

## Infant feeding practices: a study of mothers attending a teaching hospital in Riyadh, Saudi Arabia

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### Abstract

**Objective:** The purpose of this study was to investigate the factors associated with infants' feeding practices among mothers attending a teaching hospital in Riyadh, Saudi Arabia.

**Method:** A cross sectional study was carried out in the College of Dentistry at King Saud University (CDKSU), Riyadh, Saudi Arabia. Five hundred mothers who visited the dental clinic in CDKSU during a two-month period took part in the study. Data were collected via a questionnaire which contained socio-demographic characteristics of the mothers and the feeding practices of their infants.

**Results:** The participants were aged 25-45 years. Mothers aged 25-35 years and 36-45 years significantly practiced breast feeding more than the mothers below age 25 years and above 45 years (ANOVA  $p \leq 0.05$ ). Mothers with more than four children practiced breast feeding more than others while those with one or two children used synthetic milk more often. No significant difference was found between type of feeding and educational level ( $p=0.1$ ). However, there was a significant difference in feeding type by number of children ( $p=0.003$ ). Mothers' age, level of education and the number of children all related to the age of the child when breast feeding was stopped. The habit of leaving the bottle or breast in child's mouth while the child fell asleep was only significantly related to the mothers' age but not to the level of education or number of children.

**Conclusion:** Mothers with more than four children practiced breast feeding more frequently while those with one or two children tend to feed their children with synthetic milk. The mothers' level of education did not influence the type of feeding.

**Key words:** Infant Feeding Practice, Mothers' knowledge, Saudi Arabia

### Introduction

Improper infant feeding is a social problem that spreads across all cultural, ethnic, and socioeconomic groups<sup>(1)</sup>. Breast feeding is thought to be the best reliable feeding for infants since ancient ages. It is beneficial not only to the infants but also to the mothers<sup>(1)</sup>. Despite its beneficial effect, the rates of breast feeding in early postpartum period range from 29-57% at six months postpartum<sup>(2,3)</sup>.

Although breast-feeding has long been considered as the best for infants, this pattern of feeding appears to be declining in favor of synthetic milk (infant formula). The latter is recommended by the World Health Organization (WHO) as the only acceptable alternative to breast milk<sup>(4)</sup>. Infant feeding by milk in its different forms has the potential to initiate Early Childhood Caries (ECC) when they are mal-practiced. Prevention of such side effects is essential and the fluoride is considered as one of the modalities to prevent ECC<sup>(5)</sup>. In Saudi Arabia, studies have shown an increase in the prevalence of ECC in Saudi children<sup>(6,7)</sup>. Feeding patterns have been studied in different communities. Previous studies have shown that there are significant differences in the feeding practices because of cultural variations<sup>(8-12)</sup>. In Amsterdam, Van der Wal<sup>(11)</sup> reported that 21% of infants were exclusively breast-fed, 15% of infants were breast and formula fed and 64% of

infants were exclusively formula fed. Grummer et al<sup>(12)</sup> studied the different infants' feeding patterns in different countries and concluded that variations in the feeding patterns are signals of future declines in breast-feeding in Asian countries. In 1997, Al-Awadi et al<sup>(13)</sup> found that 26.1% of Kuwaiti infants were breast-fed, 41.9% were synthetic milk fed and 32% received mixed feeding. Haque's report in Saudi Arabia<sup>(14)</sup> that 84% of the mothers were breast-feeding their children at three months of age had changed to a lower percentage in recent years<sup>(15)</sup>. A recent study on Saudi Arabian mothers showed that exclusive breast feeding and partial breast feeding were practiced by 27.3% and 66.1% respectively of the mothers studied<sup>(16)</sup>. It has also been reported that the type of feeding is affected by several factors such as particular characteristics of the parents and the child, family structure, parental beliefs and practices, and socioeconomic as well as demographic circumstances<sup>(14,17)</sup>. Another study in Saudi Arabia found that 75% of mothers use synthetic milk in addition to breast milk<sup>(18)</sup>. It is therefore necessary to investigate the factors that may influence the mothers' decision on the type of infants' feeding.

This study investigated the association between mothers' age, educational level and number of children on the infants' feeding pattern and practices.

## Materials and Method

This study was carried out in the College of Dentistry at King Saud University (CDKSU), Riyadh in Saudi Arabia. An Arabic self-administered questionnaire was designed. As a pilot, the questionnaire was reviewed and tested among interns (males and females). Modifications and adjustments were done in the final questionnaire according to the pilot study findings. The questionnaire included multiple choice questions. The questionnaire consists of three parts: demographic data (age, nationality, education level and number of children), type of feeding pattern, and feeding practices. There was also a covering page explaining the purpose of the study, and expression of appreciation to mothers for their co-operation, while guaranteeing the confidentiality of their responses, and their consent to participate in the study.

A total of 500 questionnaires were distributed to mothers attending the Dental clinics in the College of Dentistry at King Saud University (CDKSU). The questionnaire was distributed to the mothers who attended at the Registration, Appointments and Records Department (RARD) in both Derriyah University Campus (DUC) and Malaz University Campus (MUC). The mothers were requested to answer the questionnaire and return them to the reception at the same appointment. The questionnaires were collected in a period of two months.

### Analysis of data

The data were entered into a computer and analyzed using the Statistical Package for the Social Sciences program (SPSS, version 10). ANOVA test with level of significance at 0.05 was used to analyze the data.

## Result

The questionnaire was returned by 387 mothers (response rate of 77.4 %). Improperly answered questionnaires were excluded and the final number suitable for analysis was 357 (71.4%).

Table 1 shows the demographic distribution of the participating mothers. Mothers aged 36-45 years constituted 37.8%, followed by 25-35 years (35.9%). More than one-third of the mothers (37.8%) had primary school education or less. In addition, 54.9% of the mothers have more than four children.

**Table 1. Age, level of education and number of children of the participating mothers (N=357).**

Factor		N	%
<b>Age (years)</b>	<25	33	9.2
	25-35	128	35.9
	36-45	135	37.8
	45<	61	17.1
<b>Level of Education</b>	Primary school and less	135	37.8
	Intermediate	59	16.5
	Secondary	62	17.4
	Diploma	25	7.0
	University and higher	76	21.8
<b>No. of Children</b>	One	37	10.4
	Two	30	8.4
	Three	46	12.9
	Four	48	13.4
	More than four	196	54.9

The demographic factors of the mothers were analyzed in relation to the type of feeding pattern used for the youngest child (Table 2). Mothers aged 25-35 and 36-45 tend to use breast feeding more than young (<25) and old (>45) mothers. ANOVA test showed that the difference was statistically significant ( $P=0.006$ ). No significant difference was found when type of feeding was correlated to the level of education ( $P=0.1$ ). Mothers who had more than four children used breast feeding more frequently (17.3%). Mothers who had one or two children used synthetic milk more frequently (29.7% and 26.7% respectively).

**Table 2. Factors affecting feeding type (N=357)**

Factor		Type of Feeding			Total	P-Value
		Breast N (%)	Synthetic N (%)	Both N (%)		
<b>Age (years)</b>	<25	1 (3.0)	9 (27.3)	23 (69.7)	33	0.006*
	25-35	14 (10.9)	22 (17.2)	92 (71.9)	128	
	36-45	28 (20.7)	12 (8.9)	95 (70.4)	135	
	45<	6 (9.8)	6 (9.8)	49 (70.4)	61	
<b>Level of Education</b>	Primary	26 (19.3)	18 (13.3)	91 (67.4)	135	0.10
	Intermediate	7 (11.9)	6 (10.2)	46 (78.0)	59	
	Secondary / Diploma	9 (10.3)	9 (10.3)	69 (79.3)	87	
	University or higher	7 (9.2)	16 (21.1)	53 (69.7)	76	
<b>No of Children</b>	One	1 (2.7)	11 (29.7)	25 (67.6)	37	0.003*
	Two	3 (10.0)	8 (26.7)	19 (63.3)	30	
	Three	7 (15.2)	7 (15.2)	32 (69.6)	46	
	Four	4 (8.3)	2 (4.2)	42 (87.5)	48	
	> Four	34 (17.3)	21 (10.7)	141 (71.9)	196	

\* ANOVA Test

**Table 3. Relationship between mothers' demographic factors and the age of cessation of breast feeding (N=317).**

Factor		Age at which Breast-feeding was stopped			Total	P-Value
		< 6 Months N (%)	6 Months - 1 Year N (%)	1 Year < N (%)		
Age (years)	<25	17 (63.0)	5 (18.5)	5 (18.5)	27	0.002
	25-35	34 (30.9)	37 (33.6)	39 (35.5)	110	
	36-45	31 (25.0)	31 (25.0)	62 (50.0)	124	
	45<	15 (26.8)	14 (25.0)	27 (48.2)	56	
Level of Education	Primary	26 (21.7)	28 (23.3)	66 (55.0)	120	0.0001*
	Intermediate	17 (31.5)	13 (24.1)	24 (44.4)	54	
	Secondary / Diploma	23 (28.4)	33 (40.7)	25 (30.9)	81	
	University or higher	31 (50.0)	13 (21.0)	18 (29.0)	62	
No. of Children	One	16 (55.2)	8 (27.6)	5 (17.2)	29	0.001
	Two	11 (47.8)	7 (30.4)	5 (21.7)	23	
	Three	16 (40.0)	11 (27.5)	13 (32.5)	40	
	Four	16 (34.8)	10 (21.7)	20 (43.5)	46	
	Four<	38 (21.2)	51 (28.5)	90 (50.3)	179	

\* ANOVA Test

**Table 4. Factors relating to leaving the bottle /breast until the child falls asleep (N=357)**

Factor		Leaving the bottle / breast until child falls asleep		Total	P-Value
		Yes N (%)	No N (%)		
Age (years)	<25	25 (75.8)	8 (24.2)	33	0.012
	25-35	114 (89.1)	14 (10.9)	128	
	36-45	99 (73.3)	36 (26.7)	135	
	45 <	50 (82.0)	11 (18.0)	61	
Level of Education	Primary	107 (79.3)	28 (20.7)	135	0.551
	Intermediate	45 (76.3)	14 (23.7)	59	
	Secondary / Diploma	71 (81.6)	16 (18.4)	87	
	University or higher	65 (85.5)	11 (14.5)	76	
No of Children	One	27 (73.0)	10 (27.0)	37	0.341
	Two	26 (86.7)	4 (13.3)	30	
	Three	40 (87.0)	6 (13.0)	46	
	Four	41 (85.4)	7 (14.60)	48	
	Four <	154 (78.6)	42 (21.4)	196	

\* ANOVA Test

Significant difference ( $P=0.003$ ) was found when the type of feeding was correlated in relation to the number of children. All the factors studied had significant difference ( $p<0.05$ ) when the responding mothers for this exercise ( $n=317$ ) were asked about the age at which they stopped breast feeding (Table 3).

Table 4 shows the relationship between demographic factors of the participating mothers and their practice of leaving the bottle or breast in the child's mouth until the child falls asleep. Significant difference was found when the age of the mothers was studied ( $P=0.012$ ). Mothers aged 25-35 years tend to leave the bottle until the child falls asleep. The level of education and number of children had no significant effect.

## Discussion

Mothers are considered among the most important persons in a child's life. Their knowledge, attitude and practice have tremendous effects on their children. Therefore, their knowledge and practices need to be

assessed and studied to encourage the positive and correct as well as modify the negative aspects. In Saudi Arabia, with the increase in the prevalence of Early Childhood Caries, it is important to investigate the feeding practice used by mothers. Hence, this study was conducted to investigate the association between different factors that may affect the infants' feeding pattern practiced by mothers. The result of the study may help to educate mothers in the prevention of ECC by adoption of the most appropriate patterns of feeding their infants.

In this study, self-administrated questionnaire was used to collect the data. In order to reduce bias, the questionnaire was distributed by a third person, the receptionist, which enabled the mothers to answer the questionnaire in a remote area from the dentist. Mothers were encouraged to fill the questionnaire without the help of another person. This may have caused some important questions to be left unanswered. The dental clinics of the CDKSU were chosen because of the broader range of socio-demographic characteristics of the patients. Future studies should be carried out with a large sample size preferably throughout the country.



There are several studies that show the relationship between mothers' demographic factors and the outcome of breast feeding<sup>(19-21)</sup>. In the present study, the number of children in the family and the mothers' age significantly affect the decision about the type of infants' feeding. This is in agreement with earlier findings of Ogbeide et al.<sup>(22)</sup> who reported significant positive correlation between breast feeding and mothers' age as well as the number of children previously breastfed. This may also be related to the experience of the mothers with previous children as reported by Eastham et al<sup>(19)</sup>. Birenbaum et al<sup>(20)</sup> reported a significant increase in breast feeding among mothers with high educational level. The explanation was that education increases the awareness of mothers regarding the benefits of breast feeding. However, there was no correlation between educational level of mother and type of infant feeding.

The mothers' age, educational level and the number of children all significantly affect the age at which the mothers stopped the breastfeeding. Young mothers stopped breast feeding at 6 months while older ones tend to breast feed beyond one year. Conversely, the more educated the mother is, the earlier she stops the breast feeding. The other interesting finding is that the higher the number of children, the longer the period of breast feeding. Similar observations have been reported in the scientific literature. Hawthorne<sup>(23)</sup> found 94% of mothers agreed that breast milk was better than infant formula but only 76% intend to breastfeed while 45% stopped by 8 weeks. Kordy et al<sup>(21)</sup> reported that 57% of mothers breastfed their children for more than 1 year. The factors with significant effects on the duration of breastfeeding being age of mother, birth order of child and attendance in antenatal clinic. Shawky and Abalkhail<sup>(24)</sup> reported that 94% of women initially breastfed their infants but this dropped to 40% when the infant is 12 months old. Thus breastfeeding tends to decline rapidly during the first year of infant's life. Health professionals should promote breastfeeding practice as early as the antenatal period.

In the present study, a high percentage of participating mothers leave the bottle or breast in the child's mouth until he/she falls asleep. This confirms previous findings<sup>(25)</sup>. With the high prevalence of ECC in Saudi Arabia<sup>(26,27)</sup>, preventive measures by means of oral health education to the mothers should be implemented. This should be done not only by dental professionals but also by physicians especially pediatricians who frequently see infants and children before the dentists do.

More studies are needed for exploring different factors that affect the pattern of infants' feeding in Saudi Arabia. This should include the practice of leaving the child to fall asleep while the breast or the bottle was still in his/her mouth. As medical and dental professionals, our main objective is to prevent or reduce the incidence of ECC, not only in Saudi children but worldwide. This can best be achieved by giving adequate advice to the mothers in the prevention of dental caries within the first year of the child.

### Conclusions

Within the limitation of the study and based on the results, it can be concluded that mothers aged 25-45 years practiced breast feeding more than young (<25) and old (45<)

mothers. Mothers with more than four children use breast feeding more than those with fewer children. The mothers' educational level did not influence the type of feeding. Finally, the habit of leaving the bottle or breast in the child's mouth while the child fell asleep was significantly influenced by the mother's age.

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