

BREAST-FEEDING IN INDUSTRIALIZED AND AGRICULTURAL COUNTRIES

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With support of DFG, Ma 375/12.

SUMMARY

Data of an extensive anthropological study concerning breast-feeding in several European and African countries, industrialized, as well as agricultural were evaluated by a computer-program of the medical computer center of the University of Vienna and compared to a similar investigation having been performed recently at the Ist Department of Obstetrics and Gynecology of the University of Vienna. Now 1260 women were studied during the early puerperium in hospitals and maternity wards in Austria, Germany, Portugal and Ivory-Coast (West-Africa).

The incidence of breast-feeding showed a significant difference, being 64% in European industrialized nations, such as Austria and Germany, 72% in mainly agricultural countries, like Portugal, and 98% in developing countries, like Ivory-Coast. The rate at our department in Vienna was 67%. Similar patterns were found concerning the duration of breast-feeding in 398 multiparous mothers. The mean value was at 7.3 ± 4.2 weeks in Austria and Germany, 18.3 ± 11.2 weeks in Portugal and 70.5 ± 18.6 weeks in Ivory-Coast. In Vienna it amounted 9.2 ± 5.7 weeks. After an interval of three months post partum in Austria and Germany 20% of the mothers, in Portugal 40% and in Ivory-Coast 98% were still breast-feeding, after six months the percentages were 6%, 22% and 98%, after one year 0%, 12% and 84%. In Africa's developing countries, like Ivory-Coast, practically all mothers are breast-feeding at least for one year, 24% even for two years. In industrialized nations factors like age, profession, higher socioeconomic status and mode of delivery have an influence on the incidence and duration of breast-feeding.

In part presented at the 7th European Congress of Perinatal Medicine, Barcelona 1980.

INTRODUCTION

In the past decade a significant decrease of perinatal mortality and morbidity was achieved in industrialized countries by technologically oriented Obstetrics⁽⁵⁻⁷⁾. Simultaneously a decline of the incidence and duration of breast-feeding was reported until a few years ago^(3, 4, 9, 15-17, 19, 20). Yet recently a certain discomfort about too much technique in the delivery rooms caused a reminiscence of natural methods^(13, 21-26). In consequence of this development increasing interest in infant nursing was noted, a trend which is also called "renaissance of breast-feeding"^(1, 8, 10-13, 21-26). At the same time the nutritional, immunological, biochemical, anti-allergenic and psychological advantages of breast-milk were documented by publications^(2, 7, 10-12, 19, 24-26).

In a recent survey having been performed at the Ist Department of Obstetrics and Gynecology of the University of Vienna the case histories of 2197 mothers, giving birth to babies in 1976 and 1977, were evaluated concerning the incidence and duration of lactation and concerning influencing factors^(5, 6).

Aim of the present study was to compare breast-feeding patterns in different European and African, as well as in industrial and agricultural countries.

MATERIAL AND METHODS

The data presented in this study are part of an extensive anthropological investigation, carried out in different European and African countries⁽¹⁴⁾. We are much obliged to the author for leaving her most interesting material to us for statistical evaluation. The investigations were carried out during the years 1976 to 1979 in several hospitals and maternity wards in Austria, Germany, Portugal and Ivory-Coast (Africa). On the basis of a questionnaire including 73 questions a total of 1260 women were included in the study during the puerperium. The data were transmitted to punchcards and evaluated by a computer program at the medical computer center of the University of Vienna. Although there are distinct differences between the hospitals of different regions of the same country, the data were

Table 1.

Country	n	%
Austria (A)		
Fed. Rep. Germany (GFR)	n = 889	64%
Portugal	n = 290	72%
Ivory-Coast (Africa)	n = 81	98%
I. UFK Vienna (A) (Gerstner 1980)	n = 2197	67%

combined for international comparison. In the German speaking countries - Austria and Germany - data were obtained from hospitals in Vienna, Stuttgart, Reutlingen, Fulda and Offenbach, in Portugal as well from rural towns, like Porto, Aveiro and Oliveira de Azemeis, as from cities like Lisboa, and in Ivory-Coast (Africa) from Abidjan. Some of the data of this large anthropological investigation were compared to our survey having been published recently (^{5,6,14}).

RESULTS

The frequency of breast-feeding, which means the incidence of mothers, who start to nurse their infants with breast milk in the postpartum period, is shown in *table 1*.

There is a significant difference in the frequency of breast feeding amounting 64% in European industrial countries, such as Austria and Germany, 72% in mainly agricultural countries, such as Portugal, and 98% in developing countries, like Ivory-Coast, where almost all mothers begin to nurse their babies. The corresponding figure of our recent investigation in Vienna was 67% of mothers breast-feeding at hospital discharge.

The duration of breast-feeding after previous deliveries could be evaluated in a total of 398 multiparous mothers. *Table 2* shows the mean duration of breast feeding in weeks \pm SD.

Again there is significant difference in the duration of the lactation-period, amounting 7.3 ± 4.2 weeks in german speaking countries, 18.3 ± 11.2 weeks in Portugal and 70.5 ± 18.6 weeks in Abidjan (Africa). All differences are statistically highly significant ($p < 0.001$).

In *table 3* the above mentioned figures are compared with our Viennese data.

It can be stated, that breast feeding is concentrating mainly in the early postpartum period up to three months in Austria and Germany, whereas in Portugal the three months percentage is twice as high and the relevant six months percentage, 3.5 times higher. In Abidjan (Ivory Coast) practically all mothers are feeding their infants at least half a year. After one year still 84% are breast feeding and after two years still 24%. In the bush village practically all mothers nurse their infants for one or two years.

DISCUSSION

The international comparison of the incidence of breast feeding shows similar results in both studies (^{5,6,14}). In the German-speaking countries - Austria and Germany - the proportion was found to be 64% and 67% respectively (^{6,14}). We assume that at present the proportion of breast-feeding mothers in European industrialized countries lies somewhere between 60% and 70% at time of discharge from the hospital. In Portugal, a country being mainly agricultural this rate was slightly higher being 72%. From the population of Ivory Coast in West-Africa practically all mothers are feeding, the rate being 98%.

In Switzerland, Tönz found in a study published recently, a number of 92% of the infants being breast-fed during the puerperium, 68% were exclusively breast fed (²⁴). In France, according to Rumeau, this percentage was only 36% (¹⁷), whe-

Table 2.

Austria (A) Fed. Rep. Germany n=199	Portugal (P) n=148	Ivory Coast (Africa) n=51	I. UFK Vienna (A) n=2197 Gerstner (1980)
7.3 \pm 4.2	18.3 \pm 11.2	70.5 \pm 18.6	9.2 \pm 5.7

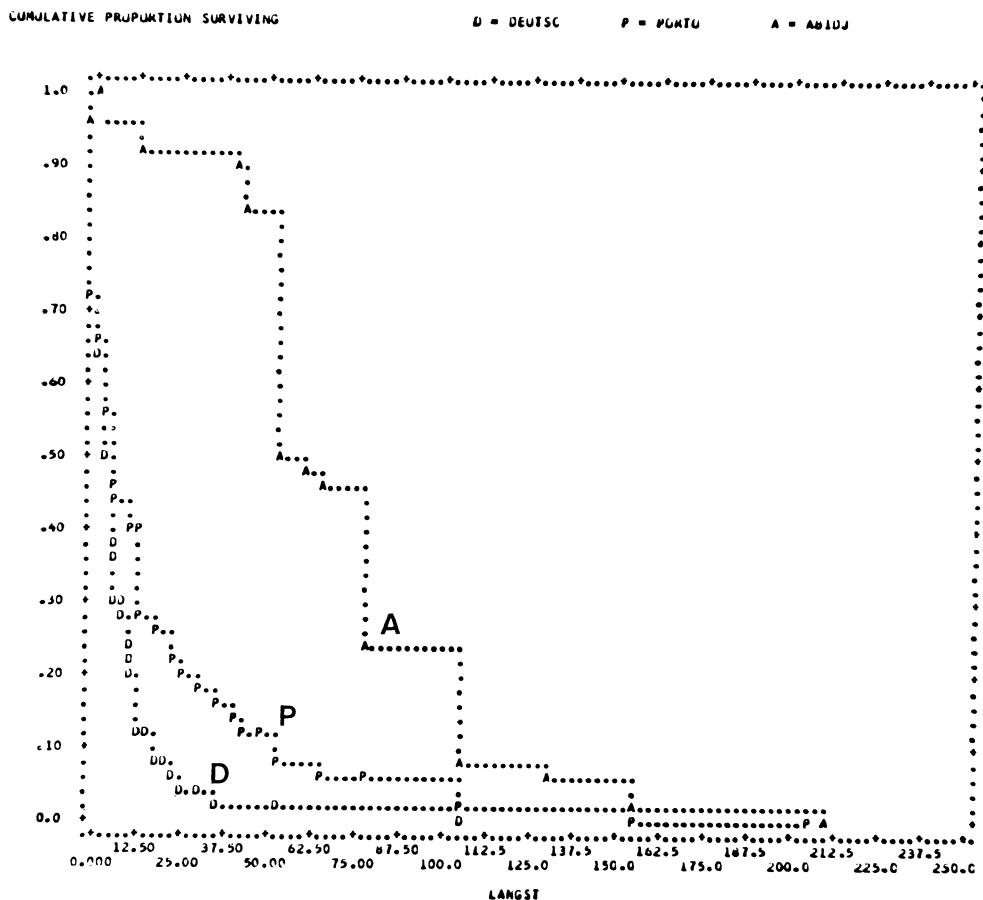


Fig. 1. — It shows the proportional decline of breast feeding during the puerperium and the postpartum weeks according to the life table method for the german speaking countries (D), for Portugal (P) and for Abidjan (Ivory-Coast) (A). Applying the Wilcoxon and the Mantel-Cox-test the differences are statistically highly significant.

reas in the United-Kingdom it amounted 57% ⁽²²⁾. In West-Germany in 1975 59% of the mothers were nursing at discharge from hospital ^(3, 19).

The duration of breast-feeding again revealed similar patterns at three and six months post partum in both our studies. Differently from our previous publications ^(5, 6) in this study the duration of breast-feeding was calculated by including all the mothers, also the non lactating

Table 3.

Months	A GFR	P	Ivory Coast	I. UFK Vienna
1	52%	66%	98%	56%
3	20%	40%	98%	22%
6	6%	22%	98%	11%
12	0%	12%	84%	0%
18		8%	48%	
24		2%	24%	
30		1%	6%	

ones; therefore our percentage in this study is smaller, than previously reported^(5, 6). The number of breast-feeding mothers at three months post partum amounted between 20% and 22% and at six months between 6% and 11% in Austria and Germany. At three months, the figures from Portugal were twice as high (40%) at six months being still 22% and after one year 12%. The Abidjan-figures are not comparable, as they only start to decrease markedly after one year, thus reflecting, that in this part of Africa practically all babies are breast-fed exclusively at least for one year, in 24% even for two years.

Also the mean duration of breast-feeding in multiparous mothers showed similar patterns, rising from European industrialized nations to Portugal and to Ivory Coast.

In England Sloper reported a significant increase of breast-feeding after a campaign with a policy of encouraging the mothers, to change their attitude towards breast-feeding^(22, 23). Thus the incidence of breast-feeding increased from 37% to 52% and the duration of breast feeding at 5 months from 23% to 43%⁽²³⁾. Also Coles reported similar results from the UK⁽¹⁾. Salarija found that the early initiation (within 10 minutes after delivery) and the increased frequency of breast-feeding (twice per hour) extended the nursing periode⁽¹⁸⁾. In Switzerland Tönz regarded nursing habits compared to other European industrialized countries as satisfactory: two months after delivery 60% of the infants were breast-fed (40% exclusively), after 4 months 30% (15%) and after 6 months 18% (2%)⁽²⁴⁾. From Sweden a rate of 40% was reported four months post partum⁽²¹⁾.

According to Jelliffe in relatively resource-rich countries with wellfed mothers and with good fetal stores the duration of breast-feeding should be extended to 4-6 months⁽¹²⁾. This offers to the baby

excellent growth with less possibility for infantile obesity, an optimal protection against cow's milk allergy, neonatal hypocalcaemia and various other metabolic disorders, further more special opportunities for mother-infant interaction and a supply of the unique blend of nutrients adapted to the needs of human off spring, in particular an abundant supply of nutrients needed for the growth and development of the central nervous system, e.g. high lactose, cystine, cholesterol and species specific pattern of fatty acids and polyenoic acids. It is stated by Jelliffe that lactation prolonged after 6 months does not appear to have nutritional advantages and may be categorized as optional⁽¹²⁾.

In resource-poor countries a 4-6 months duration of breast-feeding should apply in general as well for similar reasons, but also because of the protection against both of the interrelated syndromes of marasmus and diarrhoea and the child-spacing contraceptive effect. In all circumstances attention needs to be turned to maternal nutrition in pregnancy and lactation. In resource-poor countries, breast-feeding up to 1-2 years supplies an important dietary supplement to the transitional weaning diet and continuing, but declining biological contraception⁽¹²⁾. This is of particular importance in areas, where contamination of cow's milk and other food is likely and where medical facilities are inadequate⁽⁴⁾.

Concerning the factors influencing breast-feeding, we found in our previous study, that the incidence of breast-feeding is decreasing with advancing age of the mother and that an early reintegration into professional life after delivery affects the duration of nursing. The family status and parity of the mother had no influence on incidence or duration of breast-feeding⁽⁶⁾. Women with a higher socioeconomic status had a higher incidence of breast-feeding than the average (67%), as well as foreigners, represented by guest-

workers from Yugoslavia and Turkey. These also had a longer duration of breast-feeding. Interestingly also mothers with an abortion or interruption had a higher incidence than the average. An operative delivery under general anaesthesia and cases of premature birth were associated with a significantly lower frequency of breast-feeding⁽⁶⁾.

Similar results were also reported by several other authors from industrialized western nations^(16, 17, 20, 22). The mother most likely to breast feed was identified from middle or upper classes, well educated, older than 25 years, married and having been breast-fed herself⁽²⁶⁾. All these factors being relevant in industrialized countries, were not equally relevant in Portugal or in Ivory-Coast⁽¹⁴⁾. This might be due on one hand to the high rates of breast-feeding in these mainly agricultural or developing countries and to the smaller numbers investigated on the other.

Today the superiority of breast-feeding compared to artificial feeding has been well established for nutritional, biochemical, antiinfective, psychological, economic and contraceptive reasons^(2, 4, 7, 8, 10, 11, 21, 25, 26).

Obstetricians have a special responsibility and capacity to promote breast-feeding due to their contact with women throughout pregnancy and their influence on hospital birth routines⁽²⁶⁾. Therefore the promotion of breast-feeding should be a concern of high priority for obstetricians. This could accelerate and extend the current shift back to breast-feeding in industrialized countries to the benefit of mothers and their babies in all socio-economic groups.

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