

# Exclusive breast-feeding among children attending well-baby clinic at Al-Eskan PHC Center, Makkah Al-Mokarramah

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## Abstract

**Background:** The World Health Organization (WHO), the American Academy of Pediatrics, and the US Preventive Services Task Force, all recommend exclusive breast-feeding for the first 6 months of life.

**Objectives:** To estimate the prevalence of exclusive breast-feeding and its associated factors among children attending well-baby clinic at Al-Eskan Primary Health Care (PHC) Center, Makkah Al-Mokarramah in August 2012.

**Materials and Methods:** A cross-sectional study was conducted including mothers attending well-baby clinic with their children at Al-Eskan PHC Center, Makkah Al-Mokarramah. A valid interviewing questionnaire was applied including demographic data of mothers (age, nationality, education, marital status, income, job, number of children, and age of the last child) and history of feeding of the index child and factors related to the exclusive breast-feeding.

**Results:** The study included 65 mothers aged between 19 and 44 years, with a mean of 28.6 years and standard deviation of 5.7 years. Of them, 49 mothers (75.4%) initially breast-fed their infants. Only 12 of them (18.5%) performed exclusive breast-feeding during the first 6 months after delivery. Among mothers who initiated breast-feeding after delivery ( $n = 49$ ), 18 (36.7%) stopped breast-feeding before the age of 6 months and 9 (18.4%) stopped breast-feeding between the age of 6 months and 1 year whereas 22 mothers (44.9%) continued breast-feeding. No statistical significant relationship was found between any of the studied parameters and the practice of exclusive breast-feeding. Slightly less than half of mothers (46.2%) mentioned that exclusive breast milk is not enough in the first 6 months of child's life whereas 33.8% of them mentioned that it is enough.

**Conclusion:** Breast-feeding exclusivity among our sample is suboptimal, compared to the current WHO recommendations. Almost half of women reported that exclusive breast milk is not enough in the first 6 months of child's life.

**KEY WORDS:** Exclusive, breast-feeding, well-baby, prevalence

## Introduction

Breast-feeding is the optimal feeding for all infants and its benefits for both infants and mothers are proven. The World Health Organization (WHO),<sup>[1]</sup> the American Academy of Pediatrics,<sup>[2]</sup> and the US Preventive Services Task Force,<sup>[3]</sup> all recommend exclusive breast-feeding for the first 6 months of life.

Recently, there has been increasing concern about the decline in breast-feeding pattern. A review of some statistics on breast-feeding in Saudi Arabia shows the single most common reason for introduction of bottle-feeding is breast milk is insufficient.<sup>[4]</sup>

A surveillance of infant feeding practices carried out in Riyadh city showed 98.9% of infants were started on breast-feeding after birth, and 52.7%, 30.8%, and 18.8% continued on breast-feeding to 6, 12, and 18 months, respectively.<sup>[5]</sup>

In a Dutch population-based study, breast-feeding rate was 96% in the highest educated mothers and 73% in the lowest,<sup>[6]</sup> and the Centers for Disease Control and Prevention (CDC) represented lower breast-feeding rate in younger mothers, black, below the poverty income ratio, with the lowest educational level, and lived in rural areas.<sup>[7]</sup>

Strong evidence showed that educational and support interventions improve breast-feeding rates.<sup>[8]</sup> However, clinicians

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have a major contribution in increasing mothers' awareness of breast-feeding but counseling alone has not proven to be effective.<sup>[9]</sup>

This study aimed to estimate the prevalence of exclusive breast-feeding and its associated factors among children attending well-baby clinic at Al-Eskan Primary Health Care (PHC) Center, Makkah Al-Mokarramah, Saudi Arabia.

## Materials and Methods

This is a cross-sectional analytic study based on children attending PHC center with their mothers. The study was conducted in Makkah Al-Mokarramah, Saudi Arabia. It is the holy capital city of the Kingdom of Saudi Arabia located in Makkah region at the west of the country. It has a plenty of health services as governmental and nongovernmental. There are seven government hospitals and 31 PHC centers inside the city that provide free health-care services for all Saudi population; total population in Makkah in the last statistics at 2010 was around 1,675,368.<sup>[10]</sup> Al-Eskan is a main PHC Center in Makkah city and it is the training center for the researcher. Well-baby clinic is a vital clinic located opposite to vaccination room where mothers will arrive with their children. Total population covered by this center at 2011 was 15,376.

Mothers attending well-baby clinic with their children at Al-Eskan PHC Center, Makkah Al-Mokarramah, constituted the study population. Using sample size online calculator (Raosoft), total population 200, expected prevalence according to nearest study to be 54% at sixth month,<sup>[11]</sup> confidence level 95%, and the margin of error 10%, the estimated sample size was 65. Using systematic random sampling technique, every third child was selected by systematic random sampling technique. First one was selected according to online random number.

A valid interviewing questionnaire was applied including demographic data of mothers (age, nationality, education, marital status, income, job, number of children, and age of the last child) and history of feeding of the index child and factors related to the exclusive breast-feeding.

The researcher conducted the pilot study on 10 mothers (out of the study) 1 month before data collecting, at Al-Eskan PHC Center to test the tool, the methodology, and the environment.

Approval of JPFCM, Makkah, was obtained. Permission of the Eskan PHC Center director was obtained. Verbal consent was obtained from all mothers.

Data were entered to a personal computer and were analyzed using Statistical Package for the Social sciences (SPSS 20) program, version 20.  $\chi^2$ -Test was applied to determine the association and/or difference between categorical variables. Student's *t*-test was applied to determine the difference in means of two quantitative variables (e.g., age and number of children). Fischer's exact test was applied whenever indicated (if the number of observations was less

than 5 in at least one cell in contingency tables). A *p*-value of less than 0.05 was adopted for statistical significance.

## Results

Table 1 presents the demographic characteristics of 65 mothers participated in the study. Their age ranged between 19 and 44 years with a mean of 28.6 years and standard deviation of 5.7 years. The majority of them (93.9%) were at least secondary school graduated. All were Saudi nationals. All except one (98.5%) were married. Their number of children ranged between 1 and 6 with a mean of  $3.3 \pm 1.4$  children. Almost half of them (49.2%) were housewives. Age of the last child was less than 6 months among 29.2% of them and between 6 months and less than 1 year among 32.3% of them. Their income was mostly (72.3%) between 3,000 and 10,000 Saudi Riyal (SR)/month.

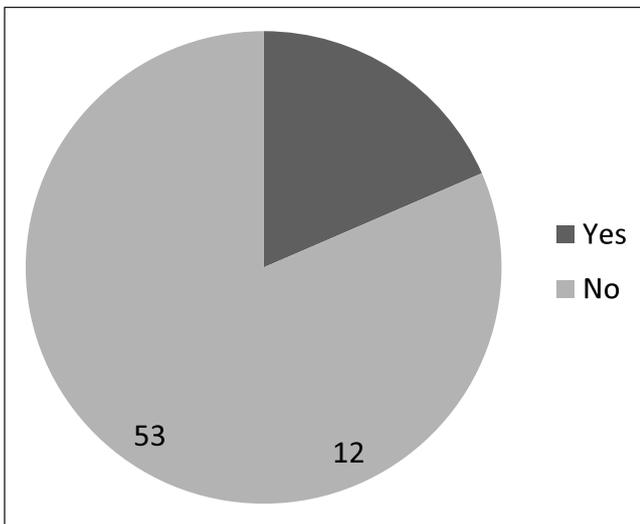
**Table 1:** Demographic characteristics of mothers attended well-baby clinic at Al-Eskan PHC center, Makkah Al-Mokarramah (*n* = 65)

Demographic characteristics	Frequency	Percentage
Age (years)		
Mean	28.6	
Range	19–44	
SD	5.7	
Educational level		
Primary	1	1.5
Intermediate	3	4.6
Secondary	33	50.8
University	28	43.1
Nationality		
Saudi	65	100.0
Non-Saudi	0	0.0
Marital status		
Married	64	98.5
Divorced	1	1.5
Number of children		
Mean	3.3	
Range	1–6	
SD	1.4	
Job status		
Housewife	32	49.2
Student	9	13.8
Employee	24	37.0
Age of the last child		
< 6 months	19	29.2
6 months to < 1 year	21	32.3
1 to 2 years	20	30.8
> 2 years	5	7.7
Income (SR/month)		
< 3,000	1	1.5
3,000–5,000	21	32.3
5,001–10,000	26	40.0
> 10,000	17	26.2

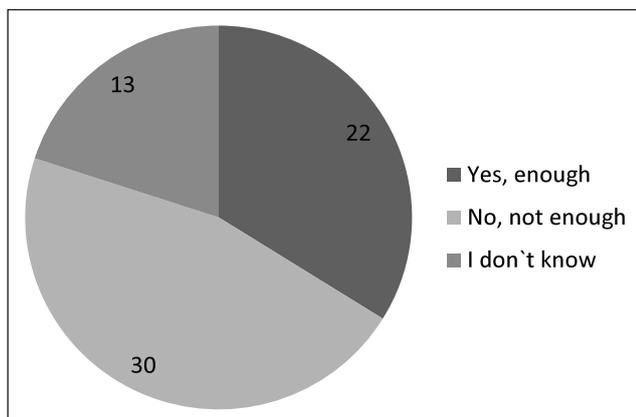
**Breast-feeding History**

Forty-nine mothers (75.4%) initially breast-fed their infants. Only 12 of them (18.5%) performed exclusive breast-feeding during the first 6 months after delivery as shown in Figure 1.

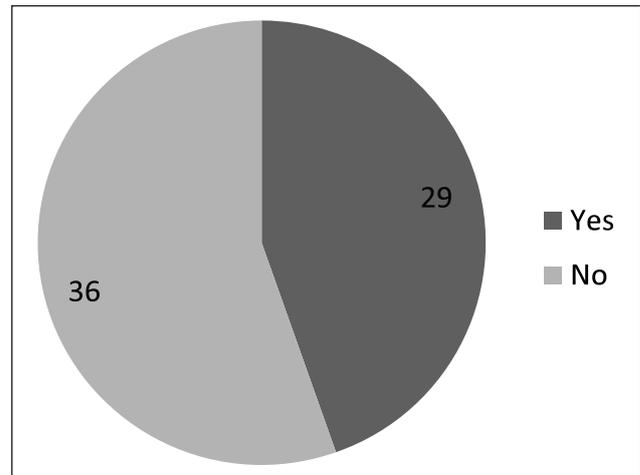
Among mothers who initiated breast-feeding after delivery (*n* = 49), 12 only (24.5%) completed exclusive breast-feeding during the first 6 months after delivery whereas 31 (63.3%) added artificial milk and 5 (10.2%) added water to breast-feeding during the first 6 months after delivery. Eighteen mothers (36.7%) stopped breast-feeding before the age of 6 months and 9 (18.4%) stopped breast-feeding between the age of 6 months and 1 year whereas 22 mothers (44.9%) continued breast-feeding. Regarding frequency of breast-feeding per day among those who initiated breast-feeding,



**Figure 1:** History of exclusive breast-feeding during the first 6 months after delivery (*n* = 65)



**Figure 2:** Attitude of mothers attended well-baby clinic at Al-Eskan PHC center toward exclusive breast-feeding



**Figure 3:** History of breast-feeding health education among mothers attended well-baby clinic at Al-Eskan PHC center, Makkah Al-Mokarramah (*n* = 65)

55.2% breast-fed their children on demand whereas 36.7% breast-fed them from five to nine times per day.

More than half of mothers (53.8%) delivered their last child by cesarean delivery whereas 46.2% delivered normally. More than one-quarter of mothers (26.2%) were current smokers, mostly moasil (16 of 17 smoker women). Regarding contraception history, more than half of mothers (52.3%) reported contraception use. Among them, 70.6% used oral contraceptives whereas 29.4% used intrauterine device.

**Mothers' Attitude toward Exclusive Breast-feeding**

Figure 2 shows that slightly less than half of mothers (46.2%) mentioned that exclusive breast milk is not enough in the first 6 months of child's life whereas 33.8% of them mentioned that it is enough.

**Breast-feeding Education**

Figure 3 shows that more than half of mothers (55.4%) claimed that they had no health education regarding breast-feeding whereas 44.6% reported that they had such education. The source of this education was the well-baby clinic among almost two-thirds (65.5%) of those reported history of health education. A booklet as a source of education was reported by 31% of them.

**Factors Associated with Initiation of Breast-feeding**

As shown in Table 2, the mean age of mothers who initiated breast-feeding after delivery was significantly higher than that of mothers who did not initiate breast-feeding after delivery ( $29.8 \pm 5.4$  vs  $25.1 \pm 5.2$ ),  $p < 0.01$ . Mother's educational level, income, number of children, and job were not significantly associated with initiation of breast-feeding

**Table 2:** Factors associated with initiation of breast-feeding after delivery

	Initiating breast-feeding		P-value*
	Yes (N = 49), [N (%)]	No (N = 16), [N (%)]	
Age (years) [mean (SD)]	29.8 (5.4)	25.1 (5.2)	0.004**
Educational level			
Secondary school or lower	28 (75.7)	9 (24.3)	0.950
Secondary school or higher	21 (75.0)	7 (25.0)	
Income (SR/month)			
≤5,000	16 (72.7)	6 (27.3)	0.740
5,001–10,000	19 (73.1)	7 (26.9)	
> 10,000	14 (82.4)	3 (17.6)	
Number of children [mean (SD)]	3.4 (1.4)	2.9 (1.3)	0.197**
Mother's job			
Housewife	27 (84.4)	5 (15.6)	0.168
Student	5 (55.6)	4 (44.4)	
Employee	17 (70.8)	7 (29.2)	
Age of the last child			
< 6 months	16 (84.2)	3 (15.8)	0.308
6 months to < one year	14 (66.7)	7 (33.3)	
1 to 2 years	14 (70.0)	6 (30.0)	
> 2 years	5 (100.0)	0 (0.0)	
Mode of delivery			
Normal	23 (76.7)	7 (23.3)	0.824
Cesarean delivery	26 (74.3)	9 (25.7)	
Maternal smoking			
No	36 (75.0)	12 (25.0)	0.592°
Yes	13 (76.5)	4 (23.5)	
Contraception			
No	24 (77.4)	7 (22.6)	0.798
Yes, oral contraceptives	17 (70.8)	7 (29.2)	
Yes, IUD	8 (80.0)	2 (20.0)	
Health education			
No	27 (75.0)	9 (25.0)	0.936
Yes	22 (75.9)	7 (24.1)	

IUD, intrauterine device.

\* $\chi^2$ -Test; \*\*t-test; °Fischer's exact test.

after delivery. Other studied factors (age of the last child, mode of delivery, maternal smoking, contraceptive use, and history of health education) were not significantly associated with initiation of breast-feeding after delivery.

### Factors Associated with Exclusive Breast-feeding

As shown in Table 3, none of the studied variables was significantly associated with exclusive breast-feeding.

### Discussion

It is highly desirable that breast-feeding is to be initiated soon after birth, preferably within the first 30 min of delivery. However, it is well documented that mothers in the Arabian

countries, especially in the Gulf countries, start feeding their babies with prelacteal feeds and then ghee until the mother lactates.<sup>[12]</sup>

Currently the recommendations from the global strategy for infant and young child feeding, developed by the WHO and UNICEF, are that infants should be exclusively breast-fed for the first 6 months of life.<sup>[1]</sup> Still, less than 40% of infants less than 6 months of age in the developing world are exclusively breast-fed.<sup>[13]</sup> Despite the great advances in health services in Saudi Arabia, studies have reported a downward trend in breast-feeding practice.<sup>[6,11,14–16]</sup> In this study, 75.4% of women initiated breast-feeding after delivery. However, only 18.5% were exclusively breast-fed. Much lower rates were reported from other regions of Saudi Arabia. In Riyadh, only 0.8% of infants were exclusively breast-fed for the first 4–6 months,<sup>[6]</sup> and the rate rises to 1.7% among infants at the age

**Table 3:** Factors associated with exclusive breast-feeding

	Exclusive breast-feeding		P-value*
	Yes (N = 12), [N (%)]	No (N = 53), [N (%)]	
Age (years) [mean (SD)]	29.4 (6.2)	28.5 (5.7)	0.602**
Educational level			
Secondary school or lower	6 (16.2)	31 (83.8)	0.592
Secondary school or higher	6 (21.4)	22 (78.6)	
Income (SR/month)			
≤5,000	5 (22.7)	17 (77.3)	0.501
5,001–10,000	3 (11.5)	23 (88.5)	
> 10,000	4 (23.5)	13 (76.5)	
Number of children [mean (SD)]	3.3 (1.6)	3.3 (1.3)	0.843**
Mother's job			
Housewife	7 (21.9)	25 (78.1)	0.638
Student	2 (22.2)	7 (77.8)	
Employee	3 (12.5)	21 (87.5)	
Age of the last child			
<6 months	3 (15.8)	16 (84.2)	0.133
6 months to < 1 year	7 (33.3)	14 (66.7)	
1 to 2 years	1 (5.0)	19 (95.0)	
>2 years	1 (20.0)	4 (80.0)	
Mode of delivery			
Normal	7 (23.3)	23 (76.7)	0.349
Cesarean delivery	5 (14.3)	30 (85.7)	
Maternal smoking			
No	9 (18.8)	39 (81.3)	0.617°
Yes	3 (17.6)	14 (82.4)	
Contraception			
No	7 (22.6)	24 (77.4)	0.645
Yes, oral contraceptives	4 (16.7)	20 (83.3)	
Yes, IUD	1 (10.0)	9 (90.0)	
Health education			
No	6 (16.7)	30 (83.3)	0.678
Yes	6 (20.7)	23 (79.3)	

IUD, intrauterine device.

\* $\chi^2$ -Test; \*\*t-test; °Fischer's exact test.

of 6 months in Jeddah.<sup>[16]</sup> Higher rates of 24.4%, 27.3%, and 33.1% were reported in Al-Hassa,<sup>[17]</sup> Al-Kharj,<sup>[15]</sup> and Dammam,<sup>[18]</sup> respectively. In Abha, KSA, Al-Binali<sup>[19]</sup> reported that breast-feeding rate at 6 months among working mothers in Abha, was 15.9% and bottle-feeding was started, based on a provisional advice, in 56.7%.

The rate of exclusive breast-feeding varies in Middle East countries. In Al-Ain, United Arab Emirates, only 4% of mothers practiced exclusive breast-feeding during the first month of their infants' lives.<sup>[20]</sup> In Iran, a recent study reported that 82% infants were exclusively breast-fed during the first month of life, but this statistic decreased to 44% and 2% at the ages of 4 and 6 months, respectively.<sup>[21]</sup> A more recent study in Iran reported rates of 56.8% and 27.7% at 4 and 6 months of age, respectively, at the national level.<sup>[22]</sup> In Aqaba, Jordan, the exclusive breast-feeding rate was 46% for infants in the first 6 months of life.<sup>[23]</sup> In Egypt, a rate of 42.5% was reported

among infants less than 4 months of age.<sup>[24]</sup> A study in Bangladesh reported an exclusive breast-feeding rate of 53% at 1 month and then a gradual decline to 5% at 6 months of age.<sup>[25]</sup> A recent study in Bangladesh showed that this rate gradually declined from 87.1% at 1 month to 77.2% at 3 months and 61.4% at 6 months.<sup>[26]</sup> In the United States, only 13.3% infants were exclusively breast-fed at 6 months of age.<sup>[27]</sup> It has been commented that exclusive breast-feeding in the first 4 months of life varies from 1% to 90%, depending on where the baby is born; this variability is influenced by cultural beliefs, socioeconomic status, ethnicity, education, urbanization, modernization, and local feeding practices.<sup>[28,29]</sup>

These figures as well as ours are low compared to those reported from the developed world; for example, at 4–6 months, in Luxembourg 54% of mothers exclusively breast-fed their newborns; in the Netherlands 37%; and in Austria 46%.<sup>[30]</sup>

It is documented that older mothers practiced exclusive breast-feeding more than younger mothers.<sup>[31]</sup> However, a negative association existed between level of education of the mother and her family income with exclusive breast-feeding.<sup>[31,32]</sup>

In this study, the results obtained indicated no statistical significant relationship between any of the studied parameters and the practice of exclusive breast-feeding, most probably due to relative small sample size. In this study, older women more significantly tended to initiate breast-feeding than younger women.

In this study, employees were less likely to initiate and exclusively breast-fed their children than housewives. However, it was not a statistically significant determinant for non-practicing exclusive breast-feeding, most probably due to our small sample size. Despite the fact that Saudi women do not work in hazardous occupations, a mother's work per se does adversely affect breast-feeding practice. Breast-feeding and working outside home are commonly believed to be incompatible activities, and maternal employment has long been considered a barrier to successful breast-feeding.<sup>[24]</sup> Because of the short period of paid maternal leave (only 2 months) in Saudi Arabia, only 12.5% of employee mothers were able to exclusively breast-fed their infants till the age of 6 months. A negative effect of maternal work on exclusive breast-feeding has been reported by many studies in different cultures.<sup>[33–36]</sup> However, other studies in accordance with the results of our study have reported no effect of maternal work on exclusive breast-feeding.<sup>[37,38]</sup>

Furthermore, in developing countries demonstrating population transition with increasing urbanization, women achieving higher levels of formal education and more working outside of their households are expected to witness a decrease in the practice and duration of breast-feeding across time,<sup>[39,40]</sup> a scenario that is applicable to the Saudi Arabian community where women account for 55% of university graduates and the urban population represents 82% of the total with a rate of urbanization equals to 2.5% annual rate of change (for 2005–2010) and ranked 39th in the global rank of urbanization in the year 2009.<sup>[41]</sup> In this study, university graduated mothers approaching 43%.

This study includes only mothers attending for vaccination at PHC centers in one region of the Saudi Arabia, and the results may not be representative of the whole nation. In addition, the study findings merely convey associations rather than inferences because of the study design adopted; a prospective cohort design would be more appropriate.

## Conclusion

In conclusion, breast-feeding exclusivity among our sample is suboptimal, compared to the current WHO recommendations. Implementation of evidence-based health promotion and education programs relating to breast-feeding required for the future parents as well as for adolescent school students for the enhancement of positive breast-feeding attitudes is recommended.

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