Socioeconomically advantaged infants attending a university well-child clinic in Ankara: are they breast-feeding optimally?

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SUMMARY: Ertem İO, Akıncı Z, Ulukol B, Başkan-Gülnar S. Socioeconomically advantaged infants attending a university well-child clinic in Ankara: are they breast-feeding optimally? Turk J Pediatr 2001; 43: 223-230.

This longitudinal observational study aimed to determine the rates of initiation, duration and correlates of breast-feeding by mothers living in a socioeconomically advantaged urban environment in Turkey. Healthy, term infants born at Ankara University Faculty of Medicine Hospital who would be brought to the well-child clinic regularly for at least 12 months were enrolled. Data on feeding practices were obtained at the 1st, 2nd, 3rd, 4th, 5th, 6th, 9th and 12th month well child care visits. Breast-feeding outcome was categorized based on recommendations by the World Health Organization (WHO). The majority of the 295 participating mothers were older than 20 years, high school graduates, and lived in apartment housing, and 54.6% were employed. The rates of breast-feeding were 97.9%, 90.1%, 76.9% and 36.9% at 1, 4, 6 and 12 months, respectively, and rates of exclusive breast-feeding were 89.8%, 59.3% and 2.0% at 1, 4 and 6 months, respectively. At 6 months 69.8% of infants were receiving cow's milk and by 12 months only 23.4% of the infants had been breast-fed according to WHO recommendations. Neither gender; birth weight of infant; age, education, parity, previous breast-feeding experience of mother; nor the status of living as extended versus nuclear family were related to breast-feeding outcome. Mothers who were working (RR: 3.89, 95% CI: 1.42-10.65) and those who had less than 4 months postpartum leave from work (RR: 4.20, 95% CI: 2.16-8.17) were more likely to not breast-feed optimally. The results of this study indicate that even where breast-feeding is normative behavior, it may not be optimally practiced, leading to potentially detrimental nutrition for infants. Promotion of breast-feeding even in advantaged urban populations is needed.

Key words: breast-feeding duration, maternal employment, cow's milk.

Breast-feeding was initially key for the survival of the human species, and it has been normative behavior for all populations until the advent of formula[1]. The benefits of breast-feeding for infants living in developing[2-3] as well as industrialized countries[4] are well documented. The World Health Organization (WHO) has recommended breast-feeding promotion throughout the world, suggesting breast-feeding be exclusive for the first four to six months of life and continued up to at least 12 months of age, with the introduction of appropriate infant foods during the second half of the first year[5]. Breast-feeding promotion programs have been successful in increasing the rate of breast-feeding initiation and duration in some developing countries[6,7]. Unfortunately, however, changes in the characteristics of populations, urbanization in particular, have almost universally negatively affected breast-feeding duration[8-11].

Although studies have been conducted on the rates of initiation and duration of breast-feeding in impoverished populations throughout the developing world[12-15], the duration of breast-feeding, reasons for its termination, and overall feeding practices of urbanized and more advantaged populations in developing countries have been investigated less intensively[16]. This information is crucial for interventions aimed at sustaining and increasing breast-feeding rates as populations in developing countries reach more advantaged living standards. It is

important also to find out what infants are fed when breast-feeding is supplemented and/or terminated, particularly due to the widespread practice of introducing cow's milk early into infants' diets, the association of cow's milk with iron deficiency, and the detrimental effects of iron deficiency anemia[17-19].

Turkey is a developing country with high rates of urbanization[20]. Breast-feeding has been the normative mode of infant feeding in Turkey, and it is endorsed at all socioeconomic and cultural levels. Although rates of the initiation of breast-feeding are very high, the rates of exclusive breast-feeding during the first six months and continuation up to 12 months have been reported to be much lower, especially for urbanized populations[21-24]. Although it is known that higher maternal education and residence in urban environments are risk factors for shorter breast-feeding duration in Turkey[22], information on predictors of breast-feeding duration for advantaged infants living in the cities is limited.

The purpose of this study, therefore, was to ascertain the rates of the initiation and duration of breast-feeding, and the determinants of the duration of breast-feeding by mothers living in an advantaged urban environment in Turkey. This study also aimed to determine the rates and timing of feeding cow's milk to infants during the first year of life. For an advantaged population consisting of middle class families we investigated whether:

1. The duration of breast-feeding would be dependent on factors previously reported in the literature such as maternal education, age, parity or previous breast-feeding experience.
2. Formula feeding took the place of breastfeeding.
3. Isolation from the support and traditional influences provided by the extended family influenced breast-feeding duration.
4. Maternal employment outside the home as a result of urbanization and modernization affected the duration of breast-feeding.
5. Iron-fortified formula was used in place of cow's milk to supplement or replace breastfeeding.

Material and Methods

Eligibility Criteria

Infants born at the hospital of Ankara University Faculty of Medicine serving an urban middle class population, who would be brought to the well-child clinic of the pediatric department regularly for at least 12 months and who met the following criteria were enrolled in the study: 1) no history of prenatal complications including maternal infection, use of medication or exposure to X-ray; 2) no major congenital malformations; 3) no illness or other complication during the neonatal period; 4) single birth; 5) birth weight between 2500-4500 g; and 6) gestational age between 37-41 weeks. Infants with a chronic illness, or acute illness requiring hospitalization during the first 12 months, were excluded from the study.

All infants enrolled in the study received the standard breast-feeding promotion activities conducted at Ankara University Hospital, which has adopted the Baby Friendly Hospital initiative. Rooming-in was provided and mothers were encouraged to start nursing soon after delivery. Counselling on feeding practices was provided throughout the hospital stay and supplements to breast-feeding were discouraged by the pediatric staff. During well-child follow-up, mothers were also counselled on feeding methods, and exclusive breast-feeding was routinely promoted up to four to six months, with continuation of breast-feeding promoted thereafter. Working mothers were counselled on expressing and storing breast milk.

Data Collection

Data on feeding practices were obtained prospectively by a structured interview at each of the 1, 2, 3, 4, 5, 6, 9 and 12 month well-child care visits. In order to avoid the Hawthorne effect[25], the possibility of changing feeding practices due to being enrolled in a study on infant feeding, mothers were not notified that they were participating in a study on infant feeding until the infant was 12 months of age. When infants were 12 months old, mothers were told that we were conducting a study on infant feeding methods, and that data on feeding provided by them to the clinic was requested to be included in the study, and their oral consent to participate was obtained. Predictors of breast-feeding duration were addressed either by an interview in person or a telephone interview conducted after the 12-month visit. This information included: 1) parental age, level of education, parity, previous breast-feeding experience, income and housing status; 2) status of living as extended versus nuclear family; and

3) maternal part-time or full-time employment outside the home, and duration of postpartum maternal leave from work.

This study was approved by the ethical committee of Ankara University Faculty of Medicine.

Analysis of Data

Feeding method at each time point was categorized into seven groups: 1) exclusive breast-feeding; 2) breast-feeding and supplementing with only formula; 3) Breastfeeding and supplementing with cow's milk with or without solids; 4) breast-feeding and supplementing with formula and cow's milk with or without solids; 5) exclusive formula feeding; 6) formula feeding and supplementing with cow's milk with or without solids; and 7) Feeding cow's milk with or without solids. Although other studies have defined exclusive breast-feeding as not giving anything (including water) other than breast-milk[26], in our study population, giving infants water was an extremely common practice and was not categorized separately in any of the groups.

Breast-feeding outcome was categorized based on recommendations by the WHO[5]. Infants breast-fed for less than four months (exclusive or partial breast-feeding) were categorized as "non-optimal outcome"; those breast-fed exclusively for at least four and at most six months, with partial breast-feeding continuing to at least 12 months, were categorized as "optimal outcome." Analysis of chi-square was performed on dichotomized possible predictors and their relationship to the non-optimal outcome of breast-feeding, and risk ratios were computed[27]. Maternal and paternal age, birth weight and monthly income were also analyzed as continuous variables by Student's t test. For all analyses, SPSS[28] was used.

Results

Sociodemographic Characteristics of the Sample

During the time of data collection, 295 infants were found to be eligible for the study. All infants were followed up to 12 months of age regarding feeding practices but data on predictors of the outcome of breast-feeding were complete for only 227 infants (76.9%). There were no differences in rates of initiation or duration of breast-feeding between those infants with complete data and those without. Therefore, the results of duration of breast-feeding and feeding practices will be reported on the whole group, but results of predictors of breast-feeding outcome will be reported only for those 227 infants with complete data.

As seen in Table I, gender was distributed equally among the infants studied. The majority of the mothers were between 20-35 years of age, and the majority of both mothers and fathers had graduated at least from high school. Most infants were the only children. Most families lived in apartment houses and half of the families were owners of their homes. Approximately 8% lived in homes that are considered "shanty" but with running water and electricity. Most families did not live with other relatives but as a nuclear family. During the first year postpartum, 45.4% of the mothers did not work outside the home, 10.1% and 44.5% worked part-time and full-time, respectively.

Table I. Sociodemographic Characteristics of Sample

	N (227)	%
Infant male gender	114	50.2
High school/university graduate mothers	175	77.1
High school/university graduate fathers	197	86.8
Maternal age between 20-35 years	203	89.4
Infant single child	145	63.9
Nuclear family constellation	215	94.7
Housing		
Apartment flat	204	89.9
Villa	5	2.2
Shanty house	18	7.9
Maternal occupation		
Not working	103	45.4
Working part-time	23	10.1
Working full-time	101	44.5

All but four mothers initiated breast-feeding during the first 24 hours postpartum. During the first month postpartum, 284 (96.3%) infants were being breast-fed exclusively, 6 (2.0%) were given breast-milk and formula, 4 (1.4%) received only formula, and 1 was breast-fed and given cow's milk. As seen in Figure 1, exclusive breast-feeding rates declined to 59.3%, 25.4% and 2.0% at ages 4, 5 and 6 months, respectively. Rates of breast-feeding supplemented with cow's milk with or without solids increased during this time period from 16.6% to 48.8% and 69.8% at 4, 5 and 6 months of age, respectively. At 4 months of age, the most common practices of infant feeding were exclusive breast-feeding (59.3%) and breast-feeding supplemented with cow's milk with or without solids (16.6%). At 6 months of age, the

most common practices of infant feeding were breast-feeding supplemented with cows milk with or without solids (69.8%), followed by feeding cow's milk and solids (16.8%). Exclusive formula feeding peaked at 4 months, during the peak decline of exclusive breast-feeding, but the number of infants receiving formula exclusively did not exceed 19 (6.4%). Formula being used as the only supplement to breast-feeding was more common, and reached a maximum of 43 infants (14.6%) at 3 months. Rates of formula feeding and supplementing with cow's milk with or without solids were lower and did not exceed the 6.5% maximum at 6 months. Rates of feeding only cow's milk with or without solids were very low during the first 3 months but increased from 2% to 16.8% between 4 and 6 months. Cow's milk was given as pasteurized non-fortified whole milk in all cases.

classified in the "optimal outcome" group whereas 21 infants (7.1%) were breast-fed for less than 4 months and classified as the "non-optimal outcome" group. As seen in Table II, neither gender or birth weight of infant, parity, previous breast-feeding experience, age, years of education of mother, variables reflecting economic status including monthly income and housing status, nor the status of living as extended versus nuclear family was not associated with breast-feeding outcome. The only variables that were significantly related to non-optimal breast-feeding outcome were maternal employment and duration of maternal absence from work postpartum. Mothers who were working had a risk ratio of 3.89 (95% CI: 1.42-10.65) of being in the non-optimal group versus mothers who were not working. Mothers who had less than four

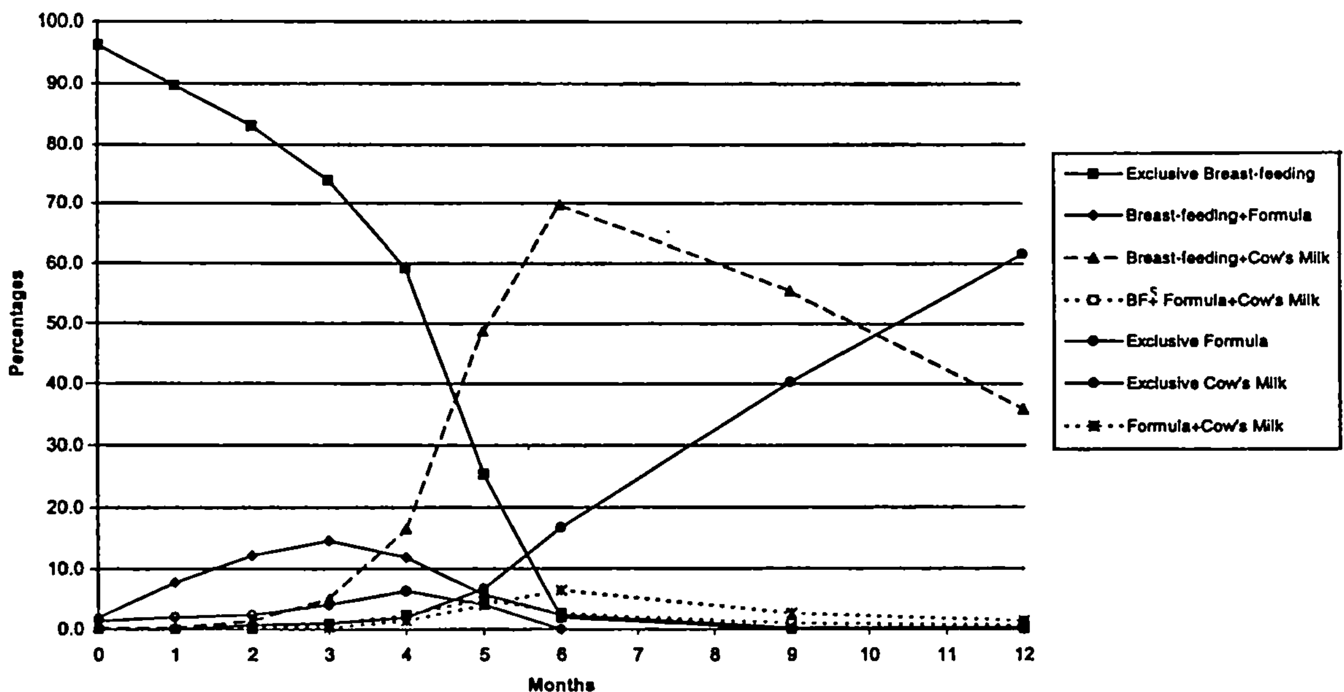

Fig. 1. Rates of different feeding practices by months.

At 12 months of age, most infants were fed cow's milk and solids (61.7%); only 35.9% were still being breast-fed. All infants that still breast-fed at 1 year of age were supplemented with cow's milk and solids. Only seven infants were given formula as well as other foods until 12 months; all of these infants were also given cow's milk in addition to formula.

Factors Predicting the Outcome of Breast-feeding

Sixty-nine infants (23.4%) were breast-fed according to the WHO recommendations and

months postpartum leave of absence from work had a risk ratio of 4.20 (95% CI: 2.16-8.17) of being in the non-optimal outcome group compared to mothers that had more leave.

Rates of not breast-feeding at each evaluation time point for mothers who worked full-time and mothers who did not work are seen in Table III. Since only 23 mothers worked part-time, differences of breastfeeding rates at each time point between this small group and the groups of mothers working full-time or not working at all did not reach a level of

significance. This group was therefore excluded from further analyses. Between 4 and 6 months, mothers who worked full-time had significantly increased risks of not breastfeeding than mothers who did not work. This risk was highest at 4 months (RR: 3.82, 95% CI: 1.31-11.13) and decreased thereafter. During the first 3 months and after six months, the difference in breast-feeding outcome between those mothers who worked and those who did not work did not reach a level of significance.

Table II. Risk Factors and the Duration of Breast Feeding

Risk factor	BF for 12 months (n=69) n	%	BF for less than 4 months (n=21) n	%
Gender				
Male	32	46.4	9	42.9
Female	35	50.7	12	57.1
Maternal education				
≥ high school	49	71.0	18	85.7
≤ secondary school	20	29.0	3	14.3
Paternal education				
high school	56	81.2	18	85.7
≤ secondary school	13	18.8	3	14.3
Maternal occupation*				
Housewife	39	56.5	4	19.0
Working	30	43.5	17	81.0
Maternal leave**				
< 4 months	6	8.7	10	47.6
≥ 4 months	63	91.3	11	52.4
Family composition				
Nuclear	64	92.8	19	90.5
Extended	5	7.2	2	9.5
House ownership				
Owner	36	52.2	10	47.6
Renting	33	47.8	11	52.4
Housing				
Apartment	60	87.0	20	95.2
Shanty home	9	13.0	1	4.8
Dimensional Factors	Mean	SD	Mean	SD
Maternal age	28.53	4.93	28.14	3.51
Paternal age	32.85	5.90	30.95	2.69
Birth weight	3335	427	3345	395
Income (Million TL)	52	25	58	23

BF: Breast-feeding.
TL: Turkish liras.
*: p<0.05.
**: p<0.001.

Table III. Decline in Breast-feeding Rates of Working (N=101) and Not Working (N=103) Mothers

Months	Not BF working n (%)	Not BF not working n (%)	RR of not BF	95% CI
1	2 (1.98)	2 (1.94)	1.02	0.15-7.10
2	2 (1.98)	3 (2.91)	0.68	0.11-3.98
3	6 (5.94)	3 (2.91)	2.04	0.51-8.66
4	15 (14.85)	4 (3.88)	3.82	1.31-11.13
5	21 (20.79)	8 (7.77)	2.67	1.24-5.76
6	28 (27.72)	16 (15.53)	1.78	1.03-3.09
9	47 (46.53)	34 (33.01)	1.41	0.99-1.99
12	67 (66.33)	54 (52.43)	1.27	1.00-1.59

BF: Breast-feeding.
RR: Relative risk.
CI: Confidence intervals.

Discussion

This study aimed to understand the duration and determinants of breast-feeding for Turkish mothers of healthy infants living in an advantaged urban environment. The sociodemographic characteristics of our sample reflect an advantaged, educated, urban, middle class population that differs greatly from traditional populations living in rural environments, or from indigent populations living in metropolitan areas in Turkey. We believe that studies on a population such as this one may provide crucial information in shaping nutritional interventions as populations in a developing country such as ours move from the more traditional to more modern standards. Almost all infants in this study were breast-fed exclusively during the first month postpartum, and 59.3% were breast-fed exclusively for 4 months. These rates are higher than the previously reported 63% and 21% rates of exclusive breast-feeding for 1-and 4-month-old Turkish infants, respectively[24, 29]. Only 11.6% of 4-6 month old infants in the nationally representative Turkish Demographic and Health Survey conducted in 1998 were being exclusively breast-fed[21]. These discrepancies may have been due to differences in sociodemographic characteristics between our sample and the other samples which included less advantaged families. The breast-feeding promotion practices at Ankara University Faculty of Medicine Hospital may also have affected the high rates. In our hospital, which has adopted the UNICEF Baby Friendly initiative, rooming-in is provided, and the infant-mother dyad is supported after delivery to commence nursing. The policy of breast-feeding exclusively up to 4 to 6 months is emphasized

at the postpartum discharge, and by pediatricians during each of the well child care visits. Mothers are instructed on nursing techniques and methods of expressing and storing their milk if they should start working.

Exclusive breast-feeding rates declined during the first 4 months postpartum and reached 2% at 6 months of age. The steady decline to 4 months could not be explained by medical advice, but the sharp decline between 4 to 6 months could have been augmented by pediatricians' recommendations for even well growing infants to be started on solids after 4 months. Interestingly, even in this more economically advantaged and educated population of middle class families in Turkey, exclusive formula feeding did not exceed 6.4%. We believe that the high rate of exclusive breast-feeding is protected in Turkey by the extremely high prices of formula relative to family income and by the exclusion of formula in insurance coverage. However, at 3 months of age, 1 out of 7 infants were being supplemented with formula; this must draw attention to a potential increase in the rate of formula feeding in this population. The low rates of giving formula coupled with the high rate of feeding cow's milk exclusively (16.6% at 6 months) implies that even in a population that is more advantaged financially and in the educational level of parents, the use of cow's milk as a main infant food cannot be avoided. The association of cow's milk with iron deficiency and the detrimental effects of iron deficiency anemia have been widely documented[17-19]. Iron deficiency anemia in Turkish infants is reported to reach 75% for an urban population[30], and the high rates throughout the world[31] call for global, urgent and effective interventions. The peak for the introduction of cow's milk in our study was 4 months of age. Pediatricians in our clinic, as well as many others in Turkey, in complying with the WHO recommendations, advise supplementing breast-feeding for 4-month-old infants. We believe that the WHO should consider strongly recommending not ceasing exclusive breast-feeding until infants are 6 months of age.

Only 27.5% of infants in this study were fed according to the recommendations of the WHO, and 1 out of 10 were breast-fed for shorter than 4 months. The results of the National Demographic and Health Survey 1998 do not provide us with a comparison for these rates, since the percentage of infants breast fed exclusively for 4 or 6 months and then continued with breast-feeding until 12 months is not given for that sample[21]. However, in the 1998 survey, 52.4% were still breastfeeding at 12 months compared to 36.9% in our sample. This discrepancy may have been due to the larger number of more educated mothers in our sample (77.1% versus 18.1% in the National Demographic and Health Survey), leading to the higher probability that more mothers in our sample may have been working outside their homes. Promotional efforts on breast-feeding need to be guided by information on determinants of the discontinuation of breast-feeding. In our study, non-optimal breast-feeding was not related to parameters such as maternal age, parity, education level, previous breastfeeding experience, higher income and therefore higher ability to purchase formula, or to traditional factors such as extended family living together. Although these factors have been previously reported in the western literature to influence rates and duration of breast-feeding[32], we believe that these factors may not be in operation where breast-feeding is considered normative behavior and is endorsed by the population at large. Instead the termination of breast-feeding in populations such as ours may be more strongly associated with factors that directly affect the togetherness of the mother and infant.

Our results concur with others[33,34] that have found that optimal breast-feeding practices are affected by whether or not the mother is working and by the duration of her postpartum leave from work. Although the International Labor Organization has set standards for paid maternity leave of 12 weeks since 1919, only 32 countries have ratified the conventions so far[35,36]. In Turkey, absence from work is allowed for 40 days following normal vaginal delivery and 60 days after a caesarean section. New regulations permit a mother to negotiate a 6-month unpaid leave from some jobs. Dilemmas of breast-feeding for working mothers have been previously emphasized in the literature[37]. It is important when developing policies aiming to promote breast-feeding for working mothers in developing countries to consider the psychological, sociocultural, political and economic facets of this issue as well as the medical. It has been previously emphasized in the literature that many working mothers may experience guilt and depression from not being able to provide adequate nutrition and supportive care for their infants[38-40]. This is likely

to be augmented for mothers living in urbanized environments in developing countries where they may be cut-off from extended family and where child-care facilities may be of poor quality. On the other hand, one of the main factors associated with postnatal depression is unemployment after a maternity leave[40]. Furthermore, the working status of the mother brings invaluable benefits to the health and development of children in developing countries[22]. Despite multifaceted benefits of maternal employment, in developing countries such as Turkey, society may be still struggling with transitions from the more traditional and conservative family where women are viewed primarily as homemakers and caretakers of their children to the point where they are wage-earners with equal rights and similar responsibilities as men. Premature emphasis and support of the mothering responsibilities of the working woman, such as an increased duration of paid absence from work postpartum, may result in a greater preference of men over women in the work force and hinder women's access to labor. We would like to underscore the need for breast-feeding promotion programs for working mothers in the developing world to move concordantly with policies for increasing and sustaining women's right of access to work.

Another implication of our results involves clinical practice of pediatricians and other primary health care providers. During our study we observed that questioning whether or not and when a mother would be returning to work was not a routine part of the well-child care visit and thus, although breastfeeding promotion was intended, the main reason behind non-optimal infant feeding was overlooked. We recommend determining the working plans of each mother and providing anticipatory guidance for this transition as a part of routine well-child care.

Our study is limited in that it reflects the practices of a specific population of mothers at one center. Both local and cross-cultural studies are needed in order to test whether our results can be generalized. It also would have been desirable to examine the cultural beliefs regarding breast-feeding that have been found to affect rates and duration[41]. Practices such as giving pacifiers to nursing infants were not examined in this study. Another limitation of our study was our inability to identify the determinants of optimal breast-feeding outcome for mothers who worked. We were unable to interview working mothers further regarding what helped them sustain breastfeeding despite full-time work. The effects of the nature of maternal occupation on breast-feeding duration, specifically, whether mothers who were working in certain professions such as those related to health care delivery were more likely to breast-feed longer, were not investigated. We also do not know whether working mothers were able to express and use stored milk as routinely recommended. We propose that factors related to the longer continuation of breast-feeding may be a focus for future studies.

The results of our study indicate that even for a socioeconomically advantaged population where breast-feeding is normative behavior, it is not optimally practiced, leading to the early introduction of cow's milk. We believe that local government, health service and international efforts are needed in the 21st century to promote breast-feeding more effectively even for advantaged infants, and even in countries where breast-feeding is highly practiced.

REFERENCES

1. Greer FR, Apple RD. Physicians, formula companies and advertising: a historical perspective. Am J Dis Child 1991; 145: 282-286.
2. Brown KH, Black RE, Romana GL, Kanashiro HC. Infant feeding practices and their relationship with diarrheal and other diseases in Huascar (Lima), Peru. Pediatrics 1989; 83: 31-40.
3. Mondal SK, Sen Gupta PG, Ghosh S, Sikder SN, Rajendran K, Saha MR. Occurrence of diarrheal diseases in relation to infant feeding practices in rural community in West Bengal, India. Acta Paediatr 1996; 85: 1159-1162.
4. Ball TM, Wright AL. Health care costs of formula-feeding in the first year of life. Pediatrics 1999; 103: 870-876.
5. Maternal and Newborn Health/Safe Motherhood (WHO/FR/MSM/96.12), Geneva, 1996.
6. Elo IT, Grummer-Strawn LM. Changes in breastfeeding initiation and duration in Peru, 1977-1986. Soc Biol 1993; 40: 224-243.
7. Jakobsen MS, Sodemann K, Molbak K, Alvarenga I, Aaby P. Promoting breastfeeding through health education at the time of immunizations: a randomized control trial from Guinea Bissau. Acta Paediatr 1999; 88: 741-747.
8. Grummer-Strawn LM. The effect of changes in population characteristics on breastfeeding trends in fifteen developing countries. Int J Epidemiol 1996; 25: 94-102.
9. Grummer-Strawn LM, Kalasopatan S, Sunghur J, Friedman J. Infant feeding patterns on Mauritius Island, 1991. Soc Sci Med 1996; 43: 1697-1702.
10. Perez-Escamilla R. Breastfeeding in Africa and the Latin American and Caribbean Region: the potential for urbanization. J Trop Paediatr 1994; 40: 137-143.

11. Rogers IS, Emmett PM, Golding J. The incidence and duration of breast feeding. Early Hum Dev 1997; 49: S45-74.

12. Hinde PR, Mturi AJ. Social and economic factors related to breast-feeding durations in Tanzania. J Biosoc Sci 1996; 28: 347-354.

13. Nath DC, Goswami G. Determinants of breast-feeding patterns in an urban society of India.Hum Biol 1997; 69: 557-573.

14. Tessema T, Hailu A. Childhood feeding practice in north Ethiopia. East Afr Med J 1997; 74: 92-95

15. Singh MB, Haldiya KR, Lakshminarayana J. Infant weaning and feeding practices in some semi-arid rural areas of Rajasthan. J Indian Med Assoc 1997; 95: 576-578.

16. Koctürk T, Zettertröm R. Thoughts about rates of breastfeeding. Acta Paediatr 1999; 88: 356-358.

17. Pizarro F, Yip R, Dallman PR, Olivares M, Hertrampf E, Walter T. Iron status with different infant feeding regimens: relevance to screening and prevention of iron deficiency. J Pediatr 1991; 118: 687-692.

18. Penrod JC, Anderson K, Acosta PB. Impact on iron status of introducing cow's milk in the second six months of life. J Pediatr Gastroenterol Nutr·1990; 10: 462-467.

19. Lozoff B, Wolf AW, Jimenez E. Iron-deficiency anemia and infant development: effects of extended oral iron therapy. J Pediatr 1996; 129: 382-389.

20. Main Economic Indicators, Turkey. Turkish Republic Prime Ministry State Planning Organization, January 1998.

21. Türkiye Nüfus ve Sağlık Araştırması (Turkish Demographic and Health Survey). Hacettepe University Institute of Population Studies, Demographic and Health Surveys Macro International Inc., United Nations Population Fund, 1998.

22. Maternal and Child Health States in Turkey. Turkish Ministry of Health and UNICEF, 1996.

23. Kocturk TO. Hospital practices and doctor's attitudes leading to early introduction of compliments to infant diets in Istanbul. Scand J Prim Health Care 1987; 5: 46-50.

24. Neyzi O, Olgun P, Kutluay T, et al. An educational intervention on promotion of breast feeding. Peadiatr Perinatal Epidemiol 1991; 5: 286-289.

25. Homans G. Group factors in worker productivity. In: Proshansky H, Seidenberg B (eds). Basic Studies in Social Psychology. New York: Holt, Rinehart and Winston; 1965: 592-604.

26. Labbok M, Krasovec K. Toward consistency in breastfeeding definitions. Stud Fam Plann 1990; 21: 226-230.

27. Feinstein AR. Clinical Epidemiology: The Architecture of Clinical Research. Philadelphia: W.B. Saunders Co; 1985.

28. SPSS 8.0. for Windows. SPSS Inc, 1989-1997.

29. Gokcay G, Partalcı A, Neyzi O. Weight for age and weight gain in infants on different feeding regimens. Çocuk Sağlığı ve Hastalıkları Dergisi 1997; 40: 37-45.

30. Cetin E, Aydın A. The prevalence and morphological distribution of anemia in healthy children and adolescents living in Istanbul: the effects of age, gender and nutritional status of children and parental education and economical status on the prevalence of anemia. Turk Arch Pediatr 1999; 34: 29-38.

31. The State of the World's Children, 1998. UNICEF. New York: Oxford University Press; 61.

32. Losch M, Dungy Claibourne ID, Russell D, Dusdieker LB. Impact of attitudes on maternal decisions regarding infant feeding. J Pediatr 1995; 125: 507-514.

33. Visness CM, Kennedy KI. Maternal employment and breast-feeding: findings from the 1988 National Maternal and Infant Health Survey. Am J Public Health 1997; 87: 945-950.

34. Fein SB, Roe B. The effect of work status on initiation and duration of breast feeding. Am J Public Health 1998; 88: 1042-1046.

35. McQuide PA, Delvaux T, Buckens P. Prenatal care incentives in Europe. Study group on barriers and incentives to prenatal care in Europe. J Public Health Policy 1998; 19: 331-349.

36. International Labour Organization, Report 1994.

37. Frank E. Breastfeeding and maternal employment: two rights don't make a wrong. Lancet 1998; 352: 1083-1084.

38. McGovern P, Dowd B, Gjerdingen D, Moscovice I, Kochevar L, Lohman W. Time off work and the postpartum health of employed women. Med Care 1997; 35: 507-521.

39. Clark R, Hyde JS, Essex MJ, Klein MH. Length of maternity leave and quality of mother-infant interactions. Child Dev 1997; 68: 364-383.

40. Warner R, Appleby L, Whitton A, Faragher B. Demographic and obstetric risk factors for postnatal psychiatric morbidity. Br J Psychiatry 1996; 168: 607-611.

41. Smedman L. Promoting breastfeeding in Guinea-Bissau. Acta Paediatr 1999; 88: 703-709.