The Influence of Hospital Practices and Family Support on Breastfeeding Duration, Adverse Events, and Postnatal Depression among First-Time Mothers

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ABSTRACT

Introduction: Baby-friendly hospital practices and family support are recognised to improve the chances of successful breastfeeding. The associations between support and maternal psychological state and breastfeeding problems are less explored. This study aimed to assess the influence of professional and family support on breastfeeding adverse events and postpartum depression at 2 weeks and exclusive breastfeeding (EBF) status at 12 weeks postpartum, and to identify predictors of positive outcomes. **Methods:** 64 primiparous Malaysian mothers were interviewed face-to-face , at 2, 6 and 12 weeks post-delivery, to collect data regarding family support, hospital and infant feeding practices, breastfeeding problems and pain, maternal perceptions and depression. Logistic regression and correlation were used to ascertain associations between support and EBF, adverse events and postpartum depression. **Results:** Neither professional nor family support predicted EBF at 12 weeks. Eighty-five percent of the mothers received high family support, which was associated with lower depression scores ($r=-0.36$, $p=0.005$); higher depression scores were associated with more breastfeeding problems. EBF discontinuation before 12 weeks was predicted by maternal perception of insufficient milk supply (OR=8.96, CI=1.78, 45.18). Earlier breastfeeding initiation ($r=0.26$, $p=0.04$) and skin-to-skin contact ($r=0.25$, $p=0.048$) were associated with lower breastfeeding pain. EBF in hospital was correlated with fewer breastfeeding problems ($r=0.31$, $p=0.01$). **Conclusion:** Mothers with greater family support suffered from less depressive symptoms, which could lower the incidence of breastfeeding problems and prolong EBF duration. Skin-to-skin contact, early breastfeeding initiation and EBF in hospital were associated with less adverse events, thus better compliance with these Baby-Friendly practices is recommended.

Keywords: Breast feeding, postpartum, health promotion, maternity, depression

INTRODUCTION

The short and long-term benefits of breastfeeding on mother and child have become widely established; a recent review concluded that breastfeeding has the potential to significantly improve health and cognitive outcomes with economic benefits (1). In low-income (LIC) and middle-income countries (MIC), only 37% of infants younger than 6 months are exclusively breastfed (1). In Malaysia, the prevalence of exclusive breastfeeding (EBF) at 6 months is higher (47.1%), yet this is still below the national target levels of 70% by 2025 (2).

Lay and professional support have been shown to increase breastfeeding duration (3). One of the most prominent programs developed to promote breastfeeding is the Baby-Friendly Hospital Initiative (BFHI) (4). The aim of this accreditation program is to institute policies and practices at healthcare facilities that support the mother to breastfeed during her stay. However, the degree of compliance to BFHI components is unknown at most institutions (5), and despite these forms of support and recommendations to breastfeed for at least 2 years (6), breastfeeding rates remain below target levels.

Several barriers are linked to early discontinuation of breastfeeding including pain and concern about the adequacy of milk to support appropriate infant growth (5). Maternal psychological state also plays an important role, where mothers who experience increased levels of anxiety and depressive symptoms are at risk of early breastfeeding cessation (7-9).

The outcomes used to evaluate support interventions have been limited mainly to breastfeeding duration and few studies have assessed the impact of support on modifiable determinants of breastfeeding such as problems encountered and psychological state. The

main purpose of this study was to investigate the influence of professional hospital support and family support on EBF status at 12 weeks, and on the determinants of breastfeeding such as maternal psychological state and breastfeeding problems encountered. We also aimed to investigate the determinants of EBF at 12 weeks in this sample. We examined these factors among first-time mothers, a particularly vulnerable group.

METHODS

Sample

Eighty-eight eligible mothers were recruited at antenatal clinics during their third-trimesters. The inclusion criteria were first-time and singleton pregnancy, freedom from chronic disease, ability to communicate in English or Malay, remaining in central region area during the postpartum period, and planning to breastfeed exclusively for at least four months. Mothers who were on medication during pregnancy or who smoked were excluded. In this study, 64 mothers were included as the rest (n=24) were excluded from the RCT during a second screening after delivery, mainly because they did not establish EBF. Mothers-infant dyads who were included at the second screening were exclusive breastfeeding mothers with full-term infants (>37 weeks gestation) who weighed >=2.5kg.

Design

This was a longitudinal observational study including data collected as part of a randomized controlled trial (clinicaltrials.gov identifier: NCT01971216) investigating mother-infant signalling during breastfeeding (10). Face-to-face interviews were conducted using validated questionnaires after written informed consent was obtained. Ethics approval was obtained from the UCL Research Ethics Committee (ID:4883) and Malaysia Medical Research Ethics Committee (ID: 13-841-16720).

Data Collection

Baseline

Data on maternal age, marital status, ethnicity, household income and education were collected during recruitment.

Two Weeks Post-Delivery

Early Hospital Practices

Early hospital practices such as early breastfeeding initiation, skin-to-skin contact, rooming-in and formula provision were assessed using the Neonatal Questionnaire and Infant Feeding Questionnaire (IFQ) adapted from the Infant Feeding Practices Study II developed by the US Food and Drug Administration and the Centers for Disease Control and Prevention (11). The detailed information of the tool was reported in the published study protocol (12).

Breastfeeding Problems and Pain

Mothers were asked to select any problems they encountered while breastfeeding during the first two weeks, which included: latch/sucking trouble, concern about infant's weight gain, trouble with milk flow, insufficient milk supply, sore/cracked/bleeding nipples, engorged breasts, clogged milk ducts, leaky breasts, and infected or abscessed breasts. The total number of problems encountered by each mother was then summed. Breastfeeding pain experienced at week 2 post-delivery was also assessed on a scale of 0 to 10.

Maternal Psychological State

Maternal psychological state, namely depressive symptoms experienced, was evaluated using the English and Malay versions of the Edinburgh Postnatal Depression Scale (EPDS). Total scores could range from 0 to 30, where 12.5 is regarded as the cut off point for depression (13). This questionnaire has been used extensively in research and clinical settings, and was shown to be reliable and sensitive in detecting depression postnatally (14). The Malay version of the questionnaire has been also validated for use in a Malaysian population (15).

Professional Support

The extent to which factors and people in the mother's environment were supportive of breastfeeding was assessed according to two parameters**:** professional support and family support. Professional support was analysed based on the magnitude of compliance with BFHI indicators. As shown in Table I, a scoring scheme made up of 10 questions, which can be found in the Neonatal, Demographic and Infant Feeding Questionnaires, was developed to assess the level of professional support. Since these hospital practices were assessed from mothers' reports, we could not examine the first and second "Baby-Friendly" steps (having a written breastfeeding policy and staff training); therefore, they were not included in our analysis. We divided each individual hospital practice into two groups: breastfeeding initiation time (<30 minutes, >30 minutes), skin-to-skin initiation time (directly, >15 minutes), skin-to-skin duration (<20 minutes, >20 minutes) and rooming-in (all the time, sometimes/never). The remainder of the hospital practices were also split (yes, no). Overall, higher scores reflect a higher level of compliance with established recommendations, where optimal compliance would yield a total score of ten.

Family Support

As shown in Table I, family support was assessed based on practical breastfeeding help received from a family member and the participant's perception of her family's support on the decision to breastfeed. Based on these questions which are found in the IFQs, the total possible score for family support is five.

6 Weeks Post-Delivery

Maternal Perceptions

Five maternal perceptions related to breastfeeding were evaluated using IFQ: i) the ability to find information about breastfeeding, ii) time demand of breastfeeding, iii) breast milk being sufficient for the infant at each feeding, iv) ability to breastfeed despite pain, and v) family supporting the mother's decision to breastfeed. Each item was scored on a 5-point scale from 1 (never) to 5 (always). The total score of all statements was calculated for analysis.

12 Weeks Post-Delivery

Exclusive Breastfeeding Status

Information about breastfeeding status and its exclusivity was assessed at 12 weeks using IFQ.

Data Analysis

All data from the questionnaires were coded and entered into Statistical Package for the Social Sciences (SPSS) version 21.0. Continuous data was tested for normality using the Shapiro–Wilk test, Q-Q plots and histograms. Support scores were calculated for each participant. Participants were omitted from the analysis if any item from the scoring scheme was missing; eight were excluded from professional support analysis and four from the

family support. Binomial logistic regression was then performed to ascertain the influence of family and professional support scores on the likelihood of EBF at 12 weeks (yes or no). Spearman's rank-order correlation was used to investigate the correlation between support scores and other outcomes such as breastfeeding pain and problems and maternal depression. The influence of individual hospital practices, sociodemographic variables, maternal perceptions, and psychological state on the likelihood of EBF was also determined using binomial logistic regression. Relationships between individual hospital practices, maternal perceptions, demographic factors, depression scores and breastfeeding problems were explored using Pearson and Spearman's correlation tests. A multivariate analysis was then conducted including all identifiable predictors of EBF at 12 weeks in addition to socioeconomic status, maternal age, and type of delivery. Skin-to-skin lasting more than 20 minutes, high socioeconomic status, vaginal delivery, no perceived insufficient milk supply (PIM) and maternal age of 26-34 were the reference categories. P-values < 0.05 were considered statistically significant.

RESULTS

Descriptive data

Sociodemographic Characteristics

Table II shows the sociodemographic characteristics of the 64 mothers included in this study. The mean maternal age was 26.7 ± 2.8 years, and the vast majority of the participants were of Malay ethnicity (93.8%, n=60). Moreover, the majority of mothers completed at least 12 years of education (84.3%, n=54), were employed (78.1%, n=50), belonged to a high socioeconomic group (45.3%, n=29), and delivered through the vaginal route (75%, n=48).

Family Support

The majority of the participants did not receive practical breastfeeding help from their families (64.1%, n=41); however, 71.7% (n=43) of the mothers perceived their families as supportive of breastfeeding (Table II). Eighty-five percent of the mothers (n=51) scored four and above (out of five) indicating a high level of family support.

Professional Support

In this sample, a higher proportion of mothers who delivered in BFHI-accredited facilities scored >7 than in non-accredited institutions (32.4%, n=12 vs 11.2%, n=2). However, the mean compliance scores for BFHI-accredited facilities (6.7 ± 1.7) and non-accredited facilities (5.8 ± 1.3) were not statistically different ($p>0.05$). Table III depicts the differences in the number of positive hospital practices experienced by women who delivered in BFHI-accredited vs non-BFHI accredited facilities. Overall, 86% (n=48) and 54% (n=30) of mothers experienced at least five and at least seven positive hospital practices, respectively.

Exclusive Breastfeeding at 12 Weeks

The prevalence of EBF among mothers at 12-13 weeks of infant's age was 85.9% (n=55). The most commonly reported reasons for discontinuing EBF before 12 weeks were: "Breast milk alone did not satisfy my baby" (100%, n=6), "I did not have enough milk" (67%, n=4), and "I thought my baby was not gaining enough weight" (67%, n=4). Women who reported not having enough milk tended to also report that the infant was not satisfied with breast milk alone ($r=0.93$, $p=0.007$); however, these two reasons were not correlated with perceived infant weight gain.

Breastfeeding Pain and Problems

The most commonly reported breastfeeding problems were breast engorgement (59.4%, n=38), cracked/sore/bleeding nipples (54.7%, n=35), followed by infant latch/sucking trouble (48.4%, n=31) (Table IV). Eighty-two percent of mothers (n=51) indicated a breastfeeding pain severity of five or less out of ten.

Maternal Psychological State

Most mothers (82.5%, n=51) scored <13 on the EPDS indicating a low risk of depression.

Breastfeeding Support and Exclusive Breastfeeding, Pain, Problems and Depression

Neither professional nor family support in the early postnatal period predicted EBF at 12 weeks ($p>0.05$). The percentage of family support was negatively associated with EPDS score at week 2 post-delivery ($r=-0.36$, $p=0.005$).

Individual Factors and Exclusive Breastfeeding, Pain, Problems, and Depression

Early Postnatal Hospital Practices

The influence of individual hospital practices on the likelihood of EBF discontinuation before 12 weeks is shown in Table V. Skin-to-skin duration lasting longer than 20 minutes increased the odds of EBF at 12 weeks by a factor of 5.11 (95% CI 1.08, 24.30).

Not providing infants with any food or drink other than breast milk was associated with a lower number of breastfeeding problems ($r=-0.31$, $p=0.01$). On average, mothers whose infants were EBF at the hospital had nearly two problems fewer than those whose infants were not (3.2 ± 1.9 vs 4.7 ± 2.2; $p=0.01$). Moreover, weak but significant correlations were found between how soon skin-to-skin contact and breastfeeding were initiated and pain at

week 2 post-delivery; the sooner the initiation, the lower the pain (r=0.27, p=0.048 and r=0.26, p=0.04, respectively).

To further explore postnatal practices at the hospital, correlations among the practices themselves were determined. It was found that the sooner skin-to-skin contact was initiated, the longer skin-to-skin contact was likely to be maintained (r=-0.28, p=0.03). Moreover, the sooner a mother received breastfeeding help post-delivery, the sooner she was likely to initiate breastfeeding after birth (r=0.32, p=0.01).

Maternal Perceptions

The total maternal perception score at 6 weeks did not predict EBF at 12 weeks. However, associations were demonstrated between better maternal perceptions and fewer breastfeeding problems (r=-0.33, p=0.01) and lower depression scores (r=-0.41, p=0.01). Further analysis of individual maternal perceptions showed that PIM at 6 weeks independently increased the likelihood of discontinuing EBF at or before 12 weeks by 8.96 (95% CI=1.78-45.18). Five out of the eight participants who did not EBF perceived their milk supply as insufficient. Mothers who had higher depression scores at 2 weeks reported stronger perceptions of insufficient milk supply at 6 weeks (r=-0.52, p<0.001).

Multivariate logistic regression was performed including PIM, skin-to-skin contact duration, socioeconomic status, maternal age and type of delivery. PIM still significantly predicted EBF discontinuation at or before 12 weeks (OR=8.43, 95% CI=1.24-57.51). However, skin-to-skin contact duration ceased to predict EBF at 12 weeks (p>0.05).

Psychological State

A weak but significant correlation was found at week 2 between EPDS score and total breastfeeding problems experienced by the mother (r=0.25, p=0.049). On further analysis, EPDS score was correlated with two specific problems: trouble getting the milk flow to start (r=0.37, p=0.004) and having insufficient milk supply to satisfy the infant (r=0.29, p=0.025).

Demographic Variables

No correlations were found between breastfeeding outcomes and any demographic variable (mother's age, education level, socioeconomic status, and birth order).

DISCUSSION

This study assessed the extent of perceived support for breastfeeding mothers in Malaysia and its influence on breastfeeding outcomes including duration, breastfeeding problems and postnatal depression. Our main finding suggests that support of first-time mothers by their families or professional staff did not alter the likelihood of EBF at 12 weeks. However, mothers who received higher levels of family support had reduced depression scores, which was associated with fewer breastfeeding problems.

Our main finding differs from that of other published studies. For example, a study in which breastfeeding practice scores were assigned to mothers, by summing the number of BFHI practices experienced by each mother, demonstrated that each additional 1-point score was associated with a 12.4% increase in EBF duration for 4 weeks and more (16). Moreover, various studies in different countries have shown that women who viewed their families as supportive to breastfeeding were more likely to initiate and maintain breastfeeding (17-19). The discrepancy between these results and our own might be explained by the high rates of

EBF in our study population. Eighty-six percent of mothers continued EBF for at least 3 months compared to the established EBF prevalence of 52.9% and 47.4% among infants between 0 to 2 and 0 to 4 months of age, respectively, in Malaysia in 2016. Our study population were planning to EBF, were only included if they established EBF after delivery, and the vast majority were of Malay ethnicity (93.8%) and achieved at least 12 years of education (84.3%). In a previous study, intention to breastfeed, a higher level of education and Malay ethnicity were associated with EBF (20). Moreover, most mothers received a generally high level of professional or family support, or both, where 88% of mothers scored five or more (out of 10) on the BFHI compliance scale, and 85% scored four or more (out of five) for family support. It is possible that had we been able to compare participants receiving a high level of support to those with no or minimal support for breastfeeding, the differences in studied outcomes might have been more apparent.

The role of the mother's social support network, namely the grandmother and the partner, can have a positive or negative effect on breastfeeding, depending on their experience and opinions on infant feeding (21-24). In this study, the majority (71.7%) of participants perceived their families to be supportive of breastfeeding, which might further explain the high prevalence of EBF we have found. We showed that mothers who received higher levels of family support had lower depression scores at 2 weeks post-delivery than those who had lower levels of support for breastfeeding. Similarly, a previous study showed that family support is associated with reduced depression scores at week 6 among first-time mothers (25). This indicates that the mother's support network might influence breastfeeding outcomes indirectly by positively affecting maternal mood. Further studies should investigate the different types of familial support (practical, emotional, financial) in relation to maternal depression and breastfeeding.

Associations between specific factors including early hospital practices, maternal perceptions, psychological state, demographic variables and breastfeeding outcomes were examined. The probability of EBF at 12 weeks was positively related to the duration of skin-to-skin contact and negatively related to PIM. Similarly, in other studies, skin-to-skin contact is recognized to increase breastfeeding and EBF durations (26, 27). Although the odds of EBF at 3 months in our study was not affected by how soon skin-to-skin contact was initiated, it was positively associated with the duration of skin-to-skin contact. This supports the WHO recommendation that skin-to-skin contact should be practiced directly after birth for an uninterrupted period of at least 20 minutes. PIM was associated with decreased odds of EBF at 12 weeks and was one of the most commonly cited reasons (67%) for discontinuing EBF in our sample. This is consistent with the national data of high PIM reported (59%) in the National Health and Morbidity Survey in Malaysia (2). As in previous studies, mothers in this study who reported insufficient milk supply as a reason for EBF cessation were likely to also report their infant not being satisfied with breast milk as a reason for discontinuation, which might indicate that they assess their milk supply based on infant behaviour rather than objective measurement of actual milk supply (28). However, after controlling for skin-to-skin contact duration, and other variables previously reported to influence breastfeeding duration such as type of delivery and socioeconomic status, PIM still negatively predicted EBF at 12 weeks while skin-to-skin contact did not. Therefore, it is possible that maternal perception of milk supply could be a mediator of the association between skin-to-skin contact duration and EBF. It could be that skin-to-skin contact increases maternal confidence, which is associated with less PIM, and thus increased EBF success, as shown in a trial among primiparous mothers (29).

Overall positive maternal perceptions towards breastfeeding, including the perception of sufficient milk supply, were linked to fewer breastfeeding problems and lower depression scores. These positive outcomes are likely to explain why PIM was shown to be a significant predictor of EBF at 12 weeks in our study. Likewise, PIM has been previously found to be associated with perinatal depression and early cessation of breastfeeding (30).

Depression score was also correlated with the incidence of breastfeeding problems at 2 weeks post-delivery. Infant behaviour might influence the relationship between these two variables. For instance, excessive or inconsolable infant crying has been noted to increase the odds of having an EPDS score ≥ 9 fourfold (31). This infant behaviour can be interpreted by the mother as indicating an insufficient milk supply to satisfy the infant (28), which is a commonly reported problem in our study and was found to be independently associated with EPDS score. Another possible explanation is that higher levels of depressive symptoms have a negative effect on oxytocin levels (32, 33), which could interfere with milk flow. We also found that trouble getting the milk-flow to start was independently correlated with a higher EPDS score. It could also be that higher breastfeeding problems have a negative effect on maternal psychological state, as previously found in a large study in the UK (34).

EBF at the hospital was associated with fewer breastfeeding problems at 2 weeks. The observational nature of this study does not allow us to establish the direction of this association. It is possible that mothers who face problems are more likely to be given supplements for their infants, as suggested by previous studies (35, 36). Alternatively, mothers whose infants are supplemented with formula milk could experience more breastfeeding problems due to interference with breastfeeding, reduced nipple stimulation and removal of breast milk, which might lead to problems such as breast engorgement.

Participants in this study received face-to-face interviews on a consistent, regular basis (0, 2, 6 and 12 weeks), which resulted in good compliance with only a few dropouts. However, despite carrying out structured interviews with the use of validated questionnaires to minimize researcher interference in feeding practice, the mothers had the opportunity to relay their concerns and inquiries about breastfeeding to the researcher. This could be considered as a source of support given to the mothers which can influence breastfeeding outcomes (3). Another limitation is that we did not collect details about the confinement period practiced by women in this study and thus we could not assess its influence on breastfeeding outcomes and maternal depression. Moreover, it might not be possible to generalize our findings to other populations where cultural practices are different.

CONCLUSION

In our study population of mothers intending to breastfeed for a minimum of four months, neither professional nor family support seemed to reduce breastfeeding pain or problems, or influence the likelihood of EBF at 12 weeks. However, higher levels of family support were associated with lower maternal depression scores. Additionally, higher maternal depression scores were correlated with a higher incidence of breastfeeding problems reported by the mother, namely “insufficient milk supply”, and perception of insufficient milk supply was an independent predictor of EBF discontinuation before 12 weeks. Lastly, whilst hospital practices in line with WHO recommendations are already known to prolong breastfeeding duration, we showed that individual practices such as skin-to-skin contact and early breastfeeding initiation could also be associated with reductions in breastfeeding problems, not just with EBF duration. Compliance with hospital practices such as skin-to-skin, early breastfeeding initiation and avoiding in-hospital supplementation, unless medically indicated,

is therefore important. Hence, regularly monitoring the compliance with Baby-Friendly hospital practices is highly recommended. This study also highlights the significance of involving family members when designing interventions targeting breastfeeding. Future studies should include a larger sample with mothers who are more at risk to investigate whether support minimizes the risk of adverse breastfeeding outcomes. Additionally, future studies should examine infant behaviour to assess if inconsolable crying is related to depression and PIM. The quantity of milk supplied and concentration of mood-related hormones in breast milk and maternal and infant serum should also be studied to further investigate the relation between depression and PIM.

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Table I. Baby-Friendly Hospital Initiative Compliance and Family Support Scoring Scheme

Professional Support			
#	**Question**	**BFHI Indicator**	**Score**
1	How soon after delivery did you breastfeed or try to breastfeed you baby?	Step 4- Help mothers initiate breastfeeding within half-hour of birth.	<30 mins → 1 >30 mins → 0
2	How soon after birth was the baby placed in skin-to-skin contact?	Step 4- Place babies in skin-to-skin contact with their mothers immediately after birth for at least one hour.	Directly → 1 Longer → 0
3	How long was your baby placed in skin-to-skin contact after birth?	Step 4- Place babies in skin-to-skin contact with their mothers immediately after birth for at least one hour.	>20 mins → 1 <20 mins → 0
4	While you were in the hospital, did anyone help you with breastfeeding by showing you how or talking to you about it? Who helped you?	Step 5- Show mothers how to breastfeed and maintain lactation, even if they should be separated from their infants (or face problems).	Yes and staff member helped → 1 No or family/friends helped → 0
5	While you were in the hospital or birth center, was your baby fed water, formula, or sugar water at any time?	Step 6- Give new-borns no food or drink other than breast milk unless medically indicated.	No → 1 Yes → 0
6	While you were in the hospital or birth center, did your baby stay in your room day and night, except for doctor visits, bathing, or other treatments?	Step 7- Practice rooming-in, allow mothers and infants to remain together 24 hours a day.	Yes, all the time → 1 No or Sometimes → 0
7	When your baby was not in your room, how did the staff decide when to feed the baby or to bring him or her to you for feeding?	Step 8- Encourage breastfeeding on demand.	Breastfed when baby seemed hungry, or mixed → 1 On schedule → 0
8	Was your baby given a pacifier by you, the medical staff, or anyone else while in the hospital or birth center?	Step 9- Give no artificial teats or pacifiers to breastfeeding infants.	No → 1 Yes → 0
9	Were you given information about any breastfeeding support groups or services before you went home from the hospital or birth center?	Step 10- Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.	Yes → 1 No → 0
10	If gift pack received at the hospital or center, were any of the following included in the gift pack? Infant formula- coupons for infant formula- breastfeeding supplies- baby items	International Code of Marketing of Breast-milk Substitutes - Ensure that there is no promotion of breast milk substitutes, bottles, teats or dummies in any part of the facility or by any of the staff.	No gift pack was given, or breastfeeding items → 1 Infant formula or coupons → 0
		Total possible score: /10	

Family Support		
#	**Question**	**Score**
1	While you were in the hospital, did anyone help you with breastfeeding by showing you how or talking to you about it? Who helped you?	Yes and family/friends helped → 1 No or hospital staff helped → 0
2	I feel that my family supports my decision to breastfeed: 1 (Never) – 5 (Always)	5 (Always) → 4; 4 → 3; 3 → 2; 2 → 1; 1 (Never) → 0
	Total possible score: /5	

Table II. Sociodemographic Characteristics of the Mothers

Characteristics	n (%)
Maternal age (years)	
20-25	21 (32.8)
26-30	38 (59.4)
31-34	5 (7.8)
Maternal Ethnicity	
Malay	60 (93.8)
Chinese	2 (3.1)
Indian	1 (1.6)
Other	1 (1.6)
Marital Status	
Married	64 (100)
Maternal Education Level	
Primary school	1 (1.6)
Secondary School	9 (14.1)
Certificates/Diploma	8 (12.5)
Bachelor's Degree	39 (60.9)
Postgraduate	7 (10.9)
Maternal Occupation	
Government Sector	18 (28.1)
Private Sector	24 (37.5)
Employer	1 (1.6)
Self-Employed	7 (10.9)
Unemployed	14 (21.9)
Socioeconomic Group	
Low	13 (20.3)
Intermediate	22 (34.4)
High	29 (45.3)
Type of Delivery	
Vaginal, not induced	33 (51.6)
Vaginal, induced	15 (23.4)
C-section, planned	3 (4.7)
C-section, unplanned	13 (20.3)
Delivery at Baby Friendly Hospital	
Yes	37 (67.3)
No	18 (32.7)
Received help with breastfeeding from family and friends during hospital stay	
Yes	23 (35.9)
No	41 (64.1)
Feels family support breastfeeding	
Never	1 (1.7)
Most of the times	16 (26.6)
Always	43 (71.7)
Primary person taking care of mother during postpartum period	
Husband	20 (31.7)
Parents	30 (47.6)
In-Laws	2 (3.2)
Helper	1 (1.6)
Self	10 (15.9)

Table III. Differences in the number of BFHI-recommended hospital practices between Baby-Friendly accredited and non-accredited facilities.

	Baby-Friendly Accredited	
	Yes	**No**
3 practices	2 (5.4)	1 (5.6)
4 practices	3 (8.1)	1 (5.6)
5 practices	4 (10.8)	6 (33.3)
6 practices	4 (10.8)	4 (22.2)
7 practices	12 (32.4)	4 (22.2)
8 practices	10 (27.0)	1 (5.6)
9 practices	2 (5.4)	0 (0.0)
10 practices	0 (0.0)	1 (5.6)

Table IV. Breastfeeding problems experienced at 2 weeks post-delivery

Breastfeeding Problems	n (%)
Sucking or latching trouble	31 (48.4)
Baby choking on milk	23 (35.9)
Baby not waking up to nurse regularly enough	22 (34.4)
Baby was not interested in nursing	6 (9.4)
Baby got distracted while feeding	3 (4.7)
Baby nursed too often	15 (23.4)
It took too long for milk to come in	8 (12.5)
Trouble getting milk flow to start	7 (10.9)
Baby didn't gain enough weight or lost too much	5 (7.8)
Did not have enough milk	7 (10.9)
Nipples were sore, cracked or bleeding	35 (54.7)
Breasts were engorged	38 (59.4)
Yeast infection of the breast	1 (1.6)
Clogged milk duct	6 (9.4)
Infected or abscessed breasts	0 (0.0)
Breasts leaked too much	20 (31.3)

Table V. Univariate regression analysis for the likelihood of EBF discontinuation before 12 weeks from early postnatal hospital practices.

Hospital Practice[1]	n (%)	OR	95% C.I.	
			Lower	Upper
Breastfeeding initiation time				
<30 mins	23(36.5)	-		
>30 mins	40(63.5)	0.54	0.10	2.93
Skin-to-skin initiation time				
Directly	51(81.0)	-		
>15 mins after birth	12(19.0)	0.57	0.12	2.69
Skin-to-skin duration[2]				
<20 mins	50 (79.4)	0.20	0.04	0.93
>20 mins	13 (19.4)	-		
Help with Breastfeeding				
Yes	51 (81.0)	-		
No	12 (19.0)	1.75	0.19	15.75
Exclusive Breastfeeding at the Hospital				
Yes	41 (67.2)	-		
No	20 (32.8)	0.43	0.10	1.95
Rooming-in				
All the time	49 (77.8)	-		
Sometimes or never	14 (22.2)	0.84	0.15	4.69
Breastfeeding on Demand				
Whenever the infant is hungry	29 (43.3)	-		
On schedule or mixed	27 (40.3)	0.92	0.21	4.11
Getting information about support groups				
Yes	24 (38.1)	-		
No	39 (61.9)	1.75	0.39	7.77
Receiving a gift pack with formula				
No	54 (88.5)	-		
Yes	7 (11.5)	3.20	0.51	20.28
Receiving a gift pack with breastfeeding supplies				
Yes	19 (31.7)	-		
No	41 (68.3)	1.35	0.29	6.35

[1]We could not examine pacifier use as predictor of EBF due to the very small number of mothers who used a pacifier (and who did not EBF).
[2]After adjusting the p-value for socioeconomic status, delivery method, maternal age, and perception of milk supply, $p > 0.05$.