TABLE III—*Mother's Literacy and Reasons for Breast Feeding**

S. No.	Reasons	Literacy of mothers	
		Educated	Non-educated
1.	Keep the child healthy	72.7	100.0
2.	Keep the child immunized	36.3	–
3.	Improved child's digestive system	9.0	–
4.	No disadvantages	27.2	80.0
5.	Don't know	36.2	20.0
	Total (N)	46	27

* Multiple response

to be counter to the current trend, but the parity wise median duration indicates that there has been a decline here too. Longer breast feeding resulted in longer birth intervals, in consonance with earlier reports(5,6) that breast feeding has well established contraceptive effect, though the duration of this effect is not predictable. The infants at the age of 1.4 months in the study population were given liquid foods. Thus, the infant feeding practices among the studied population are in agreement with the recommendations of WHO/UNICEF(7).

Acknowledgements

The authors are extremely thankful to Prof. Kanwar K. Kaul, Head, Department of Pediatrics, Government Medical College, Jabalpur for his valuable suggestions and guidance in the preparation of this paper. Grateful thanks are due to Miss Nigar Fatima Abidi, for her major contribution in data collection.

REFERENCES

1. Butz WP, Habicht JP, DeVanzo Julie. Environmental factors in the relationship between breast feeding and infant mortality. Am J Epidemiol 1984, 119: 516-525.
2. Palloni A, Millman S. Effects on inter-birth intervals and breast feeding on infant and early childhood mortality. Popul Stud 1986, 40: 215-236.
3. Jellife DB, Jellife EFP. Human Milk in the Modern World. Oxford, Oxford University Press, 1978, pp 300-345.
4. Ahmed M, Khuba B. Breast feeding in developing countries: Some evidence. J Fam Welf 1984, 31: 21-31.
5. Van Ginneken JK. Prolonged breast feeding as a birth spacing method. Stud Fam Plann 1974, 5: 201-206.
6. Masnick GS. The demographic impact of breast feeding: A critical review. Hum Biol 1979, 5: 109-125.
7. WHO/UNICEF Meeting on Infant and Young Child Feeding. WHO Chron 1979, 33: 435-443.

Supplementary Feeding Pattern in Children Living in a Resettlement Colony

S. Kumar
L.M. Nath
V.P. Reddaiah

Malnutrition contributes to a large proportion of childhood morbidity and mortality in India. Delayed and inadequate wean-

From the Centre for Community Medicine, All India Institute of Medical Sciences, New Delhi 110 029.

Reprint requests: Dr. Sanjiv Kumar, Project Officer, UCI, UNICEF, 2 Raj Bhawan Road, Civil Lines, Jaipur 302 006.

Received for publication March 22, 1989; Accepted October 17, 1991

ing is one of the most important reasons for initiating the vicious cycle of infection and malnutrition. The desirable practices, like continued breast feeding need to be strengthened and the undesirable ones like delayed weaning should be modified. In order to study weaning practices and its implications for promoting child practices, the supplementation pattern was studied in a resettlement colony of South Delhi.

Material and Methods

The study was carried out in Sector 1 of Dr. Ambedkar Nagar, a resettlement colony for urban slum dwellers, a part of urban field practice area of the Centre for Community Medicine, All India Institute of Medical Sciences, New Delhi. Most of the houses were pucca, having a room and a kitchen. A majority of the residents were construction laborers, belonging to scheduled castes. Each house was visited, and mothers with children less than three years of age were interviewed using a structured, close ended, coded proforma. The proforma included identification data, information about feeding, maternal opinion on child feeding, time of introduction and reasons for supplementation and information regarding bottle hygiene.

Results

A total of 543 families with 547 children less than 3 yr old were studied. Most of the families (54.9%) belonged to upper lower socio economic status of Kuppuswamy's scale(1). The others belonged to lower middle (33.2%), upper middle (11.4%) and lower (0.5%) socio-economic classes. Nearly two thirds (69.6%) of them had been staying in the urban area for more than ten years. Most of the mothers (69.8%) were illiterate; only 11.1% had received education beyond primary school. A majority (71.5%) of families were nuclear and 63.8% belonged to scheduled castes. Only 8.3% of the mothers were working outside, either part time or full time.

One third of the children less than 3 months age group received animal milk and 44.6% between 3-6 months, 74.2% between 6 to 9 months and 88.7% between 9-12 months were receiving supplements including animal milk. This proportion increased to 100% in children above one year of age. The children were offered supplementary feeds because the mothers felt that breast milk was no longer sufficient (84.5%), to accustom them to the bottle (4.4%), child was too old for breast feeds (3.5%) or mother had to go for work (1.8%). Most (80.5%) mothers initiated supplementation on their own, while the rest on the instructions of elders in the family (14.4%), doctor's (3.2%), neighbours' (0.7%), husbands' (0.4%), or paramedical workers' (0.4%).

At the time of interview, 33.3% in 0-3, 37.5% in 3-5, 59.1% in 6-9, 64.1% in 9-12, 81.3% in 12-15, 80.0% in 15-18, 84.2% in 18-24 and 84.1% in 24-36 months age groups were receiving animal milk. Among those receiving animal milk, 22.9% started receiving it in the first month, and another 13.7% by three months. The type of milk used included Mother Dairy (36.5%), Delhi Milk Scheme (30.8%), buffalo (14.5%), cow (8.3%) or goat milk (2.1%) and infant formula (7.5%).

A vast majority (80%) of mothers diluted the milk upto three times with plain water. The dilution was more when milk was started and progressively reduced as the child grew older. All the mothers using infant formula were over diluting it. The children were fed directly through tumbler

in 37.4%, or by cup and spoon in 18.5%. The rest used metal, glass or plastic feeding bottles; 92.2% of them had just one feeding bottle and 88.6% used the same nipple. The knowledge on bottle hygiene was unsatisfactory. Only 1.2% of the mothers using bottle, sterilized it as recommended. The rest cleaned it with ash and water (49.1%), detergent and soap (34.7%) or only hot water (15.0%).

Children Receiving Semisolids/Solids

The mean age of introduction of semisolids was 10.3 months (SD 4 months); only 13.9% were weaned before 6 months of age while in one third it was delayed till more than one year of age (*Table I*). The commonly used weaning foods included dal, khichri, rice, chapati, biscuits, *etc.*

Discussion

A large proportion of children (33.3%) less than 3 months old were receiving top feeds. Some other studies have also shown early introduction of supplements in urban poor in India(2,3). There is an agreement that weaning should be started at 4 to 6 months(4-6). Premature cessation of exclusive breastfeeding unnecessarily exposes children to infection and decrease the breast milk output, as the child sucks less frequently on the breast which in turn reduces prolactin secretion and breast milk output(4). Early supplementation is likely to be more harmful in the lower socio-economic status where adequate sterilization of the feeding bottle and nipple is not adhered to.

TABLE I—*Age at Introduction of Semisolids*

Age at introduction (months)	Number	Percentage
<3	1	0.3
3-6	39	10.6
6-9	103	28.1
9-12	98	26.9
12-15	105	28.7
>15	20	5.5
Total	366	100.0

Delayed supplementation with top feeds was also common in present study. A quarter of children in 6 to 9 months and 12% in 9 to 12 months of age were not receiving top milk, semisolids or solids. These figures are comparable to that reported from studies on the urban middle class in India(7). This delay is also detrimental to child nutrition. Most of the mothers (80.5%) took the decision to supplement on their own. Hence, there is a need to utilize every contact with the mother to educate her about proper child feeding practices. The belief that undiluted milk is harmful also needs to be removed.

The prevalence of breastfeeding is still high in urban poor but the practices of early introduction of top milk, dilution of milk and delayed initiation of semisolids, play an important role in initiating and sustaining the vicious cycle of malnutrition and infection. It is important that the medical and paramedical staff personnel educate the mothers about these practices at every possible contact, so as to ensure proper infant feeding.

REFERENCES

1. Kuppuswamy B. Manual of Socio-economic Status Scale (Urban) Revision 1981, Mansayan, 32, Netaji Subhash Marg, Delhi 6.
2. Ghosh S, Gidwani S, Mittal SK, Verma RK. Socio-cultural factors affecting breast feeding and other infant feeding

practices in an urban community. Indian Pediatr 1976, 13; 827-832.

3. Gopujkar PV, Chaudhury SM, Ramaswamy MA, Gore MS, Gopalan C. Infant feeding practices with special reference to the use of commercial infant foods. Nutrition Foundation of India. Scientific Report 4, Nutrition Foundation of India, 1984, pp 51-58.
4. Ghosh S. The Feeding and Care of Infants and Young Children, 3rd edn. New Delhi, Voluntary Health Association of India, 1990, p 198.
5. Indian Academy of Pediatrics: Special Committee on breast feeding. Indian Pediatr 1988, 25: 873-874.
6. WHO/UNICEF. Infant and Young Child Feeding: Current Issues. Geneva, WHO, 1981, pp 54-76.
7. WHO. Contemporary Patterns of Breast feeding, Report of the WHO Collaborative Study of Breast Feeding, Geneva, WHO, 1981, pp 31-46.

Breast Feeding Practices Amongst Mothers Having Undergone Cesarean Section

U. Kapil
S. Kaul
G. Vohra
S. Chaturvedi

The immunological and nutritive values of breast milk are most suited for an infant. With the increase in incidence of cesarean section, delayed 'rooming-in' of the neonates and problems in breast feeding in the first 24-48 hours have increased. The mother who has undergone a cesarean section has a relatively higher risk of lactation failure due to the following reasons; (*i*) post operative sedation, (*ii*) intravenous fluid therapy causing physical discomfort, (*iii*) exhaustion after the surgery, (*iv*) traditional belief that complete rest is essential after an operation, and (*v*) delayed 'rooming-in' of child particularly if he suffers from any disease like respiratory distress syndrome(1).

This study was conducted to evaluate the practices regarding breast feeding amongst mothers who had undergone cesarean section.

Material and Methods

The study was conducted on 60 consecutive mothers who had a cesarean section from September, 1989 to February, 1990 at the All India Institute of Medical Sciences, New Delhi. All the mothers were interviewed in the hospital on 5th day after surgery. The aims of the study were briefed and a pretested open ended questionnaire was administered to each mother by an experienced dietician.

Results

The mean age and parity of mothers was 26.4 yr and 2.6, respectively and 50% were primipara, 40% para 2 and 10% para 3. The per capita monthly income was below Rs. 500 in 34, between Rs. 500-1000 in 14, and more than Rs. 1000 in 12. Twenty three mothers were graduates, 8 postgraduates and 17 had received schooling till class 8th only. A majority (83%) of

From the Department of Human Nutrition Unit, All India Institute of Medical Sciences, New Delhi 110 029.

Reprint requests: Dr. Umesh Kapil, Assistant Professor, Department of Human Nutrition, AIIMS, New Delhi 110 029.

Received for publication October 24, 1990; Accepted October 17, 1991