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Knowledge and Beliefs About Breastfeeding Are Not Determinants for Successful Breastfeeding

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Abstract

A cross-sectional prospective study was performed to assess knowledge and attitude toward breastfeeding among mothers in a tertiary hospital in Malaysia and its influence on their breastfeeding practices. Two hundred thirteen women who had delivered healthy babies at term were enrolled. A structured questionnaire containing demographic data and the Iowa Infant Feeding Attitude Score were used, followed by a telephone interview after 8 weeks to determine the feeding outcome. Women of Malay ethnicity with higher education level who had received breastfeeding counseling had a significantly more favorable attitude toward breastfeeding. Ethnicity was found to be a significant determinant in the success of breastfeeding, whereas returning to work was a major reason for discontinuing breastfeeding. In ensuring a successful breastfeeding practice, apart from knowledge and attitude, issues surrounding culture and traditions as well as improving deliverance of readily available support should be addressed.

Introduction

The short- and long-term benefits of breastfeeding for child and maternal health have been widely reported.[1] Optimal feeding is crucial during the first 2 years of life for promotion of good growth, health, and behavioral development. The Malaysian Breastfeeding Policy was revised in 2005 in accordance with the 2002World Health Assembly Resolution 54.2, following the recommendation by the World Health Organization that all infants be exclusively breastfed from birth to 6 months of age, followed by the gradual introduction of other forms of nutrition; breastfeeding should then continue into the second year.[2] In 2006, The Third National Health and Morbidity Survey conducted in Malaysia reported an overall prevalence of ever being breastfed among children less than 12 months of age of 94.7% (95% confidence interval, 93.0–95.9%). However, the overall prevalence of exclusive breastfeeding below 6 months was very low: 14.5% (95% confidence interval, 11.7–17.9%). Sociocultural factors seem to influence practices related to breastfeeding.[3] These include living environment, socioeconomic status, maternal education, the woman's employment situation, and commercial pressures, by contributing to the knowledge and availability of breastmilk substitutes.[4] Breastfeeding education has been a critical component of the public health efforts to encourage breastfeeding. Breastfeeding education not only provides the mother with sufficient information but also provides skills training. A study published in 2008 found a positive relationship between breastfeeding education and positive attitudes toward breastfeeding.[5] This implies the importance of early intervention in promoting breastfeeding. Therefore, the objective of this study was to examine attitudes and knowledge of breastfeeding among mothers in a tertiary hospital in Malaysia and its influence on the breastfeeding practices of these mothers.

Materials and Methods

Participants

This was a cross-sectional prospective study carried out over a 3-month period at University Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia. Informed written consent was obtained from all eligible mothers who delivered healthy babies at term. Mothers with contraindications toward breastfeeding, mothers with babies who required intensive care monitoring, and mothers with babies who had malformations that interfered with breastfeeding were excluded.

Prior to discharge, the mothers were required to complete a two-part questionnaire, which consisted of demographic data and a self-administered infant feeding attitude scale (using the Iowa Infant Feeding Attitude Scale [IIFAS]). This was followed by a phone interview at 8 weeks postpartum to determine the feeding outcome. This study protocol was approved by the institution's Research and Ethics Committee.

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Instrument

The IIFAS was used to assess mothers' attitude toward infant feeding. The scale has been previously tested for reliability and validity and has been found to have high internal consistency as well as to be predictive of chosen infant feeding method and the duration of breastfeeding. The IIFAS consisted of 17 attitude questions, half of which are favorable to breastfeeding and the remaining favorable to artificial feeding. Responses were on a bipolar 5-point Likert scale ranging from strongly agree (5) to strongly disagree (1). Questions favoring artificial feeding were reverse-scored according to how the tool was validated, and a total attitude score was computed via an equally weighted sum of responses. Total attitude scores could range from 17 (indicating positive attitudes toward artificial feeding) to 85 (reflecting positive attitudes towars breastfeeding). A score of 51 indicated a neutral attitude.

Data analysis

The statistical package SPSS (version 17.0; SPSS Inc., Chicago, IL) was used for analysis of data. One-way analysis of variance and the independent-sample *t* test were used for analysis of continuous variables with normal distribution and to assess how IIFAS scores relate to sociodemographic factors. Bonferroni test was used for post hoc analysis. In determining differences in the mothers' infant feeding attitude in relation to feeding intention (breastfeeding, formula feeding, or undecided), one-way analysis of variance was used. In determining differences in the mothers' infant feeding attitude in relation to feeding outcome (breastfeeding or formula feeding), the independent *t* test was used. A p value of < 0.05 was considered statistically significant.

Results

During the study period, of 690 mothers eligible for enrollment into the study, 213 mothers agreed to participate. These women were between 16 and 44 years of age.

More than half of these women (69%) had received counseling on breastfeeding during either antenatal follow-up (85.7%) or the postnatal period (14.3%). Of the mothers, 68.5% had a normal vaginal delivery, and 98.6% had completed secondary education, with 58.2% of these mothers receiving tertiary education.

The majority were in the middle-income group (46.0%). Of the mothers, 81.3% were employed, with 76.2% working full-time (Table 1).

Table 1. Demographic Characteristics of Mothers

Variable	*Number (%) (total* n=*213)*
Ethnic group	
Malay	175 (82.2)
Chinese	29 (13.6)
Indian	3 (1.4)
Others	6 (2.8)
Age group (years)	
<20	3 (1.4)
20–35	189 (88.7)
>35	21 (9.9)
Parity	
1	99 (46.5)
≥2	114 (53.5)
Method of delivery	
Vaginal delivery	146 (68.5)
Cesarean section	67 (31.5)
Sex of baby	
Male	107 (50.2)
Marital status	
Married	209 (98.1)
Single	4 (1.9)
Education level	
Primary	3 (1.4)
Secondary	86 (40.4)
Tertiary	124 (58.2)
Total monthly income	
Low	3 (2.3)
Low-middle	54 (25.4)
Upper-middle	68 (46.0)
High	56 (26.3)
Employment status	
Employed (full-time)	162 (76.1)
Employed (part-time)	11 (5.2)
Unemployed	40 (18.8)
Smoking	
Yes	1 (0.5)
Pregnancy planned	
Yes	100 (46.9)
Counseling on breastfeeding	
Yes	147 (69.0)

Relationship among feeding intention, feeding outcome, and demographic factors

At the time of data collection, 180 (84.5%) women intended to breastfeed their baby, whereas 12 (5.6%) planned to give infant formula; the remaining (9.9%) were undecided. Of mothers who intended to breastfeed, the majority (86.0%) were of the Malay ethnic group, followed by Chinese ethnicity (11.0%); this difference was significant ($p = 0.046$). Receipt of breastfeeding counseling was also a significant factor in influencing the mothers' intention to breastfeed ($p = 0.027$).

At 8 weeks postpartum, 157 (87.2%) mothers who intended to breastfeed their baby were still breastfeeding. Of the 21 mothers who were undecided, 14 (66.7%) eventually breastfed their babies. Of the 12 mothers who intended to feed their babies infant formula, eight (66.7%) were breastfeeding at 8 weeks postpartum.

Twenty-three mothers who had initially breastfed their babies had stopped breastfeeding by 8 weeks postpartum, and the majority (87.0%) had done so at about 4–8 weeks postpartum. Of the mothers, 56.5% stated returning to work as the main reason, 39.1% had problems with breastfeeding (engorged breast, retracted nipples, or sore nipples), and 4.3% did not receive adequate support from their husbands and other family members.

The method of delivery was a significant determinant in the feeding practice. Mothers who delivered vaginally tend to breastfeed their babies longer compared with those who delivered via cesarean section ($p = 0.009$). Mothers who were given the opportunity to provide colostrum to their babies as

their first feed continued to breastfeed at 8 weeks postpartum ($p = 0.001$). Malay mothers tend to breastfeed longer than mothers of the Chinese ethnic group ($p = 0.016$). No significant difference in the duration of breastfeeding was found when comparing the mothers' age, parity, total family income, education level, and whether they had received counseling on breastfeeding.

Infant feeding attitudes and demographic factors

Mothers who had received counseling on breastfeeding during the antenatal or postnatal period had a higher IIFAS score (mean difference of 1.9; $p < 0.05$), indicating a more favourable attitude toward breastfeeding. There were also differences in the IIFAS scores with regard to ethnic group and education level. Post hoc analysis revealed that mothers who had received tertiary education had a more favorable attitude toward breastfeeding than those who had received primary education (mean difference of 11.1; $p < 0.05$). Mothers from the Malay ethnic group had a more favorable attitude toward breastfeeding compared with those of Chinese ethnicity (mean difference of 5.5; $p < 0.05$). The mothers' age, total family income, and employment status did not have a significant contribution to the attitude of mothers toward breastfeeding.

Infant feeding attitudes, feeding intention, and feeding outcome (Table 2)

Differences in IIFAS scores indicate that mothers who intended to breastfeed had the highest scores (mean = 64.07, standard deviation [SD] = 6.16), whereas mothers who intended to feed their babies infant formula had the lowest scores (mean = 59.50, SD = 7.55). Mothers who were undecided had intermediate scores (mean = 60.95, SD = 5.43).

Mothers who were still breastfeeding at 8 weeks had a higher IIFAS score (mean = 63.84, SD = 6.16) compared with mothers who were not breastfeeding (mean = 61.74, SD = 6.78), but this difference was not significant ($p = 0.074$).

Mothers who intended to breastfeed were more likely to agree with the statements: ''breastfeeding increases mother–infant bonding'' ($p = 0.01$), ''breastmilk is more easily digested than formula'' ($p = 0.01$), and ''breastfeeding is more convenient than formula'' ($p = 0.01$). With regard to feeding outcome, mothers who continue to breastfeed at 8 weeks postpartum agreed that ''breastmilk is more easily digested than formula'' ($p = 0.01$).

Mothers who intended to feed their babies formula milk tend to agree with statements favorable to artificial feeding: ''formula feeding is more convenient than breastfeeding'' ($p = 0.01$) and ''formula feeding is the better choice if the mother plans to go back to work'' ($p = 0.03$). Mothers who continued to feed their babies infant formula at 8 weeks postpartum agreed with ''formula feeding is more convenient than breastfeeding'' ($p = 0.002$) and ''breastfed babies are more likely to be overfed than formula-fed babies'' ($p = 0.004$).

Discussion

The main purpose of this study was to evaluate mothers' attitude toward infant feeding practice. The IIFAS scores in this study were able to distinguish between mothers with higher and lower inclination toward breastfeeding but not able to predict who will continue to breastfeed. These suggest that other factors apart from attitude may contribute to the lack of breastfeeding. In this study, two-thirds of the respondents were working mothers. A high proportion of those who had stopped breastfeeding had cited returning to work as one of the main reasons for not continuing breastfeeding. Mothers who intend to return to work after the confinement period may feel that formula feeding is the better choice. The lack of support from the workplace may be a reason why these mothers decide to discontinue or not to consider breastfeeding, even though they had a positive attitude toward breastfeeding. Amin et al.[6] in their study conducted in 2006 concluded that providing a more conducive environment for breastfeeding would encourage a higher rate of exclusive breastfeeding among working mothers.

Ethnicity was one of the factors influencing the mother's attitude toward breastfeeding. Malay women tend to breastfeed their babies more and longer compared with Chinese women. This finding is similar to other studies done in Malaysia that showed the significant effect of ethnicity on breastfeeding.[7,8] Awang and Salleh[9] found that the proportions of those who had ever breastfed were much lower among Chinese and Indian women compared with Malay women. Da Vanzo et al.[7] cited that differences in culture and religion account for different breastfeeding practices among ethnic groups in Malaysia. By definition, most Malays are Muslims, a religion that encourages breastfeeding in its teaching. This probably explains the higher rate of breastfeeding among Malays. Meanwhile, the Chinese traditionally do not believe in breastfeeding, and a study has found that ethnic Chinese throughout Southeast Asia are poorer breastfeeders.[10]

Women who attended counseling sessions on breastfeeding and had a higher education level had a more positive attitude toward breastfeeding. A study conducted to evaluate the effect of prenatal breastfeeding education on maternal reports of success in breastfeeding and maternal perception of the infant revealed a significantly higher frequency of success in breastfeeding in the intervention group at 1 month ($p = 0.01$).[11] However, our study revealed that even though mothers who had received counseling were more likely to breastfeed, it did not influence the duration of breastfeeding. Almost 40% of the mothers who had stopped breastfeeding had encountered problems during that period. This reflects the need for continuation of education and support even after delivery.

In 1976, the Malaysian Family Life Survey found that higher educated women in Malaysia were less likely to breastfeed.[12] A subsequent study by Da Vanzo et al.[7] revealed a positive association between maternal education and breastfeeding practice in Malaysia after 1982. Similar findings were also noted in a study performed in Spain over a 40-year period.[13] The study suggested that these are linked to the social transformation with time and the impact that they had on women. A reduction in family size with limited presence of other female relatives and progressive integration of women into the workplace as well as promotion of artificial lactation led to a decline in breastfeeding rate during the 1960s and 1970s. From the late 1980s onward, the rate of breastfeeding steadily increased, especially among educated women. Factors reported to be associated with the increase

Table 2. Infant Feeding Attitudes, Feeding Intention, and Feeding Outcome

Item	Statement	Feeding intention				Feeding outcome		
		Breastfeeding	*Formula*	*Undecided*	p *value*	*Breastfeeding*	*Infant formula*	p *value*
	Favorable to breastfeeding							
3	Breastfeeding increases mother–infant bonding.	4.83 (0.49)	4.42 (0.10)	4.62 (0.67)	0.01	4.81 (0.55)	4.68 (0.59)	0.20
5	Formula-fed babies are more likely to be overfed than breastfed babies.	3.23 (0.96)	3.25 (1.14)	3.14 (0.91)	0.92	3.21 (0.98)	3.29 (0.87)	0.65
7	Mother who formula feed miss one of the great joys of motherhood.	3.11 (1.22)	3.25 (1.22)	2.95 (1.07)	0.78	3.11 (1.22)	3.06 (1.13)	0.83
9	Breastfed babies are healthier than formula-fed babies.	4.42 (0.88)	4.33 (1.07)	4.33 (0.86)	0.88	4.43 (0.85)	4.26 (1.02)	0.32
12	Breastmilk is the ideal food for baby.	4.69 (0.74)	4.33 (0.99)	4.48 (0.68)	0.15	4.71 (0.62)	4.32 (1.17)	0.07
13	Breastmilk is more easily digested than formula.	4.50 (0.81)	4.17 (1.03)	4.05 (0.92)	0.01	4.60 (0.75)	3.97 (1.19)	0.01
15	Breastfeeding is more convenient than formula.	4.59 (0.82)	4.00 (1.13)	4.00 (0.70)	0.01	4.47 (0.79)	4.18 (1.03)	0.12
16	Breastmilk is cheaper than formula.	4.57 (0.83)	4.25 (1.14)	4.33 (0.73)	0.19	4.54 (0.88)	4.59 (0.56)	0.74
	Unfavorable to breastfeeding							
1	The benefits of breastfeeding last only as long as the baby is breastfed.[a]	3.12 (1.32)	2.58 (1.24)	2.95 (1.20)	0.36	3.02 (1.34)	3.32 (1.15)	0.22
2	Formula feeding is more convenient than breastfeeding.[a]	3.41 (1.05)	2.50 (0.91)	3.19 (0.75)	0.01	3.42 (1.04)	2.88 (0.88)	0.002
4	Breastmilk is lacking in iron.[a]	4.24 (0.97)	4.25 (1.06)	4.10 (0.94)	0.81	4.26 (0.94)	4.03 (1.06)	0.20
6	Formula feeding is the better choice if the mother plans to go back to work.[a]	2.74 (1.08)	1.92 (0.90)	2.52 (0.75)	0.03	2.68 (1.06)	2.62 (1.05)	0.75
8	Women should not breastfeed in public places such as restaurants.[a]	3.32 (1.19)	3.17 (1.12)	3.29 (1.27)	0.09	3.28 (1.18)	3.44 (4.26)	0.47
10	Breastfed babies are more likely to be overfed than formula-fed babies.[a]	3.03 (1.13)	3.08 (1.17)	2.95 (1.02)	0.94	2.96 (1.14)	3.38 (0.95)	0.04
11	Fathers feel left out if a mother breastfeeds.[a]	4.27 (0.88)	3.92 (1.38)	4.14 (0.85)	0.37	4.23 (0.93)	4.26 (0.75)	0.86
14	Formula is as healthy for an infant as breastmilk.[a]	3.69 (0.79)	3.33 (1.16)	3.76 (0.99)	0.32	3.72 (0.82)	3.44 (0.89)	0.07
17	A mother who occasionally drinks alcohol should not breastfeed her baby.[a]	2.32 (1.30)	2.75 (1.82)	2.14 (1.27)	0.45	2.39 (1.35)	2.00 (1.21)	0.12
	Total score	64.08	59.9	60.94		63.8	61.72	

Data are mean (standard deviation) values.
[a]Item was reverse-scored.

were publication of research on the relationship between breastfeeding and health, the public promotion of breastfeeding, and the ''return to nature'' movement.[13] Li et al.[14] explained the reversal of association between maternal education and breastfeeding practices as the more educated the woman, the more likely that she would take notice of information about the beneficial effects of breastfeeding from media and books and turn it into practice for the best feeding method for her babies.

This study revealed that women who had cesarean sections were less likely to continue breastfeeding their infants. This may be due to the pain and discomfort because of the cesarean section. Recent evidence has suggested that operative deliveries may have detrimental effects on breastfeeding outcomes,[15,16] probably mediated by delayed breastfeeding initiation as a possible consequence of anesthesia and analgesia.[17,18] Mothers who had the opportunity to provide breastmilk as a first form of feeding to their babies were more likely to continue with breastfeeding. In *Evidence for the Ten Steps to Successful Breastfeeding*, the World Health Organization suggested that early mother–infant contact and the opportunity to suckle within the first hour or so after birth are both important to increase breastfeeding soon after delivery and 2–3 months later.[19] A multi-analytical study by Perez-Escamilla et al.[20] concluded that early contact had a positive effect on duration of breastfeeding at 2–3 months.

Conclusions

Knowledge and attitude alone are not sufficient to ensure successful breastfeeding practice among mothers. Measures to improve breastfeeding should address issues surrounding culture and traditions as well as improving deliverance of readily available support and its continuity.

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Disclosure Statement

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References

1. Gartner LM, Morton J, Lawrence RA, et al. Breastfeeding and the use of human milk. *Pediatrics* 2005;115:496–505.
2. World Health Organization. *Infant and Young Child Nutrition*. Publication number WHA 55.25. Fifty-fifth World Health Assembly, Geneva, 2002. www.who.int/nutrition/topics/WHA55.25_iycn_en.pdf (accessed May 19, 2014).
3. Fatimah S Jr, Siti Saadiah HN, Tahir A, et al. Breastfeeding in Malaysia: Results of the Third National Health and Morbidity Survey (NHMS III) 2006. *Malays J Nutr* 2010; 16:195–206.
4. Scott JA, Shaker I, Reid M. Parental attitudes toward breastfeeding: Their association with feeding outcome at hospital discharge. *Birth* 2004;31:125–131.
5. Marrone S, Vogeltanz-Holm N, Holm J. Attitudes, knowledge, and intentions related to breastfeeding among university undergraduate women and men. *J Hum Lact* 2008; 24:186–192.
6. Amin RM, Said ZM, Sutan R, et al. Work related determinants of breastfeeding discontinuation among employed mothers in Malaysia. *Int Breastfeed J* 2011;6:4.
7. DaVanzo J, Sine J, Peterson C, et al. Reversal of the decline in breastfeeding in Peninsular Malaysia? Ethnic and educational differentials and data quality issues. *Soc Biol* 1994; 41:61–77.
8. DaVanzo J. *Breastfeeding. Second Malaysian Family Life Survey.* Rand Corporation, Santa Monica, CA, 1992.
9. Awang H, Salleh AL. Determinants of breastfeeding duration in Peninsular Malaysia. *Asia Pac J Public Health* 2000;12:102–106.
10. Chung S, Viegas OAC, Ratnam SS. Three decades of breastfeeding trends in Singapore. *Asia Pac Popul J* 1991; 5:124–134.
11. Wiles LS. The effect of prenatal breastfeeding education on breastfeeding success and maternal perception of the infant. *JOGN Nurs* 1984;13:253–257.
12. Forman MR. Review of research on the factors associated with choice and duration of infant feeding in less-developed countries. *Pediatrics* 1984;74:667–694.
13. Colodro-Conde L, Sánchez-Romera JF, Tornero-Gómez MJ, et al. Relationship between level of education and breastfeeding duration depends on social context: Breastfeeding trends over a 40-year period in Spain. *J Hum Lact* 2011;27:272–278.
14. Li L, Zhang M, Scott JA, et al. Factors associated with the initiation and duration of breastfeeding by Chinese mothers in Perth, Western Australia. *J Hum Lact* 2004;20:188–195.
15. Leung GM, Lam T-H, Ho L-M. Breast-feeding and its relation to smoking and mode of delivery. *Obstet Gynecol* 2002;99:785–794.
16. Theofilogiannakou M, Skouroliakou M, Gounaris A, et al. Breast-feeding in Athens, Greece: Factors associated with its initiation and duration. *J Pediatr Gastroenterol Nutr* 2006;43:379–384.
17. Forster DA, McLachlan HL. Breastfeeding initiation and birth setting practices: A review of the literature. *J Midwifery Womens Health* 2007;52:1273–1280.
18. Rajan L. The impact of obstetric procedures and analgesia/anaesthesia during labour and delivery on breast feeding. *Midwifery* 1994;10:87–103.
19. World Health Organization. *Evidence for the Ten Steps to Successful Breastfeeding*. WHO/CHD/98.9. WHO, Geneva, 1998. www.who.int/maternal_child_adolescent/documents/9241591544/en/ (accessed May 19, 2014).
20. Perez-Escamilla R, Pollitt E, Lonnerdal B, et al. Infant feeding policies in maternity wards and their effect on breastfeeding success: An analytical overview. *Am J Public Health* 1994;84:89–97.

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