

Current status of breast-feeding in Alexandria governorate: a community-based study

Nahed Mohamed Kamel,¹ Afaf Gaber Ibrahim,¹ Soha Rashed Aref² and Fatma Youssef Ziy³

الوضع الراهن للرضاعة من الثدي في محافظة الإسكندرية : دراسة مجتمعية المراكز
ناهة محمد كامل وعفاف جابر إبراهيم وسها راشد أرف و فاطمة يوسف زيو

خلاصة : أجريت هذه الدراسة بهدف إيجاد قاعدة بيانات لمؤشرات قياس ممارسات الرضاعة من الثدي واستخدام زجاجات الإطعام في الإسكندرية . ففي سنة 1995 تم اختيار 1080 طفلاً تقل أعمارهم عن 24 شهراً ، وزعوا بالتساوي بين ست فئات عمرية ، من أجل استقصاء طرائق التغذية المنزلية للأطفال على مدى 24 ساعة . وأظهرت النتائج أن 42.2% فقط من الرضع الذين تقل أعمارهم عن أربعة شهور يرضعون من الثدي دون سواه ، بينما كان 21.1% منهم يتغذون عن طريق الرضاعة من الثدي بدرجة غالبة . وهكذا كان معدل الرضاعة من الثدي 63.3% . وكان معدل انتشار التغذية التكميلية في الوقت المناسب 62.3% . ولقد وجد أن الإرضاع من الثدي كان مستمراً عند بلوغ الأطفال سنة واحدة من العمر في 64.4% ، بينما كان المعدل عند بلوغ سنتين 33.9% . وكان معدل استعمال زجاجات الإطعام 44.3% بين الأطفال دون 12 شهراً من العمر .

ABSTRACT This study was carried out to provide baseline data for various indicators measuring breast-feeding and bottle-feeding practices in Alexandria. In 1995, a total of 1080 children aged below 24 months, equally distributed among six age groups, were selected for a household 24-hour dietary survey. The findings indicated that only 42.2% of infants below 4 months were currently exclusively breast-fed, while 21.1% were predominantly breast-fed. Hence, the rate of breast-feeding was 63.3%. The prevalence rate of timely complementary feeding was 62.3%. Continued breast-feeding rate at 1 year was 64.4%, and at 2 years was 33.9%. The bottle-feeding rate (among infants less than 12 months) was 44.3%.

Situation relative à l'allaitement maternel dans le Gouvernorat d'Alexandrie: étude communautaire

RESUME Cette étude a été réalisée pour fournir des données de base relatives à divers indicateurs servant à évaluer les pratiques d'allaitement au sein et d'allaitement au biberon à Alexandrie. En 1995, 1080 enfants âgés de moins de 24 mois, répartis de manière égale en six groupes d'âge, ont été sélectionnés pour une enquête menée auprès des ménages sur les modes d'alimentation pendant 24 heures. Les résultats de cette enquête ont montré que seulement 42,2% des nourissons de moins de 4 mois étaient, au moment de l'étude, allaités exclusivement au sein tandis que 21,1% étaient principalement nourris au sein. Le taux de l'allaitement maternel était donc de 63,3%. Le taux de prévalence de l'alimentation complémentaire introduite au moment opportun était de 62,3%. Le taux de poursuite de l'allaitement maternel à l'âge d'un an était de 64,4% et à l'âge de 2 ans de 33,9%. Le taux de l'allaitement au biberon (chez les enfants de moins d'un an) s'élevait à 44,3%.

¹Professor of Public Health; ²Assistant Professor of Public Health, Department of Community Medicine, Faculty of Medicine, University of Alexandria, Alexandria, Egypt.

³Demonstrator of Public Health, Department of Community Health, Faculty of Medicine, University of Arab Medicine, Libyan Arab Jamahiriya.

Received: 20/05/97; accepted: 31/07/97

Introduction

The benefits of breast-feeding for both child and mother in terms of nutrition, immunological protection, anti-infective, biochemical, anti-allergic and contraceptive effects, and emotional satisfaction have been widely documented. Over the past decade this has been recognized by public health development organizations, public health experts and governments around the world. At the beginning of this decade, commitments were made to: a) protect current breast-feeding from the aggressive marketing of breast-milk substitutes [1]; b) support women's behaviour in relation to breast-feeding by providing appropriate health services, accurate and complete information and an environment which reinforces breast-feeding [1-3]; and c) promote breast-feeding practices and increase the prevalence of breast-feeding [4]. Egypt has made the promotion of breast-feeding one of its key strategies. Indeed, one of its goals is to raise the exclusive breast-feeding rate to 80% by the year 2000 [5].

In spite of the declaration of goals and targets, breast-feeding programmes have seldom been assessed. This is because breast-feeding is a practice carried out entirely by mothers, and its determinants are multiple and complex. Moreover, there are no quantifiable commodities associated with its practice. Hence, it is difficult to define what should be measured and how to measure it. Furthermore, assessing breast-feeding practices as an outcome of promotional services is difficult as many breast-feeding services are integrated into maternal and child health and primary health care services [4].

Many surveys on breast-feeding practices have been carried out in Egypt, as well as in other countries in the Eastern Mediterra-

nean Region. However, the variables included have not been constant across the surveys or through the years. More importantly, the surveys carried out have not focused on providing baseline data or outcome indicators for breast-feeding programmes, in spite of the fact that these programmes are regarded as a cost-effective promotional intervention for paediatric and reproductive health and spacing.

The present community-based study was conducted to describe breast-feeding practices in Alexandria, using well-defined and measurable indicators to ensure comparability of data and information about breast-feeding. The aims of the study were to:

- Provide the following baseline data for measuring breast-feeding practices:
 - exclusive breast-feeding rate in infants up to 4 months
- predominant breast-feeding rate in infants up to 4 months
- rate of timely introduction of complementary foods in infants older than 6 months but less than 10 months
- continued breast-feeding rate at one year (12 months to < 16 months)
- continued breast-feeding rate at two years (20 months to < 24 months).
- Reveal the bottle-feeding rate for infants under 12 months.

Methodology

Design

The household 24-hour dietary survey was selected as it is appropriate in surveys of dietary intake, particularly when community based [6]. It reveals current behaviour and eliminates the recall bias.

The target population was mothers of children less than 24 months of age currently living within the Alexandria governorate during the period 1 April to 31 December 1995.

Sampling

Taking into account the WHO recommendations [6], it was decided to obtain a representative sample of the mothers of children in the age groups 0-4-, 4-8-, 12-, 16- and 20-23 months. The standard cluster sampling technique was chosen. The size of the sample in each age group was calculated to be 167 children using the following formula for calculating sample size [7]:

$$\frac{Z^2 DP(1-P)}{L^2}$$

where: $Z = 1.96$ (corresponding to 5% level of significance), P = prevalence of breast-feeding in children aged 21-23 months (least prevalence), estimated here at 0.32 [8], L = limit of precision (± 10) and D = design effect, which equals 2. In order to divide the number of children in each age group into 30 clusters, the number was approximated to 180 children in each of the six age groups, so the total number of children was 1080.

Thirty clusters were identified and located; within each cluster, 36 children below 24 months and their mothers were included and six children in each age group were approached. Mothers with two children under 24 months contributed data on each child to avoid possible bias introduced by using only the last born.

Study tool

An interview schedule was designed to collect data from mothers about the infant/child's age and his/her food/liquid con-

sumption, including breast-feeding, in the 24 hours preceding the interview. The criteria for inclusion of the children in the different feeding categories [6] is shown in Table 1.

All questions were closed-ended, simply phrased and precoded. The interview schedule was pretested. Analysis was carried out by computer using the *SPSS* program. Calculation of breast-feeding indicators followed the WHO definitions of these indicators [6].

Results

Table 2 shows the prevalence of mothers' feeding practices related to infant and child feeding. Only 42.2% of infants below 4 months were currently being exclusively breast-fed, while 21.1% were being predominantly breast-fed. As these two categories are mutually exclusive, the percentage of infants under 4 months who were currently being fully breast-fed at the time of interview was 63.3%.

The prevalence rate of timely complementary feeding was 62.3%. This indicates the proportion of infants 6 months to < 10 months of age receiving breast milk and complementary foods. The continued breast-feeding rate at 12 months was 64.4%, while at 24 months it was 33.9%. These two rates can be a measure of breast-feeding duration. The bottle-feeding rate, being the percentage of infants below 12 months receiving any food or drink from a bottle with a teat, was 44.3%.

Discussion

The vital role of breast-feeding in infant nutrition, child survival and child spacing

Table 1 Criteria for inclusion in infant feeding categories

Category of infant feeding	Requires that the infant receive	Allows the infant to receive	Does not allow the infant to receive
Exclusive breast-feeding	Breast milk (including expressed milk or milk from a wet nurse)	Drops and syrup forms of vitamins, minerals and medicines	Anything else
Predominant breast-feeding	Breast milk (including expressed milk or milk from a wet nurse)	Water and water-based drinks (sweetened and flavoured water, tea, infusions); fruit juice; ORS solutions; drops and syrup forms of vitamins, minerals and medicine; ritual fluids (in limited liquids)	Anything else (in particular, non-human milk, food-based fluids)
Complementary feeding	Breast milk and solid and semi-solids foods	Any food or liquid including non-human milk	—
Continued breast-feeding at one and two years.	Breast milk	Any food or liquid including non-human milk and	—
Bottle-feeding	Any liquid or semi-solid food from a bottle with a teat	Any food or liquid including milk; also allows breast milk by bottle	—

Table 2 Prevalence rates of breast-feeding and bottle-feeding practices among infants and children less than 24 months of age in Alexandria, 1995

Indicator for assessing breast- and bottle-feeding practices	Prevalence rate (%) per 100 infants or children
<i>Breast-feeding practice</i>	
Exclusive breast-feeding rate for infants < 4 months of age (<i>n</i> = 180)	42.2
Predominant breast-feeding rate for infants < 4 months of age (<i>n</i> = 180)	21.1
Timely complementary feeding rate for infants 6 months to < 10 months of age (<i>n</i> = 180)	62.3
Continued breast-feeding rate (1 year) for children 12 months to < 16 months of age (<i>n</i> = 180)	64.4
Continued breast-feeding rate (2 years) for children 20 months to < 24 months of age (<i>n</i> = 180)	33.9
<i>Bottle-feeding practice</i>	
Bottle-feeding rate for infants < 12 months of age (<i>n</i> = 540)	44.3

has been recognized by professionals and institutions around the world. It has been estimated that one million infant lives can be saved yearly in the developing world by promoting breast-feeding [9]. There is abundant evidence that breast-feeding is associated with a reduced risk of infant mortality and morbidity especially from infections [1,10,11]. It also contributes significantly to enhanced immunity [12,13], physical growth [1,10,14,15], and emotional and mental development [16,17]. Furthermore, breast-feeding is associated with a reduced risk of breast cancer [1,18] and ovarian cancer [1,10,19] among mothers. However, the benefits of breast-feeding in terms of child survival and reproductive health are difficult to measure and may not be easily attributed to specific interventions. On the other hand, current breast-feeding practices, especially when assessed on a community basis, can be relatively easily measured and are sensitive to changes resulting from promotional programmes. To plan, monitor and evaluate the outcome of breast-feeding promotion programmes, it is important to use current breast-feeding indicators and definitions. These are needed for assessing breast-feeding trends and practices as a basis for future action.

The present work collected community-based indicators of breast-feeding practices to provide baseline data that was lacking. According to the WHO recommendations [6] for infant and child feeding, all infants should be fed exclusively on breast milk from birth to 4–6 months. This recommendation implies that 100% of infants under the age of 4 months should be exclusively breast-fed. However, the present study indicates that only 42.2% of mothers in Alexandria have adopted feeding practices consistent with the recommendation. It should be noted, however, that the rate re-

ported for Alexandria here is slightly higher than the target set for Egypt for the year 1997 (40%) [5], and that reported by Harfouche and Musaiger [20] for Alexandria in 1993 (39.1%). Comparing the rate found for Alexandria with that of the country as a whole, the Egyptian Demographic and Health Survey 1995 (EDHS) [21] reported that exclusive breast-feeding at 0–3 months was 67.6%, while its prevalence dropped to 24.1% among those aged 4–6 months. The prevalence of exclusive breast-feeding in Alexandria was lower than that reported by the Combined Control of Diarrhoeal Diseases and Acute Respiratory Infections Household Survey 1996 (CCDD/ARI) [22] in Assiut and Qena (49.0%), reflecting differences in breast feeding practices and determinants of these practices.

It has been highly recommended that no food or drink be given before complementary feeding is required (4–6 months) [1]. Any supplements given before the age of 4 months can interfere with the maintenance of breast-feeding and giving supplementary fluids is associated with a significant increase in the risk of diarrhoeal disease and mortality [11]. The present study indicated that 21.1% of infants under 4 months were predominantly breast-fed as they received, in addition to breast milk, water and water-based drinks (sweetened and flavoured teas), infusions, fruit juice, oral rehydration solution and syrup forms of vitamins, minerals and medicine. Food-based fluids were not considered in calculating this rate. The figure reported is much lower than that reported by the CDD/ARI household survey carried out in Qena and Assiut [22], which was 40.0%, or that reported by EDHS 1993 (33.0%) [23].

It is recommended that after exclusive breast-feeding infants should continue to be breast-fed with the addition of appropri-

ate and adequate complementary foods for the first 4–10 months of life [1]. The complementary feeding rate is a basic simple indicator of feeding patterns among infants in the age group 6–9 months. This age group is chosen since, by this age, infants should be receiving solid foods. The timely complementary feeding rate reported in this study (62.3%) is lower than that reported by EDHS 1995, which was 77.0% [21]. However, this latter rate was computed among infants 7–9 months of age. On the other hand, the combined CDD/ARI household survey carried out in Qena and Assiut reported a rate of 49.0% [22]. The differences reflect differences in the determinants of the mother's behaviour, whether these are personal, socioeconomic or cultural. Every effort should be made to promote timely complementary feeding. Delay in introducing supplementary feeding can affect the growth and nutritional status of children [1,24].

The present study indicates that women in Alexandria do not breast-feed for a sufficiently long time. The continued breast-feeding rate at one year (12 months to < 16 months) was 64.4%, while at two years (20 months to < 24 months) it was only 33.9%. These rates are much lower than those reported in Assiut and Qena (80.0% and 49.0% respectively) [22]. These differences reflect socioeconomic and cultural differences between governorates. According to the Egyptian Maternal and Child Survey 1991 (EMCHS), the rate of breast-feeding at one year of age was higher in rural than urban Egypt (85% and 60% respectively); at two years it was 19% and 8% respectively [8].

The use of the bottle is not to be recommended as a tool for feeding infants as bottles are vehicles for the introduction of

germs. The use of bottle-feeding is also associated with a shortening of the period of postpartum amenorrhoea [25,26]. The present study revealed that the bottle-feeding rate (any food or liquid, including milk and breast milk, given by bottle) among infants less than one year was 44.3%. This figure is very similar to that reported by EMCHS 1991 for urban governorates (42%) [8]. Mothers should be encouraged to use a cup and spoon for feeding rather than bottles because of the interference with optimal breast-feeding practices and the significant increase in infant morbidity and mortality from diarrhoea associated with bottle use.

Conclusion

The present work indicates that mothers' practices related to breast-feeding in Alexandria are still not optimum, and efforts should be made to change their behaviour and reinforce healthy feeding practices. Health education programmes for breast-feeding promotion should be well planned and address the factors which reinforce and enable breast-feeding. Breast-feeding support groups should be used to expand, counsel, convince and change the behaviour of women who do not attend government facilities. Health education, interpersonal approaches, the media and the community should be used. Health team members should be properly trained in breast-feeding essentials and in communication skills. They should be well motivated to carry out their responsibilities in the promotion of breast-feeding and should be sensitized both to the need for change and how to introduce it.

References

1. *Breast-feeding promotion practice. Facts for action for health professionals: baby and mother friendly hospital initiative.* Cairo, Egypt, Ministry of Health, 1993.
2. Rashad M. Highlights on breast-feeding. *Friends of Breast Milk Organization*, Cairo, Egypt, 1994, 7(9):15-9.
3. *Pre- and post-implementation. Multicentre BFHI studies in Egypt.* Cairo, Egypt, United Nations Children's Fund, 1993.
4. Hafez G, Bagchi K. *Promotion of breast-feeding through MCH services and primary health care.* Proceedings of the intercountry consultation, 1995. Teheran, Islamic Republic of Iran. Alexandria, World Health Organization, Regional Office for the Eastern Mediterranean, 1995.
5. *National achievements and challenges. Mid-decade goals.* Cairo, Egypt, Ministry of Local Administration and the United Nations Children's Fund, 1996.
6. *Indicators for assessing breast-feeding practices: report of an informal meeting.* Geneva, World Health Organization, 1991 (Unpublished document WHO/CDD/SER/91.14; available on request from the Division of Diarrhoeal and Acute Respiratory Disease Control, World Health Organization, 1211 Geneva 27, Switzerland).
7. Lemeshow S. *Adequacy of sample size in health studies.* New York, Wiley (John and Sons Ltd, 1990).
8. Abdel-Azeem F, Farid SM, Khalifa AM. *Breast-feeding and weaning practices. Egyptian Maternal and Child Survey, 1991(EMCHS).* Cairo, Egypt, Pan Arab Project for Child Development, League of Arab States, 1991.
9. Rodriguez-Garcia R, Schaefer AL, Yunes J. *Lactation education for health professionals.* Washington, DC, Pan American Health Organization, 1990.
10. Harfouche JK. The importance of breast-feeding. *Journal of tropical pediatrics*, 1970, 16(3):133-69.
11. Feachem RG, Koblinsky MA. Interventions for the control of diarrhoeal diseases among young children: promotion of breast-feeding. *Bulletin of the World Health Organization*, 1984, 62(2):271-91.
12. Jones EG. Normal infant feeding. In: Kelts DG, Jones EG, eds. *Manual of pediatric nutrition*, 1st ed. Boston, Little Brown and Company, 1984:21.
13. *Control of diarrhoeal diseases in practice: a manual for health workers.* Cairo, Egypt, Ministry of Health, 1991:35.
14. Diaz S et al. Breast-feeding duration and growth of fully breast-fed infants in a poor urban Chilean population. *American journal of clinical nutrition*, 1995, 62: 371-6.
15. Dewey KG, Pearson JM, Heining MJ. Growth patterns of breast-fed infants in affluent (United States) and poor (Peru) communities: implications for timing of complementary feeding. *American journal of clinical nutrition*, 1992, 56:1012-8.
16. Eissa A, Mostafa S, Samir A. Studies on the intellectual development of Egyptian children and its relation to postnatal diet. *Gazette of the Egyptian Pediatric Association*, 1980, 28:30-5.
17. Stoker TW. Common nutrition problems in pediatrics. In: Hendricks KM, Walker WH, eds. *Pediatric nutrition*, 2nd ed. Toronto, BC Decker Inc., 1990:144.
18. Chilvers CE. Breast-feeding and risk of cancer in young women. *British medical journal*, 1993, 307:17-20.

19. Newcomb PA, Storer BE, Longnecker MP. Lactation and a reduced risk of premenopausal breast cancer. *New England journal of medicine*, 1994, 330(2):81-7.
20. Harfouche JK, Musaiger AO. *Breast-feeding patterns. A review of studies in the Eastern Mediterranean Region*. Alexandria. World Health Organization, Regional Office for the Eastern Mediterranean, 1993.
21. El-Zanaty FH et al. *Infant feeding and maternal and child nutrition. Egyptian Demographic and Health Survey, 1995*. National Population Council, Cairo, Egypt. Maryland, USA, Macro International Inc., 1996.
22. *Combined control of diarrhoeal diseases and acute respiratory infections household survey (CCDD/AR1)*. Cairo, Egypt, Ministry of Health and Population. 1996.
23. El-Zanaty FH, Sayed HA, Way AA. *Infant feeding and maternal and child nutrition. Egyptian Demographic and Health Survey, 1992*. National Population Council, Cairo, Egypt. Maryland, USA, Macro International Inc., 1993.
24. Forman MR. Review of research on the factors associated with choice and duration of infant feeding in less developed countries. *Pediatrics* (suppl.), 1984, 74(4):667-93.
25. Howie PW. The puerperium and its complications. In: Whitfield CR, ed. *Dewhurst's text book of obstetrics and gynaecology for postgraduates*. Oxford, Blackwell Scientific Publications, 1987.
26. Khalil KA et al. *Determinants of the duration of lactational amenorrhoea among mothers in Alexandria*. A paper presented at the International Conference on Health, Environment and Development. High Institute of Public Health in collaboration with the World Health Organization, Regional Office for the Eastern Mediterranean, Alexandria, Egypt, 1996.

Efforts directed towards the promotion and protection of breast-feeding in Member States was significantly increased in the year 1996. The Regional Office, in collaboration with WHO Headquarters and UNICEF, organized a course for master trainers on breast-feeding counselling in Alexandria, Egypt, in September 1996 to enhance training skills in breast-feeding counselling at both regional and country levels. Master trainers from Egypt, Iraq, Oman, Syrian Arab Republic and Sudan participated in this activity. The WHO Collaborating Centre for Protection and Promotion of Breast-feeding in Teheran began functioning in December 1996. The Centre will promote support activities on breast-feeding not only in the Islamic Republic of Iran but also in other countries of the Region.

Source: The Work of WHO in the Eastern Mediterranean Region. Annual Report of the Regional Director 1 January - 31 December 1996.