

# **Weaning Practices in Low Income Families of an Urban Slum Area in Dhaka City**

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## **Abstract**

This cross-sectional study was undertaken in an urban slum area on 70 children to investigate the weaning practices, energy intake of infants, pattern of the feeding practices and to establish relationship between the nutritional status and the energy intake of the children through a series of in-depth interview, observation and weighing of cooked food before and after meal. The prevalence of exclusive breastfeeding was 20%, and an alarming more than half were severely malnourished based on NCHS standard. Eighty eight percent of the children had been suffering from different grades of malnutrition. It was observed that none of the mothers/caregivers was prepared any special food or separate cooking as weaning food for their children/infants in the slum area. Weaning food was not introduced to the infant at any particular time, sometimes it was either too early or too late. Seventy nine percent infants were being given food from family pot which was mentioned here as supplementary or extra food. 70% of the total energy intake was from carbohydrate, even though the average energy intake was grossly (about 40%) inadequate compared with Recommended Dietary Allowances (RDA) by the children of 6-24 age group.

*Key Words:* Weaning Practices, Malnutrition, Early Weaning, Food Weighing, Average Energy Intake.

## **Introduction**

Protein energy malnutrition is widely prevalent and is one of the most important health problems among infant and children of Bangladesh<sup>1,2</sup>. Typically, marasmus occurs mostly in infants under 1 year of age and is frequently found in urban area whereas kwashiorkor is generally considered to be a disease of the rural occurring in the second year of a child's life<sup>3</sup>.

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Lack of knowledge<sup>4</sup> about food and nutrition is equally responsible for malnutrition of children. The weaning food, used in developing countries are inadequate from several points of view and have a determining role in predisposing infants to malnutrition. In Bangladesh, weaning food mixtures based mainly on cereal staple are thick and therefore are often diluted with water before being given to infants and young children. The consequent low energy density of such foods leads to a reduced net intake of calories and protein and also research demonstrates that growth faltering begins around 6 months of age, when infants begin to receive foods in addition to breastmilk<sup>5,6,7</sup>.

Infant feeding practices are an appropriate focus for a study of parenting because feeding is a daily activity involving children and caretakers that serves as an important opportunity for social interaction<sup>8</sup>. It is also reported that infant feeding is also of public health interest because of many households do not adhere to a gradual introduction of solid foods on non-milk liquids<sup>9</sup>.

This study had been conducted in an urban slum area of Dhaka city in Bangladesh in order to document the weaning practices and the nutritional status of the children living in the slum.

### **Methodology**

This is a descriptive, cross-sectional study done by a survey through interview; observation and weighing analysis of food. The study was conducted during April 1994 to March 1995 in a urban slum in Dhaka city. The slum comprises of poor housing with high density population with inadequate water and sewerage facilities<sup>10</sup>.

Children were recruited whose age was within 6-24 months and also the mother or caregiver (the person, who looked after the child for maximum hours during the day and night time) who agreed to co-operate. This age group were selected because weaning period should be started at 6 months of age and also we had no facilities to quantify the amount of breastmilk.

Children whose anthropometric measurements were unable to obtain due to their disability and mothers with two children between 6 months up to 24 months of age and also the caregivers who were not adults or unable to reply questionnaire were excluded.

*Data collection:* The study procedure were explained to the parents. Information were obtained about household socio-economic status, mother's knowledge on nutrition, child feeding practices and immunization coverage.

**Studies on food consumption and breastmilk :** Assessment of a total daily dietary intake was obtained by recall and direct observation method, one time for each child during the whole study period by a surprise visit of the researchers. Food intake of each child had been observed for 5-7 hours (8 am upto 3 pm). Some serving utensils in the households were measured at the beginning of the observation using food weighing scale. To observe and weigh the food during the home visit, researchers arrived before the first meal was prepared and served. Offered cooked/ served food to the child was measured as well as leftover to estimate the actual intake. In the case of discrete food items e.g. pieces of fruits, biscuits etc. the items were weighed similarly to measure the net intake. Weight of single food items consumed more than once were summed to determine the total intake. Food intake pattern for the remaining period had been recorded by food recall method using the measuring utensils.

However, for breastmilk neither the amount nor the frequency was measured. The ingestion of nutrients from sources other than breastmilk was calculated using food composition tables<sup>11,12,13</sup>. Nutrients were obtained from recall and direct observations (for this study) and also from the breastmilk<sup>14</sup> were added to have a total daily intake. In a previous study<sup>14</sup>, the consumption of breastmilk during a 12-h period was quantified by a test-weighing technique. The consumption of milk during the 24-h period was extrapolated from the data for 12-h, using a correction factor (12-h consumption/0.53) previously determined for Bangladeshi women. The ingestion of nutrients of milk consumed, corrected to 24-h, by the estimated concentration of nutrients in the milk. The concentrations of nutrients in breast milk were measured during previous studies of similarly nourished women in Bangladesh.

**Anthropometric data :** Anthropometric measurements; body weight and length were carried out by trained researchers. Child was weighed using the Salter scale without any clothing on. The length of the baby was measured by the infanto-meter. Presence of edema if any was observed and recorded. Nutritional status (% of wt/age) was categorized according to Gomez classification.

**Statistical analysis :** Conventional mean and standard deviation, were calculated in PC.

## **Results**

More than eighty eight percent of the children were malnourished and of them more than half were severely malnourished (Table-1). The mean age

the child was 13 months. There were 31 male children out of 70 children. The mean monthly income of each household is Tk 1541. Table-2 shows that

**Table 1. Characteristics of the children**

Number of children	70
Age (mean $\pm$ sd) months	13.1 ( $\pm$ 4.8)
Gender: Male / Female	31 / 39
Body wt (mean $\pm$ sd) kg	5.4 ( $\pm$ 2.4)

**Table 2. Nutritional status according to Gomez classification**

% Wt / age	N (%)
<60	40 (57.1)
60 - 74.9	10 (14.3)
75 - 89.9	12 (17.1)
>90	8 (11.4)

about 13% families were poor based on the income which was less than taka 1000 (US \$18) per month. Table-3 shows that 93% of infants were breast-fed. Table-4 shows that along with the breast-milk, most of the children (79%)

**Table 3. Socio-economic status as measured by father's monthly income**

Salary (Taka)	N (%)
<1000	9 (12.9)
1000 - 2000	54 (77.1)
>2000	7 (10)

**Table 4. Breastfeeding status amongst the children**

Breastfeeding status	N (%)
Exclusive	14 (20)
Predominant	51 (72.9)
No Breastfeeding	5 (7.1)

shared family food as extra food. As could be seen in Table-5, there were number of food items shared by the children. Of those rice (60%), bread (34%), cookies (33%), fruits (20%), and gruel (16%) were the major. Total calorie intake calculated from extra food and breast-milk as opposed to Recommended dietary allowances (RDA) were shown in Table-6, the mean energy intake was 280 ( $\pm$ 90) kcal/day.

**Table 5. Type : of food those are shared by the children**

Type of food	Regular	Occasional
Rice	42	8
Bread	24	11
Biscuit/cake	23	4
Vegetable (mixed)	7	7
Fruit (mostly banana)	14	31
Lentils	8	9
Egg	2	21
Powdered milk	5	1
Meat	1	4
Fish	4	12
Suzi, Sagu	11	0
Gruel (rice + wheat)	2	4
Cow's milk	2	3
Khichuri	0	2

n = 70

**Table 6. Comparison between total energy (consumed by the children) and Recommended Dietary Allowances (RDA)**

Age (months)	Total energy from extra food (kcal/day)	Total energy from breast milk (kcal/day) <sup>*</sup>	Total calorie intake (kcal/day)	RDA (kcal/day) <sup>**</sup>	Difference (kcal/day)
6.00-9.9	150	449	599	899	-300 (-33%)
10.00-13.9	316	449	765	1156	-391 (-34%)
14.00-17.9	274	400	674	1220	-546 (-45%)
18.00-21.9	265	355	320	1220	-600 (-49%)
22.00-25.9	399	355	754	1220	-466 (-38%)

<sup>\*</sup> Brown KH & Becker S (1982)<sup>14</sup><sup>\*\*</sup> Recommended Dietary Intakes of Nutrients (ICMR 1981)

## Discussion

This study was undertaken to investigate the weaning practices and nutritional status of the children in an urban slum population. In a previous study carried out in abroad it was shown that the mean age of introduction of supplementary food was 4.5 months, both for boys and girls<sup>15</sup>. In Bangladesh, there is no consistent pattern of weaning and different ages for the introduction of supplementary foods have been reported<sup>16</sup> and supported by the other author<sup>17</sup>. In strict sense, we did not find any special preparation as weaning food in the slum. Extra solid food was given to 79% of the infants

(Table-4). These extra foods were not weaning food in ideal sense because these are simply sharing family pot and amount of calorie derived from these were far less than recommended. As could be seen in the Table-5, a wide range of food items is offered. We have observed like others<sup>18</sup> that the prevalence of exclusive breastfeeding was 22% out of 65 children (Table-3) among infants of 6–24 months of age. Given the fact that there was virtually no weaning practices and the only source of diet is breastmilk almost quarter of the study children in the age of 6–24 months could be an important predominant factor for malnutrition. There could have complementary feeding in order to provide with additional nutrients along with breast milk, the nutritional status of those children would be better. Based on weight-for-age, NCHS standard, more than 88 % of the children (Table-1) had been suffering from malnutrition one from or other and more than half were of alarming severity. Similar findings have also been reported<sup>19</sup>.

The calculated mean energy intake by infants from the given food was 280 kcal/day. Large proportion (70%) of the total energy intake was from carbohydrates (Table-6). After taking account the estimated energy from breastmilk as reported by Brown et al<sup>14</sup>, the extrapolated total energy would be 682.4 kcal/day. As compared to Recommended Daily Allowance (RDA) of this age group, it appeared that in an average the energy intake was grossly (about 40%) inadequate (Table-6). Hassan and Ahmed<sup>20</sup> also reported that nutrient intake amongst slum dwellers was so low that 88% did not meet the daily requirements. Illiteracy, low socio-economic status (Table-2), inadequate energy intake (Table-6), crowding, and environmental poor hygienic condition can all be the important factors for precipitating such malnutrition amongst the infants living in the urban slum, there should be both short term and long term programs to enhance total energy intake. Appropriate weaning practices should also be emphasis and encouraged.

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## References

1. Nutrition survey of rural Bangladesh (1981-1982). Institute of Nutrition and Food Science, University of Dhaka:1983;1-10.
2. Ahmed K and Hassan N. Nutrition survey of rural Bangladesh (1981-1982), ADAB News: 1984; 12 (2).
3. Davidson S, Meiklejohn AP and Passmore R. Human nutrition and dietetics. Churchill-Livingstone. 1969 (Edt-VI) :386-405.
4. Ahmed K. The Institute of Nutrition and Food Science, University of Dhaka: An address to the second Bangladesh Nutrition Conference, 1977.
5. Wahed MA, Mahalanabis D, Begum M, Rahman M and Islam MS. Energy dense weaning foods liquefied by germinated wheat amylase: effects on viscosity, osmolality, macro-nutrients and bacterial growth. Food. Nutr. Bull. 1994;15:257-61.
6. Rowland MGM. The weaning's dilemma: are we making progress? Acta. Paed. Scand. 1986; 323 Suppl: 33-42.
7. Underwood BA and Hofvander Y. Appropriate timing for complementary feeding of breastfed infant. Acta Paed Scand 1982; Suppl 294.
8. Ashworth AM and Bell S. Mother infant interaction and the development of competence. IN: Connolly K. Bruner J (Eds). The Growth of Competence. Academy Press. New York. NY 1974; 97-118.
9. Black MM. Huteheson J, Dubowitz H, Starr RH and Berenson HJ. The roots of competence: mother child interaction among low income urban African-American families. Applied Development Psychology 17; 362- 391.
10. Bronner Y and Paige D. Current concepts in infant nutrition. Journal of Nurse Midwifery 1992; 37 suppl: 43- 58.
11. Hassan N and Ahmed K. The nutrition profile of the slum dwellers: a comparison with the rural poor. Ecol. Food. Nutr. 1991;26:212.
12. Gopalan C and Rama Sastri BV. Nutritive value of Indian foods, National Institute of Nutrition, Indian Council of Medical Research, Hyderabad, 1991.
13. Swaminathan M, Editor. Advanced text book on food and nutrition, The Bangalore Printing and Publishing Company, 1991; vol I & II: 536-551.
14. Brown KH and Becker S. Consumption of foods and nutrients by weanlings in rural Bangladesh. Am. J. Clin. Nutr. 1982;36:878- 89.
15. Hamill P VV, Drizd TA, Jhonson CL, Reed RB, Roche AF and Moore WM. Physical growth: National Center for Health Statistic percentiles. Am. J. Clin. Nutr. 1979;32:607-29.
16. Ahmed S. Breastfeeding, Weaning and infant growth in rural Chandpur, Bangladesh. Ph.D Thesis. University of London, 1988; 1-230.

17. NIPORT, Mitra and Associates and Macro International Inc. Bangladesh Demographic and Health Survey 1996-97; 131.
18. Islam S. An outline of Mauchak Palli Shishu clinic : Pre-lacteal and weaning practices in rural Bangladesh. (Souvenir). Sixth Annual Conference of Palli Shishu Foundation Bangladesh (souvenir)1984.
19. Baqui AH et al. Infant and child feeding practices in Dhaka urban FP/MCH working paper 1991; 6.
20. Hassan N and Ahmed K. The Nutrition profile of the slum dwellers comparison with the rural poor. Ecol Food Nutr 1991; 26:203-13.