Recent trends in infant feeding patterns and weaning practices in Kuwait

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الاتجاهات الحديثة في أنماط تغذية الرضّع وبمارسات الفطام في الكويت فوزية عبد الله العوضى وعزت حميس أمين

خلاصة: تم اختيار عينة طبقية متعددة المراحل تشمل 782 والدة لأطفال تقل أعمارهم عن عامين ، وذلك الاستقصاء أنماط تنذية الرضع وممارسات الفطام وتبين أن معدل الارضاع من الثدي كان 26.1% ، بينما استخدمت زجاجة الإطعام في 41.9% من الحالات . وكانت السرضاعة من الثدي أكثر انتشارا بين الأطفال المتأخرين في ترتيب الولادة وأطفال الأمهات الأميات . وكانت مدة الإرضاع من الثدي وسطيا 4.9 شهراً ، ولوحظ أنها تكون أطول زمنيا بين الأميات . وكان الأطفال يُعطمون لعدم كفاية لبن الأم ، أو تسبعا لرخبة الأم ، أو لرفض الطفل تـقبل الثدي . لقد ظهر من الستائج أن هناك انخفاضا حادا في ممارسة الإرضاع من الثدي . وفي هذه المقالة مناقشة لأسباب ذلك ، وتوصيات بالتدابير الكفيلة بعكس هذا الاتجاه .

ABSTRACT A multistage stratified sample of 782 mothers of infants under two years of age was taken to investigate infant feeding patterns and weaning practices. The rate of broast feeding was 26.1% and that of bottle-feeding 41.9%. Breast-feeding was more common among late order children and those born to illiterate mothers. The mean duration of breast-feeding was 4.9 months and was longer among illiterate mothers. Infants were weaned because of insufficient mother's milk, mother's desire and infant refusal of the breast. The results indicate that there has been a sharp decline in breast-feeding. The reasons for this are discussed and measures to reverse the trend are recommended.

Tendances récentes des modes d'alimentation du nourrisson et pratiques de sevrage au Koweït

RESUMF Un échantillon stratifié à plusieure degrée composé de 782 mères d'enfants de moins de deux ans a été constitué pour étudier les modes d'alimentation du nourrisson et les pratiques de sevrage. Le taux de l'allaitement au sein était de 26,1% et celui de l'allaitement au biberon de 49,1%. L'allaitement maternel était plus courant chez les enfants les plus jeunes de la famille ainsi que chez les enfants de mères analphabètes. La durée moyenne de l'allaitement maternel était de 4,9 mois; celle-ci était plus longue chez les mères analphabètes. Les enfants étaient sevrés en raison de l'insuffisance du lait de la mère, du souhait de la mère ou du refus du sein par l'enfant. Ces résultats montrent un déclin marque de l'allaitement maternel. Les raisons de ce déclin sont examinées dans cet article et des mesures sont recommandées pour inverser la tendance.

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Introduction

One of the main problems facing nutritionists in member countries of the Gulf Cooperation Council is the lack of reliable information describing nutritional habits and feeding patterns prevailing before 1975 [1]. Although no data are available to describe infant feeding patterns, it is believed that breast-feeding was very common as all the populations are Muslims and mothers followed the Koran, which instructs them to breast-feed their children for two years. This deeply rooted pattern has gradually been replaced by artificial feeding immediately after birth. Several factors have been responsible for the change to bottle-feeding, such as culture borrowing, the introduction of new products, urbanization, commercial advertising and elevated income.

Studies on infant feeding in Kuwait date back to 1979 when Mostafa et al. reported that 86.1% of Kuwaiti infants were artificially fed [2]. The reasons given by mothers for not breast-feeding included insufficient milk, onset of a new pregnancy and the use of contraceptive pills. Humanized milk was more widely used than full cream powdered milk. Between the ages of three and five months, 56% of the infants were given fruit juices and more than half of them received cereal products in the form of biscuits and Cerelac [2].

In 1988, Al-Bustan and Kohli studied the socioeconomic factors influencing breast-feeding in Kuwait [3]. The results showed that 26.5% of infants were bottlefed from birth. Of those who were breastfed, 12% were breast-fed for one month and 36% between one and three months. Older mothers were found to breast-feed their infants for a longer duration than young mothers [3]. A more detailed study was conducted by Amine et al. in 1989 [4]. The data showed that 60.6% of infants

were breast-fed, 14.0% were bottle-fed and 24.5% received mixed feeding. The results showed no significant difference in the breast-feeding and weaning practices for male and female infants. Parity, mother's age, income, employment and educational levels had a significant influence on infant feeding practices. The most common reasons given for weaning were insufficient milk, infant had reached a weaning age, mother's sickness and infant refusal [4].

During the eighties, several reports were published on gastroenteritis in breastfed and bottle-fed infants in Kuwait. El-Dosary et al. reported that the incidence of gastroenteritis during the first year of life was 63.1% among bottle-fed infants as compared with 36.9% among breast-fed infants [5]. Shuhaiber and Al-Rashied found that bottle-feeding was associated with electrolyte disturbances among infants with acute diarrhoea [6].

Kuwait is a highly urbanized, dynamic and relatively young society (53.8% of the population are under 25 years of age). After the shock of the Iraqi invasion and the subsequent liberation, the affluent lifestyle was soon restored. This study was initiated to investigate recent trends in infant feeding patterns and weaning practices in Kuwait.

Subjects and methods

A multistage stratified sample of 782 mothers of infants aged under two years was taken to represent the five governorates in Kuwait. The number of infants in each governorate was used as a base for stratification. The sample represented 1.5% of the total infant population of Kuwait in this age group.

The mother of each child was privately interviewed at home by a female data collector using a precoded questionnaire to

collect information on infant feeding patterns. The World Health Organization (WHO) indicators for assessing breastfeeding practices were used [7]. A child was classified exclusively breast-fed if he/ she received only breast milk from his/her mother or a wet nurse and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines. A child was considered bottle-fed when he/she received liquid or semi-solid food from a bottle with a teat. Mixed feeding described the condition when the child received both breast milk and other liquids or semi-solid food, including non-human milk. When the child was breast-fed, the mother was asked about the age at which supplementary feeding was initiated. Data were also collected on the sex of the infant, birth order, duration of breast-feeding, weaning pattern and reasons for weaning.

The mothers' education and occupation were also recorded. Mothers were classified into four groups according to their education: illiterate mothers who could not read and write, mothers with primary-school education (six years), mothers with secondary-school education (a further six years) and mothers with a university education.

Data were sorted and tabulated using the computer facilities of the Ministry of Health. Chl-squared test, ANOVA and F-distribution were used to evaluate the significance of the association between different variables.

Results

The feeding pattern of infants from birth in relation to sex, birth order and mothers' education is shown in Table 1. The data show

Variable	Infant feeding pattern											
	Br	east	Во	ttle	Mi	xed	Total					
	No.	%	No.	%	No.	%	No.	%				
Sex ª												
Male	106	27.2	151	38.8	132	33.9	389	49.7				
Female	98	24.9	177	45.0	118	30.0	393	50.3				
Birth order b								00.0				
1	29	13.9	114	54.5	66	31.6	209	26.7				
2	46	26.7	70	40.7	56	32.6	172	22.0				
3	32	28.3	42	37.2	39	34.5	113	14.5				
4	36	30.8	41	35.0	40	34.2	117	15.0				
5+	61	35.7	61	35.7	49	28.6	171	21.8				
Mother's education®												
Illiterate	25	38.5	25	38.5	15	23.1	65	8.3				
Primary	38	33.3	47	41.2	29	25.4	114	14.6				
Secondary	98	25.0	171	43.6	123	31.4	392	50.1				
University	43	20.4	85	40.3	83	39.3	211	27.0				
Total	204	26.1	328	41.9	250	32.0	782	100				
$^{a}\chi^{2} = 3.138$, not significant		$b\chi^2 = 31.75$; P < 0.01	,	$c_{2}^{2} = 16.2$	28, P < 0.05						

that 26.1% of the infants were exclusively breast-fed from birth, a larger proportion (41.9%) were bottle-fed only and the remainder (32.0%) received a mixture of breast milk and other liquids, including non-human milk, from a bottle with a teat. The results show a slight but statistically insignificant difference in the feeding patterns of male and female infants.

Birth order had a significant effect on the infant feeding pattern ($\chi^2 = 31.75$, P < 0.01). The rate of breast-feeding was least (13.9%) among first order children, almost doubled for the second child (26.7%) and increased gradually to reach its highest rate among late order children (35.7%). Conversely, the rate of bottle-feeding was highest (54.5%) among first order children and lowest (35.7%) among late order children. Mixed feeding was least practised among first order children (31.6%) and late order children (28.6%).

The infant feeding pattern was also significantly modified by the mother's education ($\chi^2 = 16.28$, P < 0.05). Infants of illiterate mothers received either breast- or bottle-feeding at a similar rate (38.5% each). On the other hand, the rate of mixed feeding was least common (23.1%) among illiterate mothers and increased to its high-

est rate (39.3%) when the mother had had a university education.

The distribution of infants by mother's education and reasons for bottle or mixed feeding are presented in Table 2. The most important reason given was insufficient milk (53.1%); this reason was most common among illiterate mothers (67.5%). Another 22.5% of the mothers abandoned breast-feeding because of personal desire. This reason was more common among mothers with secondary or university education, about 25.0% compared to 5.0% among illiterate mothers. The difference was statistically significant (χ^2 – 19.43, $P \le$ 0.05). Infant refusal was reported as the reason by 17.1% of the mothers; this reason was more frequently cited by mothers with a university education (21.4%). Mother's illness as a cause for bottle-feeding was most common among illiterate mothers (12.5%) and least among university graduates (3.6%).

The impact of mother's education on the age at introducing complementary feeding is illustrated in Table 3. The mean age at starting complementary feeding was significantly modified by the educational level of the mother (F = 7.525, P < 0.05). It was 5.4 months among children of illiterate moth-

y mother's education and reasons	

Reasons for bottle or mixed feeding		Mother's education											
	Illiterate No. %		Primary No. %		Secondary No. %		University No. %		Total No. %				
Mother's illness	5	12.5	8	10.5	23	7.8	6	3.6	42	7.3			
Mother's desire	2	5.0	12	15.8	73	24.8	43	25.6	130	22.5			
Infant refusal	6	15.0	14	18.4	43	14.6	36	21.4	99	17.1			
Insufficient milk	27	67.5	42	55.3	155	52.7	83	49.4	307	53.1			
Total	40	100	76	100	294	100	168	100	578ª	100			

^{*}Infants fed with bottle or mixed

 $[\]chi^2 = 19.43$, P < 0.05

ers, against 4.8 months when the mother was a university graduate. In addition, 7.0% of the mothers from the latter group started complementary feeding when the infant was under 3 months. On the other hand, 32.0% of the illiterate mothers and 39.5% of mothers with primary-school education delayed the introduction of complementary feeding until the age of 6 months or more. The results of the least significant

difference test (LSD = 0.472) suggest that illiterate mothers and those who had primary-school education may be visualized as one group which is more likely to delay the age at starting complementary feeding when compared with mothers who had received higher education.

The distribution of infants by duration of breast-feeding and mother's education is illustrated in Table 4. The mean duration of

Table 3 Distribution of infants by mother's education and age at starting complementary feeding

Age at starting complementary feeding (months)		Mother's education											
	Illite No.	erate %	Prii No.	mary %	Seco No.	ondary %	Univ No.	ersity/	T No.	otal %			
< 3	0	0.0	0	0.0	2	2.1	3	7.0	 5	2.5			
3	3	12.0	0	0.0	9	9.2	2	4.7	14	6.9			
4–	4	16.0	13	34.2	45	45.9	24	55.8	86	42.2			
5-	10	40.0	10	26.3	27	27.6	8	18.6	55	27.0			
6+	8	32.0	15	39.5	15	15.3	6	14.0	44	21.5			
Total	25	100	38	100	98	100	43	100	204°	100			
Mean ± s	5.4	5.4 ± 1.0		5.6 ± 0.9		4.9 ± 0.9		4.8 ± 1.0		5.1 ± 1.0			

^{*}Infants breast-fed

5% LSD = 0.472

s = standard deviation

Table 4 Distribution of Infants by duration of breast-feeding and mother's education

Duration of breast- feeding (months)	•	Mother's education											
		Illiterate		Primary		ndary	Univ	ersity	Total				
	No.	%	No.	%	No.	%	No.	%	No.	%			
<1	6	15.0	8	11.9	38	17.2	39	31.0	91	20.0			
1–2	7	17.5	11	16.4	55	24.9	35	27.8	108	23.8			
3-5	5	12.5	10	14.9	35	15.8	21	16.7	71	15.6			
6–8	8	20.0	16	23.9	52	23.5	13	10.3	89	19.6			
9+	14	35.0	22	32.8	41	18.6	18	14.3	95	20.9			
Total	40	100	67	100	221	100	126	100	454°	100			
Mean ± s	6.2	± 3.9	6.3 ± 3.7		5.0 ± 3.6		3.7	± 3.5	4.9 ± 3.7				

^{*}Infants with breast or mixed feeding

5 % LSD = 1.461

s = standard deviation

F = 7.525, significant at P < 0.05

F = 9.745, significant at P < 0.01

breast-feeding was longest among illiterate mothers and those with primary-school education, 6.2 and 6.3 months respectively, and shortest (3.7 months) when the mother was a university graduate. The results also show that 31.0% of mothers from the latter group breast-fed their infants for less than one month, while 35.0% of illiterate mothers continued breast-feeding until the infant was 9 months or above. The impact of mother's education on the duration of breast-feeding was statistically highly significant (F = 9.745, P < 0.01).

As regards the reason for weaning in relation to mother's education (Table 5), insufficient milk was the most common reason cited (36.1%), particularly by university graduates or mothers with secondary-school education, 38.9% and 44.8% respectively. For 20.0% of the mothers it was their personal desire to wean their infant. This reason was relatively more common among university graduates (22.2%) when compared with illiterate mothers (15.0%). Another 15.0% of the infants were weaned because the mother believed that the infant had reached the proper weaning age; this was more common among illiterate

mothers (27.5%) compared with university graduates (4.0%). A smaller proportion (13.1%) of the infants refused the breast, particularly infants of university graduates (18.3%). Mother's sickness and the occurrence of a new pregnancy were reasons given for weaning in 7.5% and 8.4% of cases respectively; both factors were more common among mothers of a low educational level. These differences were statistically highly significant ($\chi^2 = 66.8$, P < 0.01). The impact of mother's education on the infant weaning pattern is illustrated in Table 6. The majority of the infants were weaned gradually (86.6%), more so among mothers with a university education (91.3%) than with illiterate mothers (72.5%). Abrupt weaning followed the opposite pattern. The difference was statistically significant (χ^{2} = 9.35, P < 0.05).

Table 7 shows that the type of food used for weaning was significantly modified by the mother's education ($\chi^2 = 24.8$, P < 0.05). Home-made foods were most commonly used by university graduates or mothers with secondary-school education, 27.8% and 35.7% respectively. Mothers with limited or no education weaned their

Reasons for weaning	Mother's education													
	Illiterate		Primary		Secondary		University		Total					
	No.	%	No.	%	No.	%	No.	%	No.	%				
Reached weaning age	11	27.5	18	26.9	34	15.4	5	4.0	68	15.0				
Mother's sickness	5	12.5	6	9.0	14	6.3	9	7.1	34	7.5				
Insufficient milk	4	10.0	12	17.9	99	44.8	49	38.9	164	36.1				
New pregnancy	9	22.5	10	14.9	7	3.2	12	9.5	38	8.4				
Infant refusal	5	12.5	9	13.4	22	10.0	23	18.3	59	13.1				
Mother's desire	6	15.0	12	17.9	45	20.4	28	22.2	91	20.0				
Total	40	100	67	100	221	100	126	100	454	100				

 $[\]chi^2 = 66.8$, P < 0.01

Table 6 Impact of mothers' education on infant weaning pattern

pattern Illiterate No. % N			Mother's education								
	Pri	imary	Seco	ondary	Univ	ersity	Total				
	No.	%	No.	%	No.	%	No.	%			
Abrupt	11	27.5	10	14.9	29	13.1	11	8.7	61	13.4	
Gradual	29	72.5	57	85.1	192	86.9	115	91.3	393	86.6	
Total	40	100	67	100	221	100	126	100	454	100	

 $\chi^2 = 9.35$, P < 0.05

Table 7 Distribution of infants by food used for weaning and mother's education

Foods used for weaning				Moth	er's ed	ucation)			
	Illiterate		Prim	ary I	Intermediate		University		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Home-made food	6	15.0	10	14.9	79	35.7	35	27.8	130	28.6
Ready-prepared food	5	12.5	7	10.4	19	8.6	24	19.0	55	12.1
Family food	12	30.0	19	28.4	51	23.1	22	17.5	104	22.9
Infant formula	17	42.5	31	46.3	72	32.6	45	35.7	165	36.3
Total	40	100	67	100	221	100	126	100	454	100

 $\chi^2 = 24.8$. P < 0.05

infants using family foods or infant formula. Ready-prepared foods were preferred by university graduates (19.0%) when compared with mothers of other educational levels.

Discussion

Infant feeding patterns and weaning practices in Kuwait have passed through three phases, which may be associated with the economic development of the country. Before the oil era, when the pattern of life was based on the extended family and the ties between family members were strong, there existed deeply rooted religious and cultural patterns among the community [8]. Al-

though no data are available to describe infant feeding patterns during that period, it is believed that breast-feeding was the dominant pattern. This may be attributed to the tenets of Islam which, through the Koran, provide Muslims with clear instructions to suckle their children for two whole years. In addition, family income then was limited and could not cover the cost of artificial feeding whenever such foods were available on the market.

The second phase, the oil-boom period, witnessed extraordinary socioeconomic development within the period 1975–1985. The average income of the family increased sharply and was associated with an extreme change in food patterns [9]. Traditional breast-feeding was largely replaced by bot-

tle-feeding. In 1979, Mostafa et al. reported that 86.1% of Kuwaiti infants were artificially fed [2]. Three years later Harfouche reported that 54% of Kuwaiti infants received artificial feeding at birth [10].

The third phase started in 1985 when the economy of the country was adversely affected by the sharp decline in oil prices. During this period, several nutrition education programmes were initiated to promote breast-feeding. Infant feeding formula advertisements were banned from the mass media and free distribution of baby formula was stopped or restricted. As a result, infant feeding patterns were reversed and more mothers returned to breast-feeding. In 1987. Al-Bustan reported that 71% of neonates were breast-fed at birth, however, the duration of breast-feeding was only about two months [11]. Amine et al. reported that 60.6% of infants were breast-fed and the mean duration of breast-feeding was 5.8 months [4].

The results of the present study show a very sharp drop in the rate of breast-feeding to 26.1% and a concomitant rise in the rate of bottle-feeding to 41.9%. The rate of mixed feeding showed a moderate increase from 25.4% to 32.0%. The mean duration of breast-feeding has declined to 4.9 months.

Many factors may be responsible for the resurgence of bottle-feeding. Nutrition education programmes were not implemented during the occupation of Kuwait and the prewar momentum has still not been regained. Commercial advertisements for baby formula and weaning foods can be viewed on national television as well as through broadcasts from neighbouring and nearby countries and international television stations. Kuwait, like other countries in the area, has been subjected to a continuous promotion and marketing campaign by companies producing infant formula and

weaning foods. Moreover, the cost of artificial feeding does not represent any economic burden to the average Kuwaiti family. The presence of expatriate maids in Kuwaiti homes has also led to a decline in breast-feeding and a significant increase in bottle-feeding. The duration of breast-feeding is shorter and bottle-feeding is introduced earlier [12].

Factors affecting the rate of breast-feeding reported in this study are consistent with our previous publications [1, 4]. The sex of the infant did not have a significant effect on feeding practice. Late birth order children had a better chance of being breast-fed, while low birth order children born to young, inexperienced mothers were more likely to be bottle-fed. Breast-feeding was more popular among illiterate mothers (38.4%) compared with university graduates (20.4%). However, the rates were significantly lower than those reported in 1989, 72.4% and 56.9% respectively.

The main reason for bottle-feeding of infants or for early weaning was insufficient mother's milk. This problem was more evident among educated mothers who are usually working and are separated from their infants for long periods. Since frequent and sustained sucking of the breast is essential for the establishment and continuity of adequate milk secretion, the quantity of milk secreted by a working mother decreases gradually and she is forced to resort to bottle-feeding.

Educated mothers may be fully aware of the importance of breast-feeding for their infants but illiterate mothers were more prepared to or had more opportunity to breast-feed their infants (38.4%) for a longer duration (6.2 months), and to introduce complementary foods at the proper age (5.4 months). University graduates were less likely to breast-feed their infants (26.1%) and more likely to continue for a shorter

duration (3.7 months) and to introduce complementary feeding at a younger age (4.8 months). Educated mothers were more likely to prepare weaning foods at home or use infant formula or ready-prepared foods, unlike mothers with limited education who introduced the infant directly to family food.

It is recommended that the nutrition education programme should be reactivated to promote breast-feeding. A prime target group for this programme would be young mothers having their first babies. The programme should concentrate not only on the

promotion of breast-feeding after delivery, but also on extending the duration of breast-feeding to two years. In addition, nurseries should be established in working institutions to allow working mothers to breast-feed their infants during working hours.

Acknowledgement

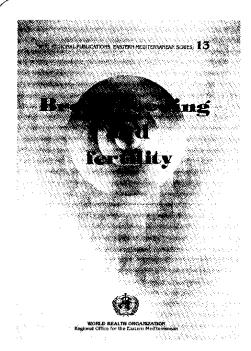
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Who is the target audience?

This publication will be of interest to maternal and child health personnel and community health care workers who provide advice and services for family planning and birth spacing.

Why has this book been written?

The relationship between breast-feeding and its contraceptive qualities is not fully known and is often misunderstood. This publication explains the physiological role of breast-feeding in contraception, evaluates its effectiveness if certain guidelines are followed, and provides reasons for its failure in many cases.

The work also describes the results of a multicentric research study on breast-feeding, lactation amenorrhood and fortility.

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