EXCLUSIVE BREASTFEEDING: KNOWLEDGE, ATTITUDE, PRACTICE, AND ITS DETERMINANTS AMONG MALAY MOTHERS IN AMPANG, SELANGOR

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ABSTRACT

Exclusive breastfeeding (EBF) for up to six months is internationally recommended due to its benefits for both maternal and infant health. However, the rate of EBF in Malaysia is still below the desirable levels. This study examined the prevalence of EBF and assessed the knowledge, attitude, and practice (KAP), and determinants of breastfeeding among Malay mothers in Ampang, Selangor. Ninety-two Malay subjects who breastfed healthy children aged six to 36 months, were included in this study. Data were collected by dual-language, self-administered questionnaire (which included Iowa Infant Feeding Attitude Scale, IIFAS), to determine KAP of mothers towards breastfeeding. Socio-demographic, psychosocial, and environmental factors related with EBF were also assessed. Linear logistic regression model was used to identify factors that may determine breastfeeding for six months (exclusively) and beyond. A total of 28% of the subjects practised EBF up to six months, 39% less than six months, and 33% continued BF beyond six months. The mean IIFAS total score was 66.1 ± 8.11, which ranged between Neutral and Positive towards Breastfeeding Practice attitudes. Higher IIFAS score is related to intended and actual exclusive breastfeeding. Several variables were significantly related to breastfeeding for six months (exclusively) and beyond. This included maternal age of 30 years or more (OR:3.26, 95% CI:1.27–8.38); higher socioeconomic status (OR:8.50, 95% CI:1.76–41.06); higher educational level (OR:5.21, 95% CI:1.66–16.34); multi-parity (OR:3.15, 95% CI:1.17–8.47); nonworking status (OR:3.81, 95% CI:1.02–14.3); support from spouse (OR:2.39, 95% CI:1.01–5.65); availability of private rooms for breastfeeding at workplace (OR:4.30, 95% CI:1.77–10.63); and child birth place (OR:2.54, 95% CI:1.08–5.98). The right maternal knowledge and attitude play crucial roles in the success of breastfeeding. Hence, more health promotion is needed. Supports from spouse, workplace, and hospital staff after delivery, are also essential to improve EBF statistics in Malaysia.

KEYWORDS: Exclusive breastfeeding; Knowledge; Attitude; Practice; Breastfeeding determinants

INTRODUCTION

Breastfeeding is the most ideal and well-recognized means of infant feeding. Although it has been widely mentioned regarding the public's knowledge of breastfeeding benefits, the practice rate is still unsatisfactory (Almroth et al., 2008). In Malaysia, the prevalence of ever breastfeeding and exclusive breastfeeding (EBF) for the first six months after baby delivery was 94.7% and 14.5%, respectively (Institute of Public Health, 2008). Although the prevalence had increased since 1990s, the rates of EBF up to six months remain far from the goal that has been set forth by Healthy People 2020 which is 25.5% nationwide within the next seven years (Fatimah et al., 2006).

Breastfeeding duration is found to be affected by psychological, demographic, and environmental factors (Ergenekon-Ozelci et al., 2001). Among the common reasons contributing to early breastfeeding discontinuation are: late initiation of breastfeeding, lack of confidence to breastfeed, perception of insufficient milk supply, and lack of encouragement from hospital staff after delivery (U.S. Department of Health and Human Services, 2011).

Unfortunately, not that many studies in this area were done in Malaysia. Thus, this research aimed to assess maternal breastfeeding knowledge, attitude, and practice, as well as to identify potential determinants affecting EBF practice among Malay mothers.

MATERIALS AND METHODS

Respondents

This cross-sectional study was conducted at four nurseries in Ampang, Selangor. The inclusion criteria included: Malay mother; aged 20 to 50 years; and has a healthy child aged six to 36 months.

A total of 200 questionnaires were distributed, each attached with a consent form. A pilot study was conducted before the commencement of the actual study to improve the quality of the questionnaire.

Questionnaire

The questionnaire was self-administered and some questions were adopted from other study (Mogensen & Westin, 2009). It was prepared in dual-language (English and Malay). The questionnaire was divided into three sections - Part A: Demographic and socioeconomic status; Part B: Breastfeeding practice, support, and source of breastfeeding knowledge; and Part C: Questions regarding knowledge of and attitude towards breastfeeding known as Iowa Infant Feeding Attitude Scale (IIFAS), which was adopted from Mora et al. (1999). IIFAS scores were categorized into three classifications: Positive towards Breastfeeding (scores of 70-85); Neutral (scores of 49-69); and Positive towards Formula Feeding (scores of 17-48).

Statistical Analyses

Statistical analyses were conducted using SPSS version 14.0 (SPSS Inc. Chicago, IL, USA). The Chi-square test was used to determine associations between categorical variables. Logistic regression was used to model the odds of both intended and actual breastfeeding practices based on attitude score and attitude score categories.

RESULTS

Demographic Characteristics

A total of 92 mothers aged 32.4 ± 4.5 years old were enrolled in the study. Other characteristics of the subjects are shown in Tables 1 and 2. Most of the respondents had at least a diploma or higher (71%), were working (80%), and half of them had monthly household income of less than RM 4,000. A total of 51% of the working mothers did not have private rooms for breastfeeding at their workplace, although 72% of them have refrigerators at their workplace which could be used to store their pumped breast milk. Other than that, majority of the working mothers had their maternity leave for 60 days or less (84%), were given support (94%), and received information on breastfeeding benefits after delivery (75%).

Table 1
Demographic and socioeconomic status of the subjects (n = 92)

Characteristics		**n**	**%**
Maternal Age	25 – 29	28	30.4
	30 – 34	37	40.2
	35 – 39	20	21.7
	40 – 44	7	7.6
Child age	7-12 months	34	37.0
	13-24 months	42	45.6
	25-36 months	16	17.4
Parity	Primiparous	22	23.9
	Multiparous	70	76.1
Type of child delivery	Normal	76	82.6
	Caesarean	16	17.4
Education level	Less than diploma	27	29.3
	Diploma or higher	65	70.7
Working status	Not working	18	19.6
	Working	74	80.4
Employment (n = 74)	Private sector	63	85.1
	Government sector	11	14.9
Monthly household income	< RM 4,000	46	50.0
	RM 4,000 – 8,000	27	29.3
	> RM 8,000	19	20.7

Factors		n	(%)
Maternity leave (n=74)	≤ 60	62	(83.8)
	> 60	12	(16.2)
Privacy room in workplace (n=74)	Yes	36	(48.6)
	No	38	(51.4)
Refrigerator in workplace (n=74)	Yes	53	(71.6)
	No	21	(28.4)
Child birthplace (hospital)	Government	56	(60.9)
	Private	36	(39.1)
Receive formula from hospital before discharge	Yes	29	(31.5)
	No	63	(68.5)
Support given	Yes	86	(93.5)
	No	6	(6.5)
Doctor and nurse support	Yes	63	(68.5)
	No	29	(31.5)
Family support	Yes	60	(65.2)
	No	32	(34.8)
Husband support	Yes	49	(53.5)
	No	43	(46.7)
Friends support	Yes	42	(45.7)
	No	50	(54.3)
Knowledge before pregnancy	Yes	57	(62.0)
	No	35	(38.0)
Knowledge during pregnancy	Yes	48	(52.2)
	No	44	(47.8)
Knowledge after pregnancy	Yes	69	(75.0)
	No	23	(25.0)

Table 2
Other characteristics of the subjects (n = 92)

Exclusive Breastfeeding Prevalence and Demographic Characteristics

A total of 28% of the mothers exclusively breastfed their babies for up to six months, and 33% of them continued breastfeeding beyond six months. A total of 39% of the subjects did not practise EBF up to six months.

Several variables were significantly related to EBF duration, as demonstrated in Tables 3 and 4. The significant maternal characteristics with higher tendency to practise EBF for six months and continue breastfeeding beyond that included: age ≥30 years (OR: 3.95; 95% CI: 1.55,10.1, *p=0.04*); tertiary education level (OR: 5.21; 95% CI: 1.66, 16.34, *p=0.05*); household income > RM8,000/month (OR: 8.50; 95% CI: 1.76, 41.06, *p=0.08*); multi-parity (OR: 3.15; 95% CI: 1.17, 8.47, *p=0.023*); nonworking status (OR: 3.81; 95% CI: 1.02,14.3, *p=0.047*); availability of spouse's support (OR: 2.39; 95% CI: 1.01,5.65, *p=0.048*); availability of private rooms for breastfeeding at workplace (OR: 4.3; 95% CI: 1.77,10.63, *p=0.010*); and delivery of babies at private hospitals (OR: 3.26; 95% CI: 1.27,8.38, *p=0.032*).

Table 3
Crude odds ratio for EBF up to six months based on socio-demographic characteristics (n=92)

Characteristics		EBF ≥ 6 months	
		OR (95% CI)	**p-value***
Maternal Age	< 30 years	1	
	≥ 30 years	3.95 (1.55 – 10.1)	**0.004**
Parity	Primiparous	1	
	Multiparous	3.15 (1.17 – 8.47)	**0.023**
Type of delivery	Normal	2.07 (0.61 – 7.00)	0.244
	Caesarean	1	
Education level	< Diploma	1	
	≥ Diploma	1.46 (0.59 – 3.64)	0.416
Working status	Not working	3.81 (1.02 – 14.3)	**0.047**
	Working	1	
Monthly household income	< RM 4,000	1	
	RM 4,000 – 8,000	1.70 (0.64 – 4.49)	0.284
	> RM 8,000	8.50 (1.76 – 41.06)	**0.008**

*Logistic regression

Table 4
Characteristics of the respondents with positive attitude towards EBF (n = 92)

Characteristics		EBF ≥ 6 months	
		OR (95% CI)	**p-value***
Type of delivery	Normal	1	
	Caesarean	1.95 (0.67 – 5.67)	0.220
Birth order	1	1	
	≥ 2	1.59 (0.59 – 4.26)	0.359
Child birth place	Government hospital	1	
	Private hospital	2.54 (1.08 – 5.98)	**0.032**
Maternal Age	< 30 years	1	
	≥ 30 years	1.91 (0.75 – 4.82)	0.174
Education level	< Diploma	1	
	≥ Diploma	5.21 (1.66 – 16.34)	**0.005**
Working status	Not working	2.26 (0.75 – 6.79)	0.146
	Working	1	
Employment (n=74)	Private sector	1	
	Government sector	3.24 (0.93 – 11.32)	0.066
Maternity leave (n=74)	≤ 60 days	1.39 (0.40 – 4.78)	0.607
	> 60 days	1	
Monthly household income	< RM 4,000	1	
	RM 4,000 – 8,000 > RM 8,000	- 2.79 (0.88 – 8.80)	0.994 0.080

*Chi square

Knowledge and attitude towards EBF

The IIFAS total scores of the subjects ranged between 39 and 80 (with mean 66.1 ± 8.1). Figure 1 indicates that most of the mothers' attitudes were between Neutral (62%) and Positive towards Breastfeeding Practice (37%). Over 80% of the respondents strongly agreed that breastfeeding increases mother-infant bonding, breastmilk is the ideal food for babies, and breastmilk is more easily digested than infant formula. On the other hand, items that the mothers scored the lowest (by agreeing to the statements) include: "The benefits of breastfeeding last only as long as the baby is breast-fed" (agreed by 26% of mothers); "Formula feeding is more convenient than breastfeeding" (28%); and "Breastfed babies are more likely to be overfed than formula fed babies" (28%).

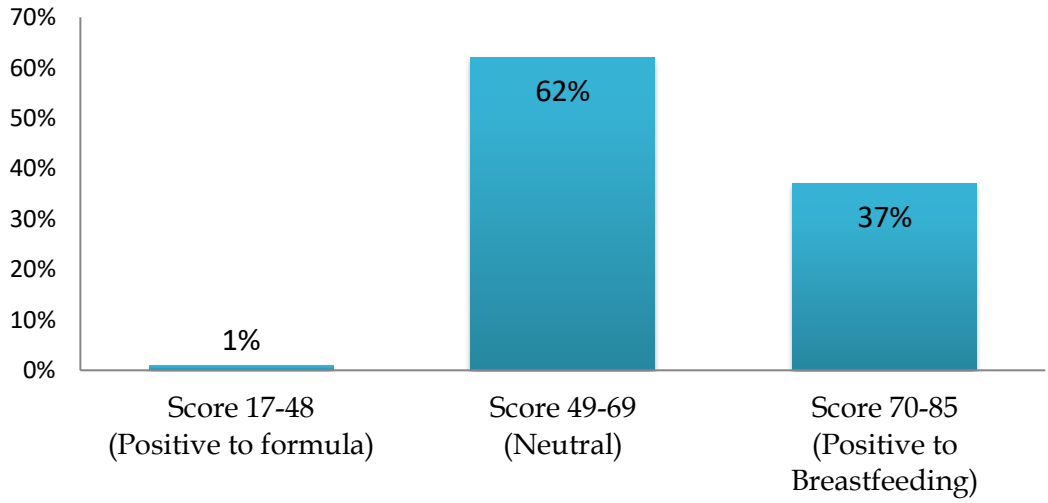

Figure 1 The IIFAS scores (>100) and attitude of the respondents (n=92)

As shown in Table 5, others who agreed to items 2, 6, 8 and 14, were less likely to practise breastfeeding for six months (exclusively) and beyond (OR: 0.676, 0.603, 0.571, 0.477 respectively). The mean total score is positively related to EBF for up to six months (OR: 1.13; 95% CI: 1.06, 1.22).

DISCUSSION

It was found that only one third of the population in the study practise EBF for six months and the figure was found to be lower than those who did it for less than six months (39%). This is comparable to another study done at another district in Selangor, in which it was found that 33% of the respondents exclusively breastfeed for six months while 15% practice mixed infant feeding (Tan, 2009).

Table 5 Crude odd

IIFAS item	OR (95% CI)	p-value*
1. The benefits of breastfeeding last only as	0.92 (0.70 – 1.21)	0.542

ratios of EBF duration per unit increase of IIFAS scores (n=92)		long as the baby is breast-fed.		
	2.	Formula feeding is more convenient than breastfeeding.	0.68 (0.46 – 0.99)	**0.045**
	3.	Breastfeeding increases mother infant bonding.	1.75 (0.95 – 3.22)	0.073
	4.	Breast milk is lacking in iron.	0.86 (0.54 – 1.36)	0.507
	5.	Formula fed babies are more likely to be overfed than breastfed babies.	0.99 (0.71 – 1.38)	0.956
	6.	Formula feeding is the better choice if the mother plans to go back to work.	0.60 (0.43 – 0.86)	**0.005**
	7.	Mothers who formula feed miss one of the great joys of motherhood.	1.42 (0.98 – 2.05)	0.067
	8.	Women should not breastfeed in public places.	0.57 (0.40 – 0.81)	**0.002**
	9.	Breastfed babies are healthier than formula fed babies.	1.15 (0.80 – 1.66)	0.446
	10.	Breastfed babies are more likely to be overfed than formula fed babies.	0.89 (0.66– 1.20)	0.437
	11.	Fathers feel left out if a mother breastfeeds.	0.72 (0.51 – 1.03)	0.070
	12.	Breast milk is the ideal food for babies.	1.44 (0.91 – 2.28)	0.117
	13.	Breast milk is more easily digested than formula.	1.37 (0.81 – 2.32)	0.242
	14.	Formula is as healthy for an infant as breast milk.	0.48 (0.29 – 0.79)	**0.004**
	15.	Breastfeeding is more convenient than formula.	1.42 (0.94 - 2.13)	0.092
	16.	Breast milk is cheaper than formula.	1.39 (0.93 – 2.09)	0.112
	17.	A mother who occasionally drinks alcohol should not breastfeed her baby.	0.83 (0.61 – 1.13)	0.242
		Mean total score	1.13 (1.06 – 1.22)	**<0.001**

*Logistic regression

Early breastfeeding discontinuation is a worldwide problem. In our study, around 56% of mothers who did not exclusively breastfeed their children for six months reported employment as the main reason for stopping exclusive breastfeeding. Employment status is indeed a common reason for early infant weaning (Lewallen *et al*., 2006). Employed women in Malaysia working in the government sector were usually given three months maternity leave while for private sector the leave could range from two weeks to two months (Tan, 2009). Another 44% of the mothers chose to start formula feeding due to insufficient breastmilk production. Concern about milk supply was the most common factor that contributes to breastfeeding reduction or cessation, and supplementation with infant formulas (Brown et al., 2014). It was also found that mothers who lack confidence on adequacy of milk quantity or quality are more likely to stop breastfeeding regardless of her infant's age (Blyth *et al*., 2004).

In addition, we also found that higher parity is associated with longer EBF duration. Mothers with more than one child are more likely to be able to exclusively breastfeed their

babies longer (Amin *et al*., 2011). This may be due to the extra knowledge and experience they had obtained while having their previous children. However, parity should not be an independent predictor for breastfeeding choice (Shaker, Scott & Ried, 2004).

In a previous study, younger breastfeeding mothers breastfed their infants longer as compared to older mothers (Chen, 2010). Contrary, in the current study, older age (>30 years) is associated with longer duration of EBF. The possible reasons may include better knowledge, more experience, and higher confidence level in terms of breastfeeding such as the techniques to hold and feed the baby, increase breastmilk production, or avoid breast problems.

The current study discovered that mothers who had higher education level and monthly household income were positively related to increased duration of EBF. Generally, those who have higher level of education may have higher level of thinking and know the benefits of EBF in depth (Persad & Mensinger, 2008). However, a study claimed that those with higher education level and higher household income were more likely to stop exclusive breastfeeding early (Tan, 2009). One possible explanation is that lower income family may not be able to afford the costs of infant formulas, thus they are more likely to practise EBF longer.

Working mothers are less likely to exclusively breastfeed their children for six months. Working status may mean that more effort is needed to make breastfeeding successful (Saka et al., 2005). This could be due to the unavailability of time and facilities (i.e. private rooms to express breast milk, or refrigerators to store breast milk) for breastfeeding (Amin et al., 2011; Cohen & Mrtek, 1994). Without these three components, mothers would have difficulty to provide breast milk to their children. Workplaces that are supportive of breastfeeding would usually allow their employees to express breast milk for about an hour daily (Slusser *et al*., 2004). Hence, steps should be taken such as provision of private rooms, refrigerators, and flexible time, for working mothers to breastfeed.

A high percentage of mothers received support to breastfeed their children from their doctors, nurses, family, husbands and friends. However, among these, only spouse support shows significant positive relation with the duration of EBF. Infant feeding method favored by the father may influence the EBF duration (Jordan & Wall., 1990). However, another study indicated that husbands' attitudes were not considered to be a strong influence (Zhou, Katherine, & John, 2010). Another factor such as childbirth place is related to EBF duration. In this study, babies delivered at private hospitals were more likely to be exclusively breastfed for six months compared to those who were not. However, further investigation is warranted.

In this study, majority of mothers have the correct knowledge about breastfeeding, EBF duration, as well as the initiation time to breastfeed. However, slightly more than half of the mothers who did not know that breastfeeding benefits last for long-term. Moreover, some mothers strongly agreed that breastfed babies are more likely to be overfed than formula fed babies. This can be one of the indicators to identify that the knowledge on

breastfeeding benefits were still lacking among Malay mothers. Three quarter of the mothers reported that their knowledge regarding breastfeeding was mostly obtained after delivery. Indeed, a study in Singapore revealed that breastfeeding education done in hospital, significantly improved rates of EBF up to six months after delivery (Dhandapany *et al*., 2008). Hence, knowledge obtained after delivery among the respondents can be could be one of the independent factors to EBF up to six months.

Although almost one third of the mothers practised EBF up to 6 months and another third continued beyond that, generally the maternal attitude in the current study was shown to be neutral in between breastfeeding and infant formula feeding. However, it was also observed that there was a positive relationship between the IIFAS scores which measures both attitude and knowledge and the duration of EBF. This indicates that the attitude of mothers towards breastfeeding practice may be improved with increased knowledge.

CONCLUSION

It was shown from this study that less than a third of the Malay mothers in Ampang, Selangor, practised EBF for the up to six months as recommended by WHO. Although mothers generally have good knowledge about breastfeeding, some of them were not aware of its long-term health benefits. This may contribute to the neutral attitude towards breastfeeding among almost two thirds of the study participants. Several variables were found to be significantly related to longer EBF duration. These included more mature age, higher economic status and education level, nonworking status, multiparous, and availability of supportive spouse and employer. Mothers need to be educated more on EBF to ensure in-depth understanding related to health benefits for mother and baby, both in short and long terms. This would hopefully improve their attitude to be more positive towards the practice of EBF. In addition, promotional programs, breastfeeding-friendly policies and workplaces, are needed in order to improve EBF statistics in Malaysia.

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