roles.
Community nurse	A registered and qualified nurse who provides general and comprehensive nursing practice directed to individuals, families, or groups as it relates to and contributes to the health of a population. Community nurse aims to reduce health inequalities by working with individuals, families, and communities promoting health, preventing ill health and in the protection of health. In Malaysia, community nurses include nurses at the Health Centres and Jururawat Desa.
Daycare	A public center for the care and training of young children e.g. nursery
Fixed shift working hour	Anyone working outside regular daytime hours (i.e. between approximately 7 a.m. and 6 p.m., Monday through Friday). Under this definition, shift-workers include all people working evening shift, night shift, rotating shifts, split shifts, or irregular or on-call schedules both during the week and on weekends
Fixed working hours	Anyone working within regular daytime hours of the day during which an office is normally open for business or consultation, or business is transacted
Flexible work time	Working time arrangements which allow a continuous choice regarding the duration and the temporal distribution of working time for both the employee and the employer. A classification of a flexible working time has four key elements, namely variability of temporal distribution; variability of length; influence on the arrangement of working hours and predictability.
Fussy baby	Baby who is easily upset; given to bouts of ill temper, or has great or excessive attention/ request to personal tastes and/ or may call for or requiring great attention to him/ her to sometimes trivial details
Housewife	The person who does not hold any job which produces income except taking care of the household and the family. If the person does odd jobs and received income from it such as sewing, baby sitting, food catering etc. the person should be categorized as 'Self-

Phrase	Definition
	employed'.
Member of household	Individuals, who are living together under one roof, share the equipments in the house and share meals together. A member of a household need to be living in the house not less than 4 weeks before the date of interview for at least 20 days (not taken into account whether the stay was continuous or not) with the exception to newborns or baby less than one month.
Non-fixed non-shift working hour	Working at the person's own leisure time, which normally apply to those who are self-employed
Nursery at workplace	A facility for the supervision of preschool children, especially during the hours that their parents are at work which is provided in the vicinity of the workplace by the employer for its staff.
Pacifier	A rubber or plastic nipple or teething ring for a baby to suck or chew on
Plugged (breast) ducts	A plugged (or blocked) duct is an area of the breast where milk flow is obstructed. The nipple pore may be blocked or the obstruction may be further back in the ductal system. A plugged duct usually comes on gradually and affects only one breast.
Private sector employee	Working with a private agency/ firm/ corporation/ institution, or individuals such as housemaid. These include those who are working on their own AND have their paid employee.
Self-employed	Working on their own and did NOT have any fixed paid employee. This type of employment may change temporally or according time change or person's preference.
Sore nipples	Uncomfortable sensations in the tips of the breasts which are usually caused by improper nursing positions and nursing schedules, or incorrect sucking by the baby or infection. This is usually short term.
Still studying	The person is still studying formally either full-time or part-time in any institutions, universities, college or etc. AND does not have any job which produces income.
Studying and working	The person is working (in whichever sector) while at the same time is also studying formally either full-time or part-time in any institutions, universities, college or etc.
Traditional midwife	A direct-entry midwife practicing within the confines of traditional folk medicine. They have no formal medical training, but instead learned as an apprentice or through direct experience
Weaning	The act of substituting other food for the mother's milk

Phrase	Definition
	in the diet of a child
Workplace breast feeding policy	A formal policy made by the management force of a workplace which encourages employees and management to have a positive, accepting attitude toward working women and breastfeeding, promotes and supports breastfeeding and the expression of breast milk by employees who are breastfeeding when they return to work, by creating a work environment that is supportive of breastfeeding. The management may also provide work-based child-care or assistance with finding childcare nearby so that it will be easier for baby to be brought to the mother or for the mother to go to the baby on her breaks.

University of Malaysia

Appendix S

Ten Steps to Successful Breastfeeding

The Ten Steps to Successful Breastfeeding

1. Have a written breastfeeding policy that is routinely communicated to all healthcare staff.
2. Train all healthcare staff in the skills necessary to implement the breastfeeding policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding soon after birth.
5. Show mothers how to breastfeed and how to maintain lactation even if they are separated from their babies.
6. Give newborn infants no food or drink other than breast milk, unless medically indicated.
7. Practice rooming-in, allowing mothers and infants to remain together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or dummies to breastfeeding infants.
10. Identify sources of national and local support for breastfeeding and ensure that mothers know how to access these prior to discharge from hospital.

Appendix T

Seven Point Plan for Sustaining Breastfeeding in the Community

Seven Point Plan for Sustaining Breastfeeding in the Community

1. Have a written breastfeeding policy that is routinely communicated to all healthcare staff.
2. Train all staff involved in the care of mothers and babies in the skills necessary to implement the policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Support mothers to initiate and maintain breastfeeding.
5. Encourage exclusive and continued breastfeeding, with appropriately-timed introduction of complementary foods.
6. Provide a welcoming atmosphere for breastfeeding families.
7. Promote co-operation between healthcare staff, breastfeeding support groups and the local community.

Appendix U

Ethical Approval for the Research

University of Malaya

**NATIONAL INSTITUTES OF HEALTH APPROVAL FOR CONDUCTING RESEARCH
IN THE MINISTRY OF HEALTH MALAYSIA**

**PENGESAHAN INSTITUSI PENYELIDIKAN NEGARA UNTUK MENJALANKAN
PENYELIDIKAN DI KEMENTERIAN KESIHATAN**

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Unique NMRR Registration ID : [Nombor Pendaftaran]	NMRR-09-414-4066
Research Title : [Tajuk]	TELEPHONE LACTATION COUNSELING AND BREAST FEEDING PRACTICES: A RANDOMIZED CONTROLLED TRIAL
Protocol Number if available : [Nombor Protokol jika ada]	

#	Investigator Name [Name Penyelidik]	Institution Name [Nama Institusi]
1	Norzakiah binti Mohd Tahir	University of Malaya (UM)

I have reviewed the above titled research, and approve of its design and conduct.

Saya telah menyemak kajian yang bertajuk seperti di atas dan meluluskan rekabentuk dan pelaksanaannya.

Name of Director : [Nama Pengarah]	Dr. Lim Teck Onn
NIH Institute (IMR, CRC, IPH, IHM, IHSR and IHBR) [Nama Institusi di bawah NIH]	Clinical Research Centre (CRC)
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MEDICAL ETHICS COMMITTEE COMPOSITION, UNIVERSITY MALAYA MEDICAL CENTRE

Date: 22th APRIL 2009

Member (Title and Name)	Occupation (Designation)	Male/Female (M/F)	Tick (✓) if present when above items were reviewed
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Deputy Chairperson: Prof. Kulenthiran Arumugam	Consultant Medical Education Research and Development Unit (MeRDU)	Male	
Secretary : Cik Norashikin Mahmood	Secretary of Medical Ethics Committee	Female	✓
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2. Dr. Muhammad Muhsin Ahmad Zahari	Representative Head of Department of Psychological Medicine	Male	✓
3. Prof. Madya Mohamed Ibrahim Noordin	Head of Department of Pharmacy, FOM	Male	✓
4. Prof. Tan Chong Tin	Representative Head Of Department Of Medicine	Male	
5. Assoc. Prof. George Lee Eng Geap	Representative Head of Department of Surgery	Male	✓
6. Assoc. Prof. Grace Xavier	Lecturer, Faculty of Law	Female	✓
7. Pn. Che Zuraini Sulaiman	Representative, Senior Manager, PTj Farmasi UMMC	Female	✓
8. YBhg. Datin Aminah Pit Abdul Rahman	Public Representative	Female	✓
9. Madam Ong Eng Lee	Public Representative	Female	

Comments: The MEC of University Malaya Medical Centre is operating according to ICH GCP guideline and the Declaration of Helsinki. Members no. 6, 8 & 9 are representatives from Faculty of Law in the University of Malaya and the public, respectively. They are independent of the hospital or trial site.

PROF. LOOI LAI MENG
Chairman
Medical Ethics Committee

Appendix V

Prove of article publication

- 1) Norzakiah, M.T., Nabilla, A-S. (2013). Does telephone lactation counselling improve breastfeeding practices?: A randomized controlled trial. *International Journal of Nursing Studies*. 50, 16-25
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ISSN: 2151-6200

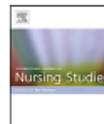


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Does telephone lactation counselling improve breastfeeding practices?: A randomised controlled trial

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ABSTRACT

Background: Exclusive breastfeeding rates in Malaysia remains low despite the implementation of the Baby Friendly Hospital Initiative (BFHI) policy in government hospitals. It has been suggested that any form of postnatal lactation support will lead to an increase in exclusive breastfeeding rates.

Objective: To study the effectiveness of telephone lactation counselling on breastfeeding practices.

Design: Single blinded, randomised controlled trial (RCT).

Setting: Maternity wards in a public hospital in Kuala Lumpur, Malaysia.

Participants: 357 mothers, each of whom had delivered a full term, healthy infant via spontaneous vaginal delivery.

Methods: Mothers were followed up for 6 months. The intervention group ($n=179$) received lactation counselling via telephone twice monthly by certified lactation counsellors in addition to receiving the current conventional care of postnatal breastfeeding support. The control group ($n=178$) received the current conventional care of postnatal breastfeeding support. Definitions of breastfeeding practices were according to World Health Organization (WHO) definitions. Participants answered a self-administered questionnaire during recruitment and were later followed up at one, four and 6-month intervals during the postpartum period via a telephone-based questionnaire.

Results: At 1 month, a higher percentage of mothers in the intervention group practiced exclusive breastfeeding, compared to the control group (84.3% vs. 74.7%, OR 1.825 95%, $p=0.042$, CI = 1.054, 3.157). At 4 and 6 months postpartum, similar percentages of mothers from the two groups practiced exclusive breastfeeding (41.98% vs. 38.99%; 12.50% vs. 12.02%, no significant differences, both $p>0.05$). Slightly higher numbers of mothers in the control group had completely stopped breastfeeding at the 1, 4 and 6 month marks, compared to the intervention group (7.4% vs. 5.4%; 12.6% vs. 9.9%; 13.9% vs. 9.4%; all $p>0.05$). The reason cited by most mothers who had completely stopped breastfeeding during the early postpartum period was a low breast milk supply, while returning to work was the main reason for stopping breastfeeding later in the postpartum period.

Conclusions: Telephone lactation counselling provided by certified lactation counsellors from the nursing profession was effective in increasing the rate of exclusive breastfeeding for the first postpartum month but not during the 4 and 6 month postpartum intervals.

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E-mail addresses: drnorzakiah@gmail.com (N.M. Tahir), nabilla@um.edu.my (N. Al-Sadat).

What is already known about the topic?

- Several systematic reviews and studies had identified professional support as an evidence-based intervention that increases the duration of breastfeeding, particularly so if it was done during the postnatal period.
- However, studies which investigated the effects of postnatal telephone support on breastfeeding outcomes differ in their design of support interventions and had provided equivocal results.

What this paper adds

- This paper shows that postnatal lactation support in the form of counsellor-initiated telephone-based counselling is effective in improving the exclusive breastfeeding rates at the first month postpartum period, among the mothers who attended a public hospital where the breastfeeding initiation rates were high.
- This paper suggests that single intervention such as telephone counselling is not sufficient to sustain mothers to exclusively breastfeed their infants at the later postnatal period.
- The study reinforces that single intervention such as telephone counselling needs to be further strengthened with holistic policies on breastfeeding such as leave for mothers from employment till the babies are 6 months and above, or combined with other forms of postnatal breastfeeding support to cater to the differing needs of mothers.

1. Background

Prior to the 1990s, there was no available data on the levels of exclusive breastfeeding in Malaysia. The Second National and Health Morbidity Survey (NHMS II), conducted in 1996, was the first national survey that used the indicators recommended by WHO for assessing breastfeeding (World Health Organization, 1991). The survey provided baseline data for the country. Findings of the NHMS II showed that, although the overall prevalence of children breastfed for any amount of time in Malaysia was 88.6%, the prevalence of exclusive breastfeeding at 4 months postpartum was only 29% (Fatimah et al., 1999). Despite the implementation of the Baby Friendly Hospital Initiative (BFHI) in all government hospitals since 1983, a subsequent national survey conducted in 2006 showed the overall prevalence of exclusive breastfeeding of infants younger than 4 months of age in Malaysia plummeted to 19.3% (15.5%, 23.9%), while the overall prevalence of exclusive breastfeeding below 6 months was 14.5% (11.7%, 17.9%) (Fatimah et al., 2010). The survey also reported that exclusive breastfeeding was significantly more common in rural areas (30.7%, 95% CI 23.3–39.2) compared to the urban localities (12.9%, 95% CI 8.9–18.5) (Fatimah et al., 2010). At the Maternity Hospital Kuala Lumpur (MHKL), which is a tertiary care hospital, the available data showed that up to 100% of mother/infant pairs were breastfeeding, and 92.2% of them were exclusively breastfeeding before hospital discharge

(Department of Obstetrics and Gynaecology MHKL, 2010). At present, breastfeeding mothers in Malaysia find postnatal breastfeeding support at Community Clinics, or they may initiate contact with lactation counsellors who are members of the Association of Malaysian Lactation Advisors and Specialists, or with online support groups, or general practitioners. Thus, it has been up to each mother's own initiative to seek help with continuing breastfeeding after being discharged from the hospital after the birth of her infant.

Support for breastfeeding mothers should not end when the mother and baby are discharged from the birthing centre. Although the mother–baby dyad would have received breastfeeding advice in the hospitals that practice BFHI, continuous support and enhancement of educational information related to breastfeeding should be given to the mothers. Some mothers do receive support from their family members regarding breastfeeding, but whether the correct support is given remains unclear; especially so regarding exclusive breastfeeding and with solving breastfeeding problems. Thus, there is still a need for providing professional breastfeeding support to mothers to ensure better understanding of and support for the practice of breastfeeding.

Breastfeeding support and education offered by knowledgeable health professionals can enable mothers and families to overcome breastfeeding obstacles. Such support is often cited in the literature as one of the ways to promote breastfeeding (Britton et al., 2007; Chung et al., 2008; Hannula et al., 2007; Wambach et al., 2011; de Oliveira et al., 2001). The CDC Guide to Breastfeeding Interventions (Shealy et al., 2005) defines professional support as any "counselling or behavioural interventions to improve breastfeeding outcomes, such as helping with a lactation crisis or working with other health care providers" (p. 23). Several systematic reviews and studies have identified professional support as an evidence-based intervention that increases the duration of breastfeeding (Britton et al., 2007; Hannula et al., 2007; Shealy et al., 2005), particularly if the intervention was performed during the postnatal period (Hannula et al., 2007; Su et al., 2007). Imdad et al. (2011) concluded from a systematic review that both prenatal and postnatal counselling had a significant impact on exclusive breastfeeding rates at 6 months postpartum (Imdad et al., 2011). To date, studies that investigated the effects of postnatal telephone support on breastfeeding outcomes differ in their design of support interventions and have provided equivocal results (Bonuck et al., 2005; Fallon et al., 2005; Frank et al., 1987; Pugh et al., 2010; Rasmussen et al., 2011). Most studies about breastfeeding support interventions have been conducted outside Malaysia, and a gap in knowledge exists about the effectiveness of postnatal telephone lactation counselling services within the Malaysian context. The effectiveness of this support is particularly important to consider because the telephone is an acceptable and accessible medium of communication that is widely used and that reduces geographical and physical barriers. Thus, mothers who are usually 'house-bound' in the early phase of the postnatal period may be better served by telephone counselling.

The main objective of this study is to determine the effectiveness of telephone-based lactation counselling in encouraging exclusive breastfeeding among mothers who delivered in a public hospital. This study attempts to provide evidence that, with a different approach to counselling intervention (i.e., counsellor-initiated contacts) by the lactation counsellors, the mothers will be better equipped with knowledge and support to continue breastfeeding. If proven effective from this research, this intervention (telephone lactation counselling) may be introduced within public hospitals to further improve the current breastfeeding promotion strategy in Malaysia.

2. Methods

2.1. Setting

The study was conducted in a public hospital, the Maternity Hospital Kuala Lumpur (MHKL), which is a tertiary level referral centre in Malaysia.

2.2. Eligibility criteria

To be eligible for the study, the women were required to be 18 years of age or older and of Malaysian nationality. Each mother must have delivered a single infant at 37 or more weeks of gestation. Further requirements for participation in the study included an intention to breastfeed and the ability to understand and communicate in spoken Malay or English. Each mother had received at least a prenatal BF education programme at least once, had telephone access, and had given informed consent. Women with multiple pregnancies or medical problems that might hinder breastfeeding, women that delivered via Caesarean section, or women whose baby subsequently required prolonged care in a Special Care Nursery were not eligible.

2.3. Trial enrolment

Recruitment took place for approximately 3 months (from April 2010 until July 2010) and the last follow-up commenced on February 2011. A list of mothers who had just given birth to a normal baby was identified from the postnatal ward registry in the hospital. From this list, all mothers were pre-selected and screened for eligibility. Those who passed the inclusion and exclusion criteria were then informed about the study and personally invited to participate in the study. These processes were conducted by either the first author or a trained female research enumerator. Only those who gave consent were recruited into the study. The participants were given an identity number (only known to the first author) and were assigned either to the intervention group or to the control group.

2.4. Sampling

The study population consisted of mothers who had just given birth to a normal baby. After consent, eligible mothers who agreed to participate answered the first questionnaire within approximately 1 day postpartum. Group assignments were not made at this point in the

study. Once their specific socio-demographic factors and questionnaires were collected, a list of random codes for the subjects was generated and the subjects were randomly assigned to either the intervention or the control assignment groups. Generation of the group assignments was conducted using a blocked randomisation method with a block size of four by a random allocation software program (Saghaei, 2004). The particulars of the participants who were assigned to the intervention group were given to the respective Lactation Counsellors by the Principal Investigator. The Research Enumerator shared basic demographic and contact information but did not discuss the breastfeeding intentions, knowledge, or attitudes assessed in the baseline interview questionnaire. The Lactation Counsellors then sought to arrange the first telephone call with the participant.

2.5. Sample size

The sample size was calculated using the OpenEpi program. The sample size was calculated to find an increase in the exclusive breastfeeding rate from 19% to 36% at 4 months, based on the study by Dennis et al. (2002) and projections from the NHMSIII results (Fatimah et al., 2010). To detect an increase of 17% with a power of 80% and an allocation ratio of 1:1, the required number of subjects to be recruited in this study was a total of 252 (126 participants in each study arm). However, when taking into consideration that a maximum of 20% of subjects may be lost to follow up, the total minimum number of participants to be recruited in the study was 304 subjects (152 participants in each study arm).

2.6. Description of the intervention

Intervention in this study was defined as follows:

Lactation counselling given by certified lactation counsellors via telephone twice monthly to each lactating mother, in addition to the current conventional care. Thus, it was expected that every mother will receive 12 lactation counselling sessions by the end of the study. Contact was discontinued any time that a mother decided to completely stop breastfeeding. Mothers were allowed to receive the current conventional care. Contacts was also discontinued if the mother had given the baby up for foster care and/or had no physical contact to enable her to breast feed the baby.

Control or no intervention in this study was defined as follows:

Mothers receiving current conventional care for postnatal breastfeeding promotion or support her own or a public healthcare provider. This conventional care included breastfeeding talks during immunisation follow ups, a mothers' communication with the lactation counsellors through information or pamphlets received during antenatal or postnatal follow ups, and advice regarding breastfeeding received at any time from any health care workers, the media, peer counsellors, family members or friends.

Lactation counsellors (LCs) in this study were registered nurses from the Maternity Hospital Kuala Lumpur who had post-basic training in midwifery and were certified as

lactation counsellors. All 12 lactation counsellors had undergone a 40 h lactation management and counselling course based on the WHO module (WHO/UNICEF, 1993). The lactation counsellors conducted the telephone-based counselling on a part-time basis. To maintain uniformity and quality-control in the lactation counselling, before the study began, the lactation counsellors were given training a refresher course on lactation management and counselling, as well as guidance on how lactation counselling should be performed. They were also provided with lactation counselling guideline booklets adapted from others (Division of Family Health Development, 2005; Trainer et al., 2007), a standard operation procedure booklet, and a telephone call log-book for each patient. None of the Lactation Counsellors were International Board Certified Lactation Consultant (IBCLC) certified because they had not attempted the certification examination prior to the study.

2.7. Assessment of breastfeeding outcomes

Each variable of breastfeeding practice was categorised using the "previous 24-h" and the "ever given the infant anything besides breast milk since birth" definitions. The primary outcome variable was exclusive breastfeeding, defined as feeding the infant only breast milk from his/her mother or a wet nurse, or expressed breast milk. An exclusively breastfed infant would receive no other liquids or solids, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines (World Health Organization, 1991). The secondary outcome variable was other breastfeeding practices consisting of predominant, complementary or discontinued breastfeeding. Therefore, 'breastfeeding' as a whole comprises exclusive, predominant and complementary breastfeeding.

2.8. Data collection

Data were collected using a self-administered questionnaire and a telephone interview. The questionnaires used in this study were adapted from a limited number of previous studies on breastfeeding practices (Anderson et al., 2005; Fatimah et al., 2010) and consisted of closed-ended and open-ended questions. New questionnaires were developed because there was no available validated questionnaire that could be used to suit the study objectives, and the available validated questionnaires from the studies abroad need to be amended to the local situation. The questions were prepared in both Malay and English language. Pre-testing of the questionnaires was performed among women not associated with the sample population 3 months before the beginning of the study. Minor amendments were made before the commencement of the second pre-test. Participants answered a self-administered questionnaire at first day postpartum. Data at 1, 4 and 6 months postpartum were collected via a telephone interview with each study participant. The log books of each of the lactation counsellors were checked at the end of the study and also at random during the study. The data collected were entered into the SPSS 15.0 for

analysis. Ultimately, for every patient who completed their follow up by 6 months, full data were entered. Any incomplete data or missing data were referred to the participant either by the investigator or the enumerator for clarification. Collaboration with a qualified statistician ensured that data entry, and subsequent data analysis, was performed correctly and efficiently.

2.9. Blinding

Only the Research Enumerator who collected the breastfeeding outcome data was blinded with respect to the treatment group. The study protocol prohibited any discussion or sharing of the infant feeding data between the study Research Enumerator and the study Lactation Counsellors.

2.10. Statistical analyses

SPSS for Windows (version 15.0) was used for data entry and all analyses. Mantel-Haenszel Chi-square analyses were used to examine bivariate associations between the outcome variable and independent variables and to compare differences in proportions among the comparison groups. Multivariate logistic regression analyses were conducted to assess the independent influence of significant factors from the bivariate analyses in predicting the success of exclusive breastfeeding, while controlling for group assignment and infant age. Final analyses was conducted by the original assessment group and all results were interpreted using $p < 0.05$ (2-sided) as the criterion for statistical significance.

2.11. Ethical review and trial registration

This study was granted ethical approval from the Medical Ethics Committee, University Malaya Medical Centre for the protection of human subjects (IRB Ref. No. 715.16). This trial was registered under the Malaysian National Medical Research Register (Registration number: NMRR-09-414-4066) and the Australian New Zealand Clinical Trials Registry (ANZCTR) (Registration number: ACTRN12611001014943).

3. Results

3.1. Recruitment of participants

A total of 512 eligible participants were approached after initial selection was made from the daily ward registry at the hospital. A total of 364 mothers agreed to participate in the study. However, 7 mothers had to be disqualified from the study for a variety of reason (death of baby = 7, planned to give baby away for adoption = 3, preterm baby = 2, non-Malaysian = 1). Finally, 357 participants were recruited and randomly divided into the intervention or the control group (intervention: $n = 179$; control: $n = 178$). The total loss to follow up throughout the study was 10.9% (7.56%, 2.73% and 0.93% at the first, fourth and sixth month marks, respectively). Comparison between the participants who responded to the follow

up questionnaires were made with those who did not respond, within and across the treatment group, in terms of age, level of education, ethnicity, religion, gender of baby, working status, intention to work again, and exclusive breastfeeding intention at baseline. None of these differences were statistically significant. Fig. 1 summarises the flow chart of the participants' enrolment in the study.

3.2. Baseline characteristics

Table 1 shows the baseline characteristics of the participants, comparing the characteristics between the two groups. The baseline characteristics of the intervention group and the control group were statistically similar, except in two characteristics. Concerning the gender of each mother's baby, more male babies were born in the intervention group than in the control group (55.44% vs. 44.56%, $p < 0.05$). Concerning the existence of antenatal problems between the two groups, more mothers in the control group had antenatal medical problems compared to the intervention group (3.93% vs. 0.56%, $p < 0.05$). The mean age of mothers was 28.58 years old, and their mean

prenatal Body Mass Index (BMI) falls within the normal to overweight weight range (23.73 ± 4.36). The majority of the mothers recruited in the study were Malays (88.2%), Chinese (5.3%), Indian (4.5%), East Malaysian natives (1.1%) and others (0.8%). The mean income of mothers who were working prior to delivery was USD 498.7 ± 318.3 , while the average monthly household income was USD 844.0 ± 468.0 . These figures indicated that the households included in the study were below the average household income in Kuala Lumpur (which was USD 1663.3 in 2004), but comparable to the average household income in the country (USD 1078.7 in 2004) (Department of Statistics Malaysia, 2004).

3.3. Intervention analysis

Analysis of the intervention received by the mothers in the intervention group revealed that this intervention was well received by the mothers at the beginning of the study, but the positive response to the intervention lessened with time. The average of total minutes for each call per participant was 58.4 ± 38.5 min (range = 0–210 min), while the average number of successful calls per participant was only 4.33 ± 3.14 times/participant (range 0–12 times). The

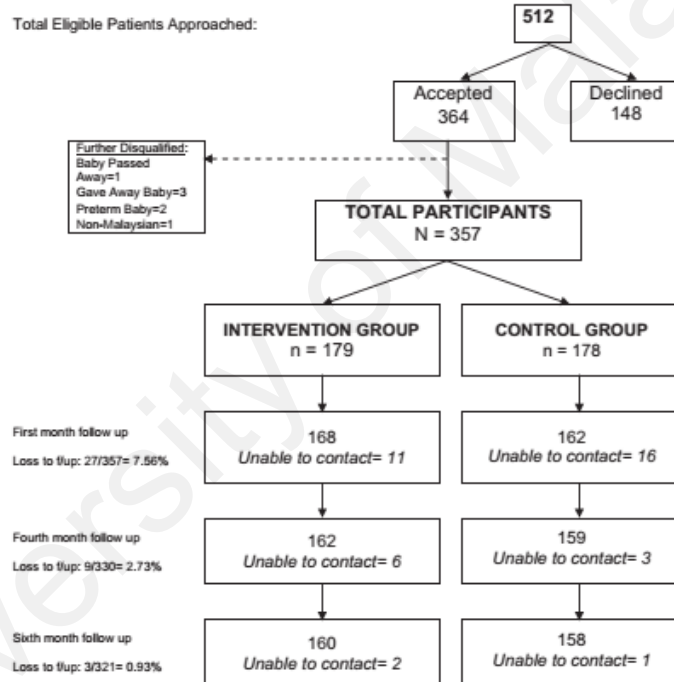


Fig. 1. Flow chart of participants' recruitment.

Table 1
Baseline characteristics of participants.

Characteristics	Values	All N = 357	Intervention group n (%)	Control group n (%)
Mother's age, years	Mean ± s.d.	28.58 ± 5.51	28.45 ± 4.29	23.68 ± 4.43
Mother's prenatal BMI	Mean ± s.d.	23.73 ± 4.36	23.78 ± 4.29	23.68 ± 4.43
Antenatal weight gain, kg	Mean ± s.d.	9.73 ± 4.99	9.52 ± 4.47	9.94 ± 5.48
Ethnicity	Malay	315 (88.2%)	160 (89.3%)	155 (87.0%)
	Chinese	19 (5.3%)	7 (3.9%)	12 (6.7%)
	Indian	16 (4.5%)	8 (4.4%)	8 (4.4%)
	Others	3 (0.8%)	2 (1.1%)	1 (0.5%)
	Indigenous from Sabah Sarawak	4 (1.1%)	2 (1.1%)	2 (1.1%)
Religion	Islam	317 (88.8%)	159 (88.8%)	158 (88.7%)
	Christianity	6 (1.7%)	4 (2.2%)	2 (1.1%)
	Buddhist	19 (5.3%)	8 (4.4%)	11 (6.1%)
	Hindu	14 (3.9%)	8 (4.4%)	6 (3.3%)
	Others	1 (0.3%)	0	1 (0.5%)
Marital status	Not married	8 (2.2%)	4 (2.2%)	4 (2.2%)
	Married	347 (97.2%)	173 (96.6%)	174 (97.7%)
	Divorced	2 (0.6%)	2 (1.1%)	0
Mother was breast fed when baby	Yes	350 (98.0%)	175 (97.7%)	175 (98.3%)
	No	2 (0.6%)	1 (0.5%)	1 (0.5%)
	Did not know	5 (1.4%)	3 (1.6%)	2 (1.1%)
Any prenatal medical problem ^a	Yes	8 (2.2%)	1 (0.5%)	7 (3.9%)
	No	349 (97.8%)	178 (99.4%)	171 (96.0%)
Any antenatal medical problem	Yes	61 (17.1%)	30 (16.7%)	31 (17.4%)
	No	296 (82.9%)	149 (83.2%)	147 (82.5%)
Baby's birth weight, kg	Mean ± s.d.	3.04 ± 0.37	3.04 ± 0.38	3.01 ± 0.35
Baby's sex ^a	Male	193 (54.0%)	107 (55.4%)	86 (44.5%)
	Female	164 (45.9%)	72 (43.9%)	92 (56.1%)
Type of vaginal delivery	Normal SVD	334 (93.5%)	165 (92.1%)	169 (94.9%)
	Assisted SVD	23 (6.4%)	14 (7.8%)	9 (5.0%)
Parity	Multipara	221 (61.9%)	109 (60.8%)	112 (62.9%)
	Primipara	136 (38.1%)	70 (39.1%)	66 (37.0%)
Exclusive breastfeeding intention	Yes	203 (56.9%)	104 (58.1%)	99 (55.6%)
	No	154 (43.1%)	75 (41.9%)	79 (44.3%)
Intention of breastfeeding period, month	Up to 2 months	12 (3.4%)	3 (1.7%)	9 (5.1%)
	>2–6 months	120 (33.6%)	64 (35.8%)	56 (31.5%)
	>6–12 months	74 (20.7%)	41 (22.9%)	33 (18.5%)
	>12 months	151 (42.3%)	71 (39.7%)	80 (44.9%)
Mother's education level	Never schooled or did not complete primary school	3 (0.8%)	3 (1.6%)	0
	Completed primary school	7 (2.0%)	4 (2.2%)	3 (1.6%)
	Completed secondary school	248 (69.5%)	115 (64.2%)	133 (74.7%)
	Completed higher education level	99 (27.7%)	57 (31.8%)	42 (23.6%)
Mother is working	Yes	173 (48.5%)	88 (49.1%)	85 (47.7%)
	No	184 (51.5%)	91 (50.8%)	93 (52.2%)
Mother's working sector	Civil servant	66 (18.5%)	34 (18.9%)	32 (17.9%)
	Private sector employee	99 (27.7%)	55 (30.7%)	44 (24.7%)
	Self-employed	10 (2.8%)	3 (1.6%)	7 (3.9%)
	Studying while working	1 (0.3%)	1 (0.5%)	0
	Still studying	3 (0.8%)	1 (0.5%)	2 (1.1%)
	Housewife	177 (49.6%)	84 (46.9%)	93 (52.2%)
	Pensioner	1 (0.3%)	1 (0.5%)	0
Intention to work (again) after delivery	Yes	164 (45.9%)	86 (48.0%)	78 (43.8%)
	No	193 (54.1%)	93 (51.9%)	100 (56.1%)
Working mother's income, USD	Mean ± s.d.	498.7 ± 318.3	509.3 ± 215.5	488.3 ± 392.3
Household income, USD	Mean ± s.d.	844.0 ± 468.0	882.3 ± 485.4	806.0 ± 448.3

^a Statistically different at $p < 0.05$. All others were not statistically different at $p > 0.05$.

number of participants who answered and received lactation counselling for the first month was very good (90.9%, 79.3%: 1st call of the month, 2nd call of the month). Approximately 1.22% of the participants could not be contacted after the first month because their telephone numbers were no longer in service. Starting from the second month postpartum, the percentage of participants who answered calls and received telephone counselling dropped from 51.8% to only 14.0% by the end of the sixth months postpartum period. Participants

who were classified into the accessible group towards their respective LCs dwindled progressively from 96.3% during the first month postpartum to only 18.3% at 6 months postpartum (refer Fig. 2).

3.4. Breastfeeding practices outcomes

Among the total participants, the exclusive breastfeeding rate at the first month postpartum was 79.6%. This figure

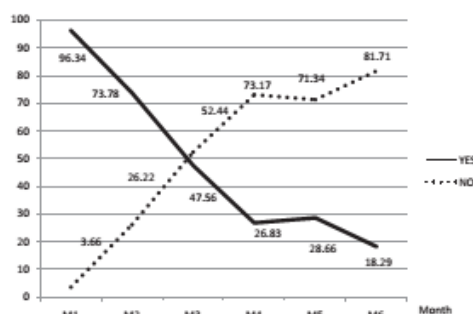


Fig. 2. Percentage of participants who were accessible by their respective Lactation Counsellors, according to month.

dropped to 40.5% and 12.3% at the fourth and sixth months postpartum. The percentage of mothers who practiced predominant breastfeeding was 7.3%, 10.3% and 1.6% at the first, fourth and sixth months, respectively. There were approximately 6.7% of mothers who practiced complementary breastfeeding at the first month postpartum, and this figure increased to 38.0% and 74.5% at the fourth and sixth months postpartum. The percentage of mothers who completely stopped breastfeeding was only 6.4% at the first month, and this figure increased to 11.2% and 11.6% at the fourth and sixth month marks, respectively.

A comparison of breastfeeding practices outcomes between the intervention groups was also made at 1, 4 and 6 months postpartum (refer Fig. 3). At the first month postpartum, a higher number of mothers in the intervention group practiced exclusive breastfeeding compared to mothers

in the control group (84.3% vs. 74.7%). There was a higher probability for a mother in the intervention group to exclusively breastfeed her infant. The unadjusted odds ratio stood at 1.83, and a chi-square test for independence (with Yates Continuity Correction) indicated a significant association between the intervention group and an exclusive breastfeeding status, $\chi^2 = 4.119$, $p = 0.042$. This difference, however, has a little effect size ($\phi = 0.12$). The number of patients needed to treat with intervention to prevent one occasion of not practicing exclusive breastfeeding at this period is 11. When adjusted for the significant factors related to exclusive breastfeeding at 1 month, the odds for mothers in the intervention group to exclusively breastfeed was 1.63 (not significant, 95% CI 0.822, 3.22). The differences in the percentage of mothers who practiced exclusive breastfeeding between the intervention and control groups

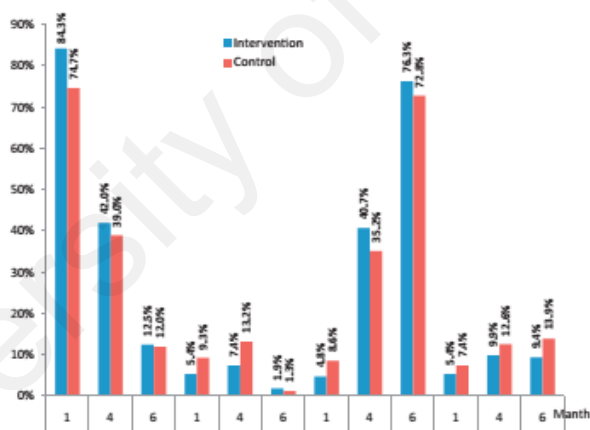


Fig. 3. Bar chart comparing the breastfeeding practices between the intervention groups, according to the postpartum period. EBF: exclusive breastfeeding, PBF: predominant breastfeeding, CBF: complementary breastfeeding, SBF: stopped breastfeeding.

were similar at the fourth and sixth months postpartum (42.0% vs. 39.0%; 12.5% vs. 12.0%, respectively). More mothers in the control group practiced predominant breastfeeding at the first and fourth months postpartum (9.3% vs. 5.4%; 13.2% vs. 7.4%, respectively), but these differences were not statistically significant ($p > 0.05$). The percentage of mothers who practiced predominant breastfeeding between the two groups at sixth months postpartum was quite similar (1.9% vs. 1.3%). There were slightly more mothers in the control group who practiced complementary breastfeeding at the first month postpartum (8.6% vs. 4.8%), but at the fourth month postpartum, a slightly higher percentage of mothers in the intervention group were practicing complementary breastfeeding than mothers in the control group (40.7% vs. 35.2%). However, these variances were not significantly different. At sixth months postpartum, the percentage of mothers who practiced complementary breastfeeding between the two groups was quite similar (76.3% vs. 72.8%, $p > 0.05$). More mothers in the control group had completely stopped breastfeeding their infants at the first, fourth and sixth months when compared to the intervention group (7.59% vs. 5.42%; 12.6% vs. 9.88%; 13.9% vs. 9.37%, all differences not statistically significant, $p > 0.05$). An analysis on the effect of intervention on exclusive breastfeeding and 'any breastfeeding' based on an intention-to-treat is summarised in Table 2.

3.5. Reasons why mothers stopped breastfeeding

Information regarding the reasons why mothers completely stopped breastfeeding their infants were collected and compared between groups. However, not all mothers who completely stopped breastfeeding her infant responded to this question. Among the reasons given by mothers who stopped breastfeeding were: an actual or perceived low or non-existent breast milk supply, painful nipples, planning to resume working soon after the end of confinement leave, returning to work, a mother's usual practice to breastfeed only for 1 month, and baby's refusal to breastfeed.

4. Discussion

This study found that lactation counselling by telephone from lactation counsellors from the nursing profession had improved the exclusive breastfeeding rates at the first month postpartum period among the participants had attended a public hospital where the breastfeeding initiation rates were high. This finding contrasts with the results by Fallon et al. (2005). In that study, counsellor-initiated postnatal telephone-based lactation support did not have any significant effect on exclusive breastfeeding rates among mothers from the public hospital in the 4.5 weeks postnatal period (Fallon et al., 2005). However, telephone-based lactation counselling was found not to be effective in increasing exclusive breastfeeding rates at the fourth and sixth months postpartum. The varying results produced at these different periods may be related to the mothers' accessibility to the intervention, the total minutes of counselling received, the total number of successful counselling calls, or the effectiveness of each Lactation Counsellor assigned to the mothers. Further subgroup analyses had rejected this possibility, as there was no significant relationship between exclusive breastfeeding with the above-mentioned factors (results of subgroup analyses are not shown in this paper). This study further proves that a single-method breastfeeding intervention was not effective if conducted for a prolonged period of time in Malaysia, regardless of its feasibility to be conducted in an urban setting. This finding raises the question of whether continuation of breastfeeding support should be modelled differently, according to the mothers' differing needs during the postpartum period timeline. Britton et al. (2007) had reported that single breastfeeding interventions, either antenatal or postnatal, had generally been ineffective in populations with high initiation rates (Britton et al., 2007). It has also been reported from systematic reviews that breastfeeding interventions that used various methods of education and support from well-trained professionals were more effective than interventions concentrating on a single method (Hannula et al., 2007; de Oliveira et al., 2001). However, it has also been

Table 2
Association of telephone lactation counselling with breastfeeding practices across time showing relative risks, effect size, number needed to treat and odds ratio.

Month	Intervention	Control	RR	χ^2	p	Phi	NNT	Unadjusted OR	Adjusted OR ^c
Exclusive breastfeeding vs. non-exclusive breastfeeding^a									
1	140 (84.3%)	121 (74.7%)	1.129 (1.010, 1.262)	4.119	0.042	0.12	11	1.825 (1.054, 3.157)	1.627 (0.822, 3.220)
4	68 (42.0%)	62 (39.0%)	1.076 (0.825, 1.404)	0.185	0.667	0.03	33	1.132 (0.825, 1.404)	1.173 (0.708, 1.943)
6	20 (12.5%)	19 (12.0%)	1.039 (0.577, 1.872)	0.017	0.897	0.007	200	1.045 (0.535, 2.043)	^d
Breastfeeding vs. stopped breastfeeding^b									
1	159 (95.8%)	150 (92.6%)	1.035 (0.981, 1.092)	1.055	0.304	0.07	31	1.840 (0.706, 4.797)	1.318 (0.376, 4.625)
4	146 (90.1%)	139 (87.4%)	1.031 (0.954, 1.114)	0.348	0.555	0.043	37	1.313 (0.654, 2.637)	^d
6	145 (90.6%)	136 (86.1%)	1.053 (0.972, 1.141)	1.188	0.276	0.071	22	1.564 (0.779, 3.139)	^d

Significant covariates for exclusive breastfeeding at 1 month: religion, working status prior to delivery, intention to work again after delivery, using teats, using pacifier, have breastfeeding problems, received breastfeeding information before discharged, received support from hospital before discharged, received support at home.

Significant covariates for exclusive breastfeeding at 4 month: intention to work again after delivery, using teats.

Significant covariates for breastfeeding at 1 month: ethnicity, using pacifier.

^a Definitions of breastfeeding categories were based on WHO definitions (1991).

^b Breastfeeding = exclusive breastfeeding + predominant breastfeeding + complementary breastfeeding.

^c Adjusted to significant covariates at referred postpartum months, which was analysed using multiple logistic regression.

^d Adjusted OR was not computed as no significant covariates were found to be associated with the outcome at the specific time.

shown that support strategies that lack face-to-face interaction were unsuccessful in promoting breastfeeding success (Sikorski et al., 2003; de Oliveira et al., 2001). This study also raises a question as to whether a combination of support forms would be beneficial to breastfeeding mothers in Kuala Lumpur, particularly in increasing the rate of exclusive breastfeeding. However, previous studies involving different models of lactation support combinations showed different results (Coffield, 2008; Kang et al., 2005; McDonald et al., 2010). This study result further affirmed that exclusive breastfeeding practice is indeed influenced by multiple factors and that it is not influenced by lactation support alone. It has been reported from a recent local study near Kuala Lumpur that exclusive breastfeeding was positively associated with rural residence, Malay mothers, non-working mothers, non-smoking mothers, multiparous mothers, mothers of full-term infants, mothers with husbands who support breastfeeding and mothers who practice bed-sharing (Tan, 2011).

Women in the intervention group received postnatal interventions in addition to routine ambulatory and inpatient hospital care. All other aspects of management were similar. The findings can therefore be generalised to any setting where pregnancy and delivery are managed in a public hospital setting. When compared to the local prevalence data (Fatimah et al., 2010), the exclusive breastfeeding rate among the total participants was much better at the fourth month, but slightly lower at the sixth month postpartum (40.5% vs. 19.3%; 12.3% vs. 14.5%, respectively). This may indicate that the level of awareness among the mothers regarding exclusive breastfeeding and breastfeeding in general has increased throughout the years, as a result of continuous lactation education. More emphasis is needed to support mothers in sustaining exclusive breastfeeding through the sixth month postpartum. This indication is further supported by the rates of predominant breastfeeding, complementary breastfeeding and discontinued breastfeeding among the total participants. These rates, at the fourth and sixth month postpartum, were at all times lower than the rates reported in the NHMSIII (Fatimah et al., 2010). The study reinforces that a system of single intervention, such as telephone counselling, needs to be further strengthened with holistic policies on breastfeeding, such as maternity leave from employment until babies are at least 6 months old. Financial aid could be proposed to mothers and families to encourage mothers to stay at home and breastfeed exclusively. Policies supporting exclusive breastfeeding should also be regularly explained and interpreted in lay terms to encourage public understanding and acceptance because an increase in exclusive breastfeeding rates due to enforcement is usually short term in nature.

This study has several limitations. Firstly, the intervention was conducted by the lactation counsellors only on a part-time basis because they also had their primary nursing and administrative jobs. Second, the success of the intervention was determined predominantly by the mothers' willingness to accept the service offered by the counsellors. The lactation counsellors may have tried their best to reach out to their clients, but the final decision to

accept or decline the support remained with the mothers. Third, the intervention strategy lacked effectiveness because there was no face-to-face interaction between the mothers and the counsellors. It is important to note that traditionally, counselling is a two-person communication that arises when one person seeks help from another person. McLeod (2009) wrote that that "counselling is an activity that can only happen if the person seeking help, the client, wants it to happen. Counselling takes place when someone who is troubled invites and allows another person to enter into a kind of particular relationship with them... The person seeking counselling is regarded as actively engaged in finding ways of overcoming his/her problems, and as a co-participant in the counselling process, rather than as a passive recipient of interventions" (McLeod, 2009, pp. 6–7). Hence, telephone lactation counselling might produce better effects when the mothers are the ones who seek the lactation counsellors rather than vice versa. Among the strengths of this study was that it was rigorously conducted in a tertiary hospital setting. Throughout the study, compliance with the assigned interventions was documented in the case record files and monitored by the principal investigator. Though the study was pragmatic and was carried out in a busy tertiary hospital, the investigators were able to follow good clinical practice guidelines. The results of this study could only be generalised to mothers from urban areas who give birth at a public hospital with a high rate of breastfeeding initiation.

As a suggestion, a different design of study intervention may have produced an improved result. For example, mothers may be recruited at a later-phase of the antenatal period, so that an earlier face-to-face introduction to their respective lactation counsellors could be made. The telephone frequency during the first month postpartum could be increased, and then subsequently reduced to once weekly for the second month and thereafter. The telephone frequency could also be tailored to each patient's needs. However, tailoring to the patients' needs would introduce a lack of uniformity in the intervention among the participants. Pre-assessment of the mothers prior to recruitment to ascertain their level of knowledge of breastfeeding could also be performed, to ensure that only mothers who have an adequate knowledge of breastfeeding or the determination to breastfeed were recruited into the study. However, the result of this outcome would not be a true effect of the intervention alone if this step was taken. Thus, future studies in Malaysia should attempt to focus on interventions that involve a combination of support forms that seek to increase exclusive breastfeeding among women who are at risk of early discontinuation of breastfeeding. The support forms should place emphasis on the different needs of mothers throughout their postpartum periods.

5. Conclusions

Telephone lactation counselling given by registered nurses who were certified as lactation counsellors was effective in increasing the exclusive breastfeeding rate at the first month postpartum, but was not effective at the

fourth and sixth months postpartum. Although the effect size at the first month was small, it is worth considering this intervention as one of the strategies to improve the exclusive breastfeeding rates among mothers. This intervention should be considered particularly because of the small amount of counselling needed to present the benefits of exclusive breastfeeding during this crucial infancy period. Studies that encompass multiple methods of postnatal support aiming to increase exclusive breastfeeding, especially among mothers who are at higher risk of discontinuing breastfeeding, should be the main focus of future researchers studying breastfeeding in Malaysia.

Authors' contributions

NMT and NAS participated in the initial design of the study. NMT as the Principal Investigator had conducted the study, provided data entry and data editing, and performed the statistical analyses. NAS assisted in determining the objectives and editing the draft manuscript. Both authors have read and approved the final manuscript.

Conflict of interest: The authors declare that they have no other competing interests.

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Telephone based Lactation Counseling: A Qualitative Study on the Lactation Counselor's Experience

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Abstract

Background: This qualitative study was undertaken as a follow-up of the results of a randomized controlled trial (RCT) conducted in Kuala Lumpur in 2010.

Objective: The main objective of this study was to explore the Lactation Counselors' perspectives regarding counselor-initiated telephone-based lactation counseling service to mothers in Kuala Lumpur. **Methods:** In-depth interviews were held with the lactation counselors. The analytical framework was conceptualized using the Grounded Theory method.

Results: The greatest determinant which affected telephone-based lactation counseling was the intention of counselors, followed by external factors such as time constraints, mothers' behaviors and their control in decision making, family influence and cultural differences. Strong motivation is required for the counselors to perform telephone lactation counseling.

Conclusion: The Lactation Counselors in general have appreciated the experiences and benefits gained from the service. However, external factors pose major impact towards the conduct and effectiveness of counseling.

Keywords: Exclusive breastfeeding; Lactation counselors; Telephone counseling; Qualitative study; In-depth interview; Grounded theory

Introduction

In Malaysia, the exclusive breastfeeding rate in Malaysia remains low despite the implementation of Baby Friendly Hospital Initiative (BFHI) policy since 1993. In a national survey conducted in the year 2006, the overall prevalence of exclusive breastfeeding in Malaysia below 4 months was 19.3% (15.5%, 23.9%), while the overall prevalence of exclusive breastfeeding below 6 months was 14.5% (11.7%, 17.9%) [1,2]. Breastfeeding support and counseling services offered by knowledgeable health professionals can enable mothers and families to overcome breastfeeding obstacles and is often cited in the literature as one of the ways to promote breastfeeding [3-7]. The CDC Guide to Breastfeeding Interventions [8] defines professional support as any "counseling or behavioral interventions to improve breastfeeding outcomes, such as helping with a lactation crisis or working with other health care providers". Counseling helps mothers to be strong enough to deal with pressure, and increasing her self-confidence and self-esteem [9]. Lester had classified telephone therapy into two basic types, crisis counseling and informational [10], while Rosenfield had categorized telephone services into support, informational, advocacy, helplines, befriending and advice giving [11]. Counseling by telephone has been defined as a service whereby a trained counselor works with a client, or a group of clients, by telephone, to enable the client(s) to explore personal situations, problems or crises in a one-off or in an on-going longer term therapeutic relationship [11]. Telephone counseling has been found to

be effective for certain problems, such as smoking cessation [12-15], dietary change [16] and mental health [17], but the research has not been extended to address adequately the effectiveness of telephone counseling alone for breastfeeding practices. The research investigating the effects of telephone counseling for breastfeeding tends to incorporate the intervention as an adjunct with other forms of support [18-21], except for one study [22]. This qualitative study was undertaken as a follow-up of the results of a randomized controlled trial (RCT) conducted in Kuala Lumpur from April 2010 - February 2011 [23]. In the RCT, the intervention group (n=179) received lactation counseling via telephone twice monthly by certified lactation counselors (LCs) in addition to receiving the current conventional care of postnatal breastfeeding support, whilst the control group (n=178) received the current conventional care of postnatal breastfeeding support. A detailed description of the RCT is described elsewhere [23]. This RCT found that at the first month postpartum, there was a 1.8 times higher probability for a mother in the intervention group to exclusively breastfeed her infant (unadjusted OR 1.83, 95% C.I. 1.05, 3.16). However, there was no difference in the percentage of mothers who exclusively breastfeed their infants between the two groups at the fourth and sixth month postpartum. An analysis of the intervention dosage was carried out and it was noted that the accessibility to counsel the mothers declined gradually and substantially throughout the study. Thus, it is crucial to find the explanations on why the intervention was not successful in 'reaching out' to the mothers at the later stage of postpartum period, despite the feasible of mode of communication. The main objective of this qualitative study was to explore the LCs' perspectives regarding counselor-initiated telephone lactation counseling service to mothers in Kuala Lumpur. Their views

on the implementation of the service would provide input on the factors which could be modified to make the telephone lactation counseling a more effective approach in promoting exclusive breastfeeding.

Materials and Methods

Sample recruitment

Six participants were recruited for the research project from a sample of twelve LCs who had participated in the initial RCT [23]. There was no exclusion criterion, and the inclusion criteria were LCs from a public hospital in Kuala Lumpur who had participated in the intervention study providing telephone-based lactation counseling to mothers. Participants were recruited until theoretical saturation of data was achieved [24], following the principles of Grounded Theory [24-26].

Participant	Age	Ethnicity	Years of experience as a Nursing Staff	Years of Experience as Lactation Counselor
LC1	54	Malay	29	4
LC2	45	Malay	20	7
LC3	57	Indian	31	16
LC4	55	Malay	31	13
LC5	49	Malay	25	7
LC6	41	Malay	18	7

Table 1: Participant's Information.

Data saturation was achieved with 5 participants, but the researcher continued to the sixth participant as she had given the verbal agreement to meet for the IDI. The LCs were informed regarding the purpose of the qualitative study during one of the meetings with the researcher, and were later contacted by telephone and e-mail to fix the interview dates and time. Withdrawal from the IDI could be done at any time during the interview. Written informed consent was obtained from all participants. The first author acted as the Principal Investigator for this qualitative study and the intervention study. Prior to conducting the IDIs the first author was concerned that the LCs

would not share information openly with her if they perceived her as one who would judge their views. However, during the course of the IDIs this concern was abated since the counselors shared information openly and voiced their discomforts. Upon reading the transcripts, a colleague of the researcher who did not form part of the intervention team, confirmed that the LCs were more than willing to disclose information freely during these discussions. Information regarding the participants is presented in Table 1.

Data collection and analysis

This study was conducted in August 2011. The IDIs were conducted by the first author at the time and place convenient to the LCs (i.e. workplace). The interviews were conducted in Malay language (with five LCs) and English (with one LC); each lasted between 30-40 minutes. Each of the interviews was recorded using an audio recorder and was later transcribed verbatim and translated into English by the interviewer. Field notes were also made during each IDI session. To verify the accuracy of the transcription and translation, the interviewer read the transcripts and checked them against the audio recorded interviews. Constant comparative method was applied to look for emerging patterns and themes.

In this study, the qualitative data analysis followed the steps recommended by Charmaz [25]. Each audio-recorded interview was transcribed verbatim and given line numbers and the transcripts were subjected to content analysis. The steps implemented in analyzing qualitative data include: (i) reading and re-reading the transcript to become familiar with the text and begin developing codes; (ii) coding of data by line-by-line coding, and later refined into shorter code phrases; (iii) grouping the phrases into categories (iv) displaying the details of the categories and themes; (v) reducing data to essential points; and (vi) developing an analytical framework by linking the categories and themes.

Materials

A semi-structured interview design was developed from a list of elicitation questions based on the Integrated Behavioral Model for the IDI [27]. The semi-structured interview questions and an interview guide were prepared in English and later translated to Malay language. Suitability of the questions was discussed with the second author. The IDI questions are listed in Table 2.

Construct	Elicitation Questions
Experiential attitude	How do you feel about the idea of telephone lactation counseling? What do you like/dislike about telephone lactation counseling? Tell me about the good or the bad experiences you had when you handle the counseling sessions with the mothers
Instrumental attitude	What are the benefits/advantages of you doing the telephone lactation counseling? What are the negative effects/disadvantages of you doing the telephone lactation counseling?
Normative influence	What conditions makes you feel unsupported/de-motivated to conduct the counseling?
Perceived control	What makes things easier for you to conduct telephone lactation counseling? What makes it harder for you to conduct telephone lactation counseling?
Self-efficacy	Before you conduct any counseling sessions, how certain are you that you can? Do you feel capable enough to counsel the mothers? What kinds of things that would help you overcome any barriers in conducting telephone lactation counseling?

Table 2: Elicitation questions explored during the in-depth interview.

Results

The results are a summary of the themes identified from the analysis process with selected quotes included for illustration purposes, representing the LCs perspective on the telephone lactation counseling based on their experiences providing the service.

The Counselors' emotional experience

During the interviews all of the LCs reported experiencing both positive and negative emotions when counseling mothers. It was noted that their emotions were closely related to the outcome of the mothers' breastfeeding practice, and the mothers' behavioral responses towards the counselors' advice or suggestions. In regards to positive emotional experiences, the interviews revealed that all the LCs experienced happiness when mothers had successfully breastfeed or when mothers were able to overcome their breastfeeding problems with help from the counselors' guidance. They had also reported experiencing hopefulness, felt useful and helpful, felt appreciated or welcomed by mothers, felt the desire to help their clients, and were accepting of their clients despite their client's infant-feeding choices. One of the LCs specifically mentioned that due to the 'seldom occasions' of exclusive breastfeeding among mothers, it brought her pleasure whenever she thought of mothers under her care who had successfully done that [LC3, 57 years old]. They had also enjoyed the interactions with the mothers and in general, had enjoyed giving the counseling to the mothers.

"I asked a mother, and she said that she is still breastfeeding, I felt very happy, it feels like all the effort was worth it, you know, I can't really describe the feeling, but yes, it felt it was all worth it" [LC4, 55].

In regards to negative feelings, they reported feeling sadness, frustration, rejection, helpless, inadequacy, overwhelmed, hopeless, apprehensive, distress, ambivalence, and tiring. Some of the negative emotional experiences felt by the counselors were related to the mothers' responses which the counselors had perceived as them being 'rejected'. To some extent, failure of the mothers to continue breastfeeding had caused the LCs to deduce it as an aftermath of their own failure to help the mothers [LC4, 55]. However, they expressed concern that despite their efforts to offer support during their busy 'core work' schedule, a few of the mothers seemed 'ungrateful' for the 'free help'. The counselors negative experiences caused by technical problems related with calling by telephone (i.e. unanswered calls, unreturned calls, wrong numbers, number no longer in service) were less evident, as they had said that it was expected. Furthermore, some of the counselors had reiterated that the frustrations with the mothers were felt with a more profound sense of emotion, when compared to the technical glitches.

"I do feel frustrated sometimes, with mothers' attitude. They felt that it was okay for them to mix with formula, like it was the right solution for their [breastfeeding] problem, so, I feel frustrated then" [LC2, 45].

Providing the service has its merits

The LCS acknowledged that provision of the service has its advantages and disadvantages, both to the counselors and the mothers. The LCs had agreed that the most beneficial effect from providing the service was that more mothers would get help with breastfeeding. They had also stated that besides the mothers, the LCs had also benefited from the sessions, citing that they had noticed that their counseling skills had improved, they became better negotiators, and they became

more aware with their own ability to help. The counselors has also adapted the previously learned counseling skills for this service, as they claimed the bulk of the training focused on face-to-face counseling with mothers [9].

The LCs were not very explicit about the disadvantages of the service when probed openly about this topic. They had iterated that every support towards breastfeeding is something that is beneficial. However, when asked directly how the conduct of this service had affected their core job or their time, all of them agreed to some extent that the service had cost them their time. They had implied that their utmost priority was still their core job as appointed by the head of department, thus making them resort to doing the counseling during their time-off, on weekends or stayed back after their working hours. Thus it was apparent that the counselors' insights regarding disadvantages were directed more towards the lack of time for themselves.

Perceived control

The interviews revealed that there were several factors which had facilitated the LCs during the intervention study period. The LCs' own passion to help breastfeeding mothers was a profound 'internal' factor which has helped them to pursue with the intervention. Their determination to convince the mothers and the commitment to provide the support and guidance for breastfeeding mothers were the most important motivation.

The mothers' inquisitive attitude towards breastfeeding was the most discussed 'external' facilitating factor to the LCs in providing the service, and the effect of this was it developed into a better and positive environment for counseling.

"When I had a mother who is interested to breastfeed, it is easier to counsel her, she usually asks more questions...I feel at ease because I know she will somehow practice what I teach her, and I know what she wants from me" [LC6, 41].

All of the LCs had agreed that the provision of a guideline booklet has helped them during the counseling session. In fact, it was this factor that made a difference from a face-to-face counseling, as there was no way during face-to-face counseling that they could use any guideline book to avoid being seen as 'incompetent'.

The external barriers felt by the counselors were apparently causing more restrictions towards provision of good support to the mothers. The counselors felt that they were somehow 'restricted' to conduct counseling sessions during their working time. The counselors' actions were deeply suppressed by some mothers who seemed unbothered to seek help. They expressed disbelief with some of the mothers' attitude, who were quite difficult in accepting their opinions regarding breastfeeding. These attitudes may have led the counselors to stereotype the mothers as being the 'difficult ones', hence the rigor of approach to these mothers may dwindled or increased according to the counselors' motivation level. Although the counselors have tried to their best capacity to guide the mothers, the ultimate decision-making power still remains in the mother's hands. This fact was agreed upon by all of the LCs, with one of the counselors who consciously said that breastfeeding is a voluntary act and it could not be forced upon mothers [LC3, 57]. Other barriers felt by the LCs were the influence posed by the mothers' family members, particularly from their own mothers or mother-in-laws. They speculated that the influence by these people greatly affect the course of breastfeeding in any mothers as the

expectance to 'obey' the elderly is still deeply rooted in the local culture.

"At the end of the day, the fact is, it still depends on the mothers. We helped them all we could, but the choice is still theirs. That is the reality" [LC4, 55].

Cultural differences were also seen as a barrier in certain situation, not only confined to the practices of breastfeeding but also include the language barriers, and preference to talk to somebody from the same race. In this current study, it was noted that the use of cultural stereotypes had been applied by the LCs. Problematic communication experiences with a few individuals of different ethnicity in the past may have strengthened the cultural stereotyping towards the whole ethnicity group. Communication barriers which were related to cultural differences have an influence to the delivery of health services in some extent [28]. Depersonalizing and stereotyping the mothers according to their ethnicity may have influenced the equity of service provision, in this case, the telephone lactation counseling. It raises questions whether these acts could be seen as being racially-biased, however, as mentioned by one of the counselors that preference to the same ethnicity is unavoidable in any multi-ethnic society (LC3, 57) in addressing certain personal issues such as breast feeding. 'Internal' barriers expressed by the counselors revolved around their limited time, and limited energy to provide a more in-depth counseling after a busy day of work. Some of the counselors had internally believed that telephone counseling is inferior to face-to-face, but some of them felt there was indifference between the two methods.

Mothers' influence in service provision

The LCs had voiced out their concern on the mothers' influence towards the success of service provision. The mothers' positive responses towards the LCs' advice, their co-operation to be guided through the session, their co-operation to answer and receive the telephone calls, gave a profound encouraging effect towards the motivation to perform within the counselor. Exhibition of behaviours of trust towards the counselors had a gratifying effect on their confidence level and feeling of self-competence. The LCs were also affected by the negative influence projected by the mothers. They found it especially disturbing when dealing with mothers who have their own concept of infant feeding, be it the mothers' own ways of breastfeeding, the appropriate time to wean, or their indifference towards formula feeding. One of the counselors was taken aback when a mother had somehow 'reminded' her that she has had more experience than the counselor, and that her children were doing fine despite not complying to what the 'hospital' had advised [LC2, 45]. Mothers who posed these negative feelings do affect the LCs emotionally, up to the point that they felt uneasiness before contacting the mother again, felt less enjoyment conducting the counseling and had foreboded the outcomes of counseling [LC5, 49].

Compatibility to provide service

The LCs has had to manage the counseling sessions while doing their core work in the hospital. The lactation counselors had exhibited self-efficacy, had adequate knowledge and skills to counsel lactating mothers and had to time-manage themselves in between doing the core work and counseling. The counselors expressed that by joining this service group, they realized that they had to be seen and heard by the mothers as 'the person' to refer pertaining to breastfeeding. Thus, they had felt the need to prove their competence; to a certain higher

degree expected when compared to the mothers they had managed in the wards. This occurred especially when the counselors worked with mothers who were more educated, or had access to breastfeeding education through media and internet. Although they claimed to be capable of conducting counseling on usual basis, they had felt the need to tailor to the mothers' need far greater during telephone counseling. The traditional autonomy of counselors during telephone counseling is non-existent, and the counselors had to adapt to that situation as well.

Majority of the counselors had implied that the way of approaching the mothers as the most important aspect to conduct any counseling. Besides talking in a calming manner, they also had to project empathy towards the mothers. Empathetic counseling were used as much as possible, with many of them used coaxing methods when dealing with mothers who seemed to have given up trying to breastfeed, or being persuasive when mothers were undecided during the counseling session. However, the LCs had also shared that there were times when they had a 'hurried counseling' session. Hurried counseling occurred when the counselors were pressed for time, or when the mother requested for the counseling to end before it's due. Counselors had also maneuvered the handling of certain situations to gain more trust from the mother and be seen as competent.

Time management was also another important aspect in providing the service. Due to the lack of suitable time during their working hours, the LCs conducted the counseling during their weekends or during their time-off from work. Besides juggling to find the time to call the mothers, they also had to tailor to individual mother's suitable time. This was to ensure that the patient is comfortable and ready enough to be in part of and engage in the counseling. Several of the counselors had improvised on the methods of communication, by using the short message service (sms) to fix an appointment date and time.

They had also had to handle difficult situations, in cases where there is a language barrier, or handling different types of personalities among the mothers. Handling the different types of mothers' responses and behavior's towards breastfeeding was accepted by the counselors as the part and parcel of counseling. Two of the lactation counselors however, expressed the difficulty of passing certain types of information related to breastfeeding over the telephone [LC4, 55; LC3, 57].

Features of telephone lactation counseling

This theme emerged as the counselors explained why they had failed to reach to some mothers. They explained that while telephone counseling does feature certain highlights better than face-to-face counseling, it also has its downsides. The counselors had given an appreciation to telephone counseling, as they recognized it as an alternative to the current breastfeeding telephone helplines. Telephone counseling provided anonymity to both sides; it helps mothers overcome their shyness, and it conceals any insecurity feelings from both parties. The LCs also touted that this form of intervention was probably a good tool for an early detection for mothers at risk to stop breastfeeding, thus an early intervention in the form of vigorous support could be provided for this group of mothers.

Despite the ease and comfort of using telephone as a mode of communication, some of the counselors felt that this method was not as superior as the conventional face-to-face counseling. They believed that it was important to have direct contact with the mother, as certain issues or breastfeeding problems would be better explained with

practical hands-on session. Mothers would also hold the autonomy during any telephone counseling, as they may choose either to respond or ignore the telephone calls. The counselors also expressed the technical problems faced while using the telephone as the mode of communication. It was recognized as the main technical hindrance to provide counseling. Among the technical problems were (in accordance to the number of times they were repeated by counselors): mothers' changed their mobile telephone number, wrong telephone number, number no longer in service, the husband held the number, and the mother was not at their own home during confinement (for mothers who only has direct land-lines).

Discussion

The themes identified in this study could be presented in an analytical framework (Figure 1) based on the Integrated Behavioral Model [29]. In this model, the most important determinant is the intention to perform the behavior. A person is unlikely to perform the behavior should there be any lacking in motivation to do so. Besides having a strong behavioral intention, a person needs to have the knowledge and skills to perform the behavior. There should be no or few environmental constraints that make behavioral performance very difficult or impossible to conduct, and the behavior should be salient to the person. With experience, performing the behavior becomes habitual, thus intention becomes less important in determining behavioral performance for that individual [30]. Thus, it could be postulated that successful telephone lactation counseling is most likely to occur if (1) the LC has a strong intention to perform it and the knowledge and skill to do so, (2) there is no serious external constraints preventing performance, (3) telephone lactation counseling is salient, and (4) the LC has performed counseling's previously. However, from this qualitative study, it was found that the greatest determinant which affected the provision of telephone-based lactation counseling was the intention of Lactation Counselors, followed by external constraints. Considering that the external constraints could not be controlled by the LCs, strong intentions and motivation are required for the counselors to perform telephone lactation counseling. Other determinants such as demonstration of counseling skills and ample knowledge on breastfeeding among the LCs, salience of the intervention and the habits of conducting counseling were deemed sufficient to influence the conduct of telephone lactation counseling.

Rosenfield has stated some of the advantages which telephone counseling can bring compared to face-to-face counseling [31]. It was noted however, that the tradition that counseling takes place on the counselor's terms is challenged. The counselors could only work on what the mother had chosen to tell and what the counselor can hear in the background [31]. Telephone-based lactation counseling is lacking in the face-to-face interaction, thus it became 'conversational' and lack in immediacy of contact. This may have built an invisible divider between the mother and the counselor. Counselors in telephone-based services may be required to project immediacy exclusively through verbal expressions such as addressing by the mothers' name, engaging in humor, giving praises and encouragements. However, demonstration of verbal expressions of immediacy demands highly skilled and experienced counselors in the specific area of interest to project an effect of warmth and likeability within their telephone communication. Based on the social presence theory [32], lactation counselors need to demonstrate a higher level of social presence in an online environment such as telephone counseling (i.e. attributes that

are more sociable, more personal, more sensitive, and warmer), so that they will be perceived by mothers as a "real person".

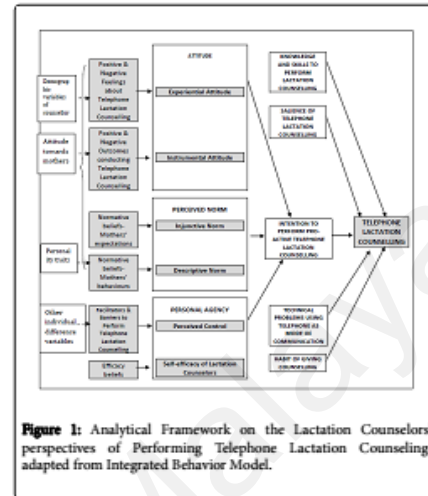


Figure 1: Analytical Framework on the Lactation Counselors' perspectives of Performing Telephone Lactation Counseling, adapted from Integrated Behavior Model.

Good communication between mothers and their counselors can influence information exchange, satisfaction with care, and adherence to the advice given. Communication that is centered more on mothers and their concerns may enhance information gathering and relationship building. Another way in which these counselors can bridge communication gaps with their breastfeeding mothers is through the use of motivational interviewing, a patient-centered approach to counseling and health promotion that has been studied extensively in promoting preventive health behaviors such as smoking cessation [32]. Our findings suggest that there is a need to study the application of motivational interviewing and other patient-centered communication approaches in breastfeeding support.

Counseling via telephone is also affected by the client's control. However good a counselor may be, the ability to conduct the consultation still depends on the client's own perception on the help they needed and their acceptance to receive the help. It was also important to take into account that traditionally, counseling is a two-person activity which arises when one person (the client) seeks help of another (the counselor) [33]. Hence, telephone lactation counseling might produce better effects when mothers are the ones who seek the lactation counselors rather than vice versa.

The findings in this qualitative study pose several implications, particularly for the public health policy planners and lactation counselors. If this intervention were to be implemented, several improvements on the intervention are necessary, particularly on training the LCs on matters related to telephone counseling. A better system of tele-communication has to be in place before the service is offered. A needs-based study exploring the mothers' expectations of the LCs should be conducted among the multi-ethnicity groups. It is

best if the LCs and the mothers were introduced to each other before the mother is discharged home to foster the engagement towards the counseling sessions. However, more emphasis is needed for antenatal lactation education, as this would allow the mothers to be more prepared to embrace breastfeeding and knowledgeable enough to seek help when the need arises. In-corporation of the family members during the antenatal lactation education is also essential as they pose the greatest influence on breastfeeding during the postpartum period.

This study has several limitations. The researcher's own belief, feelings, values and viewpoints may have influenced the interpretation of the participants' narratives. However, this limitation is reduced as the reflections resulted from the interaction with the participants long before the conduct of this qualitative study, the preparation of the interviews, literature reviewed as well as the observations made during the interview. Another limitation is the generalizability of the findings is limited to the specific group of persons, who had provided similar counseling services. Although an experimental quantitative study may give different information, it will not be able to access the personal views and descriptions provided by this research. The descriptions presented in this study are valuable in understanding the LCs' experiences of providing telephone lactation counseling to the mothers who had returned home. It is hoped that the themes extracted from these voices will be an impetus to further research and give valuable insights for the policy makers and planners.

Conclusion

The Lactation Counselors has provided their views regarding the provision of telephone lactation counseling. In general, they have appreciated the experiences and benefits gained from the service. Their passion, commitment, and compatibility to help breastfeeding mothers were undeniable. Several determinants which influence the service include strong intentions and motivation among the counselors, ample knowledge on breastfeeding, and demonstration of counseling skills and salience of the intervention. However, external factors such as time constraints, mothers' behavior's and their control in decision making, family influence and cultural differences pose major impact towards the conduct of counseling. We will need to improvise on the intervention and counteract the external constraints if telephone-based lactation counseling services is to be introduced in Malaysia.

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