BREAST FEEDING — A STUDY OF 8750 MALAYSIAN INFANTS

I. PATHMANATHAN

ONE OF THE foremost issues in infant nutrition in the 1970's has been the value of breast feeding. At the beginning of the decade a Symposium on "The Uniqueness of Human Milk" summarised the recent advances and highlighted the issues involved in the subject. In 1974, the twenty-seventh World Health Assembly passed a Resolution aimed at encouraging breast feeding and preventing a further decline in this practice.

In Malaysia, concern for breast feeding was demonstrated at a National Seminar on Breast Feeding in the context of National Development held in 1976 which focussed attention on the importance of breast feeding and discussed plans for a national breast feeding campaign. Baseline epidemiological data is a prerequisite to the planning of effective measures.

The objective of this study was to provide data that can be used to determine targets, priorities and strategies for action to promote breast feeding in Malaysia.

METHODOLOGY

The data presented in this paper was collected during a study on Maternal Health and Early Pregnancy Wastage conducted in Peninsular Malaysia in 1973-74, during which 9506 married women aged 15-44 years were interviewed to obtain information on their socio-economic background, patterns of pregnancy, childbirth, abortion and contraception as well as their history of lactation.

These women were resident in 13,704 randomly selected households in the urban areas of Kuala Lumpur, Ipoh and Petaling Jaya and six rural areas from five different Malaysian States (Baling, Kuala Kangsar, Ulu Selangor, Temerloh, Gemas and Segamat). These areas included Malay 'kampongs', Chinese settlements, rubber estates, tin mining villages, padi growing areas and land development schemes (FELDA).

The interviews were conducted by trained female interviewers matched as far as possible with the respondents in language and ethnic group so as to minimise communication difficulties. The survey methodology and questionnaire are described in detail in the Report of the study. The respondents gave information on every pregnancy they had experienced — its date, the place of birth and the related breast feeding experiences. In order to minimise error due to inaccurate recall, the data presented in this paper refers only to live-births that occurred during 1970-74.

RESULTS

Data relating to 8755 livebirths (born to 5160 women) occurring during the period 1970-74 is presented in this paper. Of these, 3807 (43.5%) were urban and 4198 (56.5%) were rural. The ethnic distribution was 3268 (37.3%) Malays, 4109 (46.9%) Chinese and 1337 (15.7%) Indians.

BREAST FEEDING

5625 (64.2%) of the 8755 infants were breast-fed i.e. they had been put to breast. There was considerable variation between breast feeding in the major ethnic groups with breast feeding being initiated in 88.9% (N 2906) of Malay infants compared to 69.7% (N 955) of Indian infants and only 42.3% (N 1741) of Chinese infants. A similar ethnic variation in breast feeding was also found in the Malaysian Fertility and Family Survey (Chander et al., 1974).

URBAN-RURAL DIFFERENCES

As anticipated, breast feeding was far less popular in the urban than in the rural sector. Among urban infants only 47.0% (N 1788) were

Public Health Institute Jalan Abdullah Kuala Lumpur, Malaysia

I. PATHMANATHAN, MBBS, DPH.

breast-fed whereas 77.5% (N 3837) of rural infants had been put to breast.

This urban-rural difference in breast feeding was most prominent among Chinese — the percentage of rural infants who were breast-fed being x 2.5 the percentage of urban infants. The difference in percentages of breast-fed rural and urban Indian infants was much smaller (x 1.2) and the difference between urban and rural Malays was negligible.

TRENDS IN BREASTFEEDING 1960-74

There is a difference in the trends in breast feeding between 1960 and 1974 in urban as compared to rural areas. Comparison of the percentage of infants put to breast during each of the five-year periods 1960-64, 1965-69 and 1970-74 showed that in urban areas there has been a decline in each of the major ethnic groups — the decline being most marked in Chinese and Indians and mild in Malays (Fig. I). In rural areas there has not been a reduction of breastfeeding among either Malays or Indians and only a slight decline among Chinese.

DURATION OF BREASTFEEDING

Almost half the urban Malay and Indian women and two-thirds the urban Chinese who put their infants to breast had stopped breastfeeding before the third month. On the other hand however, 25% of urban Malays who breastfed continued to do so after the ninth month, as did 12% of urban Chinese and 21% or urban Indians.

In the rural sector, 30% of the Malays, 40% of the Indians and 44% of the Chinese who breastfed stopped before the third month. However, among Malays, 50% continued after the ninth month whereas only 21% of Indians and 19% of Chinese did so.

AGE OF MOTHER

Surprisingly in both urban and rural areas there was no significant difference in the percentage of mothers who breastfed in each of the five-year age groups between ages 15 and 44. This was true for all the three major ethnic groups. ($p > .14$ for all groups).

Fig. 1 Urban and rural trends in breast feeding 1960 — 1974

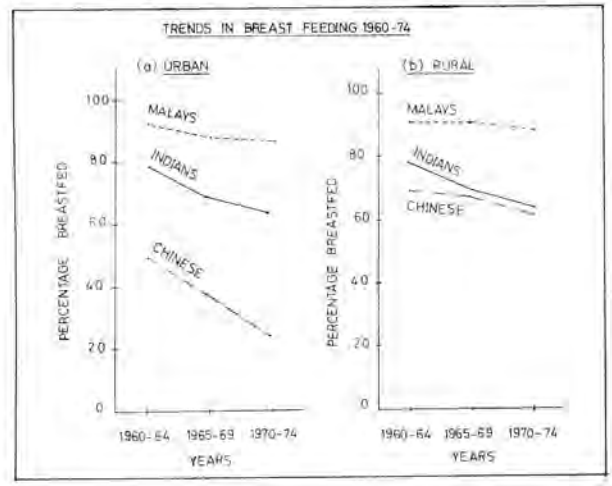

TABLE I

Breast feeding among urban and rural Malay, Chinese and Indian infants 1970 — 74

	URBAN			RURAL		
	TOTAL	BREAST FED	% BREAST FED	TOTAL	BREAST FED	% BREAST FED
MALAYS	977	845	86.4	2291	2061	90.0
CHINESE	2210	549	24.8	1899	1192	62.8
INDIANS	582	374	64.3	755	581	77.0
OTHERS	38	20	—	3	3	—
TOTAL	3807	1788	47.0	4948	3837	77.5

TABLE II

DURATION OF BREAST FEEDING @

	URBAN						RURAL					
	MALAYS		CHINESE		INDIANS		MALAYS		CHINESE		INDIANS	
Stopped BF before:	N	%	N	%	N	%	N	%	N	%	N	%
1 month	162	21.6	90	17.4	59	17.6	157	9.8	73	6.9	36	7.0
3 months	369	49.2	343	65.9	155	46.3	476	29.8	462	43.7	207	40.4
6 months	474	63.2	419	80.6	228	68.1	676	42.3	723	68.4	336	65.6
9 months	560	74.7	458	88.1	264	78.8	806	50.4	858	81.2	405	79.1
Continued 9+ months	191	25.4	60	11.6	71	21.2	790	49.5	198	18.8	107	20.9
TOTAL	751		518		335		1596		1056		512	

@ Infants still being breast fed at the time of interview have been excluded in this table.

TABLE III

AGE OF MOTHER AND BREAST FEEDING

	URBAN						RURAL					
AGE	MALAYS		CHINESE		INDIANS		MALAYS		CHINESE		INDIANS	
	Total	% BF	Total	% BF	Total	% BF	Total	% BF	Total	% BF	Total	% BF
15 — 19	44	90.9	40	27.5	22	54.5	81	86.4	36	36.1	27	81.5
20 — 24	240	89.5	389	24.4	141	75.1	543	89.9	352	36.9	232	75.9
25 — 29	338	86.7	766	22.5	180	61.7	605	91.2	578	37.4	200	77.5
30 — 34	214	82.7	652	26.4	130	62.3	495	90.7	513	39.2	151	74.8
35 — 39	101	85.1	268	26.9	82	57.3	390	89.5	264	37.5	101	81.2
40 — 44	37	89.1	87	29.9	26	61.5	157	92.4	149	30.9	35	74.3
TOTAL	974		2202		581		2271		1892		746	
X^2 test	$.14 < p < .22$		$.1 < p < .16$		$.8 < p < .9$		$.5 < p < .7$		$.5 < p < .7$		$p = .8$	

(Column totals differ from Table I because "Unknown Age" have been excluded.)

FAMILY INCOME

There was no significant difference in the percentages of urban Malay mothers breastfeeding their infants in high, middle and low income groups. Among urban Chinese and Indians, however, mothers in the \$500 — \$999 and \$1000/- + income groups had lower percentages ($p < .0005$) who breastfed than those in the lower income groups.

EDUCATION OF MOTHER

Among Malay mothers, the percentage who breastfed was not significantly different in mothers with different levels of education. However, among urban Chinese and Indians, those who had only Primary school education had the highest breast feeding percentages. Those who had no formal education or only religious education were the second highest group while

TABLE IV

FAMILY INCOME AND BREAST FEEDING

FAMILY INCOME	URBAN						RURAL					
	MALAYS		CHINESE		INDIANS		MALAYS		CHINESE		INDIANS	
	Total	% BF	Total	% BF	Total	% BF	Total	% BF	Total	% BF	Total	% BF
M\$100/-	1	—	7	—	18	—	190	89.5	17	—	19	—
M\$100 — \$299	405	89.4	626	30.5	306	69.6	1333	89.9	598	61.5	448	75.2
M\$300 — \$499	241	83.0	608	25.9	99	70.7	511	92.6	682	64.7	217	77.9
M\$500 — \$999	155	87.1	514	23.2	73	52.1	213	90.1	460	62.6	62	87.1
M\$1000/- +	166	85.5	407	17.2	82	45.1	30	73.3	123	67.5	6	—
TOTAL	969		2162		578		2277		1880		752	
X^2 test	$.13 < p < .2$		$p < .0005$		$p < .0005$		$p < .005$		$.3 < p < .5$		$.2 < p < .3$	

(Unknown Family Income is excluded from this table)

TABLE V

EDUCATION OF MOTHER AND BREAST FEEDING

	URBAN						RURAL					
	MALAYS		CHINESE		INDIANS		MALAYS		CHINESE		INDIANS	
	Total	% BF	Total	% BF	Total	% BF	Total	% BF	Total	% BF	Total	% BF
Nil/ Religious only	86	89.5	417	35.7	92	69.6	642	89.7	550	62.2	248	73.0
Primary only	559	85.6	1160	51.4	276	72.8	1452	91.1	1224	64.5	451	80.0
Secondary	295	86.7	581	17.4	190	51.0	180	86.1	118	50.0	51	68.6
Post-Secondary	31	83.9	47	23.4	22	45.5	6	—	7	—	4	—
X^2 test	$.5 < p < .8$		$p < .0005$		$p < .0005$		$.08 < p < .13$		$p < .01$		$p < .05$	

those with Secondary and higher levels of education had considerably lower percentages ($p < .0005$). A similar pattern existed among rural Chinese and Indians ($p < .01$ and $< .05$).

OCCUPATION OF MOTHER

Comparison of the percentages of breast feeding among the different types of working women and housewives showed that the behaviour of working women of the various ethnic groups was different.

Among urban Malays, although maids and domestic workers and nurses etc. had lower percentages than other working women and housewives, the number was too small to be tested for significance. Among urban Chinese, working women with lower percentages than housewives were teachers, clerks, typists and tailors, while farmers and workers in medical fields (nurses etc.) had higher percentages. ($p < 0.0005$). Among urban Indians too, teachers, clerks and typists had lower percentages than housewives ($p < 0.0005$).

TABLE VI

OCCUPATION OF MOTHER: (a) URBAN

	MALAYS		CHINESE		INDIANS	
	Total	% BF	Total	% BF	Total	% BF
Nurses, midwives & other medical staff	10 @	50.0	24	45.8	7 @	—
Teachers	40	85.0	65	16.9	25	52.0
Typists, clerks, cashiers, etc.	53	86.8	96	7.3	26	26.9
Maids & other domestic workers	11 @	63.6	62	25.8	24	79.2
Farmers, tappers & other agricultural workers	0	—	21	42.9	0	—
Tailors, dressmakers	2 @	—	77	18.2	1 @	—
Salesgirls	6 @	—	48	22.9	6 @	—
Housewives/others not employed	800	87.9	1644	26.3	477	66.7
X^2 test	$p < .9$ @		$p < .0005$		$p < .0005$	

@ Numbers were too small to be included in the test of significance.

Among rural Malays and Indians, there was little difference between housewives and working women ($M .2 < p < .3$; $I p = .15$). Among rural Chinese, agricultural workers surprisely had higher percentages than housewives and white collar workers.

For all the ethnic groups both urban and rural, farmers and agricultural workers had relatively high percentages who breast fed — comparable or even higher than housewives while in general, "white-collar" workers had lower percentages.

TABLE VI

OCCUPATION OF MOTHER: (b) RURAL

	MALAYS		CHINESE		INDIANS	
	Total	% BF	Total	% BF	Total	% BF
Nurses, midwives, & other medical workers	17	82.4	1	—	3	—
Teachers	36	88.9	16	25.0	5	—
Farmers, tappers, agric. workers	385	88.8	890	68.4	379	79.4
Salesgirls	9	—	18	33.3	0	—
Housewives/others not commercially employed	1788	91.1	925	59.6	344	75.0
X^2 test	$.2 < p < .3$		$p < .0005$		$p = 0.15$	

PLACE OF BIRTH OF THE INFANT

Among urban Chinese, those who delivered in private hospitals and clinics had the lowest breast feeding rates, followed by those delivered in Government hospitals. ($p < .0005$). A similar pattern was true for rural Chinese.

Among Malays, for the urban sector there was little variation of breast feeding with different places of birth ($p < .07$) but in the rural women hospital deliveries had lower breast feeding rates ($p < .0005$).

Among Indians there was no significant difference for different places of birth.

TABLE VII

PLACE OF BIRTH AND BREAST FEEDING

	URBAN						RURAL					
	MALAYS		CHINESE		INDIANS		MALAYS		CHINESE		INDIANS	
	Total	% BF	Total	% BF	Total	% BF	Total	% BF	Total	% BF	Total	% BF
Govt. Hosp.	437	81.2	663	31.8	387	66.4	437	84.7	1218	62.9	531	75.7
Pr. Hosp./ clinic	122	81.1	1442	22.0	134	54.5	9	—	178	52.2	11	54.5
Govt. M/W.	124	85.4	42	47.6	27	77.8	1171	92.3	413	71.4	91	83.5
Unq. M/W.	280	90.0	23	47.8	30	66.6	668	89.9	53	66.0	117	78.6
X^2 test	$.07 < p < .11$		$p < .0005$		$.03 < p < .04$		$p < .0005$		$p < .0005$		$.11 < p < .17$	

DISCUSSION

Since the percentage of women who initiate breast feeding is strikingly different in each of the major ethnic groups and this difference is maintained in different educational, economic, age and occupational groups, it appears that cultural factors related to the different ethnic groups have a strong influence on whether or not a newborn infant is put to breast. While urban Malay and Indian women had relatively high breast feeding rates, urban Chinese had rates that were almost as low as in developed countries. Meyer (1966) in a study in the U.S.A. found 18% of mothers initiating breast feeding and Sloper et al. (1975) in Oxford found 27% compared to 25% of urban Chinese in the study. It appears that efforts to improve breast feeding rates among the Chinese should include a study of cultural and other factors that serve as deterants to breast feeding in this community. Furthermore, since urban breast feeding rates have also begun to decline in the other two communities, measures to halt this decline could include reinforcing the cultural factors that have, up to this time, preserved the practice of putting the infant to breast among Malays and Indians.

The most disturbing feature of the breast feeding practices among the women studied is that in all the ethnic groups, among both urban and rural women a very high proportion of those who did initiate breast feeding had stopped by the end of the second month. For example, 67% of all the urban Malay mothers and 72% of all the urban Indians were not breast feeding after the second month. Going out to work could not have been an important factor in stopping breast feeding since only 19% of the urban Malay and Indian mothers were working outside their homes. Sloper et al. (1975) reported a similar pattern in Oxford where despite successful efforts in the hospital to improve the percentage who initiated breast feeding, a high proportion (50%) had stopped by the end of the second month. Sloper et al reported that solids were introduced early — more than 60% by the second month. A subsequent study by Sloper et al. (1977) reported the effectiveness of advice by health visitors and midwives in prolonging breast feeding and delaying the introduction of solids. It is interesting that in a rural Malaysian community too (Pathmanathan, 1975) 67% of infants had been introduced to solids by the third month of life — the majority being commercial cereals.

Women in the higher income groups and "white-collar" working women predictably had lower breast feeding rates. Although it might be argued that these women might be able economically to provide their infants with adequate nutrition without breast milk, their influence in the community as trend setters and "role models" should not be ignored.

The lower breast feeding rates in infants born in hospitals and private clinics highlights the need

to review hospital routines and advice given while the mother is in hospital — both of which are factors that have been shown to influence the initiation of breast feeding (Sloper et al., 1975).

The association between the different educational levels and breast feeding is possibly influenced by other factors. For example, women with secondary education possibly have a larger proportion of working women than those with only primary school education. Further analysis is necessary to understand the influence of the educational level of the mother on her decision to breast feed her infant.

SUMMARY

A study of 8755 Malaysian live-births which occurred during 1970-74 showed that although 64% were initially breast fed, between half to two-thirds of these had been taken off the breast by the end of the second month. Chinese had low breast feeding rates compared to Malays and Indians suggesting differing cultural influences related to breast feeding in the different communities. Since there is a decreasing trend in breast feeding even among Malays and Indians in the urban areas, it is suggested that these cultural influences be studied and incorporated into educational efforts to improve breast feeding among Chinese and to prevent a decline among Malays and Indians.

Priority should be given to efforts to prolong the duration of breast feeding. Routine advice given by public health nurses in relation to the early introduction of solids and bottle feeds should take into account the desirability of prolonging breast feeding.

Efforts to improve the initiation of breast feeding should be centred in maternity hospitals and clinics — especially those in the private sector, and particular attention should be given to women in the higher income groups and working women who are likely to influence "fashion-trends" in breast feeding in the community.

ACKNOWLEDGEMENT

This study was made possible by the joint sponsorship of the Federation of Family Planning Associations of Malaysia and the International Development Research Centre (IDRC) of Canada and the cooperation of my fellow members of the Study Group (who are listed as authors of the Report of the Study). My gratitude also to Dr. S. Appudurai, Administrative Coordinator of the Study, and to Mr. M.H. Chia of the Public Health Institute for statistical assistance.

REFERENCES

Chander, R., Palan, V.T., Aziz, N.L. and Tan, B.A. (1977). Malaysian Fertility and Family Survey — 1974. Kuala Lumpur. Dept. of Statistics, Malaysia.

Jelliffe, D.B. and Jelliffe, E.F.P. (ed) (1971). Symposium — The Uniqueness of Human Milk. *Am.J. Clin. Nutr.* **24**; 968-1021.

Meyer, H.F. (1968). Breast feeding in the United States. *Clin. Paed.* **7**; 708.

Pathmanathan, I. (1975). A study of Infant Feeding Practices in Rural North Malaysia as a basis for determining Needs in Nutrition Education. *Southern Asian J. of Trop. Med. Publ. Hlth.* **6**, 402.

Seminar Kebangsaan (1976). Lapuran Pelancaran Kempen Susuan Ibu. Kuala Lumpur. Kementerian Kesihatan, Malaysia.

Sinnathuray, T.A., Khairuddin, Y., Ng, T.K.F., Palan, V.T., Pathmanathan, I., and Tan, B.A. (1977). Report on Maternal Health and Early Pregnancy Wastage — Pathmanathan, I. (ed.) Federation of Family Planning Associations, Kuala Lumpur.

Sloper, K., McKean, L., and Baum, J.D. (1975). Factors influencing breast feeding. *Arch. Dis. Child.*, **50**, 165.

Sloper, K., Elsden, E., and Baum, J.D. (1977). Increasing breast feeding in a community. *Arch. Dis. Child.*, **52**, 700.

World Health Organisation (1974). Proceedings of the World Health Assembly No. 217. Geneva.