

BREASTFEEDING IN TURKEY: THE DEMOGRAPHIC AND SOCIO-ECONOMIC ASPECTS AND RELATIONSHIP WITH INFANT/CHILD MORTALITY*

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During recent years, there has been an increase in findings and reports that lead to the belief that the tradition and habit of breastfeeding is gradually being replaced by bottle feeding in developed and developing countries. This trend is being watched with alarm as, primarily in underdeveloped countries, bottle feeding has adverse effects on the health of babies. It has been shown that infant mortality and infection-related morbidity rates are lower among breastfed infants than those of bottlefed¹⁻³.

There are many reasons why in developing countries the low income groups are abandoning the breastfeeding habit so common in traditional societies and are resorting to alternatives. They consider bottled milk or other ready-made formulas as indicators of civilization and technology like cars and television, and the use of them a symbol of their conformity to modern life. Since a mother is not required to be physically near the infant while feeding, her chances of joining the work force outside the home increase.

While breastfeeding is generally declining in developing countries, the reverse holds true in many advanced ones. According to a recent survey, the percentage of American women who are breastfeeding is higher than it was in the 1940's⁴.

The foremost objective of this paper is to study breastfeeding in Turkey, the variables affecting it, how it compares with breastfeeding in certain other countries and the relationship between infant/child mortality and breastfeeding.

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Material and Methods

We used data from the "1978 Turkish Fertility Survey" (TFS)⁵. The TFS was carried out in cooperation with the International Statistical Institute, World Fertility Survey (WFS) and is therefore a part of the fertility survey covering 44 countries throughout the world.

The TFS was based on a sample of 4,431 ever married women between the ages of 15-49 from among the inhabitants of 5,142 households, selected nationwide by the sampling method.

Theoretically, it is accepted that practically all mothers will breastfeed a liveborn child with the exception of certain rare cases. The mother may decide not to breastfeed if she is aware that mother's milk substitutes are available or if she refuses to accept the traditional mode of feeding. Urbanization and modernization (or economic development, to use another phrase) both influence the initiation of breastfeeding as well as its duration. Due to this parallel, socio-economic indicators were used as independent variables both for Turkey and in a comparative analysis with WFS countries.

Regarding breastfeeding, three criteria were used in our study:

1. The percentage of breastfed children among the children born in the three years prior to the date of the study and the duration of breastfeeding. Since it would reflect a general attitude not only for the last and penultimate child but all children, it was thought that this would lend itself to comparison more than women-based data alone.
2. The percentage and duration of breastfeeding of women who had breastfed the penultimate child regardless of how long (children who lived for less than one year were not taken into consideration when the duration of breastfeedings was calculated).
3. The duration and percentage of breastfeeding the last child (deceased children were not included in the calculation because the figures in the groups were very small).

In comparisons for Turkey on the initiation and duration of breastfeeding, the duration and percentage of breastfeeding of the last child were used. For comparison with surveys made in WFS countries, the first two criteria were used.

Findings and Discussion

Breastfeeding Frequency

According to the three criteria used in our study, the frequency of breastfeeding is as follows:

1. The percentage of breastfed children of those born within the three years prior to the date of our survey was found to be 89.1.
2. The percentage of women breastfeeding the penultimate child was 92.66.
3. The percentage of women breastfeeding the last child was 93.32.

Since we do not have other values regarding Turkey, the figures we found cannot be compared with other studies. By the same token, it is not possible for us to state how the frequency of breastfeeding initiation changed in a specific length of time. Although a survey by Özgür et al⁶ in the rural area of Torbalı points out that, especially among women that are primary school graduates, the percentage of breastfeeding initiations has fallen obviously in a time period of 15 years, our finding is that breastfeeding is still a very accepted mode of feeding in our society.

The measures established by the surveys in 19 countries which were included in the WFS also indicate that breastfeeding is widely practiced^{7,8}. Evaluating countries of Asia as a whole, the percentage of breastfeeding, which is 74% in Malaysia and 85% in the Philippines, rises to 98% in Nepal and Bangladesh, supporting the previous statement that, generally, it appears that breastfeeding is still a very common method of child nutrition. In 6 of the 8 Latin American countries included in the survey, the percentage of breastfeeding ranges between 75 and 90%. It is the lowest in Costa Rica, 75%⁷.

When these values are assessed in conjunction with the per capita gross national product (GNP)^{*}, it is seen that in countries where the GNP is high, the initiation percentage is low and the breastfeeding duration is short (Figure 1), with the duration being affected more than initiation. Possibly the level of development is more effective in altering the period of breastfeeding than initiation.

Average Breastfeeding Duration

According to the TFS results, children that were born within the previous three years and breastfed for any length of time were breastfed for an average of 11.91 months.

When the average for the penultimate child was calculated, children dying before 1 year of age were excluded. It was thought that if the child had lived, the breastfeeding period would be longer so death would have an effect of lowering the average. According to the results of the survey, the penultimate child was breastfed for an an average of 16.89 months.

^{*} GNP is calculated as US\$1200 for Turkey⁹.

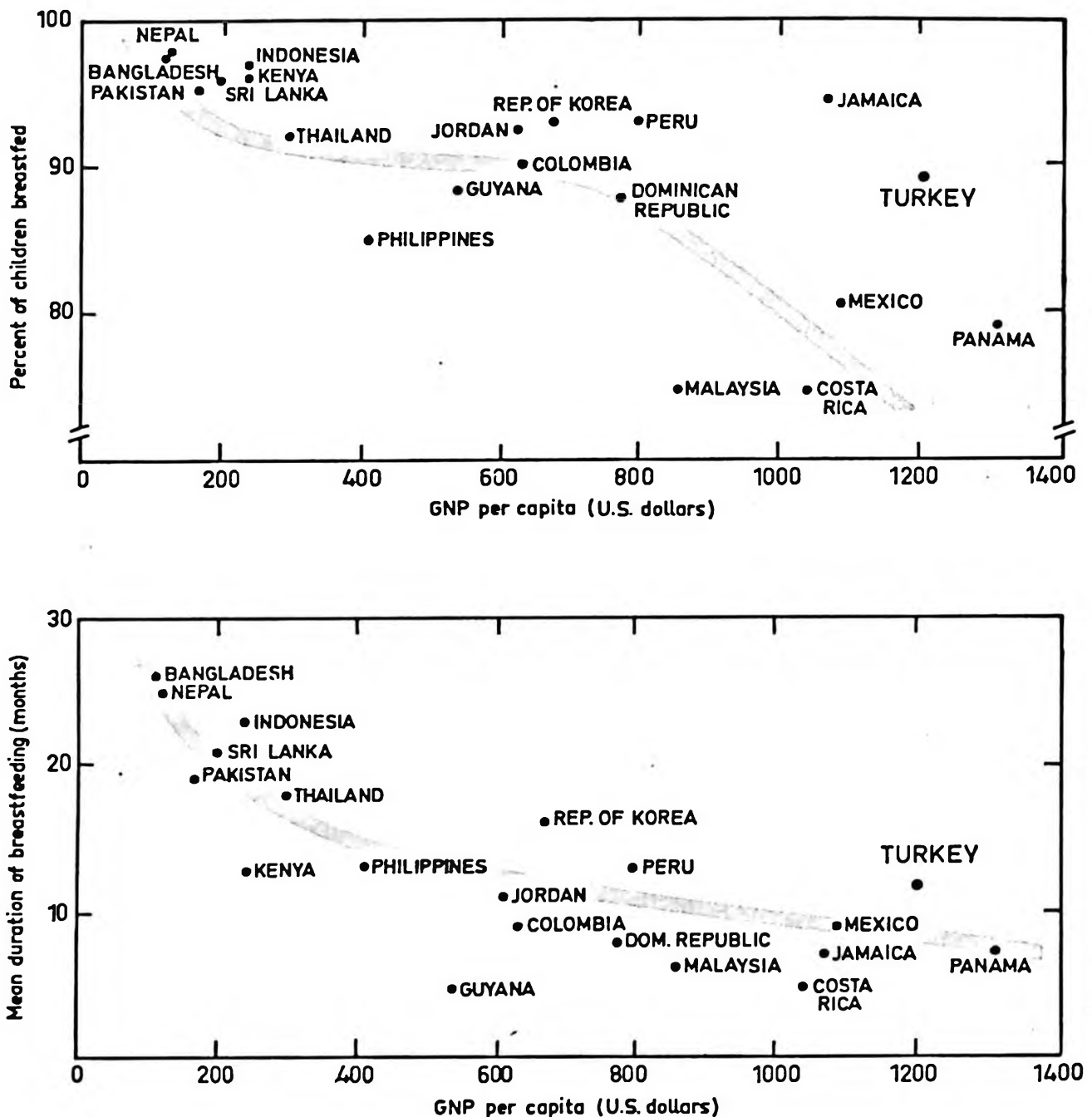


Figure 1.

Initiation and duration of breastfeeding by GNP per capita.

The last child was found to be breastfed for an average of 15.87 months. This average is somewhat lower than the second one because even if deceased children were excluded, all others (last children) were included irrespective of the breastfeeding duration. Özgür et al⁶ carried out two surveys between 1960-61 and 1975-76 in the rural area of Torbalı and established that the breastfeeding duration of illiterate mothers declined substantially between the time of the first survey and the next.

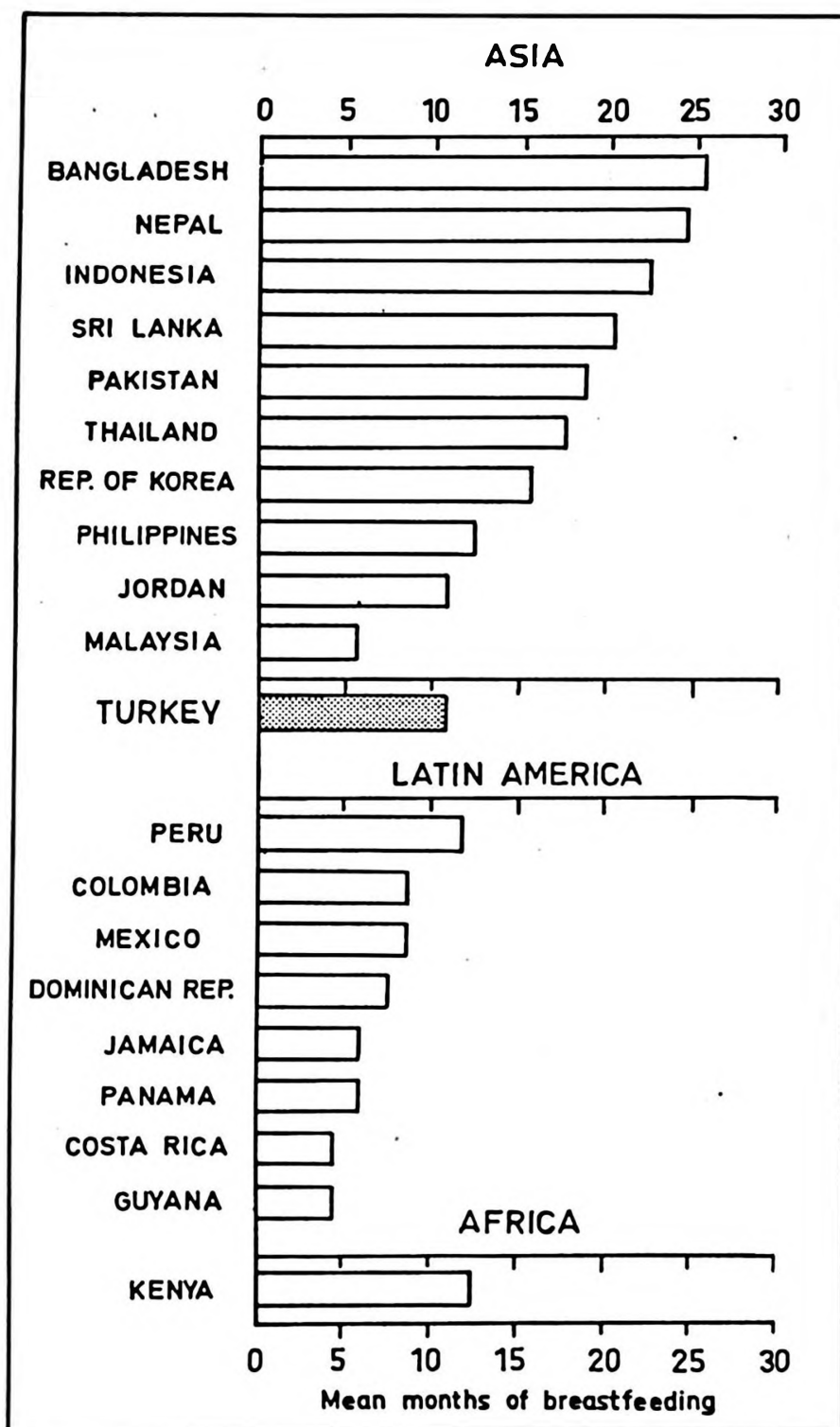


Figure 2.

Mean duration of breastfeeding for children born within the three years preceding the survey: WFS countries.

The results showed a lesser decline among primary school graduates but their initiation percentage is falling.

Our survey is not a longitudinal one but evaluates the results of a cross-sectional study; therefore, it cannot possibly reflect how the duration of breastfeeding changed in time.

If average breastfeeding duration in Turkey is compared with the results from WFS countries, it is seen to be shorter than in Asian countries, but Turkey is close to the very top level when assigned a position in the line-up of Latin American countries (Figure 2).

When breastfeeding frequencies and durations are compared (Figure 3), both are seen to be high in traditional communities whereas in modern communities either both are low or the frequency may be high but the duration short. Babies are rarely breastfed longer than 12 months in modern communities. In Finland for example, 79% of the 1-month-old babies are breastfed but only 30% at 3 months and 6% at 6 months¹⁰.

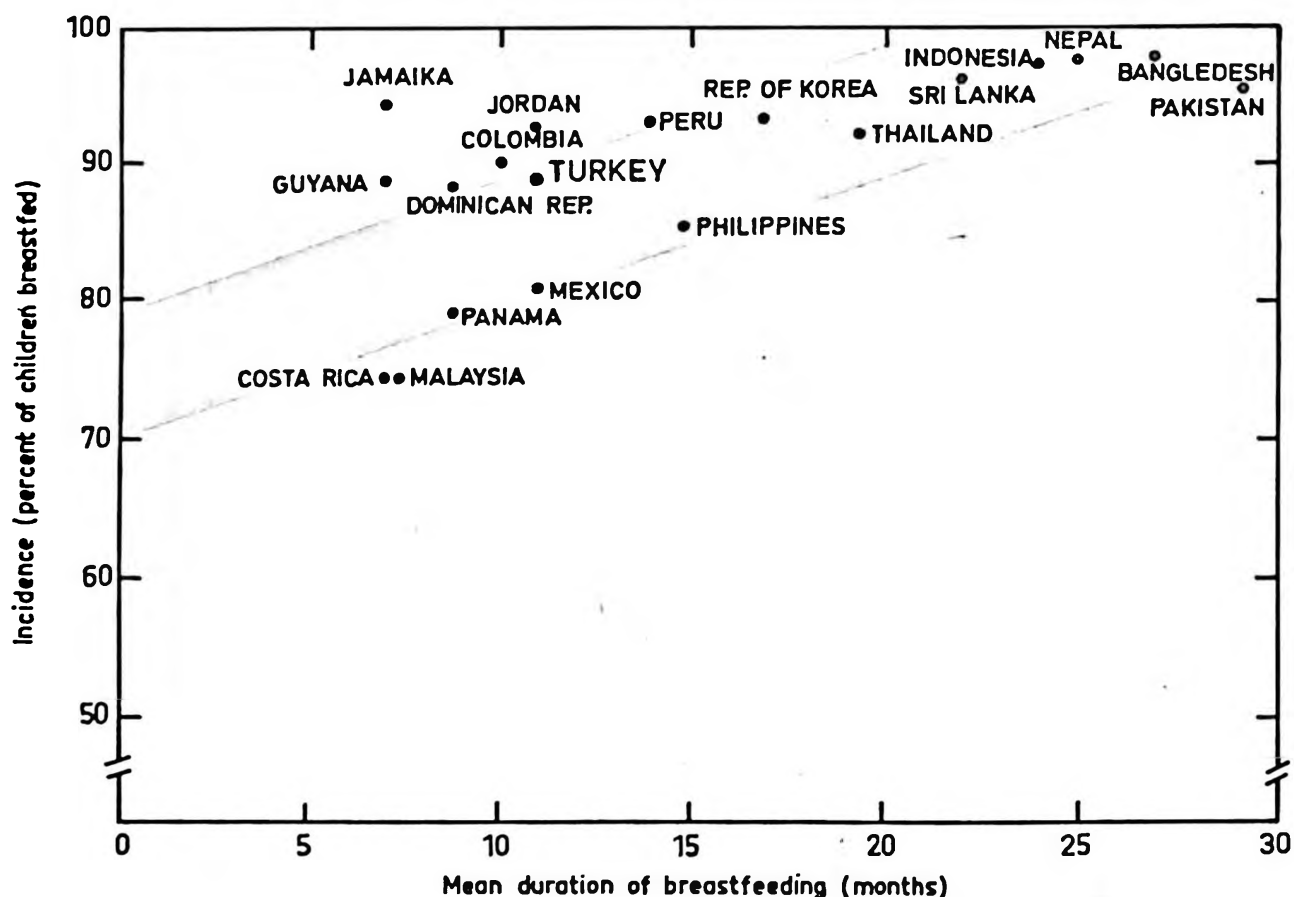


Figure 3.

Initiation of breastfeeding by average months of breastfeeding.

Breastfeeding-Contraceptive Usage Relation

Contraceptive usage may affect breastfeeding for two reasons. If contraceptive usage is accepted to be an indicator of a woman's ability to decide for herself and

also of her modernization, the relation can be expected to be inverse. As the contraceptive effect of breastfeeding is very well known, the employment of breastfeeding as a contraceptive and a decline in the usage of more effective methods could similarly be expected. The relationship between breastfeeding and contraceptive usage is somewhat similar to its relationship with per capita GNP, but the latter is stronger.

As expected, breastfeeding frequency is high in countries where contraceptive usage is low. The duration of breastfeeding is not affected as much.

Turkey is not located where expected and does not conform to the general tendencies in the tables. Despite the effectiveness of Westernization, the general adoption of a modern way of life and the length of time spent diffusing family planning programs, the frequency of breastfeeding is high and the duration is long which can be explained by the strength of cultural habits. It is known that the period of greatest contraceptive effect of breastfeeding is from the 10th to the 20th months¹¹.

Family planning programs can probably be counted on to control the population in countries where contraceptive usage is average or widespread. However, in countries where contraceptive usage is limited, family planning faces a risk if the breastfeeding duration is short, too. Where the median breastfeeding duration is 10-20 months, declining breastfeeding duration will cause the birth rate to increase if the extent of contraceptive usage does not. Kenya, Jordan, Pakistan, Bangladesh, Indonesia and Nepal are "at risk" countries in this respect. Considered in conjunction with these two variables, Turkey is not in the so called "risk" group.

In relation to practically all variables, it was seen that unwanted children were breastfed longer (Figures 4, 5). Presumably a mother giving birth to an unwanted child uses breastfeeding as a contraceptive against further children. However, the shortest average open birth intervals were noted in those women who breastfed the longest and the longest open intervals in those who breastfed the shortest lengths of time. Studies have shown that the conception-preventing effect of lactation amenorrhea is as great as oral contraceptives and diaphragms and more effective than coitus interruptus, rhythm and douche methods¹¹.

This effect weakens substantially after resumption of the menses but a higher rate of conception is seen in menstruating women who are not breastfeeding. People in developing countries where the usage of effective contraceptives is currently not widespread generally believe that effective contraception can be practiced by breastfeeding for a long period of time. One claim is that all other factors being equal, increasing the breastfeeding duration extends birth intervals. Although it is difficult to apply such a hypothesis to real communities, studies tend to confirm it. Our results suggest a situation which is quite the opposite, but we cannot show or compare how other contraceptive methods affect the average length of the open

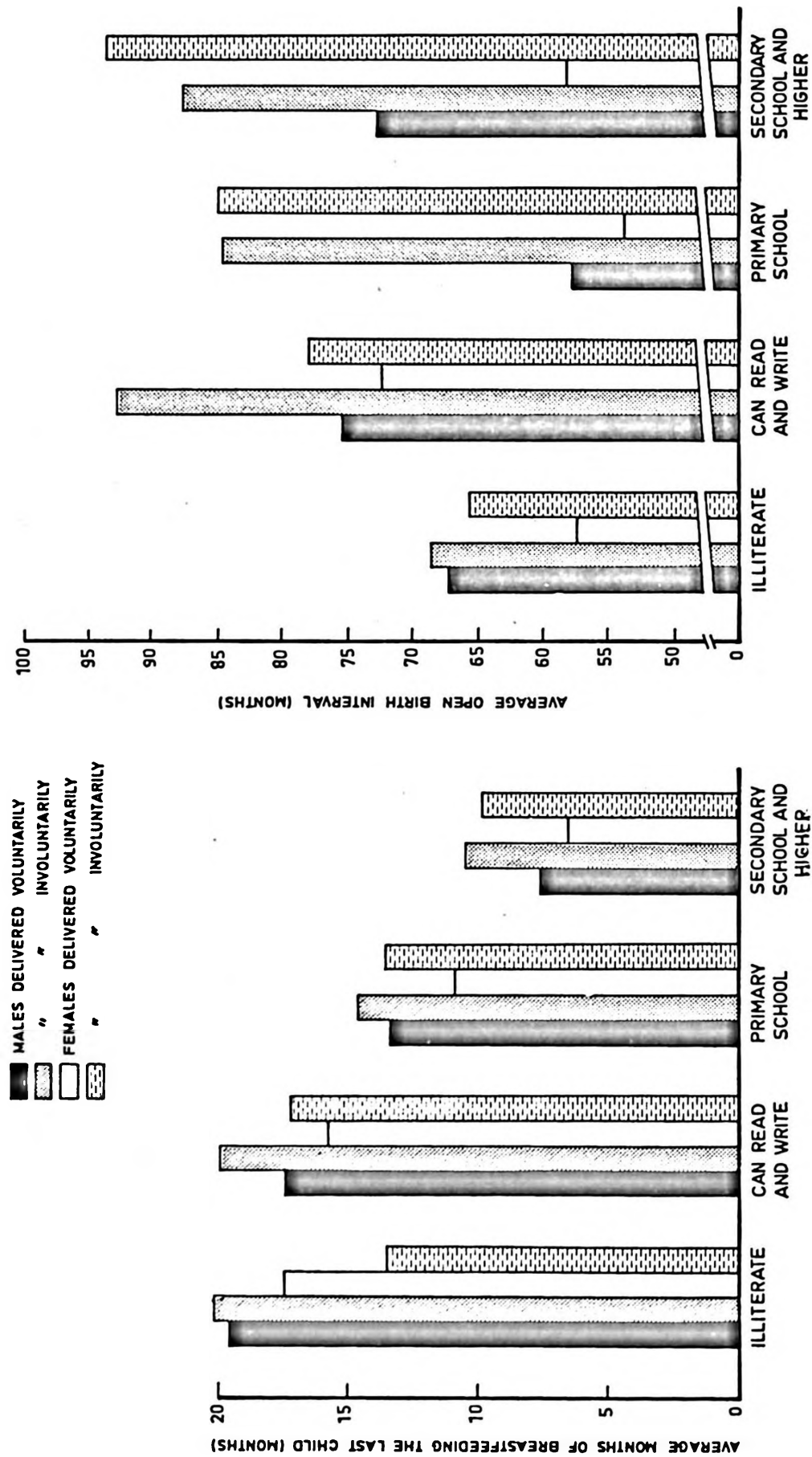


Figure 4.

Average months of breastfeeding the last child and average open birth interval by education level of mother, sex of baby and desire for last delivery (Turkey).

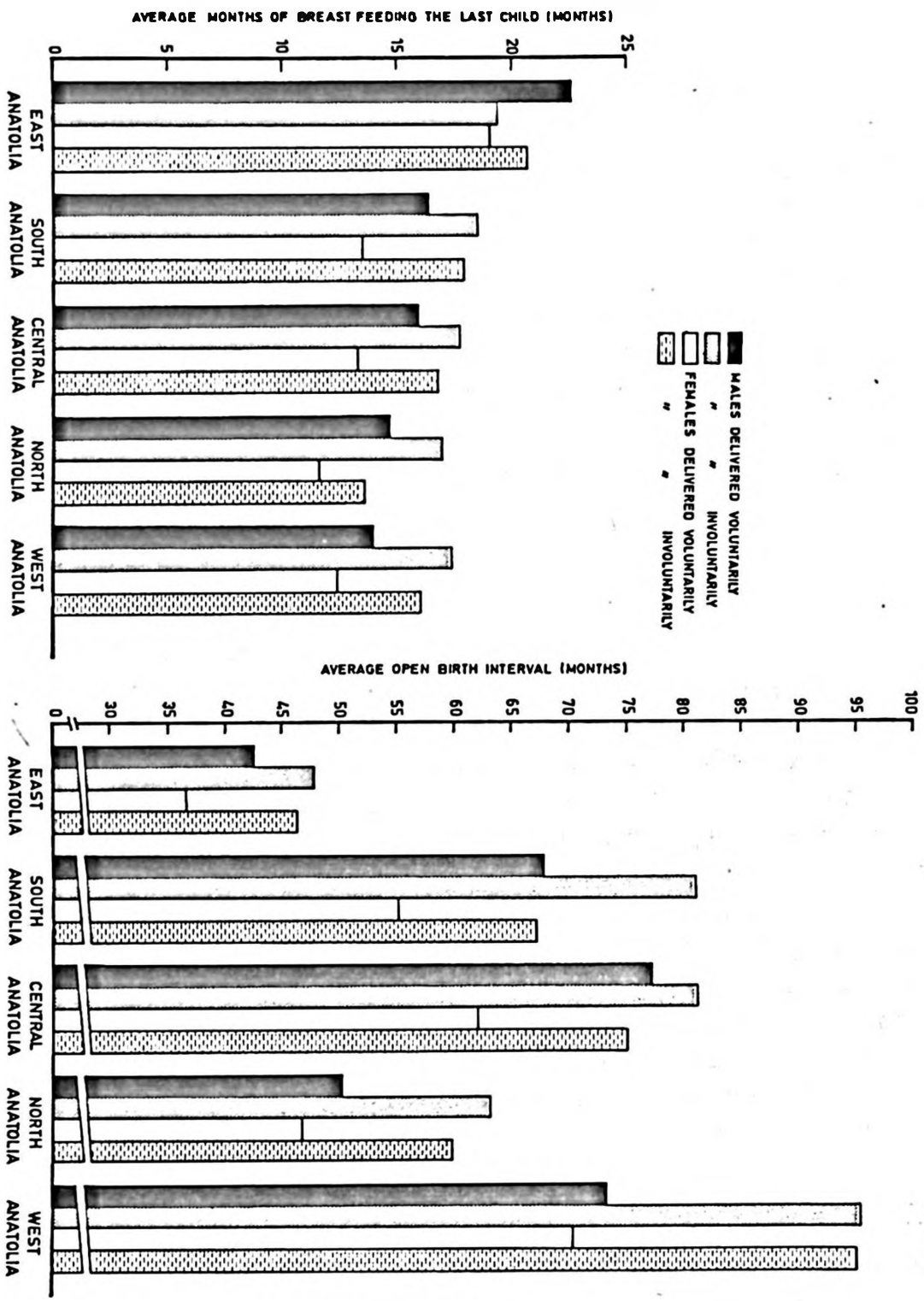


Figure 5.

Average months of breastfeeding the last child and average open birth interval by region, by sex of child and desire for the last delivery (Turkey).

birth interval. One explanation of the inverse relation we saw may be that the group which breastfeeds less is better educated and better off socio-economically. This would mean that they are cognizant of other, effective contraceptive methods and use them. We can also surmise that if the breastfeeding duration of women who breastfed a long time had not been quite that long, parity might have been higher.

Breastfeeding and the Mother's Education

According to the results of this survey, the less the mother's education, the longer the breastfeeding period (Figure 4). Women who conceive involuntarily, deliver a male baby and are illiterate have the highest breastfeeding duration average (20.09 months). The lowest average is seen in women with "lycée" or higher education, who conceive their last child voluntarily and deliver a female baby. The average length of the open birth interval is also lowest in illiterate women and higher in those with "lycée" and higher education. Considering the education of both wife and husband together gives similar results. The results of the 1974 Turkish Nutrition Survey¹² and those of Özgür et al⁶ (1978) from the rural area of Torbalı show an inverse relationship between the duration of breastfeeding and education. In addition, Özgür et al reported a sizeable decline in the breastfeeding duration of illiterate women in a period of 15 years and a fall in the initiation percentage of women who are primary school graduates.

Regional Variations in Breastfeeding

The duration of breastfeeding gradually declines from Eastern Anatolia to the West, and a similar variation was reported in the 1974 Turkish Nutrition Survey¹². Our survey indicates an 8.69 month difference between Eastern Anatolia and the Aegean-Marmara region in the average breastfeeding duration of desired male babies and 6.54 months for girls (Figure 5). It is best to explain regional differences of both the duration of breastfeeding the last child and also the average open birth interval, clearly evident in Figure 4, by considering together the levels of education, economic and social development and access to infrastructure services. As other studies have clearly revealed, both the percentage and duration of breastfeeding decline as industrialization and urbanization advance. No doubt these factors concurrently increase the family planning motivation and the use of contraceptives and easily explain the regional variations in length of the open birth interval.

Variations in Breastfeeding According to Size of Locality

When this variable is applied, breastfeeding durations change considerably and decline from villages to cities. The breastfeeding duration of wanted children is almost twice as long in villages as in cities. Using a different method of evaluation

Köksal¹² also showed a similar relation between the size of the settlement area and the duration of breastfeeding. As stated before when other variables were being discussed, women in cities are more susceptible to a modern life style and can find substitutes to feed their children more easily than rural woman. So even if traditional feeding continues for a longer time in rural areas, the duration falls rapidly with urbanization and industrialization.

Comparing rural-urban breastfeeding durations in 11 countries including Turkey, it is seen that the difference is more in some countries than in others. It is about 26% in Turkey (Table I), 17% in Bangladesh and reaches 90% in Panama.

TABLE I
Average Months of Breastfeeding the Penultimate Child by
Urban/Rural Residence: Selected WFS Countries

<u>Country</u>	<u>Urban</u>	<u>Rural</u>	<u>Percent Difference R-U/U</u>
Bangladesh	20.9	24.4	16.7
Colombia	7.5	10.6	41.3
Indonesia	13.8	21.4	55.1
Jordan	11.2	15.5	38.4
Kenya	10.2	13.4	31.4
Pakistan	18.7	23.1	23.6
Panama	5.8	11.0	89.7
Peru	9.5	15.6	64.2
Sri Lanka	12.8	16.7	30.5
Thailand	10.4	18.2	75.0
Turkey	15.2	19.1	26.2

Relationship Between Breastfeeding and Mother's Age, Length of Marriage

If breastfeeding practices change according to a specific pattern during transition from traditional to modern life, there is no doubt that young mothers will embrace the new practices more readily than will older ones; they are better educated, more receptive to new customs, and their behavior as well as habits are more susceptible to change.

The positive relationship between the duration of breastfeeding and the mother's age (Figure 6 and Table II) is well demonstrated by the results of our survey. Several

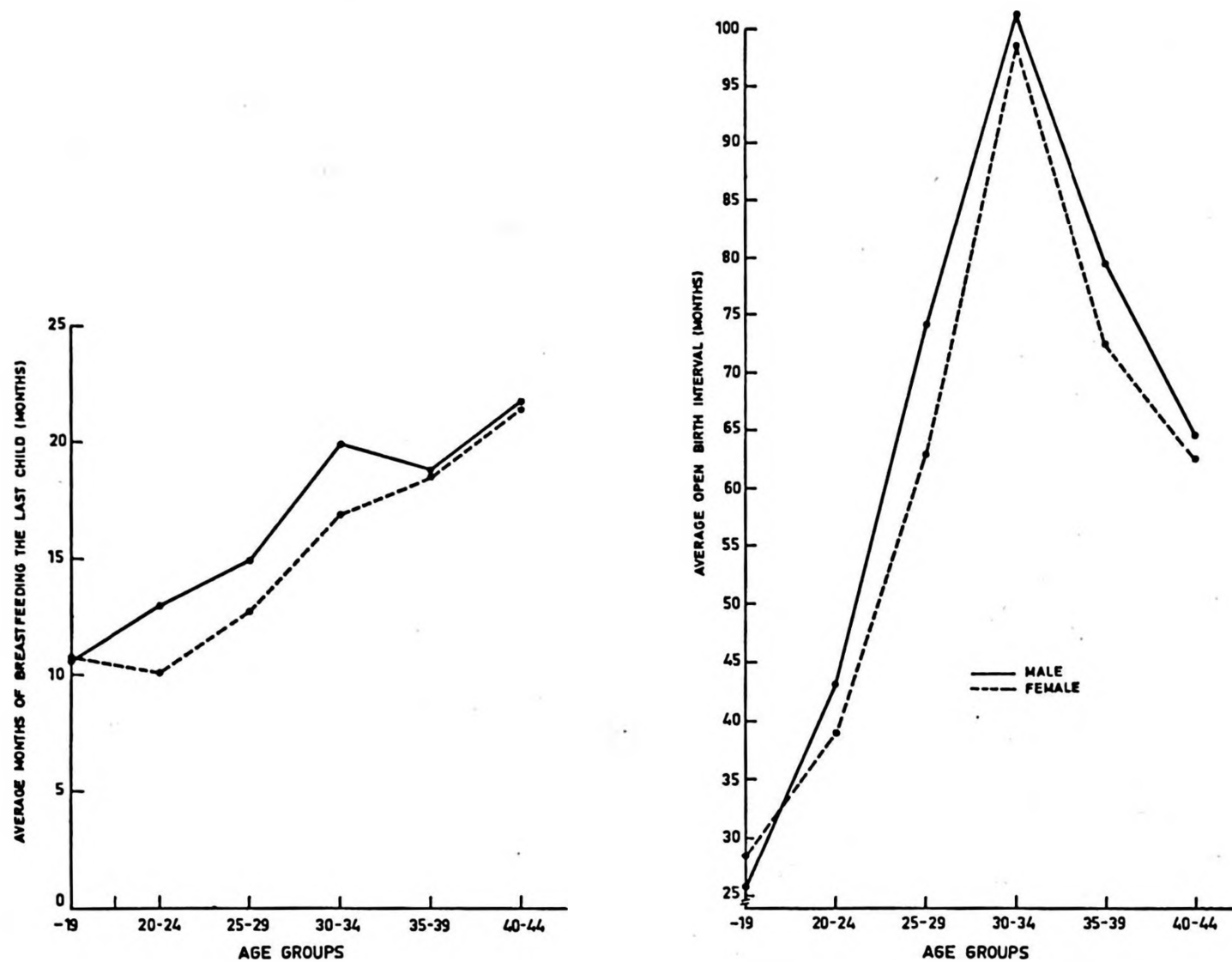


Figure 6.
Average months of breastfeeding the last child and average open birth interval by age of mother and sex of last child.

TABLE II

**Percentage Distribution of Women* Who Breastfed Their Children
According to Current Age of Mother and Birth Order in WFS Countries**

Countries	Current age			Birth order					Total
	25	25-34	35 +	1	2	3	4	5	
ASIA									
Bangladesh	99	99	99	99	99	99	99	99	99
Indonesia	98	98	98	98	98	98	98	98	98
Jordan	93	93	94	93	92	93	97	94	94
South Korea	94	95	97	92	96	97	97	97	96
Malaysia	78	78	80	71	78	78	82	83	79
Nepal	99	100	100	100	100	100	100	99	100
Pakistan	97	99	97	98	90	98	99	99	99
Philippines	92	87	88	84	87	87	88	90	88
Sri Lanka	97	96	97	95	97	96	98	98	97
Thailand	92	93	94	89	95	93	95	94	93
Turkey	92	94	96	91	95	97	94	96	95
LATIN AMERICA									
Colombia	91	91	94	87	92	93	95	95	92
Costa Rica	75	82	84	75	78	82	80	85	80
Dominican Rep.	92	91	90	86	90	92	93	93	91
Guyana	87	90	91	83	92	91	93	92	90
Jamaica	95	95	96	94	93	94	98	98	96
Mexico	83	85	86	77	85	88	88	87	85
Panama	82	83	87	76	82	84	89	90	85
Peru	94	91	93	89	91	92	93	94	92

* Women who have had at least two pregnancies (including current pregnancy) and whose penultimate child survived at least 12 months.

factors are responsible for this relation. The first may be that, as we pointed out above, young people are more receptive to innovations and modern life styles due to their education and constitution and may adopt them easier. In addition, young mothers are at the outset of their fertile age, so their birth intervals will be small. Pregnant mothers generally do not breastfeed, and the mother will terminate breastfeeding when she learns that she is pregnant again. Even if young mothers want to extend their birth interval, they will probably prefer modern contraceptive methods to breastfeeding.

As a woman gets older, her birth intervals will increase due to biological and behavioral changes. The ability to conceive and the frequency of coitus will decline with age while the duration of post-partum sterility will be greater compared to young mothers who breastfeed the same length of time¹¹. It is also highly probable that older women will adopt breastfeeding as a method to prevent a new pregnancy. Due to all the above, breastfeeding percentage and duration (Table II) will increase with age and parity. This relation is seen very clearly in the part of our study where evaluation is made on the basis of the mother's age and length of marriage, two almost parallel concepts.

Turkish women who have had an average of 6.30 children at the end of their fertile period have given birth to 4.28 by the end of their 34th year⁵. Thus the breastfeeding duration increases noticeably after the age of 35.

In general, it is seen that the variation of breastfeeding duration by age does not have a definite pattern in Asian countries (Figure 7). The duration of breastfeeding is affected partially by the fertility rate specific to age and partially by cultural values.

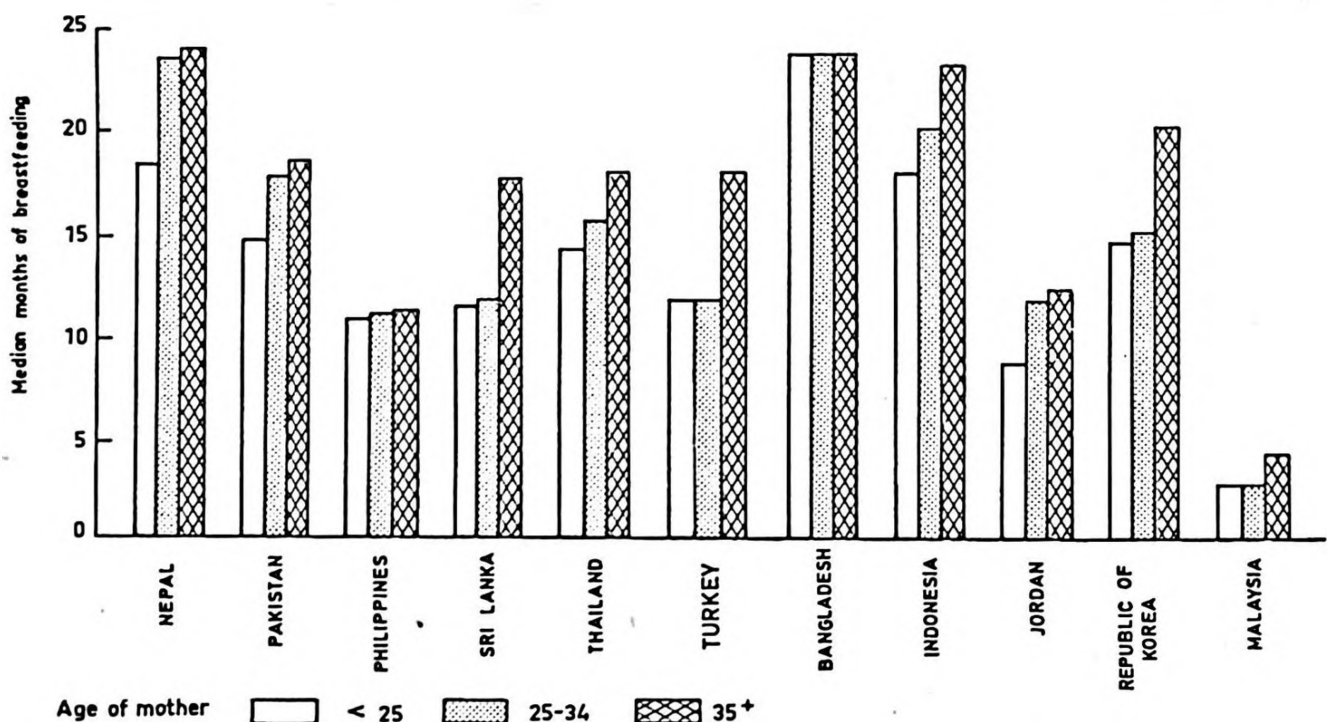


Figure 7.

Median duration of breastfeeding the penultimate child by age of mother : WFS Countries, Asia.

Relation Between Sex of Baby and Breastfeeding

When studying the variations in breastfeeding in Turkey according to different variables, we saw that with all variables, boys were breastfed longer than girls suggesting a sex preference. Ferry¹³ studied the published results from 19 countries where the WFS was conducted but found no significant difference by sex in breastfeeding

duration in the last closed interval. Only in Pakistan, Sri Lanka and the Dominican Republic were boys breastfed 0.5, 1.7 and 1.1 months longer than girls, respectively, but the difference is not statistically significant. The Özgür et al study also finds that there is no such difference⁶. Our findings, however, are that in the last closed interval, the duration of breastfeeding boys is 17.49 months and that of girls 15.77 months, the difference being statistically significant ($z=3.65$). Pertaining to the last child, the difference was again statistically significant ($z=4.14$), as boys were breastfed for 16.57 months and girls 14.79.

Regression Analysis

Two different regression models were applied to demonstrate as a whole the direction and degree of the previously outlined relation between breastfeeding and demographic/socio-economic variables.

The first model included the demographic/socio-economic variables seen in Table III, and breastfeeding duration in the open birth interval was taken as a dependent variable. Based on these variables, the relationships between the number of living male children, the mother's age, and size of locality numbered from metropolitan to rural area were used. In the regression model, it should be interpreted that as the size of locality increases the duration of breastfeeding decreases. However relationships between breastfeeding duration and the use of contraceptives and between breastfeeding and the number of deceased children were not found to be statistically significant. All independent variables taken together explain 19.9% of the variations in breastfeeding duration in the open birth interval.

Coefficients between all independent variables (except the mother's education) included in the second regression model (Table III) and the breastfeeding duration in the closed interval were found to be statistically significant. Again, the relations between the duration of breastfeeding and the number of living male children, the size of locality and the mother's age were found to be positive, those between duration of breastfeeding and use of contraceptives, number of deceased children and mother's education were negative as expected. In this model, all independent variables together explain 13.6% of the breastfeeding duration variations in the last closed interval.

Levels of Infant and Child Mortality

Infant and child mortality levels in Turkey are compared with WFS countries in Figure 8, which readily shows that the mortality rate in Turkey of infants up to 1 year of age is very high. Only three of 18 countries have a higher infant and child mortality rate than Turkey, namely Nepal, Bangladesh and Pakistan in that order. The high

TABLE III

Multiple Linear Correlation Coefficients Between the Duration of Breastfeeding the Last and Penultimate Child (Dependent Variables) and Independent Variables

Independent variables	Last child		Penultimate child	
	Regression coefficient	Computed t value	Regression coefficient	Computed t value
Number of living male children	0.634	2.94871**	0.32444	2.41345
Whether contraceptive used	−0.045	− 0.18664	−0.67601	− 3.67598**
Mother's education	−1.863	− 8.30712**	−1.72846	− 9.66861**
Size of locality	0.568	6.24791**	0.07370	4.98905**
Mother's occupation	−0.104	− 0.51256	0.08211	0.45673
Mother's age	0.321	10.70460**	0.26953	12.18765**
Number of ever born children	0.55	0.33855	—	—
Total miscarriages and stillbirths	−0.154	− 1.03122	—	—
Number of deceased children	−0.252	− 1.09139	0.29101	− 2.30848**
Constant		5.379		8.933
Multiple correlation coefficient (R)		0.446		0.368
Multiple determinant coefficient (R ²)		0.199		0.136
Standard error of estimate (S _{yx})		9.55		8.808
F value		62.864**		68.120**

** Significant at 0.001 and 0.05 level.

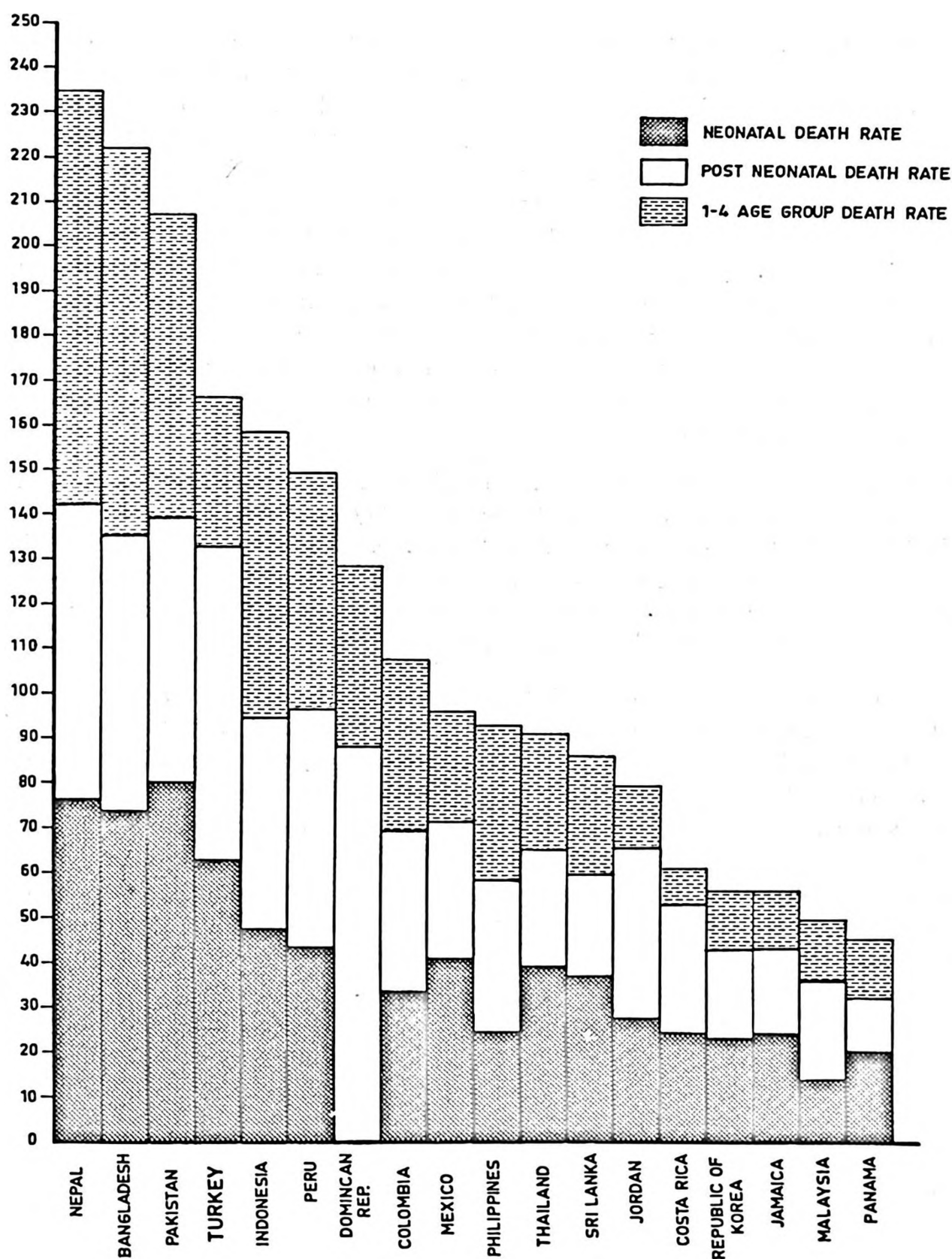


Figure 8.

Infant and child mortality rates (per 1000 live births): WFS countries (For the 4 years prior to the Survey).

infant mortality rate in Turkey is due to the mortality rates for newborns and infants up to 1 year of age, which are very high, 63 and 69.6 per thousand, respectively. This rate of 132.6‰ for infants below 1 year raises the overall mortality rate of children below 5 to 165.8‰. Actually the mortality rate in Turkey between the ages of 1 and 4 is 33.2‰ as evident from Figure 8. Looking at the 18 countries from this perspective, Turkey drops from 4th to 9th place from the top. It is known that the majority of neonatal deaths take place within 1 week after birth and generally are due to congenital malformations and birth traumas. The generally unhealthy surroundings and conditions of delivery compounded by the lack of knowledge of caring for the newborn play an important role in these deaths. Post neonatal mortality is generally due to the inadequate nutrition of mother and infant, both during gestation and after delivery, and the baby's malnutrition during this period is the underlying cause of infections.

As stated in the regression analysis section above, a statistically significant relation between breastfeeding duration and infant mortality was found in the closed interval (Table III). All other independent variables considered jointly, however, provide an explanation for only 13.6% of the changes in breastfeeding. This suggests that many variables which we could not include in the scope of this survey may affect breastfeeding, a physiological phenomenon.

It should be emphasized that the 1978 Turkish Fertility Survey provides information on infant and child mortality through detailed birth histories of mothers. Additionally, duration of breastfeeding in the closed and open birth intervals can be computed from the 1978 Survey. The main objectives of the 1978 TFS were to investigate levels and trends of fertility and nuptiality and their socio-economic and regional differentials. Therefore we may conclude that the 1978 Survey does not provide additional and detailed information which would lead us to an in-depth analysis of breastfeeding and infant mortality. For instance, we do not have information on whether infants are breastfed adequately or not; the pattern of development of babies in terms of certain criteria; when and how much supplementary foods are given to babies; how mothers themselves are being nourished, etc. Similarly the survey does not provide information on reasons of infant mortality and patterns of diet and nutrition of children before death. Such types of questions are the subject matter of retrospective or prospective surveys which would be designed to investigate specifically the relationship between breastfeeding and infant mortality through detailed nutrition histories of both infant and mother, together with clinical investigation of maternal and infant health.

Although findings of the present study which is based on 1978 TFS data indicate that the duration and percentage of breastfeeding (Table IV) in Turkey seem rather ideal, the infant mortality rate is still very high. This is one point to be emphasized when educating on the "why and how" of breastfeeding.

TABLE IV

**Duration and Percentage of Breastfeeding of the Last and
Penultimate Child According to the 1978 TFS**

		Last child		Penultimate child	
		%	Cum. %	%	Cum. %
Never breastfed		6.68	100.0	7.34	100.0
Months breastfed:	1	2.72	93.34	2.52	92.67
	2	2.75	90.62	2.37	90.35
	3	3.41	87.87	3.57	87.98
	4	1.19	84.46	2.09	84.41
	5	1.33	83.27	1.82	82.32
	6	2.16	81.84	3.99	80.50
	7	0.94	79.78	1.06	76.51
	8	1.22	78.84	1.40	75.45
	9	1.41	77.62	2.51	74.05
	10	0.55	76.21	0.95	71.54
	11	0.64	75.66	0.98	70.59
	12	10.34	75.02	15.27	69.61
	13	0.42	64.68	0.61	54.34
	14	0.53	64.26	0.75	53.73
	15	0.47	63.73	0.59	52.98
	16	0.44	63.26	0.92	52.39
	17	0.03	62.82	0.11	51.47
	18	13.03	62.79	17.23	51.36
	19	0.06	49.76	0.06	34.13
	20	0.39	49.70	0.28	34.07
	21	0.08	49.31	0.03	33.79
	22	0.17	49.23	0.11	33.76
	23	12.73	49.06	17.93	33.65
	25	0.03	36.33	—	—
	26	0.08	36.30	0.06	15.72
	27	0.06	36.22	0.06	15.66
	28	0.17	36.16	0.31	15.60
	30	1.53	35.99	2.32	15.29
	32	0.14	34.46	0.25	12.97
	34	0.03	34.32	0.03	12.72
	36	3.05	34.29	2.71	12.69
	38	0.06	31.24	—	—
	40	0.03	31.18	0.03	9.98
	42	0.06	31.15	0.06	9.95
	48	0.53	31.09	0.59	9.89
	52	—	—	0.03	9.30
	60	0.28	30.56	0.11	9.27
	61	0.03	30.28	—	—
	72	0.08	30.25	—	—
	81	—	—	0.03	9.16
	84	0.06	30.17	0.06	9.13
Still breastfeeding		25.87	30.11	1.03	9.07
Until death		4.16	4.24	7.82	8.04
No Answer		0.08	0.08	0.22	0.22

Summary

The main findings of this study, which used data from the "1978 Turkish Fertility Survey", are the following:

The percentage of breastfed children of those born within the three years prior to the date of the survey was found to be 89.1. The percentage of breastfeeding of the penultimate child was 92.66, while the same figure was 93.32 for the last child, and mean durations of breastfeeding were 11.91, 16.89 and 15.87 months respectively.

It was seen that unwanted children were breastfed longer than wanted children, because of belief in the contraceptive effect of breastfeeding.

According to the results of the study, the less the mother's education, the longer the breastfeeding period. The duration of breastfeeding gradually declined from Eastern Anatolia to the west and from villages to the cities. A positive relation was found between the duration of breastfeeding and the mother's age, and boys were breastfed longer than girls.

A statistically significant relation between breastfeeding duration and infant mortality was found in the closed interval, but all other independent variables considered jointly provided an explanation for only 13.6% of the changes in breastfeeding, which suggests that many variables which we could not include in the scope of this survey may affect breastfeeding.

REFERENCES

1. Jayasuriya D, Soysa PE. Feeding studies in Ceylonese babies. *J Trop Pediatr* 20: 275, 1974.
2. Chandra RK. Prospective studies of the effect of breastfeeding on incidence of infection and allergy. *Acta Paediatr Scand* 68: 691, 1979.
3. Welsh JK, May JT. Anti-infective properties of breastmilk. *J Pediatr* 94: 1, 1979.
4. Winikoff B, Baer EC. The obstetrician's opportunity: translating "breast is best" from theory to practice. (The Population Council, International Programs. Working Paper No. 11) New York: The Population Council, 1980.
5. 1978 Turkish Fertility Survey, Vol. I, II. Ankara: Hacettepe University Institute of Population Studies, 1980.
6. Özgür S, Özgür T, Taneli B. "Süt Çocuğu Çağında Beslenme Sorunları". *Türkiye Ulusal Gıda ve Beslenme Planlama Semineri Bildiri ve Raporları*. Ankara: Hacettepe University, 1978.

7. Kent Mederios M. Breast-Feeding in the Developing World: Current Patterns and Implications for Future Trends. Reports on the World Fertility Survey (2), Population Reference Bureau, Inc., June 1981.
8. Hirschman C. Hendershot G. Trends in Breast-feeding Among American Mothers (Vital and Health Statistics Series 23, No. 3). Hyattsville, MD: US Department of Health, Education and Welfare, 1979.
9. World Bank, *World Development Report, 1980*. New York: Oxford Univ. Press, 1980.
10. Hofvander Y, Sjölin S, Vahlquist B. In Jelliffe DB et al (eds). *Lactation, Fertility and the Working Woman*. Proceedings of the joint IPPF/IUNS Conference in Bellagio, Italy, 5-12 July 1977. Upshire, England: Winchmore Press, 1977, p. 107.
11. Simpson-Hébert M, Huffman SL. The contraceptive effect of breastfeeding. *Studies in Family Planning* 12 : 125, 1981.
12. Köksal O. *Türkiye 1974 beslenme, sağlık ve gıda tüketimi araştırması*. Ankara : Hacettepe University, 1977.
13. Ferry B. Breast-feeding comparative studies, No. 12. London: World Fertility Survey, 1981.