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Breastfeeding Among Urban Women of Low-Socioeconomic Status: Factors Influencing Introduction of Supplemental Feeds Before Four Months of Age

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Worldwide exclusive breastfeeding (BF) for 6 months has been recommended and various steps have been proposed for promoting this objective(1). However, only a small proportion of infants are breastfed exclusively for 4-6 months. Artificial milk is introduced early in breastfed infants for

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one or the other reasons. Reasons attributed to introduction of top milk vary from urbanization, advertisements, low socioeconomic status to maternal malnutrition and lack of family support(2-4). The present study attempts to find out various reasons for early introduction of supplementary feeds in infants who were initially started on breastfeeds.

Subjects and Methods

Mothers of infants who were initially breastfed and started supplementary feeds before four months of age were randomly selected after ensuring their mood and the condition of their children permitted to be informally interviewed. All mothers were interviewed by the author (AA) informally without a preset questionnaire to find the basic reason for introduction of supplementary feeds at less than four months of age.

During the informal interview attempts was made to gather following information: type of family and housing; number of children; awareness of importance of BF; feeding practices in family, antenatal care and motivation for breastfeeding; support of

family during pregnancy and child rearing; age of child at introduction of topfeeds; reasons for introduction of top feeds (if inadequate feeds, how she assessed adequacy of feeds); type of feeds introduced.

Maternal height, weight, educational status, parity and infants' sex and age was recorded. Statistical analysis was performed using EPI INFO computer software by standard statistical tests.

Results

Seventy five randomly selected mothers were interviewed. Certain characteris-

tics and age at cessation of exclusive BF are shown in *Table I*. Majority of mothers, i.e., 55/75 (73.3%) were between 20-30 yr of age with 2 (2.7%) mothers age less than 20 yr and 18 (24%) more than 30 years of age. Thirty seven (49.3%) had weight less than 45 kg and 15 (20%) had height less than 145 cm. Fifty five mothers (73.3%) received antenatal care but only 26 (34.7%) were initiated for BF. Majority (76%) of mothers resumed full household and/or professional work within 45 days of childbirth and only 24% had a longer period of rest (*Table I*). Among the infants studied there were 46

TABLE I—Age at Cessation of Exclusive Breastfeeding by Certain Characteristics of Study Infants

Characteristics	Total No.	% of mothers who ceased to exclusively breastfeed at (weeks)		
		<2	2-6	6-12
1. Maternal education				
• Illiterate	36	38.89	27.78	33.33
• Primary School	16	31.25	25	43.75
• Higher secondary	21	38.09	23.8	38.09
• Graduate	2	50	—	50
2. Mothers Occupation				
• Working	13	7.69	46.15	46.15
• Non working	62	32.26	30.64	37.09
3. Socioeconomic status (Household income Rs./month)				
• <2000	27	29.62	25.92	44.44
• 2000-3000	25	28	52	20
• >3000	19	36.84	36.8	26.3
4. Family type				
• Nuclear	47	31.91	31.91	36.17
• Joint	28	25	28.57	46.43
5. Resumption of full household and/or professional work				
• <30 days	29	31.03	41.37	27.58
• 30-45 days	28	25	28.5	46.43
• > 45 days	18	22.22	33.33	44.45
6. Previous Breastfeeding history of mother				
• Exclusive feeds for 4-6 wks	29	13.7	41.37	44.83
• Top feeds <4 months	19	42.10	15.78	42.10
• Not applicable (i.e., birth order 1)	27	40.74	48.15	11.11

TABLE II— *Reasons for Starting Top Feeds and Type of Feeds Given.*

Reason/Type of feeding	No.	%
I. Reasons		
Inadequate milk	37	49.3
Maternal illness	14	18.7
Relatives advice	8	10.7
Joining work	6	8.0
Infant illness	7	9.3
Others (Twins-2, Aplasia of nipple-1)	3	4.0
II. Type of Feeds		
Bottle	55	73.3
Katori/spoon	20	26.7
III. Type of Milk		
Formula	2	2.7
Animal milk	73	97.3
• Diluted	60	80.0
• Undiluted	13	17.3

(61.3%) males and 29 (38.7%) females of which 73 (97.33%) were born by normal vaginal delivery. Most of the infants (98.7%) were roomed in with the mother. Forty two (62.7%) were given breastfeeds within first day of life and the rest by third day of life. Various reasons for starting supplementary feeds and the method of feeding are given in *Table II*. Majority of mothers introduced top feeds with bottle (73.3%) and used diluted animal milk (80%). Only 6.7% mothers were able to maintain proper hygiene. Formula milk was used by only two mothers.

Pearson's correlation coefficient between duration of exclusive BF and various variables did not show any significant correlation with maternal education, socioeconomic status, family support, antenatal care and preparation of BF and duration of rest after child birth ($p > 0.05$). Age of exclusive BF was significantly more in mothers who had previously breastfed their chil-

dren for four months ($p=0.0203$). Similarly correlation coefficient was not significantly different when all these variables were compared with reasons for introduction of topfeeds except the reason that mothers had to resume work was significantly more ($p=0.0005$) in working women.

Discussion

In the present study, 51.3% infants were started on supplementary feeds within 6 weeks of age compared to 56.2% in a previous study from India(2). Similarly, in a study among Bedouin Arab women, 72% infants were started on supplementary feeds within two months of age(5). A study from Chandigarh demonstrated that proportion of urban mothers who administer milk supplements within first month of life rose from 0 to 25% in the illiterate group and from 7 to 58.5% in mothers educated beyond high school level during the decade 1974-1984 though a larger number of women were aware that breastmilk is more nutritious and protects the infant against infection^(^).

Maternal education, socioeconomic status, maternal nutrition, family support, motivation for breastfeeding, birth order and infant sex had no correlation with duration of exclusive breastfeeding or reason for starting supplementary feeds. A study from Brazil demonstrated correlation of duration of exclusive BF with mother's color, infant sex, maternal height, family support, type and timing of first feeds but this study had large number of infants followed for a longer time(5). A similar study from India (2) revealed correlation only with maternal education. In our study correlation of age at cessation of exclusive BF was found only with maternal history of breastfeeding in previous babies.

The commonest reason for starting top feeds was 'not enough milk' as perceived

by 49.4% mothers in the present study, similar to other studies(2,4,7). On questioning how mothers assessed adequacy of breastfeeds, none of them gave the reasons as poor weight gain and passage of inadequate amount of urine (two reliable signs of inadequacy of breastfeeds). On the contrary, they revealed some subjective signs which were interpreted to mean that milk is inadequate, *e.g.*, baby was not satisfied with feeds, cries often, wants frequent feeds or bites on the nipple. Similar signs have been seen in previous studies on perceived breast milk insufficiency(7). Exclusive BF in a working mother may be significantly affected after she resumes her work particularly if she has to remain away from home for more than 6 hours, the place of work is far off or she has to do strenuous physical work. Only 6/13 (46%) of our mothers related resumption of their work outside their home as a reason for introducing artificial milk. However, this observation does not undermine the problem of exclusive BF in working women, since all these mothers were giving artificial milk to their babies even though more than one half of them felt other reasons to be more compelling.

Introduction of early supplementary feeds with a wrong notion of not having enough milk appears to be most detrimental to exclusive BF. In most of the situations this apprehension is more conceptual than real because the amount of milk the breast produces is determined by the amount baby takes. It increases when the baby takes more. Even in societies where women's diets are poor, most mothers are able to produce breastmilk in amount adequate for infant growth(8). If supplementary feeds are given there is less sucking leading to less secretion of breast milk. If the mother is ignorant about this fact does not believe in this and does not know how to as-

sess adequacy of breastfeeds she starts supplementary feeds at any early possible sign of inadequate feeds, *e.g.*, excessive crying in baby, and this leads to further reduction in production of breastmilk and lactation failure. In the event of maternal and infant illness also introduction of supplementary feeds further reduce breastmilk production.

Only two of our mothers introduced formula feeds while majority of mothers used cow/buffalo, Delhi Milk Scheme or Mother Dairy Milk. Majority of the mothers bottle fed their babies but very few maintained proper bottle hygiene. Of the 73 mothers who started the babies on animal milk (cow or buffalo), 60 (80.13%) diluted milk in varying proportion from 1:1 to 1:4. These observations further highlight the critical role of ignorance of mothers and lack of efforts to educate them in the existing health delivery system. These two problems not only seem to adversely influence exclusive BF during first 6 months but also make things worse for those who are given supplementary feeds. Mothers need to know hygienic methods (including bottle hygiene) of giving artificial milk wherever necessary and giving undiluted milk if supplementary feeds are required.

Exclusive BF is the most effective intervention to promote infant nutrition and decrease their morbidity and mortality. In order to ensure exclusive BF for first 6 months it is mandatory that mothers are educated during their antenatal period regarding undisputed beneficial effects of exclusive BF in early infancy, trained and supported to breastfeed their newborns soon after birth, and educated to overcome wrong notions regarding insufficient milk.

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