Breast Feeding Practices and Beliefs about Weaning Among Mothers of Infants Aged 0-12 Months

Pages with reference to book, From 54 To 60

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Abstract

Beliefs and practices related to the feeding of 52 infants were assessed in an urban community of Lahore in a longitudinal study through quantitative and qualitative data during their first year of life. Ninety-eight percent mothers started breast feeding within the first week and 54.3% continued until 12 months; the mean age for exclusive breast feeding was 1.08 (±1.109) months; breast feeding was initiated 47.4(±32.58) hours afterbirth and prelactealfeeds were given to 94% infants. In 34 infants (65.4%) colostrum was not given. Water was considered essential from the very first day in 55.4% cases. Forty-eight percent babies were put on supplemental bottle feeding during the first week and by five months of age 97% were bottle fed., The most common reason for starting bottle feeding was perceived "insufficiency" of breast milk (71%). Breast feeding was stopped-earlier by mothers who were illiterate and poor and had female children. The mean age for initiating supplemental feeding with semi-solid food was 4.4(±O.99) months. Weaning occured earlier in infants of the upper socioeconomic class and literate mothers. Working women reported problems in feeding their children exclusively on breast during early infancy. Advice of health professionals was used by 31% mothers, more in the upper socioeconomic group and literate group than in other groups. Health education interventions are needed to promote use of colostrum, exclusive breast feeding and appropriate complementary feeding practices (JPMA 47:54,1997).

Introduction

Appropriate breast feeding and weaning practices have great impact on the health of infants. Breast feeding still remains the preferred way for the majority of Pakistani women[1], however, inappropriate practices such as provision of prelacteal feeds, discarding the colostrum and delayed initiation of breast milk are widespread[2-5]. Although exclusive breast feeding is recommended for the first four months of life[6], most mothers supplement breast milk with water and other fluids[7]. Studies have shown several consequences of inappropriate breast feeding. Supplementing breast milk with other milk has been reported to increase childhood mortality tenfoiddue to poor cleaning of bottles and dilutionwithunsafe drinking water[8,9]. Food supplements for breast-fed children increase the likelihood of diarrhoea by 4 to 13 fold, depending on age when supplementation begins[10]. Inappropriate weaning practices have also been associated with diarrhoea! diseases and malnutrition[11]. Finally, delayed weaning can lead to growth failure, poor immunity, micronutrient deficiencies and greater risk of infection[12]. Thus it is essential that weaning is appropriately timed, nutritionally adequate, hygienically prepared and culturally acceptable[13]. To develop ways to optimize feeding practices for infants and young children, we conducted a longitudinal study to obtain information about prevalent local beliefs and practices about infant feeding. The aim of the study was to develop culturally specific messages that would help modify hannful feeding practices and thus reduce infant morbidity and mortality.

Subjects and Methods

A longitudinal study was carried out in a well defined urban area in Lahore, including areas of Jinnah Gardens, part of Lawrence Road, Katcha Lawrence Road, Mason Road, Birdwood Road, Camp Jail, Jail Road (from Mozang Chungi to Lahore College), Waris Road and Katcha Jail Road. A baseline house to house survey was conducted in Januaiy, 1993 to obtain demographic data and to fmd pregnant women in their last trimester. The interviewers were physicians assisted by TBAs. The survey revealed that the area had a populationof 8767, birth rate of24 per 1000 live births, growth rate of 2% of the total population and infant mortality of 52 per 1000 in 1992. All mothers in the area were eligible for inclusion in the study. Demographic and socioeconomic characteristics and beliefs about infant feeding of families were collected using a pm-tested questionnaire. Socioeconomic status was assessed by a combination of indicators assessing education, occupation of marned couple, total family income and household possessions. Each indicator was scored separately and then sum of the total scores taken to assess the socioeconomic status (Table I).

Table I. Scores for determination of socioeconomic status.

Mother education	
Illiterate	0
Primary	1
Read and write	1
Under matric	1
Matric	2
Post-matric	3
Husband education	
Illiterate	0
Primary	1
Read and write	1
Under matric	1
Matric	2
Post-matric	3
Husband occupation	
Professional worker	5
Businessman	4
Clerk	3
Skilled worker	2
Unskilled worker	1
Mother occupation	
House wife	0
Unskilled worker	1
Skilled worker	2
Clerk	3
Family income	
<2000	1
2000-3999	2
4000-5999	3
6000-7999	4
8000-9999	5
>10000	6
House-hold possessions	
Bicycle	1
Motorcycle	2
Car	3
Taperecorder	1
T.V	2
VCR	3
Rental value of the house	
<500	1
501-1000	2
1001-1500	3
15001-2000	4
2001-2500	5
2501-3000	6
>3000	7

Total score 1-12= Low scioeconomic status (LSES)
Total score 13+= Upper socioeconomic status (USES)

Education although included in the assessment of socioeconomic status was also categorized separately, as literate mothers even if in low socioeconomic group behaved differently. All children born to those women between January, 1993 to April, 1993 were registered and followed-up each month during their first year of life. An Interviewer who had Master's Degree in the subject of

Education (non-medical) was recruited and trained to follow-up the registered infants at their homes. The first visit was made within one week of birth. Babies born through caesarean section at hospitals, were visited them by the Principal Investigator, as in these cases mothers had to stay at hospitals for a week after the birth of their children. In this way we got a chance to observe the infant feeding routines of four hospitals. These hospitals were not located in the study area, three of them were teaching hospitals and fourth was a private setup. During the visit to those hospitals, doctors and nurses taking care of mothers and their infants were also interviewed to know their routines for infant feeding. At each follow-up visit, information on beliefs about infant feeding was obtained and the type of food that the infant received was recorded. Infants were weighed at each visit and their health condition noted. Focus group discussions were carried out with groups of traditional birth attendants (TBAs), them were teaching hospitals and fourth was a private setup. During the visit to those hospitals, doctors and nurses taking care of mothers and their infants were also interviewed to know their routines for infant feeding. At each follow-up visit, information on beliefs about infant feeding was obtained and the type of food that the infant received was recorded. Infants were weighed at each visit and their health condition noted.

Focus group discussions were carried out with groups of traditional birth attendants (TBAs), mothers-in-law, non-lactating mothers and nursing mothers. Each group had 5-7 participants. In total 6 groups were interviewed. In-depth interviews were conducted with 12 individuals, including parents, mothers-in-law, working mothers, nutritionist, TBA, physicians, homeopathic practitioners and religious leaders. These discussions were conducted jointly by the Principal Investigator and the Co-investigator after the completion of baseline survey. Participants were selected from the same area. People who could be approached and were cooperative were listed, randomly selected and then invited to the MCH Department for these discussions and interviews. Matters related to infant feeding were discussed in Focus Groups and in-depth interviews. It included topics of prelacteal feeds, colostrum, time of initiation of breast feeding after birth, duration for exclusive breast feeding and its continuation, initiation of solids/semi-solids to the baby food and feeding of fluids and herbal preparations to the infant.

The following definitions were used for feeding categories, assigned at each visit.

Exclusive breast feeding: The infant received only breast milk and no other nutritional fluids or solids except vitamins, mineral supplements or medicines (including prelacteal feeds and herbal fluids).

Predominantly breast feed: The infant's predominant source of nourishment was breast milk, but this may have been supplemented with water and water-based nutritional drinks (e.g., fruit juices and sweetened water). however, no food-based fluid.

Complementary feeding: The child received both breast and top milk (fresh or fotmula).

ExcJusive bottle feeding: The child did not receive breast milk, was given top milk (fresh or formula) from a bottle with a nipple/teat, cup or spoon.

Supplementary feeding: Semi-solid/solid foods other than breast or top milk (fresh or formula) were introduced.

Epi-Info version 5 was used for data entry and analysis.

Majority of the health care providers believed that a newborn should receive "something" before breast feeding could start. One gynaecologist and two paediatricians stated that it was necessary to ensure that the gastrdintestinal tract was patent and to allow the child to adjust to his environments. Five of the six TBAs thought that saline was essential during the first three days of life to clean intestinal passages. There was almost unanimous agreement by mothers and mothers-in-law in different socioeconomic and educational groups that infants need to be given other fluids during initial three days after birth because mother's milk comes after that period. Moreover, mother is physically not fit to start nursing at that time.

During these discussions, most of the mothers agreed that breast milk is the best and sufficient for their infant but indicated that working, shopping and other activities outside the home precluded exclusive

breast feeding. Some mothers thought that flatulence and stomach problems in their infants were due to specific foods that the mothers ate (pulses, cereals e.g., grains, vegetables e.g., pumpkins and beef). So eitherthe mothereliminated these foods from her diet or she used herbal preparations to relieve the gastrointestinal symptoms.

Most focus group participants including doctors thought that water was essential for infants from the first day of life. Herbal fluids were commonly thought by mothers and mothers-in-law to regularize gastrointestinal tract functions and water to quench thirst and as a cooling agent. Nutritional fluids (juices, soups) were believed to improve the strength of the infant. In these discussions, mothers indicated that solids/semi-solids should be started by age of 4-6 months. Most of them thought that fresh foods (home-made) were better weaning foods. Banana and custard were also thought to be good for the infant and easy and convenient to prepare. Most of the mothers and mothers-in-law from upper socioeconomic strata and literate groups told that they like to follow health care provider's advice. They were of the opinion that health sector should guide them more in the infant care matters, Among the four hospitals, staff in one encouraged breast feeding within one hour of birth. In the other three hospitals (two of which were govemment hospitals), the baby was shifted to the nursery immediately after birth, kept there for 24-72 hours and fed on powdered milk.

Results

Basic characteristics of the study population are shown in Table II.

Table II. Characteristics of the study children (n=52).

Characteristics	Mean±SD
Mothers	
Age (Years)	26.5±4.39
Range (Years)	15-35
Average family size	5.6±3.03
Average family income (Rs.)	4482.69±7066.32
Range (Rs.)	800-50000
Sex of infant	
Male	25 (48.1%)
Female	27 (51.9%)
Place of delivery	
Home	19 (36.5%)
Hospitals	33 (63.5%)
Literacy of mother	
Literate	30 (57.7%)
Illiterate	22 (42.3%)
Literacy of father	
Literate	39 (75%)
Illiterate	13 (25%)
Socioeconomic status	
Lower	30 (57.7%)
Upper	22 (42.3%)

A total of52 infants of 51 mothers were included in the study (there was one twin delivery). There was no infant death during the study period.One of the mothers died as a result of an accident. However, the infant being cared by other family members was followed-up even after mother's death. Three families left the study area during studyperiod and were lost to follow-up.

Prelacteal feeds

Although 51(98%) children were breast-fed during the first week of life, 49(94%) were given prelaeteal feeds prior to initiation of breast milk and 34 infants (65.4%) did not receive colostrum. In 36(69.23%) infants it was considered a custom and tradition to feed something (preferably honey) before starting breast milk. It was believed that morals of the infant are affected by the individual who instills the initial feed. In25 infants (47%) prelacteal feed was offered only once, the most popular prelacteal feed was honey, offered to 33 infants (63.5%), herbal preparations were givento 23 infants(44.2%). Honey was mainly given as a tradition while herbal preparations were thought to clean the stomach and regularize bowel functions during early days of life. Saline was given to 33 infants (63 .5%) either to "clean the intestinal passages" or as a "replacement feeding" provided by mothers who thought that milk was not produced during the first few days of life. In 17 infants (33.7%) other milk was given also for this latter reason. Prelacteal feeds were suggested by mothers of 29 infants (34. 1%)by health care workers in 26(30.6%) cases, by grand mothers in 20 (23.6%) cases, by father in 2 (2.4%) and by other people including friends and relatives in 8 cases (9.3%). Total responses are 85 because some times it was a joint decision of more than one person. Of 33 infants given honey, 26 (78.8%) were given by finger tip, other fluids (herbal preparations and milk), 42 (40.4%) were given with cup and spoon and 28 (26.9%) through feeders. One infant was fed honey and a herbal preparation througha loop of cloth. [total number of fluids is more than 52 because some of the infants were given more than one fluid].

Breast feeding

Breast milk was initiated in 51 children (98.1%) in the first week. One infant was not offered breast milk because her mother believed that her milk was poisonous and had resulted in the death of her previous child the year before. Mean initiaion times for breast milk was 47.4+32.58 hours, range was 1-144 hours after brith. Initiation time in primipara, was 56.68+33.43 hours and 45.1+32.37 hours in multiparas. In home deliveries the initiation was later (55.92+25.77 hours) than in hospital deliveries (42.48+35.04 hours). However, statistical analysis showed no differenc. Reasons cited by mother for delay in initiating breast feeding were "milk insufficiency" in 29 (44.6%) infants and maternal ill health in 13 (20%). Health staff influenced 20 (39.2%) mothers during postnatal period to initiate breast feeding. Literate and upper socioeconomic strata (USES) mothers were influenced more by health care provider\'s advice as compared to the illiterate and lower socioeconmic class mothers (LSES). Of mothers getting influenced by the health staff, 12 (60%) were from USES and 8 (40%) from the LSES. This group included 17 (85%) literate mother, while 3(15%) were illiterate. Of the 29 mothers reporting milk insufficiency as a cause for delay in initiation of breast feeding 20(69%) were from LSES and 9 (31%) from USES. This group included 13 (44.8%) literate and 16(55.2%) illiterate mothers. However, differences were not singnificant.

Reasons for Cessation of Breast Feeding

By 12 months of age, 22 (44.9%) infants had been stopped breast feeding, of them 14(63.63%) were females. Of 28 infants from LSES, 14(50%) and 20 from USES, 8 (40%) were stopped breast feeding at that age. This group included 9 (40%) mothers from literate group and 13 (60%) from illiterate group.

Bottle Feeding

During the first week of life, 24 (46%) infants were bottle fed and by the age of 5 months, 41(84%) were getting it (Figure 1).

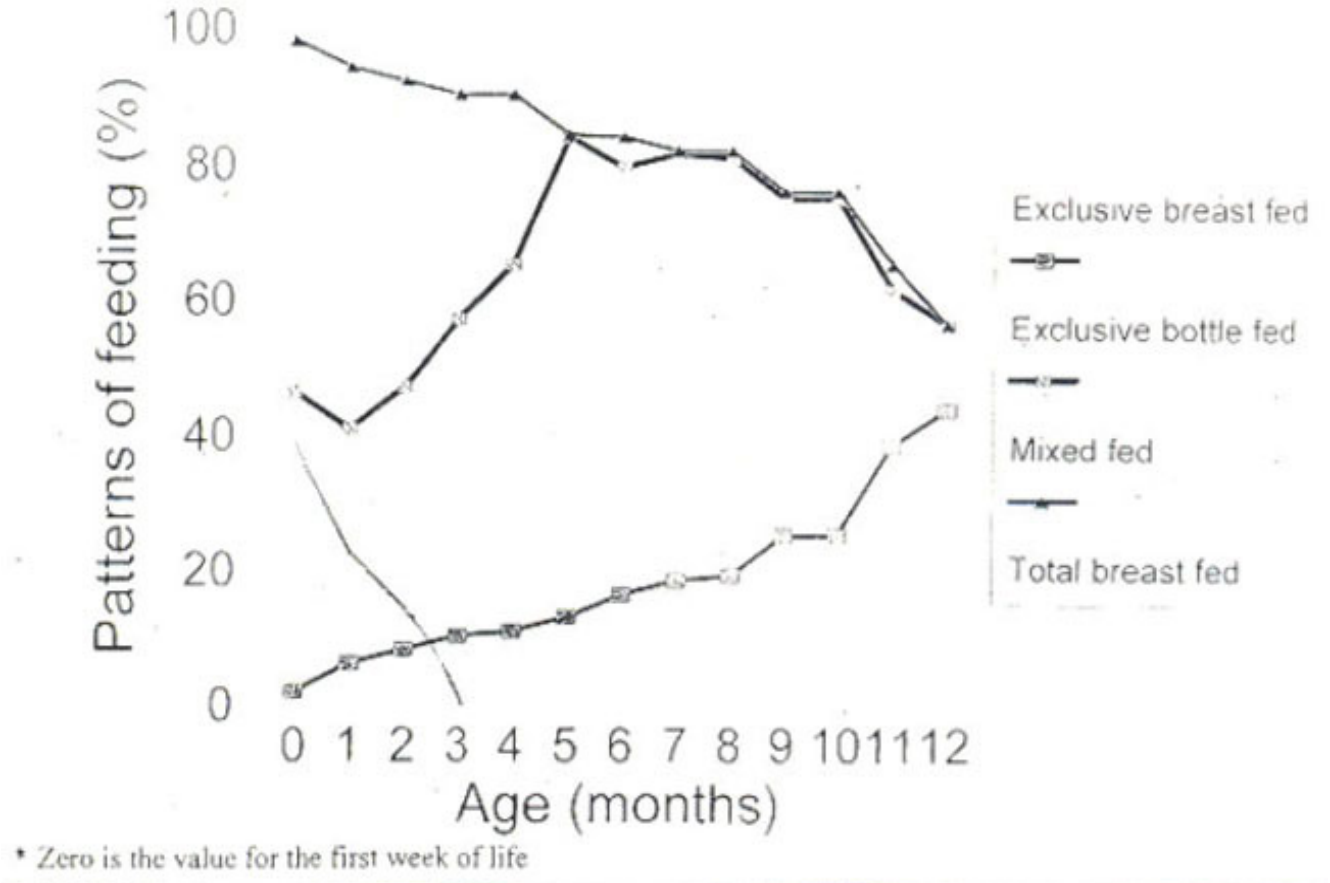

Figure 1. Comparison of different patterns of milk feeding during infancy.

Majority 22 (53.19%) of them were females and same number was from LSES group. Out of 41 infants, 26 (63.83%) were of the literate mothers. In the majority of cases, fresh buffalo's milk was given. Common reasons for starting bottle feeding during first month were insufficient breast milk in 24(70.6%) cases, advice from a health worker in 6(17.6%) mothers were away from home without the child in 2 (5.9%) and mother's ill health in 2(5.9%) cases. Mothers diluted milk was used for 19(79.1%) iniantsduring the firstweek Of life and in 14 (34.1%) out of 41 bottle fed infants by 5 months of age. Mothers diluted milkmaid to make it "light' (more digestible). Most mothers believed that children used milk as a major food until well after 2 years of age and provided milk as major food to 43 infants till 12 months. This group included 24(56.25%) females.

Use of Fluids

During the first week of life 45 (86.5%) infants were given fluids other than milk (breast orbottle). By one month of age 50 ut of 511(98%) infants received fluids and by three months of age all infants received some fluids. During the first week, 26 (40%) infants received herbal fluids, 21(32.3%) received plain water, 15 (23.1%) received water with sugar, glucose, salt etc.,and 3 (4.6%) received honey (other than given as prelacteal feed). Herbal fluids were commonly thought to regularize gastrointestinal tract infections and water to quench thirst and as a cooling agent. Nutritional fluids (juices, soups) were given because mothers believed that it improved the strength of the infant. During the first week of Zero is ho vatux for the first week of life life, upto 10 ml/day of herbal fluids and upto 25 mI/day of plain water was given to infants.

Pacifier

In the first week of life. 8 (15.4%) infants and by two months 15 (30.6%) were given pacifiers. In 12 (75%) such cases, the mother herself decided to do so. Only 10 (20%) infants continued to use a

pacifier after 5 months. Mostly infants were given pacifiers to keep them quiet. Illiterate (40.9%) and poorer mothers used pacifiers more often than literate (20%) and mothers of USES (23%).

Use of Semi-Solid Foods Age

Mean age for starting semi-solid food was 4.4±0.9 months. Out of 50 infants, 7(14%) were given semi-solid food during third month of age and another 24 (48.0%) by four months of age. By the age of 7 months all infants were on some solid or semi-solid foods. By 5 months, 21 male (9 1.3%) of the 23 male infants received semi-solid food, while 20 female (74.1% of the total 27 female infants) were given semi-solid food ($P<0.05$). In the upper socioeconomic group, 21(95.5% of the total 22 infants in USES) children received semi-solid food by 5 months and 20 (71.4% of the 28 infants in LSES) from the lower socioeconomic group (not significant). All 30 literate mothers (100%) had started giving their infants semi-solid foods by 5 months, while only 11(50%) of the illiterate group had started by that time ($P<0.001$).

Type of Weaning Food

Fruits (mainly banana, given to 21 infants) were the most popular initial weaning food (given during first month of weaning), given to 24 (48%) infants, followed by commercially prepared cereal foods for 20 (40%) infants. Other less commonly used foods were bread and biscuits in 17 (34%). milk based foods such as kheer. custard, firni) in 10 (20%), rice in 11(22%), egg in 2 (4%), fatty meal such as haiwa in 2(4%) and yogurt in 3 (6%). Fatty meals like choori, haiwa and fried meat and egg were mainly introduced to infant diet after 5 months of age. The frequency of staple (i.e., wheat and rice) based diet gradually increased with increasing age (Table III).

Table III. Distribution of different foods being given to infants at different ages (n).

Type of food	4 months n=31		6 months n=49		9 months n=49		12 months n=49	
	(n)	%	(n)	%	(n)	%	(n)	%
Bread	4	12.9	22	44.9	44	89.79	46	98.81
Fruiting	11	35.48	25	51.02	33	67.34	35	71.42
Commercial food	12	38.7	23	46.93	14	28.57	2	4.08
Milk based	4	12.9	15	30.61	12	24.48	11	22.4
Egg	1	3.2	8	16.3	18	36.73	20	40.81
Rice	2	6.4	24	48.97	39	79.59	39	79.59
Fatty Meals	2	6.4	4	8.16	4	8.16	3	6.12
Meat	-	-	3	6.12	3	6.12	8	16.32
Yogurt	2	6.4	6	12.24	1	2.04	3	6.12

Semi-solid foods between 4-6 months were prepared separately only for 9 (18%) infants, whereas by 12 months it reduced to 5 (9.4%) infants.

After 5 months of age, 27 (96.42%) infants in the lower socioeconomic group received wheat based bread and rice as staple foods, compared with 12 (54.5%) infants in the upper socioeconomic group($P= 0.0002$). Commercially prepared cereals were used more by illiterate and poor families than upper socioeconomic group of families as initial weaning food but after 5 months, theiruse became negligible. Eggs and fruits were primarily used by the upper socioeconomic group. The common reasons for starting semi-solid food told by mothers during follow-up visits were the belief that (i) infant nutritional requirements increased, 46 (92%) mothers, (ii) food provided strength to infants, 11(22%) mothers, (iii) infants needed to become accustomed to other foods, 7(14%) mothers and (iv) advice by health staff or other relatives, 3 (6%) mothers.

Weight

Weights of only 2 infants (3.8%) were found to be <2.5 kg (2.3 kg) during first week after theirbirth. During follow up visits no significant differences were observed in weight gain of the breast fed infants compared with bottle fed, though bottle fed infants did lag behind a little at all ages (Figure2).

Figure 2. Comparison of weights of breast and bottle fed infants.

Morbidity

Giving prelacteal feeds and time of initiation of breast feeding had no significant impact on morbidity of the infant during first week of life. However, in following months more morbidity was noted among infants who were not breast fed. Thus, when infants receiving no breast milk were contrasted with infants on exclusive or partial breast feeding, the median relative risk was 2.14-3.0 for 0-3 months, 0.6-2.6 for 3-6 months, 1.5-2.6 for 6-9 months and 0.86-2.0 for 9-12 months of age. At 4th and 12th month it was <1. When morbidity data of 12 months was computed for infants not breast fed with those getting exclusive or partial breast feeding, the difference was statistically significant, p value=<0.05 by applying CM square test.

Discussion

This study describes feeding patterns of infants in an urban community in Lahore. The most important observation was that breast feeding was delayed. This delay has also been reported by others in Pakistan[4,5,14]. Others have found that mothers do not consider colostrum as apart ofbreast milk, itis considered to be stale, stagnant and harmful[4]. First prelacteal feed is generally given by an important member of the family as part of the cultural belief that it will affect the future morals of the child[15]. Inour study, inadditionto thisbelief, prelacteals were thought probably to cleanse the gastrointestinal

system of meconium by acting as a laxative.

Even after breast feeding was established, exclusive breast feeding was uncommon. Although more than half of infants were still being partially breast fed by one year of age, this was less than the 73% partialbreast feeding reported in the national nutrition survey of 1985-87[16]. Our data results are similar to those of another longitudinal study from Lahore in which 56% of women in urban slums partially breastfed their children by one year of age[4]. Although Ashraf et al did not report litency of their upper middle class mothers, partial breast feeding prevalence in their study was only 25% at one year of age[4]. The two common reasons for stopping breast milk in this study were next pregnancy (25.9%) and insufficiency of milk (22.2%), next pregnancy was also reported as the most common reason (34.3%) in the national nutrition survey[16]. Next pregnancy was a deterrent to continue breast feedingbecause mothers felt that they are notphysieally fit to bearthe two stresses (of pregnancy and nursing) together. Moreover, they felt that after getting pregnant, quantity of breast milk is not sufficient to meet the requirements of the infant. In some instances, superstition plays a role in stopping the breast milk, which happened with one mother in our study who was afraid of the evil eye (nazar) from her own self. Mull and Mull reported use of bottle feeding early due to the fear that mother was carrier of evil spirit (saya) and could pass iton to the child[17].

Use of bone for supplementing breast milk or giving water and other fluids has become increasingly common in Pakistan[4,5,7,14,16,18] and in other developing countries[19-23].

When infants receiving no breast milk were compared with infants on exclusive or partial breast feeding more morbidity was noted fornon-breastfed infants. Picture is quite similar to Feachem and Kobiinsky who have reported the median relative risks for diarrhoea morbidity. 3.0 for those aged 0-2 months, 2.4 for those aged 3-5 months arKI 1.3-1.5 for those aged 6-li months[24] in a comparative study for infants receiving no breast milk and those getting exclusive and partial breast feeding. The unfortunate thing was that the health professionals in our study were also promoting the use of other fluids and prelacteal feeds, most probably due to their own lack of knowledge. In India, Sachdcv et al reported that 97% of nurses and 63% of the doctors believed water supplementation was necessaty in summer[25]. Apart from the risk of infection the extra cost of both fresh and commercial formulas is another major factor. With a per capita income of Rs. 1243.0 and a high birth rate[26], it may be difficult for a poor family to provide other milk to their infants. Minimum cost of providing a 6 month old infant with haifa liter of fresh milk as supplement to breast milk will be Rs.2 10 per month (1 liter millc= Rs.14.00). If costs for bottles, teats and fuel needed for boiling etc., are added, the costs exceed Rs.300 per month. A third of family income could go to feeding just one child. In practice, the economic constraints force the family to dilute the milk and not to use appropriate hygienic precautions essential with bottle feeding, thus increasing the risks for infections.

Observations regarding mean age for starting semi-solid foods in our study differfroni those reported by the 1985-1987 national nutrition survey where it was after 7 months[16] and in Balochistan, where it was 8.3 months[5], both cross-sectional studies. More recently, the national breast feeding steering document described a trend toward introduction of semi-solids by four months of age[27]. Although in our group semi-solids were introduced earlier, the appropriate quality and quantity of these supplementary foods still remains a problem. Very few mothers prepared the semi-solids specifically for their infants. This last point was also noticed in a study from Karachi which found that only 17% of mothers prepared special food for their children[28].

Some limitations of the sifidy must be addressed. The first is the sample size. Given time limitations the infants could not be followed for more than one year. Unfortunately, exact birth weight data or specific morbidity data could not be collected. Morbidity data collected in detail would have strengthened the argument about promotion of breast feeding and use ‘of colostrum. This urban area data could be quite different from the niral areas where majority of deliveries take place at home and

there is little interaction between the mothers and health workers.
Results of the study have some important implications for the national breast feeding programme and nutrition of young children as a whole. To promote use of colostrum, exclusive breast feeding and discourage bottle feeding, education strategies should be targeted at mothers during pregnancy and delivery. The optimum way to impart
knowledge and change practices requires controlled studies to evaluate different approaches. Design of interventions will need to address perceived "dangers" of using colostrum and perceived "insufficiency" of breast feeding. Health care workers, including physicians, paramedics and traditional birth attendants, need to be educated to promote breast feeding. Breast feeding can also be pronioted by modifying hospital policies using social support, providing incentives and initiating legislation and political action to createpolicies aimed toward healthier infant feeding practices[29]. The Government of Pakistan has already initiated a programme of baby-friendly hospital initiatives (BR-H) and a communication campaign to promote breast feeding, but a lot still needs to be done at the community level.

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