

BREASTFEEDING PRACTICE AMONG WOMEN ATTENDING PRIMARY HEALTH CENTERS IN RIYADH

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هدف الدراسة : دراسة نمط الرضاعة الطبيعية للأطفال الأخيرين وعواملها وأسبابها ومدة الرضاعة الطبيعية وعواملها بين الأمهات اللاتي أرضعن أياً من أطفالهن في مراكز الرعاية الصحية الأولية في الرياض.

طريقة الدراسة : تم القيام بدراسة مقطعية عرضية بتوزيع 1000 استبيان على 10 مراكز للرعاية الصحية الأولية. صنف نمط الرضاعة حسب مصطلحات منظمة الصحة العالمية

نتائج الدراسة: معظم الأطفال الأخيرين الذين تمت دراستهم (95.1%) قد تم إرضاعهم رضاعة طبيعية في وقت ما. كان معدل الرضاعة الطبيعية المطلقة عند الولادة 62.9% وإلى عمر أربعة أشهر 13.7% وإلى ستة أشهر 3.3%. ومعدل الرضاعة المختلطة عند الولادة 32.2% وإلى عمر أربعة أشهر 53.1% ولعمر أكثر من ستة أشهر 20.3%. كان متوسط عمر الفطام 4.6 ± 1.4 شهراً. وكان معدل الرضاعة الصناعية 4.9% عند الولادة وإلى عمر أربعة أشهر 30.3% ولعمر أكثر من ستة أشهر 49.7%.

أكثر الأسباب تردداً لاستمرار الرضاعة الطبيعية كان توجيهات القرآن الكريم (55.1%) بينما لفشلها كان عدم كفاية الحليب (60.8%).

كانت هناك علاقة إحصائية دالة بين الرضاعة الطبيعية المطلقة ولمدة الرضاعة مع محل سكن الأم، ووضعها الزوجي، وعدد الأطفال الأحياء ووظيفتها ومستوى الوالدين التعليمي. بالإضافة إلى ذلك كانت لها علاقة إحصائية دالة للرضاعة الطبيعية المطلقة مع عدم تقديم الرضاعة الصناعية للمواليد بالمستشفى ولكن ليس مع التنقيف الصحي للرضاعة الطبيعية بالمراكز الصحية.

التوصيات: تحفيز التنقيف الصحي للرضاعة الطبيعية للأمهات وتدريب العاملين الصحيين بالمراكز الصحية والمستشفيات وتغيير سياسة تغذية حديثي الولادة في المستشفيات بالمملكة.

الكلمات المرجعية : الرضاعة الطبيعية ، مطلقة ، مدة استمرار.

Objectives: (1) To study the patterns of breastfeeding of last children, duration, factors and reasons for it. (2) To study the factors affecting breastfeeding among mothers who are breastfeeding and the reasons for continuing or failure to continue, at the primary health care centers (PHC) in Riyadh.

Method: A cross-sectional study was conducted by distributing 1000 questionnaires in 10 PHC centers. The breastfeeding practices were categorized on WHO terms.

Results: Most of the studied last children (95.1%) were breastfed. Exclusive breastfeeding rate from birth was 62.9%, for up to four months was 13.2% and for six months was 3.3%. The mixed breastfeeding rate from birth was 32.2%, up to age of four months was 53.1% and for children more than six months old it was 20.3%.

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The mean age of the introduction of solid food was 4.6 ±1.4 months. Artificial feeding rate was 4.9% at birth , 30.3% up to four months and 49.7% for children more than six months old. The most frequent reason for the continuation of breastfeeding was Quranic instruction (55.1%) and its failure was inadequate milk (60.8%). The exclusive breastfeeding and the duration of breastfeeding had statistically significant association with the mothers' residence, marital status, number of children alive, occupation and the level of education. In addition, there was significant association of exclusive breastfeeding and the non-introduction of artificial feeding at the hospital but not with health education on breastfeeding at the centers.

Recommendations: *To promote the education of mothers on breastfeeding, promote the training of PHC center health professionals and modify the policy of hospitals in the Kingdom on the feeding of newborns.*

Key Words: *Breastfeeding, exclusive, duration, continuing.*

INTRODUCTION

In the holy Quran Verse 233/Sura Al-Baqara "Allah" said:

" والوالدات يرضعن أولادهن حولين كاملين لمن أراد أن يتم الرضاعة وعلى المولود له رزقهن وكسوتهن بالمعروف" .

“The mothers shall give suck to their offspring for two whole years for him who desires to complete the term. But he shall bear the cost of their food and clothing on equitable terms.”¹

Breastfeeding is a natural impulse of all mothers as it allows them to express their love, tenderness and protection of their children. It is vital for a child's survival, maternal health, and child spacing.² Islam recognizes and highlights this fact as the above verse of the holy Quran instructed more than fourteen centuries ago that mothers breast-feed their children for two years.¹ For the first four to six months of life, exclusive breastfeeding can provide all the nutrients and water that a baby needs.³ The World Health Organization (WHO) and UNICEF have recommended that all the mothers (i.e. 100%) should breast-feed their babies exclusively for four to six months and continue breastfeeding, supplemented by other appropriate foods, up to the second year of life or later.²⁻⁴

Well-documented evidence is increasing on beneficial effects of breast milk and breastfeeding.⁵ It provides the ideal food for the healthy growth and development of infants in terms of nutrition, immunological protection, economic, psychological, biochemical, anti-allergic, and anti-inflammatory benefits in addition to the benefit of child spacing as a result of lactation amenorrhea.²⁻¹³ Despite these considerable advantages the rate of breastfeeding has declined worldwide.^{6,14,15} The number of mothers who breast-feed their babies has been falling steadily in the last three decades both in the developed and developing countries.¹⁶

There was a time in Saudi Arabia when mothers knew of no other way of feeding their babies.¹⁷ The rapid socio-economic advancement that have occurred during the last three decades in Saudi Arabia have contributed to the changes in the duration and patterns of breastfeeding now in evidence. These changes were reported in numerous community or hospital-based studies conducted to explore the breastfeeding practices among the mothers in Saudi Arabia.^{5,9,14-32} It was reported that exclusive breastfeeding rate fell lower than

recommended by WHO as illustrate in Table 1.^{9,20-29} The duration of breastfeeding dropped from 24 months in 1967²⁰ to 12.5 in 1996 as reported by Khoja.²⁸ Exclusive breastfeeding was also affected, for it dropped from almost 100% in 1967²⁰ to 33% in 1998²⁷ for children less than 4 months. The first community-based study in Saudi Arabia conducted in 1967, revealed that breastfeeding was the predominant method of feeding children up to two years.²⁰ Based on these results, it was concluded that the rate of exclusive breastfeeding for the first three months was almost 100%.

Table 1: The results of the previous Saudi studies on the breastfeeding (bf) exclusive rate (up to four months) and average duration, Riyadh 2000

Year of study	Exclusive bf rate (months)	Bf duration (months)
1967	95 ²⁰	24 ²⁰
1981	42 ²¹	12.4 ²²
1987	41.3 ²³	24 ²³
1988	50 ²⁴	11 ²⁴
1991	-	11.2 ²⁵
1994	36 ²⁶	14.3 ²⁶
1995	-	11 ⁹
1996	-	12.5 ²⁸
1998	33 ²⁷	-
2000	29.6 ²⁹	-

Exclusive breastfeeding for six months is uncommon in many places other than Saudi Arabia.¹⁰ A significant decline in exclusive breastfeeding was reported in United States,³³ China in 1950,³⁴ Mexico,¹⁰ Iran,¹¹ some gulf countries,³⁰ Egypt³⁵ and Libya.³⁶

As breastfeeding is on the decline in Saudi Arabia, this study was conducted with the following objectives: (1) To determine infant feeding practice for the last child among mothers attending the well-baby clinic in the primary health care centers in Riyadh. (2) To determine the duration of breastfeeding among breastfeeding mothers.

(3) To determine the reasons for breastfeeding the last child beyond three months. (4) To assess the factors associated with both exclusive breastfeeding of the last child for 4-6 months and the duration of breastfeeding any child.

METHODOLOGY

Out of the 67 primary health care (PHC) centers in the city of Riyadh, ten were selected for this cross-sectional study lasting three months from September to November 2000. Two centers were selected by simple random sampling from each of the 5 districts in Riyadh. The target population was the last-born child and mother attending the well-baby clinics (WBC) of PHC centers for vaccination. The pattern of feeding the last-born child was chosen as it was easier for the mothers to remember the details of the feeding patterns of their infants, so the information given by the mothers was likely to be more accurate.

A total of 1000 self-administered questionnaires were distributed, 100 for each of the 10- selected centers. The questionnaires were completed by the mothers who were able to read and write. The WBC's trained nurses completed the questionnaires for those who were illiterate.

The questionnaire was designed to obtain three types of information about breastfeeding. The first was on the feeding practice of the last child and the reasons for continuing to breastfeed. The second type was about the duration of breastfeeding of the last child and the longest time any of the children of the participating mothers was breastfed. The third was about factors associated with both breastfeeding practice and duration. The studied variables included in the questionnaire were the maternal age, nationality, current district of residency, marital status, occupation, parent's education level, number of children alive and whether there was a servant in the

household. In addition, there were questions on how soon after delivery breastfeeding commenced, if the baby was bottle-fed after delivery in the hospital, and whether there was any health education on breastfeeding for the mothers at the ANC of the center during the pregnancy of the last born. Reasons for continuing or discontinuing breastfeeding were listed as multiple choice questions, the last choice being, "others ... specify". The mothers were instructed to select more than one option to cover all the relevant reasons. The listed choices for maintaining breastfeeding were Quranic instruction, the benefits of breast milk for the child, spacing, social habits, mother's advice, doctor's advice, to lose weight and personal interest in breastfeeding. Reasons for discontinuing breastfeeding were inadequate milk, return to work, the use of contraceptive pills, a new pregnancy, retarded nipple and baby's rejection of breast milk. Quranic instruction was listed as one of the choices of maintaining breastfeeding as it is well known that the Quran encourages breastfeeding and evidence was required to show whether this was indeed a factor affecting the determination of the duration of breastfeeding.

A three-month period was chosen as the cut-off point for continuing or terminating breastfeeding as by that time the mothers would have taken a decision on what contraceptive method to use and if they would return to work. Some of the mothers were expected to be still breastfeeding their last children at the time of the study and so could not state a definite duration. Therefore, to get a full picture of the duration, the mothers were asked the longest time they breastfed any of their other children.

The city of Riyadh is geographically divided into five sectors, north, south, central, east and west. Generally, the north

sector is inhabited by people belonging to the high socio-economic class. The north and central sectors have people of the low-socio-economic class. The middle socio-economic group lived in the west and the east. We were therefore interested in testing the significance of residence on breastfeeding.

Parity was not studied but the number of children alive was expressed as parity in this study. An explanatory letter to the mothers was attached to each questionnaire. Infant feeding practices were categorized according to WHO infant feeding terms³ as follows: Exclusive breast-feeding means giving a baby no other food or drink, including water, (except medicines and vitamins or mineral drops) but breast milk. Predominant breast-feeding means breast feeding a baby, as well as giving small amounts of water or water-based drinks such as tea. Bottle-feeding means feeding a baby from a bottle, regardless of what is in the bottle including expressed breast milk. These patterns were chosen to be applied to this study since they are widely accepted worldwide and would allow comparison with local and worldwide studies.

The data collected were computerized and analyzed by Epi-info version 6.04 software. The significance of association between the variables and the exclusive breastfeeding for 4-6 months for the last-born and for breastfeeding for more than six months among the mothers who have ever breastfed was tested by the Chi-square test and ANOVA test. P-value <0.05 was considered to be statistically significant.

RESULTS

Out of 1000 questionnaires distributed, 922 complete questionnaires were obtained. The sample was more or less equally distributed among the 10 centers. The current age of the studied last-born children varied, with a mean of 13.1±12.6 months. The age-specific

Table 2: Breastfeeding (BF) pattern among the 922 studied last-born children, Riyadh 2000

Age in months	Exclusive Breastfeeding			Mixed Breastfeeding			Predominant Breastfeeding			Bottle-feeding		Cummulative children No. at each age-group
	No.	% among ever BF (n=877)	Age-specific rates	No.	% among ever BF (n=877)	Age-specific rates	No.	% among ever BF (n=877)	Age-specific rates	No.	Age-specific rates	
At birth	580	66.1	62.9	297	33.9	32.2	-	-	-	45	4.9	922
< 1 week	242	27.6	26.2	531	60.5	57.6	-	-	-	149	16.2	922
1-4 weeks	14	1.6	1.5	743	84.7	81.4	-	-	-	156	17.1	913
1 month	167	19.0	18.3	532	60.7	58.3	-	-	-	213	23.4	912
2 months	129	14.7	14.7	502	57.2	57.4	17	1.9	1.9	227	25.9	875
3 months	95	10.8	11.3	448	51.1	53.1	45	5.1	5.3	256	30.3	844
4 months	103	11.7	13.2	193	22.0	24.7	185	21.1	23.7	301	38.5	782
5 months	26	3.0	3.4	197	22.5	25.8	213	24.3	27.8	329	43.0	765
6 months	25	2.9	3.3	172	19.6	22.9	219	25.0	29.1	336	44.7	752
>6 months	-	-	-	147	16.8	20.3	217	24.7	30.0	359	49.7	723

cumulative numbers of last-born children at the time of the study were calculated. The starting point was more than 24 months old (132 children), and 24 months (223 children). Thereafter, the ascending cumulative numbers were 539 children at 12 months old, 752 children were aged six months old and finally there were 922 newborns. These age-specific cumulative numbers would be the denominator for the calculation of the age-specific breastfeeding pattern as will be shown later.

Eight hundred and seventy seven last-born children (95.1%) were breastfed for different lengths of time and in various patterns. After delivery breastfeeding was initiated within a time range of 0.30- 73 hours, with a mean of 15.03 ± 8.5 hours. It was started within the first hour for 94 (10.7%) last-born children.

Once the mothers had started breastfeeding their last babies after delivery, they would either continue it alone (exclusive breastfeeding), or along with the bottle-milk (mixed breastfeeding) or with other fluids or foods (predominant breastfeeding) or would stop and rely entirely on bottle-milk.

Accordingly, breastfeeding patterns were analyzed and expressed in two ways; in tires among the children who were breastfed, and age-specific rates among the children of each specific age-groups. Among the 877 breastfed last-born children, 580 (66.1%) were exclusively breastfed at birth . Later on, this rate decreased to 27.6% within first week, 10.8% at three months, 11.7% at four months and 2.9 % at six months. The age-specific exclusive breastfeeding rate was 62.9% at birth . However, it decreased as the babies got older to 11.3% among the children who were at least three months old at the time of the survey. It was 13.2% among the four-month old babies and 3.3% among the six-month olds.

The mixed breastfeeding rate among the breastfed children and the age-specific rate was 33.9% and 32.2% at birth, 51.1% and 53.1.% at three months and 22% and 24.7% at four months respectively. At six months, this pattern was found in 19.6% and in 16.8% of older children who were breastfed. However, 22.9% and 20.3% of the six-month old children and older children respectively had mixed breastfeeding. The age-specific predominant breastfeeding rate at three months , four months, six months and for older children were 5.3%, 23.7%, 29.1% and 30% respectively. At birth, 4.9% of the studied last-born children were never breastfed, for the mothers fed them bottle-milk only. Later on, the bottle-feeding rate increased to 30.3% at three months, 38.5% at four months, 44.7% at 6 months and 49.7% for older babies (Table 2).

The mean age for the introduction of solid food for the 922 studied last-born children was 4.6 ± 1.4 months (ranging 2 to 12 months). Of the 877 breastfed last children , 60.1% were still being breastfed at the time of the study. Breastfeeding continued for 6 months in 47.4% for one year in 30.1%, for two years in 5% and beyond two years in 0.8%. Among the 922 mothers interviewed, 892 (96.8 %) had breastfed their other children. Some (70.5%)

Table 3: Breastfeeding (bf) duration for breastfed children

Breastfeeding duration	For last child	For any child
	(n=877)	(n=892)
	Frequency (%)	Frequency (%)
6 months	416 (47.4)	739 (82.8)
12 months	264 (30.1)	576 (64.6)
15 months	121 (13.8)	384 (43.0)
18 months	106 (12.1)	366 (41.0)
24 months	44 (5.0)	249 (27.9)
>24 months	7 (0.8)	35 (3.9)
Mean (months)	8.1 ± 7.1	15.1 ± 8.5

Table 4: Factors relating to last children 4-6 months exclusive breastfeeding (bf) and bf for more than 6 months among the breastfeeding mothers, Riyadh 2000

Factor	Exclusive breastfeeding		Breastfeeding duration > 6 months	
	No. (%)	p-value	No. (%)	p-value
Maternal Nationality:				
Saudi (n=747)	123 (16.5)	0.794	524 (58.7)	0.000
Non-Saudi (n=175)	32 (18.3)		156 (17.5)	
Maternal age (years):				
17- (n=447)	65 (14.5)	0.102	306 (34.3)	0.000
30- (n=389)	74 (19.0)		295 (33.1)	
40- (n=89)	16 (18.0)		79 (8.9)	
District of residence:				
North (n=187)	19 (10.2)	0.094	117 (13.1)	0.000
South (n=179)	35 (19.6)		140 (15.7)	
Central (n=187)	36 (19.3)		164 (18.4)	
East (n=190)	36 (18.9)		147 (16.5)	
West (n=179)	29 (16.2)		112 (12.6)	
Marital Status:				
Married (n=902)	145 (16.1)	0.001	664 (74.4)	0.689
Not married (n=20)	10 (50.0)		16 (1.8)	
No. of children alive:				
5 or less (n=682)	97 (14.2)	0.001	473 (53.0)	0.000
More than 5 (n=240)	58 (24.2)		207 (23.2)	
Having a servant:				
Yes (n=391)	47 (12.0)	0.006	259 (29.0)	0.000
No (n=531)	108 (20.3)		421 (47.2)	
Maternal occupation:				
Housewife (n=679)	133 (19.6)	0.004	544 (61.0)	0.000
Working (n=243)	22 (9.1)		136 (15.2)	
Maternal education level:				
Illiterate (n=136)	33 (24.3)	0.000	122 (89.7)	0.000
Read and write (n=77)	17 (22.1)		68 (88.3)	
Elementary (n=114)	35 (30.7)		96 (84.2)	
Secondary (n=166)	26 (15.7)		122 (73.5)	
High school (n=264)	29 (11.8)		175 (71.1)	
University (n=165)	15 (9.1)		97 (58.8)	
After delivery started bf after:				
1/2 -1 hour (n=94)	19 (20.2)	0.455	-	-
1-2 hour (n=783)	134 (17.1)		-	-
Given bottle in hospital:				
No (n=242)	61 (25.2)	0.0001	-	-
Yes (n=635)	92 (14.5)		-	-
Breastfeeding health education:				
Received (n=529)	88 (16.6)	0.317	-	-
Not received (n=213)	42 (19.7)		-	-

had breastfed all of them and 29.5% some of them. Among these, the 82.8% said breastfeeding lasted for six months, 64.5%

for 12 months, 27.9% for two years and 3.9% lasted for more than two years (Table 3).

Among the 922 mothers, 742 (80.2 %) had attended the antenatal care (ANC) at their PHC centers during the pregnancy of their last children. Of these, 529 (71.3% representing 57.4% of all studied mothers), had had received health education on breastfeeding at the PHC centers. The most frequently used health education methods were one on one and posters (38.2% and 37.2% respectively). Other methods were pamphlets (16.1%), lectures (7.8%) and video (0.8%). Most of the one on one health education was given by the nurses (45.1%) or doctors (42.1%) and 12.9% by the social workers.

There was significant association between exclusive breastfeeding for four to six months and the mothers' marital status, number of children alive, availability of a servant, occupation, education level and the non-introduction of bottle-milk to the infants at the hospital after delivery. However, there was no significant association with the place of residence nor

with the introduction of breastfeeding in the first-hour after delivery, nor with health education on breastfeeding during pregnancy. There was a significant association between breastfeeding for more than six months among the mothers who breastfed and almost all of the studied factors except the marital status (Table 4).

The proportion of breastfeeding for more than six months decreased as the parents' education level increased. There were significant differences between the different levels of the parents' education (Figure 1).

Of the 877 mothers who breastfed, 782 (89.2%) continued to breast-feed their last-born children beyond three months. Quranic instruction was their main reason (55.1%) for continuing breastfeeding. Other reasons included breast-milk benefits to the infants (14.1%), spacing (12.4%) and their personal desire to breast-feed (7.9%). Social habit (3.7%), their mother's advice (2.3%), economic reasons (2.2%), doctor's advice

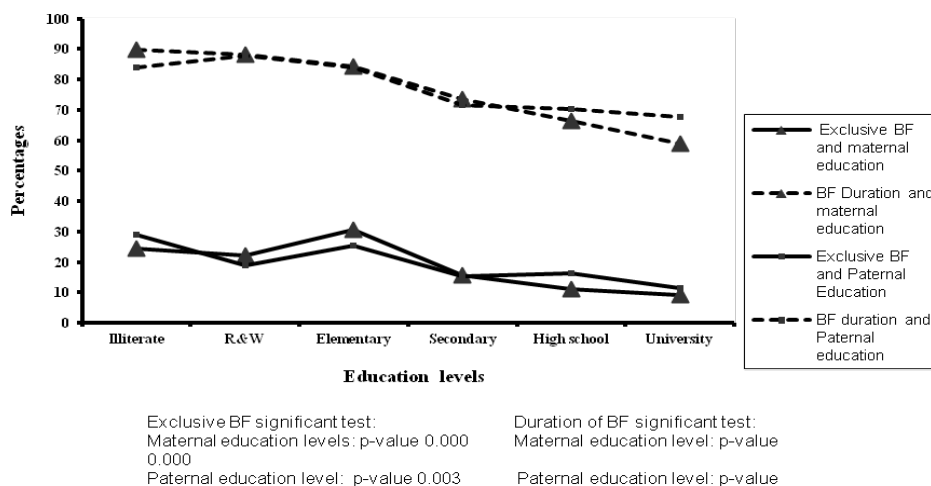


Figure 1: Relationship of 4-6 months exclusive breastfeeding and more than 6 months breastfeeding duration with parents education levels – Riyadh 2000

(1.8%), weight loss (0.4%) and the baby's rejection of bottle milk (0.1%) were also reported. However, 95 mothers (10.8%) did not continue breastfeeding beyond three months. Inadequate milk (60%) and return to work (20%) were the most frequently reported reasons for the failure of breastfeeding. Other reasons given were the use of contraceptive pills (5.3%) and conception (4.2%). Furthermore, seven other reasons (2%) were reported including continuation of studies, a C-section delivery and illness. Other reasons (1%) reported were prestige, retracted nipple and baby's rejection of breast-milk.

DISCUSSION

Breastfeeding is an ancient traditional method for feeding infants and for millions of years its advantages have been greatly appreciated.¹⁶ In the current study, the rate of breastfeeding was above 95%. Similarly, a high rate of breastfeeding (above 90%) was reported in previous studies in Saudi Arabia.^{15,16,18,21-24,30,31} The rate of exclusive breastfeeding was found to be much lower than recommended by WHO²⁻⁴ and also lower than reported by the previous Saudi studies.^{9,20-29}

Breastfeeding for up to one to two years is still practiced in Saudi Arabia.^{19,23-25,28} In a report on breastfeeding in Saudi Arabia published in 1996, the longest period of breastfeeding was 12.5 months.²⁸ The average current duration is 15.1 months; that is 2.6 months longer than was reported in 1996. Currently, 64.6% of mothers breastfed for a year, 31.8% for 2 years, 42% longer than a year but slightly shorter than the 33.1% reported in 1998.²⁵

Literature search did not reveal any factors relating to exclusive breastfeeding. This study found that exclusive breastfeeding for four to six months had a positive significant association with marital status, educational level, number of children

alive, having a house help and being a housewife. The last three factors reflect the fact time is essential for exclusive breastfeeding, and that housewives and mothers with less than 5 children alive with house help are more able to devote enough time to breast-feed their children. Other factors that had positive influence on exclusive breastfeeding were the non-introduction of bottle-feeding in the hospital immediately after delivery. Generally, bottle-feeding seems more convenient for hospital staff.²⁴ Apart from one government hospital, the policy of the hospitals in Riyadh is to give newborns artificial milk after delivery. There is an increasing dependence on the bottle and other artificial methods of feeding as the babies grow.¹⁸

More than 71% of the mothers reported that they had had health education on breastfeeding during their antenatal visits for their last pregnancy. Nevertheless, it did not have a significant effect on exclusive breastfeeding. This very important finding indicates that breastfeeding health education in the PHC centers is not convincing enough to persuade mothers to breast-feed exclusively for at least the first 4 months. This failure might be a result of many factors, such as, the inability of the PHC health staff to properly conduct health education on proper breastfeeding and their lack of the proper skills to educate. Furthermore, it was noticed that many of the pamphlets on breastfeeding were produced by producers of artificial milk, who listed and advertised their different products on these pamphlets. This of course might have played a role in weakening the effect of health education on breastfeeding.

In Saudi Arabia, the factors associated with the duration of breastfeeding have been explored in several previous studies. These factors include residence (urban and rural), maternal age, parity, and parents' education.^{11,27-29,31,32} The current study

showed significant differences between the categories of each maternal variable and the duration of breastfeeding. The duration increased with the mothers' age. This is similar to findings of previous studies. Increased parity and increased parents' educational level had a significant inverse relationship with breastfeeding duration. A similar negative maternal education effect has been reported by previous studies.^{12,28-30} The effects of mothers' employment on the duration of breastfeeding was also negative, which is also in agreement with what has been reported previously.³⁰ It is already known that the rate of breastfeeding is generally low in countries where the average woman works outside the home, makes breastfeeding difficult.³⁷

Previous studies conducted in Saudi Arabia reported that other reasons given for terminating breastfeeding were inadequate milk flow and the fact that children were old enough. Other reasons, such as, new pregnancy, contraceptives and baby's rejection of the breast milk and baby's or mother's illness were also reported by previous Saudi studies.^{9,14,21-23,26,28,29,31,32}

Breastfeeding has declined worldwide as a result of urbanization, availability of infant milk formula, maternal employment outside the home and such faulty hospital practices as the separation of mother and baby, formula feeding and the use of bottles.^{6,12,14,19-21} Hospitals should avoid mother-infant separation and the introduction of bottle-milk to infants. Infants should be kept with their mothers to give them the opportunity to bond soon after delivery. This can be done through the "ten steps to successful breastfeeding" that are the corner stones of the WHO/UNICEF Baby Friendly Hospital Initiative.³⁸ These steps must be adopted in all pediatric and maternity hospitals and maternal and child health centers.³⁶ The baby-friendly hospital initiative is one of the strategies in the plan

to support and promote breastfeeding. Initiation of breastfeeding within first one hour after delivery is one of these steps. In this study, the delay in initiating breastfeeding might be a factor in determining the duration of breastfeeding as the mean time of initiation was 15.03 ± 8.5 hours and initiation within the first hour after delivery was only 10.7%.

An important reason for the decline of breastfeeding and the spread of artificial feeding is that certain health care practices have failed to give support to the practice. Health professionals have neither received adequate training in the practical aspects of lactation management, nor have they understood the needs of lactating women.³⁹ WHO and UNICEF have provided many programmes, guidelines and training courses, (available in English and Arabic languages), for health care workers to protect, promote and support exclusive breastfeeding from birth, and continue to breast-feed for two years.^{2,4,13,37-39}

Fortunately, traditional breastfeeding still persists in Saudi Arabia¹⁷ and as this study pointed out, the effect of Quranic promotion is still strong and can encourage mothers to breast-feed up to two years. This provides a great opportunity to achieve the goal of adequate and sustained increase in the rate of breastfeeding and duration. This should be supported by a comprehensive effort in promoting breastfeeding among the mothers who attend the PHC centers, hospitals and those at home, students in schools and universities through the audio-visual media highlighting the religious aspect. In addition, the training of the health workers utilizing WHO and UNICEF guidelines and training courses^{2,4,13,37-39} can also play a major role in reaching this goal.

Study limitations

No official statistics were available on the number of the mothers or children attending

the PHC centers in Riyadh. Therefore, a convenient sample of 1000 which the author estimated would be adequate for the achievements of the goals of the study were taken.

Some centers may generally have larger attendance than others. However, an equal number of questionnaires were distributed to the selected centers since there was no record of the total well baby clinic attendance.

CONCLUSION AND RECOMMENDATIONS

This study revealed that the breastfeeding rate was high but that exclusive breastfeeding for the first three months and for 4-6 months was lower than the WHO recommendation, and lower than previously reported in Saudi Arabia. Breastfeeding for a longer period is still practiced, the mean duration being 2.6 months longer than the latest reported. Not giving newborns artificial milk after delivery had a significant effect on exclusive breastfeeding rate, while health education at PHC centers on breastfeeding did not. Quranic recommendation was the main reason for the continuation of breastfeeding. There must be a campaign to promote breastfeeding. The rate of breastfeeding exclusively for four to six months and prolonged breastfeeding in Saudi Arabia can be increased through comprehensive programmes taking advantage of the Quranic advice on breastfeeding for the education of mothers. More can be achieved by changing hospitals' policy on the feeding of newborns and by the proper training of health professionals at PHC centers and hospitals. Moreover, since inadequate milk flow was reported as one of the reasons for the failure of breastfeeding, more effort should be made to teach mothers how to improve lactation. Working mothers should be encouraged to breastfeed their children

by providing special facilities for breastfeeding in the work place. Furthermore, during pregnancy mothers should be prepared for breastfeeding and doctors should discuss methods of contraception with expectant mothers before delivery. Mothers should be advised to use appropriate contraceptive pills that do not affect breast-milk production. Any health education program on breastfeeding should target mothers according to those significant maternal variables that affect patterns and duration of breastfeeding.

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