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Statistical Study About: The Reasons for Less Duration of Breast-Feeding and Early Weaning Among Mothers Case Study (in The Coastal Area of Libya)

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ABSTRACT

In order to identify the reasons for less duration breast-feeding and early weaning among mothers in Libya. We interviewed (700) mothers who has child under (36) months old. Among them, 16% of the mothers were illiterate, 60% were housewife, and 91%has given birth in public hospitals. 2.3% of the cases, the mother had not breast-fed her newborn at all. Of those who had breast-fed their infant, 32.8% used only their own milk whereas 67.2% used a combination of breast milk and infant formula. The mean duration of breast-feeding was 6.93 months. A total of 79.5% of mothers used supplementary formula and 36% of those who had completely stopped breast-feeding blamed milk insufficiency. Irrespective of occupational or literacy status of mothers, more than 71.7% of the children started receiving supplementary feeds before 6 months of age. A significant negative relationship was observed between the age of weaning and occupational status ($p<0.05$) and age of weaning and literacy status of mothers ($p<0.05$).

The following factors had a negative influence on the duration of breast-feeding: use of supplementary formula and the child's birth interval. In contrast, the mothers age and the medical care of mothers during pregnancy had a positive impact.

Key words: Breast-feeding data; Socio-economic and Demographic factors; Stepwise regression analysis.

INTRODUCTION

In developing countries, including Libya the under-1 year-old mortality rate is 28 per 1000 (2000-united nations estimated]. In our previous study we found that mothers education, age at marriage and duration of breast-feeding have significant effects on post-neonatal and all infant mortality, also duration of breast-feeding has significant effects on neonatal mortality. So breast-feeding duration can affect child survival through its role in nutrition due to less period of breast-feeding (3.00 months on average)(Ben-omran, 1995).

Since it is the best source of nutrition for infants, breast milk is effective in ensuring their optimal rate of growth and development (7), while breast-feeding also satisfies the psychological needs of the mother and her child. Moreover, breast-feeding reduces the incidence of various conditions infections of gastrointestinal and respiratory traots (4, 5, 7, and 13).

Breast-feeding is also cheap and regulates child spacing (3). These advantages of breast-feeding have an enormous effect on promoting the health of newborns, infants and children (9).

Unfortunately, however, there are still a very large number of mothers who stop breast-feeding too early and use infant formula and other substitutes (8). If the reasons for not breast-feeding, les duration of breast-feeding and early weaning can be identified, steps can be to rectify the situation.

This will in turn decrease the incidence of gastrointestinal and respiratory tract infection, reduce the infant mortality rate, and improve child spacing. For these purposes we carried out this study to investigate the reasons for less duration of breast-feeding and early weaning among mothers in the coastal area of Libya.

METHODOLOGY

In our previous study information was collected on whether the infant was breast-feed and if so, the duration of breast-feeding the data are limited suitability for investigation on the frequency of breast-feeding and supplemental feeding or the reasons for never breast-feeding or stopping breast-feeding (Ben-omran, 1995). This study is based on the data collected through a sample survey from the six main urban centers of Libya, namely, Tripoli, Musrate, Sirt, Ras-alanouf, Benghazi, Albida. These six cities cover more than half of the population of Libya. For more details about how collect the data and classification of the data see (Ben-Omron, 1995).

A sample of (700) currently married women aged 17-49 was obtained between February and July 1995. Information was collected on personal characteristics of the respondent and her husband.

The questionnaire was divided into three parts as outlined below:
Part (A): General information about the mothers and their husband, including mothers age, age at birth of first child, mothers education level, fathers educational level and family income.
Part (B): General information about all children in the family, number of children ever born, sex, mean duration of breast-feeding in months and number of death children in the family.
Part (C): Information about the youngest child in the family; for example, age of child, sex, birth weight, birth order, birth interval, status of delivery, place of delivery, if the mothers receive medical car during pregnancy, duration of breast-feeding, [the approximate no. months that breast-feed their children (with or with-out supplement milk)] and the reasons for stopping breast-feeding.

After the questionnaires had been completed they were checked, coded, and the data analyzed on a computer using SPSS for MS WINDOWS Release 6.0.

RESULTS AND DISCUSSION

Characteristics of The Mothers:

A total of 62% of the mothers were 20-35 years of age, consequently, 38% were aged < 20 years or > 35 years, which presents risks for both mother and child.

A total of 16% were illiterate, 42% had received an primary school education, 22% had received an secondary school education and 20% had received diplomas and a university education; the respective level of education of their husbands was 8%, 31%, 30% and 31%.
60% of the mothers were housewife, 40% were employed.

Characteristic of The Children:

The proportion of newborns who weighed less than 2500g at birth was 7.4%. For 14% of the cases the interval between their date of birth and that of their elder sibling was less than 1 year, for 36% less than 2 years, 25% less than 3 years and for 25% less than 4 years.

The proportion of children born in public hospitals was (91%), (7%) were born in private hospitals, and the rest at home.

The status of deliveries (93%) were normal (5%) were earlier 9 months and the rest after 9 months.

Breast-feeding Behaviour:

A total of (75%) of the mothers used supplementary milk. While (17.7%) of them breast-fed only and the rest still breast-feed their children.

Table 1 shows the distribution of the children according to the duration of breast-feeding. About 2.6% of the infants did not receive any breast milk. The reasons for not breast-feeding (as indicated by the mothers) are mothers illness, breast milk, insufficiency, refusal of the child to breast-feed.

A total of 48.5% of the children did not receive breast milk for 6 months. Of those children who did start to breast-feed, 46.9% did not complete months of breas-feeding .The mean duration of breast-feeding was 6.9 months. Table 2 shows the distribution of the infants ages when formula was started for the 79.5% (483 out of 607) of the children who received supplementary formula in addition to breast milk.

Table 1. Distribution of study children, according to the duration of breast-feeding, in the coastal area of Libya, 1995.

Length of breast-feeding (months)	Number of children	% relative to total number of children *		% relative to breast-fed children	
Never	16	2.6	(2.6)	-	-
<1	34	5.6	(8.2)	5.7	5.7
1-2	91	15.0	(23.2)	15.4	21.1
3-5	153	25.21	(48.5)	25.89	46.9
6-8	134	22.0	(70.4)	22.6	69.5
9-11	33	5.4	(75.8)	5.5	75.0
12-17	64	10.5	(86.3)	10.8	85.9
18-23	31	5.1	(91.4)	5.2	91.2
24-25	45	7.4	(98.0)	7.7	98.9
>25	6	1.0	(100)	1.1	100
Total	607	100	-	100	-

* Figures in parentheses are the cumulative percentages.

Table 2. Distribution of ages of the study children when supplementary formula was started, in the coastal area of Libya, 1995.

Age when formula was started (months)	No. of children	% of children *		% probability +
<1	41	8.49	(8.4)	8.4
1	57	11.8	(20.2)	12.8
2	102	21.1	(41.3)	26.5
3	70	14.5	(55.8)	24.7
4	49	10.1	(65.9)	23.0
5	34	7.1	(73.0)	20.7
6	61	12.6	(85.6)	46.9
7	20	4.14	(90.0)	28.9
8	12	2.5	(92.5)	24.5
9	8	1.6	(94.1)	21.6
10	6	1.2	(95.3)	20.6
11	1	0.2	(95.5)	4.3
>12	22	4.5	(100.0)	100
Total	483	100	-	-

* Figures in parentheses are the cumulative percentages.
+ Percentage probability of starting formula for infants breast-fed.
Up to age shown in the first column.

The probability of starting supplementary milk during the third months was high (26.5%). The probability of starting of bottle-feed during the first and second months will greatly decrease.

The high percentage of mothers who were bottle-feeding at 6 months may have arisen because health workers informed them that breast milk was insufficient after 6 months and that it was necessary to use complementary foods at this age.

Table 3 shows the various reasons given by the mothers for discontinuing to breast-feed their children under 36 months of age. The most frequent reasons mentioned was milk insufficiency (36% of cases). This is especially important, since the mean duration of breast-feeding among these mothers was only about 3.12 months. Other important reasons mentioned were pregnancy of mothers, and the desire to help the child take solid foods. Out of the 608 child under study, supplementary feeding was started at various ages in 483 children (Table 4). It was also observed that irrespective of the occupational status of mothers, the majority of children (73.6% of children of working and 66.1% of children of housewife groups) started receiving supplementary feeds before 6 months of age.

The remaining 26.4% of children of working group and 33.9% of children of housewife group received supplementary between 6-12 months of age, the difference was not found to be statistically significant (p>0.05).

Table 3. Distribution of reasons by the mothers for discontinuing to breast-feed their children, under 36 months of age in the coastal area of Libya, 1995.

Reasons	No. of children *		Mean duration (±S.D.) of breast-feeding (months)
Milk insufficiency	218	(36)	3.20 ± 2.63
Mother became pregnant again	60	(10)	6.18 ± 4.57
Mother's illness	41	(7)	7.08 ± 7.70
Child's illness	21	(3)	3.26 ± 2.37
To help the child to eat solid foods	199	(33)	10.94 ± 8.56
Medical advice	42	(4)	5.97 ± 7.17
Others	44	(7)	7.57 ± 8.14
Total	607	100	

* Figures in parentheses are percentages.

Table 4. Age of starting supplementary feeding and occupational status of mothers in the coastal area of Libyan children studied, 1995.

Age of starting supplementary feed (months)	Occupational status of mothers				Total with supplementary	
	Housewives		Working			
	No.	%	No.	%		
Below 6	214	(66.1)	117	(73.6)	331	(68.5)
6 – 12	110	(33.9)	42	(26.4)	152	(31.5)
Total	324	(67.1)	159	(32.9)	483	(100)

Test of significance: Chi-square (2.431), p>0.05

Table 5 shows distribution of children below 36 months of age according to the literacy status of mothers and the age of starting supplementary food. Here 71.4% of the children were given supplementary foods before 6 months of age while 28.6% were given between 6-12

months of age. Out of 64 children whose mothers were illiterate 62.5% were introduced to liquids, semisolids and solid food below 6 months of age. A similar pattern was also observed in children whose mothers were educated up to primary, secondary and higher level (p>0.05). Out of 700 children under study in 578 weaning was done. Here also 39% were weaned before 6 months, 41.6% between 6-12, 7.1% between 13-18 and 12.3% after 18 months of ages respectively.

Table 5. Age of stating supplementary feeding and educational status of mothers in the coastal area of Libyan children studied, 1995.

Age of starting supplementary feeds (months)	EDUCATION STATUS OF MOTHER								Total with supplementary feeding	
	Nme		Primary		Secondary		Higher			
	No.	%	No.	%	No.	%	No.	%	No.	%
Below 6	40	(62.5)	144	(72.2)	96	(76.2)	65	(68.4)	345	(71.4)
6 – 12	24	(37.5)	54	(27.3)	30	23.8)	30	(31.6)	138	(28.6)
Total	64	(13.3)	198	(40.9)	126	(26.1)	95	(19.6)	483	(110)

Test of significant: Chi-Square (4.485), p>0.05

Table 6.Age of weaning and occupational status of mothers in the coastal area of Libyan children studied, 1995.

Age of weaning (months)	Occupational status of mothers				Total	
	Housewives		Working			
	No.	%	No.	%	No.	%
Below 6	135	(35.7)	91	(45.5)	226	(39.1)
6-12	158	(41.8)	83	(41.5)	241	(41.6)
13-18	29	(7.7)	12	(6.0)	41	(7.1)
>19	56	(14.8)	14	(7.0)	70	(12.2)
Total	378	(65.4)	200	(34.6)	578	(100)

Test of significant: Chi-Square (26.88) $p < 0.05$

Table 6: brings out that out of 200 children whose mothers were working, 45.5% were weaned before 6 months of age and 41.5% between 6-12 months of ages respectively while in 378 children whose mothers were housewife, 35.7% were weaned before 6 months, 41.8% between 6-12 months of ages respectively. Within this category 14.8% of the children were over 18 months of age when weaned.

It is quite evident from Table 7 that as the education status of the mothers improved, more and more children were weaned at an early age. Out of 97 of 245 children whose mothers were illiterate and educated up to primary level respectively, only 24.7% were weaned below 6 months while this percentage rose to 46.6% and 43.8% in those chi-whose mothers had education up to secondary an high level respectively.

Table 7. Age of weaning and educational status of mothers in the coastal area of Libyan children studied, 1995.

Age of weaning (months)	Education status of mothers								Total	
	None		Primary		Secondary		High			
	No.	%	No.	%	No.	%	No.	%	No.	%
Below 6	24	(24.7)	94	(38.4)	61	(46.6)	46	(43.8)	225	(38.8)
6-12	40	(41.3)	105	(42.8)	56	(42.7)	46	(43.8)	247	(42.7)
13-18	10	(10.3)	13	(5.3)	2	(1.5)	5	(4.8)	30	(5.4)
> 19	23	(23.7)	33	13.5)	12	(9.2)	8	(7.6)	76	(13.1)
Total	97	16.8)	245	(42.4)	131	(22.6)	105	(18.2)	578	(100)

Test of significance: Chi-Square (26.71) $p < 0.05$

A stepwise regression analysis of the relationship between the duration of breast-feeding was carried out for the main variables, defined as follows:
Y: the duration of breast-feeding in months.

X_1: Mother's age in years.

X_2: Mother's educational level; 0=none; 1=primary; 2- secondary and 3=higher.

X_3: Mother's occupation; 0=housewife and 1= employed outside the home.

X_4: Father's educational level; 0=none; 1=primary; 2=secondary and 3=higher.

X_5: Family income; 0=low-income and 1=high-income.

X_6: Sex of; 0=male and 1=female.

X_7: Birth weight of child in kg.

X_8: Birth order of child.

X_9: Birth interval of child.

X_{10}: Status delivery; 0=normal 9 months
1=earlier 9 months and

2=after 9 months

X_{11}: Status of medical care for mother during pregnancy; 0=yes and 1=no.

X_{12}: Usage of supplementary formula; 0=non-use

1=use.

By using a stepwise regression analysis and including only those variables that are significant at the 0.05 level, the following relationship was obtained between the duration of breast-feeding for children other than the first-born, including the interval between the birth of a child and the elder sibling.

$$Y = 2.953 + 0.243X_1 + 2.381X_{11} - 7.266X_{12}. \quad (1)$$

This indicates that each of the three variables in equation (1) has an independent effect on the duration of breast-feeding. Mothers, age and status of medical care for mother during pregnancy had a direct positive relationship on the duration of breast-feeding. In contrast, the usage of supplementary formula has negatively related to the duration of breast-feeding, i.e., it is effective in shorting this period.

In view of the detrimental effect on infants of using supplementary formula, we carried a separate regression analysis only for those children who had received it. In this case, the age at which the supplementary formula was started was used instead of use of supplementary formula (X_{12}) as a quantitative variable in the analysis.

$$Y - 0.649 + 0.034X_1 - 0.012X_9 + 0.404X_{11} + 0.904X_{12}. \quad (2)$$

equation (2) give the result of the relationship.

Hence, even if the other variables are held constant, the age at which supplementary formula was started had a direct effect on the length of breast-feeding the later the age at which the formula was started the longer breast-feeding-was contented.

However mother's educational level and the status of medical care during pregnancy had a positive effects, and birth intervals negatively related to the duration of breast-feeding namely Birth interval.

Breast-feeding Behaviour:

Our findings are very similar to those in other countries (3, 8, and 10). The mean duration of breast-feeding was 6.93 months. Africa and Asia have the highest rate of breast-feeding especially while USA has the lowest. The mean duration of breast-feeding ranges from 3 to 25 months in countries in the eastern Mediterranean region 6 to 19 months in South-East Asia, and 14 to 24 moths in Africa. These compare with 1-19 months in the Americas and 2-9 months in Europe.

Although there is still a high rate of breast-feeding in developing countries, it is falling among the poorer resident; in contrast; there has been a steady rise in the rate of breast-feeding

over the past 30 years in industrial countries. Studies in Norway, Scotland, Canada, USA, and Australia indicate that there has been an increase in the rate of breast-feeding among educated mothers in the middle and higher socioeconomic classes. In developing countries, however, the higher rates and longer duration of breast-feeding are observed in rural and poor urban. Most studies have reported similar responses by mothers to questions about why the stopped breast-feeding. For example, in one study in China in 1989 about 67% of the mothers stopped breast-feeding or started bottle-feeding during the first 4 months because they thought their milk was inadequate. It is important to remember that a mother who feels that her milk is insufficient may not mean that it is so. The proportion of mothers who have not breast-fed their child at all has been found to be 6-10% in Indonesia and 14% in Shanghai; this proportion was 2.3% in the coastal area of Libya. The present study shows that the use of infant formula is an important factor that is negatively related to the duration of breast-feeding. A prospective study carried out in Canada reported a firm relationship between the length of breast-feeding and non-use of supplementary formula both at hospital and later at home (Autret & Miladi, 1979).

Supplementary Formula:

Only 21.5% of the mothers never used supplementary formula, i.e., 78.5% started bottle feeding sooner or later. A total of 8.4% of the mothers who bottle-feed their children started this during the first month, while 73% of them started at some time during the first 4 months. Therefore, three-quarters of the mothers deprived their children partly or entirely of breast milk at the very time when its should be the child's only nutrient. Changing this situation requires a greater emphasis to be placed in medical education on the importance of nutrition, particularly that of breast-feeding. Physician and other health workers need to be informed a bout the benefits and advantages of breast-feeding as well as a bout the art and technique of breast-feeding. Also mothers should be instructed to give their infants nothing but breast milk for the first 4 months (preferably 6 months) when appropriate solid foods can be started, and then to continue breast-feeding and given their children solids until the end of the second year.

Majority of the children in the present study started receiving supplementary foods before 6 months of age. Surprisingly if was also observed that literacy status and occupational status of mothers had no significant effect ($p>0.05$) on the age of starting supplementary food.

Supplementation of the child's diet is of great value to achieve optimum growth, but given semisoldids or solids before the fourth to sixth months of life interferes with the lactation (12).

In a study in U.A.E., it was observed that mothers are not very interested in breast-feeding primarily because they have a high purchasing power and the desire to spend money on their infants) (Autret & Miladi, 1979). In Libya, as in other newly urbanized societies, the decline in breast-feeding appears to be associated with the rapid infiltration of bottle feeding (13). In south Lebanon, changes in life style of educated women, the desire to be modern, being married to men with high income and easy availability of infant foods have lad to the early introduction of supplementary food (15). A highly significant negative relationship was found between age of weaning and literacy status of mothers ($p<0.05$). Children, whose mothers were illiterate were weaned at alter age than the children whose mothers were educated up to primary, secondary or high level. A significantly negative relationship ($p<0.05$) was also observed between age of weaning and occupational status of mothers.

Reasons for Stopping Breast-Feeding:

Three-quarters of the mothers gave the following reasons for stooping breast-feeding their children: milk insufficiency (36%); pregnancy (10%) and to help the child to eat solid foods (33%).

However, the first and second reasons should not be allowed to become the cause of early weaning. Half of the mothers who decided that their milk was insufficient did so only because their children were irritable and cried, and not on the basis of weight gain and growth monitoring evidence.

It is important to note that early pregnancy after delivery, which endangers the life of both mothers and child, is easily preventable. Every child should have a growth chart and every mother should be instructed to monitor correctly her child's growth. Mothers should also be taught how to increase their milk production and promote child growth and development. Further more they should be advised to avoid pregnancy until their child is at least two years old.

Duration of Breast-Feeding:

A stepwise regression analysis showed that the following factors had a relationship with the duration of breast-feeding.
- Age of mothers.
- Status of medical care during pregnancy.
- Use of supplementary formula.
- The child's birth interval.

The duration of breast-feeding was shortened by the following factors: usage of supplementary formula and less birth interval. In contrast; the length of breast-feeding was increased by the age of mothers and status of medical care during pregnancy. Use of supplementary milk had the greatest detrimental effect on the duration of breast-feeding.

Our study shows that the sooner supplementary formula was started the shorter was the length of breast-feeding even if the other factors remained constant the age at which supplementary formula was started had a direct effect on the length of breast-feeding.

CONCLUSION

The following recommendations can be made in view of our findings. In the curricula of medical and other health related schools greater emphasis should be placed on nutrition, in general, and breast-feeding, in particular. Training should include both the scientific and social aspects of breast-feeding, and these should emphasized in continuing medical education.

There is a need for widespread and serious public health education efforts through the mass media (especially radio and television) as well as through textbooks and face to face encounters, especially during antenatal and immediate postpartum care. Such efforts should also provide information on how to prevent a decrease in the amount of breast milk, and how

to increase the volume whenever necessary. From the moment of birth up to the age of four-to-six months, breast milk is all the food and during a baby needs. It is the best food a child will ever have. All substitutes, including cow's milk, milk-powder solution are inferior.

Mothers should starts to breast-feed as soon as possible after birth, starting to breast-feed immediately after birth stimulates the production of breast milk. If possible, breast-feeding should begin not later than one hour after the delivery of the baby.

Use of supplementary formula and even water, sugar-water or any other nutrient during the first 1-6 months of life should be avoided, except for specific and limited medical reasons.

Mothers should be forbidden the usage of feeding bottles, spacifiers, etc.

Breast-feeding mothers should be supported by their husbands, family members, and the community. Also supportive groups should be set up to promote, protect and support breast-feeding, as well as to give the necessary information to breast-feeding mothers.

Employed mothers need adequate maternity leave, breast-feeding breaks during the working day, and creches where their babies can be looked after at the work place. So employers and trades unions also have apart to play in supporting breast-feeding.

Mothers who breast-feed should be advised to avoid pregnancy until their child is at lest two years old. Breast milk is an important source of energy and protein, and helps to protect against disease during the child's second year of life. Breast-feeding should continue well into the second year of child's life and for longer if possible.

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