

# Supplementary Infant Feeding Pattern and Practices among the Lower Urban Socio-economic Group

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## Introduction

Supplementary feeding is the introduction of solids or semisolids other than breast milk or adapted formula. There have been widely fluctuating fashions in the patterns of introduction of supplementary feeding. Infant feeding practices today, in both developed and developing countries are determined by weighing several different factors such as cultural, psychosocial and traditional factors. In the under privileged populations, socio-economic aspects, food availability and other food factors play an important role in the introduction of supplementary foods. It was recognized that breast feeding could be the exclusive source of nutrients until the age of 3 to 6 months<sup>(1-4)</sup>.

Waterlow et al<sup>(5)</sup> are of the opinion that normal weight gain of an exclusively breast fed infant can be maintained for 4 to 6 months only under favourable condition. Usually breast milk or adapted formulae provide the nutrients and energy necessary for the first 4 to 6 months of life<sup>(6)</sup>. Beyond that age growth slows down unless additional food is provided. The introduction of supplementary food is a fundamental nutritional necessity, the energy requirements are the most critical between the ages of 6 to 12 months. The European

Society of Pediatric Gastro-enterology and Nutrition recommended that supplementary food should not be introduced before the age of 3 months or later than 6 months<sup>(7)</sup>. The American Academy of Pediatrics also opined that no nutritional advantage results from the introduction of supplementary food prior to 4 to 6 months of age. In Bangladesh, growth faltering of infants start after about 6 months of age<sup>(8)</sup>. So, introduction of supplementary food before the age of 6 months is a necessity.

The present study was designed with a view to determine the supplementary feeding pattern and practices performed by the urban mothers of low socio-economic group and also to measure the impact of the existing supplementation on the nutritional status of the infants.

## Materials and Methods

Two hundred and twenty six infants (4 to 12 months) were studied. They were purposively selected from among the mothers who attended Azimpur MCH Centre for the medical treatment of their babies, Usually those who attend the MCH Centre belongs to poor socio-economic groups of urban population. Data were collected by intervieweing the mothers using a pre-coded questionnaire. 48-hours dietary history was taken by 'recall' method. Actual

body weight of the infants were recorded using BNNC (Bangladesh National Nutrition Council) bar scale. Anthropometric data were compared with data from National Center for Health Statistics (NCHS) standard <sup>(13,14)</sup>.

Data were computed and analysed using SPSS package. All variables were examined by proportion test.

### Results

A total of 226 mothers were interviewed for this study. Table 1 through 5 shows the social characteristics of the mother interviewed. Forty one percent of them aged between 15-20 years followed by 20-25 years age group comprising 34 percent of the total (Table-1). Majority of the family (59%) had monthly income between Taka 1000/- and 1,999/- (Table-2). Seventy three percent of the total respondent were illiterate while only 23% did have primary education (Table-3). Occupationally most of the mothers (76%) were housewives, while 20% were engaged in part-time job followed by 4% in full time job (Table-4). Sixty nine percent of the mothers had one and/or two children, while only 13% had four or more children (Table-5)

.Fig. 1 illustrates the breast feeding practice. Thirty three percent of the mothers started feeding their babies on the day of delivery, twenty nine percent on day 2, while twenty three percent on day 3. Only 4% of the mothers did not breast-feed their babies.

The mean age of introduction of supplementation was 5.5+2.03 (SEM) months. Sixty three percent mothers were supplementing their infants regularly (Fig. 3). Figure-2 illustrates the sources of knowledge acquired by the mother that

influenced in introducing supplementary foods. In this regard doctors and relatives played a vital role. Only twelve percent mothers showed their ignorance about supplementation.

Table 4 shows that working mother started supplementing their babies earlier than the non-working mother. Data showed no significant ( $P > .05$ ) role with regard to the influence of income on the timing of introducing supplementary foods (Table 5).

The pattern of introduction of supplementary food is illustrated in Fig. 5. It shows that 81% of the mothers interviewed started supplementing their infants with cereal products, usually 'rice-flour' mixed with diluted milk or plain water and sugar. Eighteen percent started with fruits and only 2 mothers (1%) gave industrial preparation ('Cerelac') to their babies. Of the total only 5% practiced with 'triple-mixture' food (Khichuri). There was no significant difference in the selection of weaning food among the different income group. It was observed from Fig. 4 that 20% of the mothers started supplementation with home prepared food, because it was cheaper and easy to prepare, and the small percentage i.e. 20% considered it 'good for health'. Twenty six percent of mothers gave it as per choice of the infants. Only 4% of the mothers said that they gave home prepared food because of its nutritious value.

The percentage of children who had ever received any food from a given food group is presented by age (Fig.6). Once a child consumed any food from a particular food group, he or she was considered a consumer of that group. The proportion of children receiving foods other than cereal increased with age, but the prevalence of consumption

were usually lower. The percentage of children eating meat, fish and eggs, green leafy vegetables were low for all ages. Intake of milk products decreased with the increase of age. Actually no definite trend was observed in supplementing different food groups with the progression of age.

Table 6 and Fig. 7 shows the percentage and frequency distribution of supplemented infants respectively by their nutritional status compared with NCHS 'weight for age' standard. Only 9% infants were seen normal. Majority (55%) of the infants were suffering from 'mild to moderate' type of malnutrition. A considerable number (36%) of infants were suffering from 'severe' type

of malnutrition. Eighty six percent of the total malnourished infants were over 6 months of age comprising 'severe' type (38%) and 'mild to moderate' type (48%). Those who represented 'mild to moderate' group, 44% of them were between 7 to 9 months and 35% between 10 to 12 months age group. The percentage of severely malnourished children were more pronounced between 10-to 12 months age group (66%) followed by 7 to 9 months (31%). The percentage of infants suffering from malnutrition were more pronounced after the 6th month of age, reaching its peak between 10 to 12 months particularly at the age of 12th month, representing 27% of the total.

**Table 1 :** Frequency Distribution of the characteristics of the mothers interviewed (n= 226)

Age (Years):	Number
15-20 years	93
21-25 "	77
26-30 "	34
30 plus	22

**Table 2 :** Percent distribution of the total family income of the mother's interviewed.

(Taka per month)	Percentage
Upto Tk. 999	9
Tk. 1000 to 1999	59
Tk. 2000 to 2999	19
Tk. 3000 and above	13

**Table 3 :** Percent distribution of mothers educational level and the month of introduction of supplementary food.

Month of Introduction	Educational qualification				Total
	Illiterate	Primary	Secondary	Higher Secondary	
Below 5 months	23	5	2	-	30
5 months	11	5	1	1	18
Above 5 months	28	10	-	-	38
Not given	11	3	-	-	14
Total	73	23	3	1	100

**Table 4 :** Percent distribution of mother's occupation and the month of introduction of supplementary foods.

Month of Introduction	Occupation			Total
	Full time	Part time	No work	
Below 5 months	2	6	22	30
5 months	0	8	10	18
Above 5 months	2	6	30	38
Not given	-	-	14	14
Total	4	20	76	100

**Table 5 :** Distribution of the family income and the month of introduction of supplementary food.

Month of introduction	Family Income in Tk.				Total
	Upto 1000	1000-2000	2000-3000	3000 above	
2-4	6	22	5	2	35
4-6	10	44	15	12	81
6-8	5	42	11	11	69
8-10	-	19	7	3	29
10 & above	-	7	5	-	12
Total	21	134	43	28	226

**Table 6 :** Percent distribution of the nutritional status of the infants compared with NCHS "weight for age" standards.

Nutritional Status	Age in month	5-6	7-9	10-12
	Normal		2	4
Mild to Moderate		11	24	20
Severe		1	11	24

Fig.1 Diagram Showing The time of Introduction Of Breast Milk

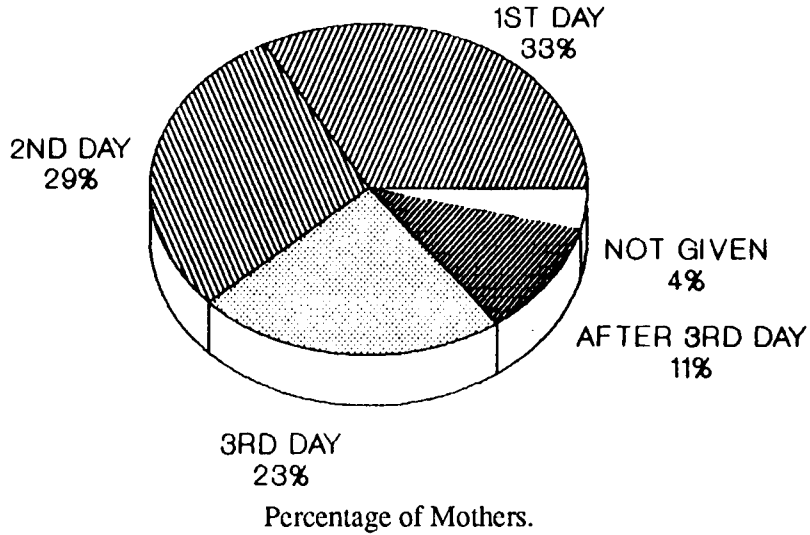


Fig.2 Diagram Showing the Sources That influence the decision of Mothers on supplementary Infant feeding.

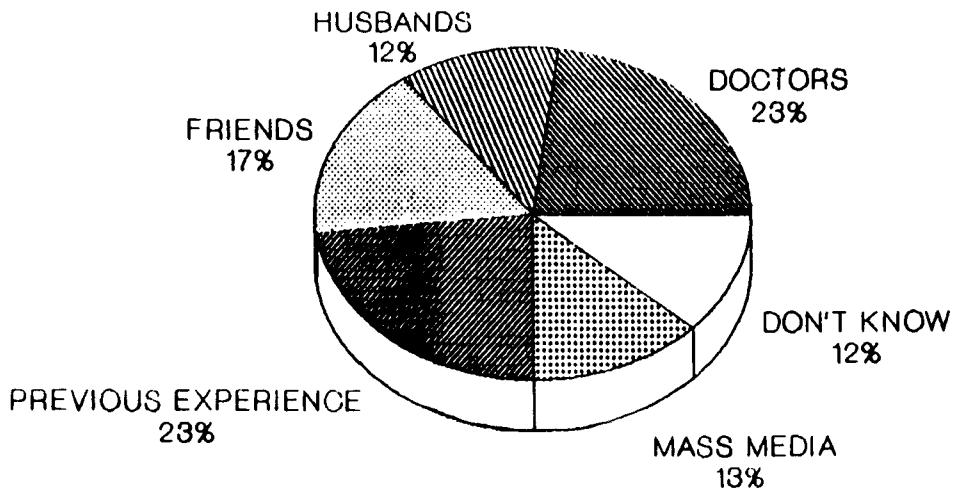


Fig: 3 Mode of Giving supplementary food to the Babies.

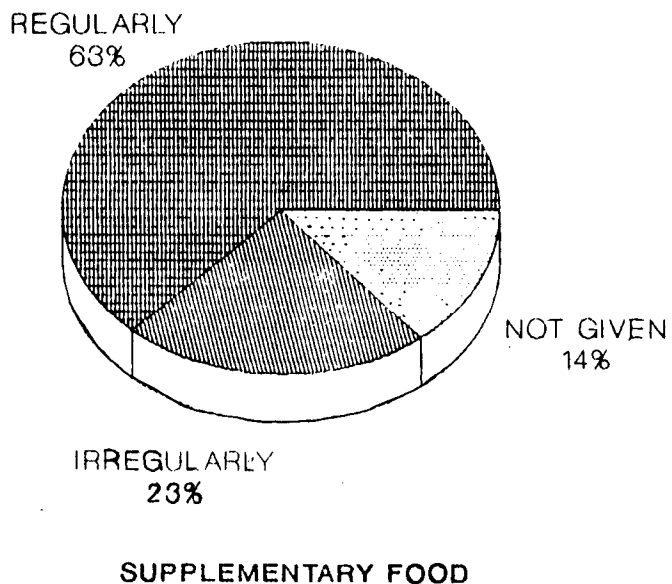


Fig.4 Diagram Showing the Causes of Introduction of Home made food as supplementary food.

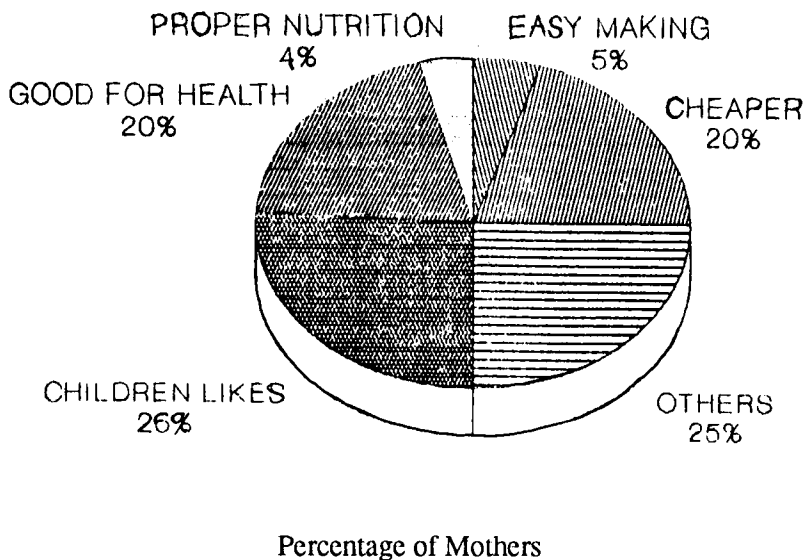


Fig.5 Diagram showing pattern of introduction of supplementary food.

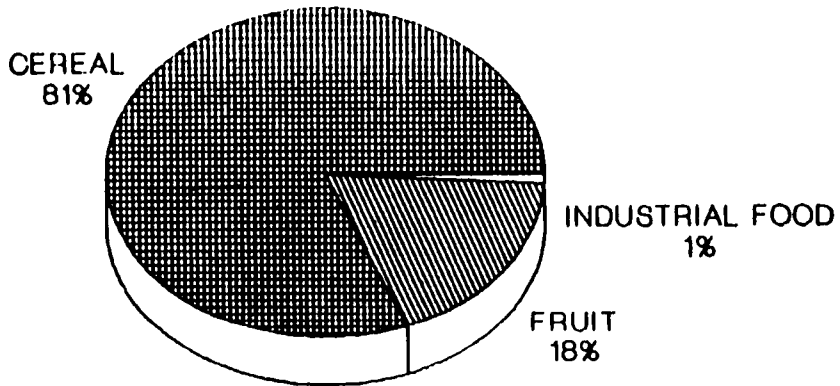


Fig.6 Diagram showing present feeding pattern of children.

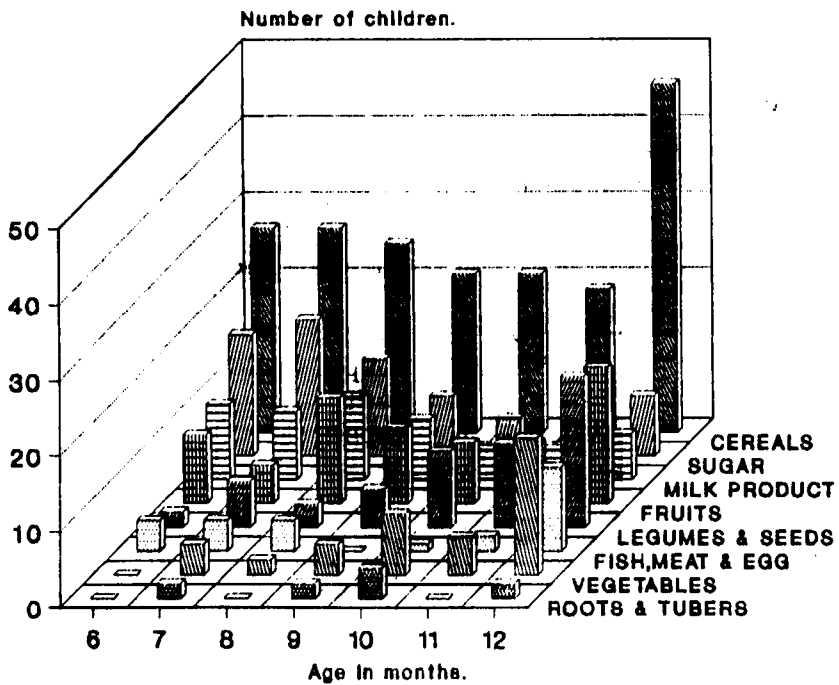
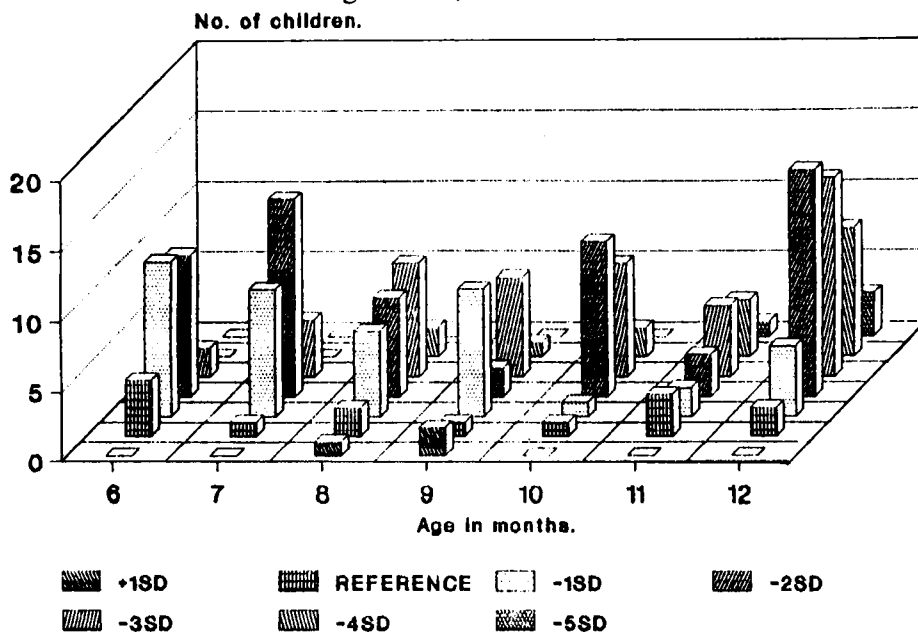


Fig.7 Diagram showing distribution of children by their weight and age according to nchs/who classification.



**NCHS/WHO CLASSIFICATION**

**Discussion**

The velocity of growth and development during the later half of infancy is greatly influenced by the initiation of proper supplementation in terms of the time of introduction, types of food, adequacy, regularity etc.

In our study it is observed that ninety nine percent of the mother's practiced breast feeding, which is nearly universal (9,10). It is very important to note that almost all the mothers gave the first milk (colostrum) to their babies.

The study shows that the mean age of beginning supplementation is 5.3+2.03 (SEM) months. It is assumed that maternal educational level can make a significant difference in the beginning of supplementary

foods to their infants but in our study though data show differences between the level of literacy (Table-3), yet it is not statistically significant ( $P > .05$ ). Lack of nutritional awareness might have prevented them from introducing supplementary foods at the proper time. Few mothers started supplementation even before the age of three months (data not shown). Women employment significantly ( $P < .05$ ) influenced the timing for introducing supplementary food which is also observed by Geervani et al <sup>(11)</sup>. It has also been observed that lower income group started supplementation earlier than the recommended period probably to accustom the infants with the family foods than to spend additional amount to purchase or prepare suitable supplementary foods.



Supplementary foods were provided to the infants considered mainly the 'rice flour' mixed with diluted milk or plain water and sugar, suggesting a gross deficiency in essential nutrients e.g. protein, vitamins and minerals. The percentage of other foods like fruits, eggs etc. were very poor, similar to that reported in another study in Bangladesh<sup>(12)</sup>. There was hardly any information available on the quantity of these supplementary foods among the different income groups. Though it has been observed that, the proportion of infants receiving foods other than cereals increased with age, but has failed to reflect its impact on the infants' health status suggesting that supplementation was inadequate in terms of quality, quantity, regularity and frequency. Moreover, despite universal breast-feeding impaired growth during infancy was greatly marked probably due to improper and inadequate supplementation. A WHO study in India (1981) also showed that quantity and nutritional quality of the supplementary foods were responsible for the poor growth of infants beyond the age of six months<sup>(15)</sup>. With increasing age, the weight of the infants as a percentage of the NCHS median continued to decline after 6 months of age and reached its peak at the age of 12 months despite the introduction of supplementation. The declining growth pattern thus indicate that the babies were supplemented either inadequately or improperly.

Malnutrition is directly the result of food intake. Infants do not obtain sufficient proper weaning food. The level of deprivation in its severest form will cause death of the child. The problem is compounded by complex socio-economic factors including poverty, food availability, educational level,

cultural patterns etc<sup>(16)</sup>. To prevent or ameliorate malnutrition the simple answer is to provide more food. Culturally acceptable concentrated food rich in edible oil should be advocated for supplementation<sup>(17)</sup>.

The NGO's and various government agencies are giving more emphasis on the dissemination of nutritional knowledge. But the results showed that despite the sound knowledge about breast feeding and supplementation, which is being practiced by the mothers interviewed, failed to show any impact on the nutritional status of their infants. It is certain that to achieve the goal food should be available within the reach of these groups along with the improvement of their awareness regarding the knowledge they have already acquired and sustainance of their knowledge through proper application. Constraints to weaning food include cost of an adequate diet. It is a well established fact that, any change in income got a direct effect on the buying power of smaller income families. So, the power or lack of power of the people to acquire food should be improved. The total success of supplementation depends upon the mother's understanding of the infants' need and her ability to supplement the child properly.

### Summary

Supplementary feeding pattern and practice of 226 infants of lower urban socio-economic population was studied. Our study demonstrated inadequate and improper supplementation. The mean age of supplementation was 5.3+2.03 (SEM) months. Most of the mothers started with rice flour, with few exception who gave fruits to their babies. The poor feeding pattern affected adversely on the nutritional

status of the infants despite the beginning of supplementation at the proper time.

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