

# Effect of breastfeeding on growth in Yemeni infants

Lutf M. Al-Zubairi, MSc, MD, Yahia A. Raja'a, MSc, PhD, Intesar A. Al-Saidi, MBBS.

## ABSTRACT

**Objective:** To estimate the prevalence of effective breastfeeding (EBF) practice and its association with weight of young infants, mother's education, employment status, and parity.

**Methods:** The study is a cross-sectional, conducted in Dula Health Center in Sana'a city, the capital of Yemen during the year 2003. Six hundred and twenty-one mothers and their exclusively breastfed apparently healthy infants attended to the health center for immunization were enrolled in the study. Effective breastfeeding was evaluated according to the World Health Organization integrated management of childhood illnesses literature. Weight was measured using Seca scale. We conducted interview to investigate the age of the child, parity, employment status, and education of the mother.

**Results:** The mean age of infants was  $49.7 \pm 16.8$  days. The prevalence of EBF was 16.9% ( $n = 105$ ). Good positioning was observed in 26.7% ( $n=166$ ), followed by good suckling in 23.7% ( $n=147$ ) and finally by good attachment in 20.3% ( $n=126$ ). The mean weight of EBF infants was  $3.9 \pm 0.5$  kg, whereas that of the ineffectively breastfed group was  $3.5 \pm 0.5$  kg ( $p < 0.0001$ ). The 2 groups were compared with gender and age matched. The mean weight of well-attached infants was  $3.8 \pm 0.55$  kg and for those with good suckling was  $3.8 \pm 0.55$  kg and for those with good positioning was  $3.7 \pm 0.59$  kg. No association was found between EBF with mother's education and employment status while parity was positively related to EBF rate.

**Conclusion:** Prevalence of EBF is low. Infants with EBF are heavier than the ineffectively breast-fed infants.

*Saudi Med J 2007; Vol. 28 (11): 1715-1717*

*From the Department of Pediatric (Al-Zubairi), and the Department of Community Medicine (Raja'a, Al-Saidi), Faculty of Medicine and Health Sciences, Sana'a University, Sana'a, Yemen.*

*Received 26th February 2007. Accepted 30th May 2007.*

*Address correspondence and reprint request to: Dr. Yahia A. Raja'a, Associate Professor of Community Medicine, PO Box 2058, Sana'a, Yemen. E-mail: yahiarajaa@yahoo.com*

Breastfeeding is the fundamental aspect of child rearing that a woman copes with.<sup>1</sup> Exclusive breastfeeding is acknowledged as important for survival, optimal growth, and development of young infants, especially in low-income countries. Numerous investigators have reported a relationship between breastfeeding and positive infant health. From the economic perspective, breastfeeding is cost-effective both for the family and society as a whole.<sup>2,3</sup> The advantages of breastfeeding will be more widely appreciated when all health care professionals acquire competence in evidence-based lactation management strategies. These strategies include helping women to position and attach their newborns correctly, encouraging frequent and effective feedings at the breast from birth onward, teaching new parents the signs of adequate milk intake, and providing the resources for promoting breastfeeding without the competition of commercial product promotion.<sup>4</sup> Successful breastfeeding depends on the acquisition of basic skills, accurate information and practice, and is strongly influenced by the support provided following childbirth. Correct positioning and attachment of the newborn at the breast is a crucial component of the successful establishment of breastfeeding.<sup>5</sup> In a study carried out in Nigeria, it was proved that 75% of studied mothers had breastfeeding education, though lacking practical demonstration of breastfeeding techniques.<sup>6</sup> In Yemen, breastfeeding education offered by health personnel is restricted to encouragement of this practice rather than demonstrating its techniques. This study provides an evidence to clarify the association between effective breastfeeding (EBF) and the growth of the young infants. It aims at estimating the prevalence of EBF and to associate EBF to the weight of young infants and to relate EBF to mother's education, employment status, and parity.

**Methods.** A cross-sectional design was employed to estimate the prevalence of EBF. Six hundred and twenty-one mothers, exclusively breastfeeding their infants of approximately 2 months of age, attended

to Dhula Health Center for vaccination purposes were enrolled in this study during the year 2003. The health center is located at the periphery of Sana'a city, the capital of Yemen. After considering the ethical issues, all mothers were requested to breastfeed their infants after getting a verbal consent for evaluation of the feeding practice. Inclusion criteria were: exclusively breast-fed infant, apparently healthy, not fed during the last hour and consented and agreed. Mothers who did breastfeed their infant during the previous hour, infants with illness, non-exclusively breast-fed infant, and mothers rejected to participate were excluded from the study. Whole breastfeeding was observed and a trained female physician filled a checklist to evaluate EBF according to WHO integrated management of childhood illness (IMCI) manual.<sup>5</sup> We asked mothers about their age, education level, employment status, number of siblings, gender and age of infant. To determine the age of the young infant we used the day 40 after delivery as a landmark to avoid recall bias of mothers on infant age. Infants were weighed using Seca Scale to the nearest

50 grams. Effective breastfeeding is being considered if positioning was good, attachment was well, and suckling was effective. Correct suckling was defined as the infant having a wide-open mouth, with the tongue under the areola, and expressing milk from the breast by slow, deep sucks; faulty technique was defined as superficial nipple sucking.<sup>5</sup> Those infants who were observed to be effectively breastfed were considered EBF-group (n=105). The same number of infants, of the same gender and comparable age, who were found ineffectively breastfed, were assigned as non-EBF group to control for the effect of age and gender differences which are likely to confound the weight. Moreover, ill infants were not enrolled in the study to control for the weight loss. The weight of the 2 groups was compared to study the association of EBF with weight gain.

Data were entered in a PC using SPSS program, version 11.5 to calculate means, standard deviation, proportions and to measure differences in means using t-test and proportions. Strength of the statistically significant proportion differences was assessed by calculating relative risk.

**Table 1** - Prevalence of positioning, attachment and suckling.

Effective breast feeding	n	(%)
<i>Position</i>		
Bad	455	(73.3)
Good	166	(26.7)
<b>Total</b>	<b>621</b>	<b>(100.0)</b>
<i>Attachment</i>		
No attachment	222	(35.7)
Not well attached	273	(44.0)
Good attachment	126	(20.3)
<b>Total</b>	<b>621</b>	<b>(100.0)</b>
<i>Suckling</i>		
No suckling at all	65	(10.5)
Not effective	409	(65.9)
Good suckling	147	(23.7)
<b>Total</b>	<b>621</b>	<b>(100.0)</b>

**Results.** Female infants constituted 54.9% (n=341) and male infants constituted 45.1% (n=280). The mean age of all infants was 49.7± 16.8 days. Mean age of males was 49.4 ±17 days and females 50.1±16.7 days ( $t=0.55$ ,  $p=0.58$ ). Of the mothers, 395 were illiterate (57.8%), while 82 mothers had basic education (13.2%), 80 mothers (12.8%) had secondary level and 64 (10.3%) attained university level. The vast majority 565 (90.9%) of the mothers were housewives while only 56 (9.1%) was employed. The prevalence of EBF was 16.9% (n=105). Good positioning was noticed in 26.7% (n=166), followed by good suckling 23.7% (n=147) and then good attachment 20.3% (n=126) **Table 1.** The mean weight of the well-attached infants (n=126) was 3.84± 0.55 kg and that for those with good suckling (n=147) was 3.81± 0.55 kg and for

**Table 2** - Confounding factors in effectively and non-effectively breast fed groups.

Factors	Effective (%) n=105		Ineffective (%) n=105		Chi-square	P-value
<i>Gender (infants)</i>						
Boys	50	(59.1)	43	(40.9)	0.95	0.33
Girls	55	(47.0)	62	(53.0)		
<i>Educational level (mother)</i>						
Illiterate	63	(50.8)	61	(49.2)	3	0.4
Basic	17	(53.1)	15	(46.9)		
Secondary	15	(55.6)	12	(44.4)		
University	10	(38.5)	16	(61.5)		
<i>Employment status (mother)</i>						
Housewife	94	(50.5)	92	(49.5)	0.4	0.5
Employed	11	(45.8)	13	(54.2)		

**Table 3** - Weight of the infants in relation to quality of breast feeding ((n=620).

Effective breastfeeding components	Satisfactory		Unsatisfactory		t-test	P-value
	n (%)	Mean weight (kg)	n (%)	Mean weight (kg)		
Position	166 (26.8)	3.71±0.59	454 (73.2)	3.39±0.57	6.1	<0.0001
Suckling	147 (23.7)	3.81±0.55	473 (76.3)	3.37±0.56	8.2	<0.0001
Attachment	126 (20.3)	3.84±0.55	494 (79.7)	3.38±0.55	8.0	<0.0001

those with good positioning (n=166) was 3.71±0.59 kg. The findings confirm that the confounding factors were distributed comparably between the 2 groups. The studied confounders were the age of the infants, mother's education and employment. The mean age of the EBF-infants was 46.0 ± 16.1 days as compared to 45.8 ± 17.6 days for the non-EBF infants (t=0.09, p=0.93). Sixty-three of EBF-infants' mothers (50.8%) were illiterate as compared to 61 illiterate mothers (49.2%) in the non-EBF group as shown in **Table 2**. Ninety-four mothers (50.5%) of the EBF-infants housewives and 92 mothers for the non-EBF infants. Eleven mothers (45.8%) of the EBF-infants and 13 mothers (54.2%) of the non-EBF infants were employed (**Table 2**). After controlling for the confounders, the study revealed that the mean weight of the EBF infants was 3.9 ± 0.5 kg whereas that of the non-EBF infants was 3.4 ± 0.6 kg (t=6.5, p<0.0001). The difference of weight gain was 514 grams.

**Discussion.** Our result revealed that only 105 (16.9%) of all studied infants were effectively breastfed. This finding may indicate that majority of mothers did not practice the effective technique of breastfeeding. The proportion among the general population could be lower as the studied population was those who asked for preventive medical service; namely vaccination services. The prevalence of EBF was higher among mothers who had 4 children or more. The consequence of that would be low weight gain for their infants during this crucial age. The possible reasons behind ineffective BF are probably lack of knowledge about the effective technique of breastfeeding and inexperience. Appropriate study design (KAP) would unveil the reasons of ineffective practice. In our study, we found that EBF infants gained

514 gram more than non-EBF ones after control for confounding factors. This weight gain is persuasive as an evidence for designing education program on EBF for both mothers and policy makers. Another experimental design would strengthen this evidence.

In conclusion, Yemeni mothers attending for preventive care insufficiently practice prevalence of EBF. Effective breastfeeding improves considerable weight gain in exclusively breastfed young infants. Some authors concluded that, if midwives in a "hands-off" style teach mothers good breastfeeding technique in the immediate postnatal period, breastfeeding rates would increase and the incidence of perceived milk insufficiency would decrease.<sup>7</sup> Health education program about the effective technique is needed. The program should pay some more attention to inexperienced mothers.

## References

1. Netshandama VO. Breastfeeding practices of working women. *Curationis* 2002; 25: 21-27.
2. [The gift of breast feeding-the practice of breast feeding in Israel] Harefuah 2000; 138: 617-22, 712. Hebrew.
3. Horton S, Sanghvi T, Phillips M, Fiedler J, Perez-Escamilla R, Lutter C, et al. Breastfeeding promotion and priority setting in health. *Health Policy Plan* 1996; 11: 156-168. Review.
4. Zembo CT. Breastfeeding. *Obstet Gynecol Clin North Am* 2002; 29: 51-76. Review.
5. IMCI Yemeni adaptation. Management of the sick young infant age up to 2 months. Ministry of Public Health and Population, Yemen; 23 -26.
6. Ighogboja IS, Odumodu CU, Olarewaju RS. Breastfeeding pattern in Jos, Nigeria, before baby-friendly hospital initiative. *J Trop Pediatr* 1996; 42: 178-179.
7. Ingram J, Johnson D, Greenwood R. Breastfeeding in Bristol: teaching good positioning, and support from fathers and families. *Midwifery* 2002; 18: 87-101.