

**Original Article****Growth Pattern of Exclusively Breastfed Babies in Urban Affluent of Bangladesh**M N Huq¹, K B Sarwar²**Abstract**

To find out the growth in the exclusively breastfed babies of the affluent mothers and to compare the figures with those of the children in the industrialized countries. Fifty-three babies were selected for this cross-sectional study under 6-month of age with prefixed criteria, such as exclusively breastfed and not fed with any formula. Recommended schedule of immunization (EPI) was followed to weigh and measure for supine length. Data were analyzed using SPSS Version 10.0. Place and time of work: During an 11-month time frame (from May 2007 to April 2008) data were collected from Pediatrics Department of Bangladesh Medical College Hospital and the researcher's chamber at Dhanmondi, Dhaka, where applicable.

The data of developed countries showed that in first 3-month of age, the children grow in weight 30 gm/day and in length 3.5 cm/month, followed by weight gain of 20 gm/day and linear growth 2 cm/month in next 3-6 months.¹ Our babies could be compared to those figures, with 33.54 gm/day in the weight gain and 4.17 cm/month in linear growth in the first 3 months. The average wt. gain during the next 3 months (3-6 months of age) was 22.3 gm/d and linear growth for this period was 2.12 cm/month. Babies in our country can grow optimally in comparison to those in the industrialized countries or even can exceed, if they are exclusively breastfed and brought up in well-off families with high education of the mothers.

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Introduction

A newborn's weight may decrease by 10% of birth weight in the first week as a result of excretion of excess extra vascular fluid and poor intake.² Infants regain or exceed birth weight by 2 weeks of age and should grow at a rate of approximately 30 gm/day in the first 3-month of age and 20 gm/day in the next 3-6 months in the developed countries.³ Also the recommended growth in supine length 3.5 cm a month in the first 3 months of age and 2 cm a month in the next 3-6 months.

The babies under study were exclusively breastfed and stayed healthy. They visited the consultant

monthly for immunization and occasionally for minor complaints.

Material and Methods

This cross-sectional study considered a sample of 53 babies under 6-month of age in an 11-month time frame from May 2007 onward, from Bangladesh Medical College Hospital's Pediatrics Department and the researcher's chamber in Dhanmondi, Dhaka, where applicable. Each baby with the prefixed criteria, such as exclusively breastfed, proven records of previous visit(s) and

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not fed with any formula were selected. No mothers were advised to come at any prescribed intervals; rather the recommended schedule of immunization (EPI) was followed. Each baby was weighed and measured for supine length using scientific scales. Qualified doctors, who were sufficiently trained in pediatrics, did all procedures. Data were analyzed in PC through SPSS.

Results

Just above three-fourths of the babies belonged to the upper socioeconomic class (77.36%), because of the purposive sample selection of the respondents being mainly from the affluent class.

All the mothers were educated (100%). Almost all of them (98.9%) were firmly determined to breastfeed their babies exclusively (99.34%). They properly followed (99.2%) the immunization schedule too.

The average birth weight was 3080 gm. This figure is a bit higher than the Japanese National figure of 3029 gm.⁴ In this Japanese National figure; an incidence of low birth weight of 11.3% was recorded, whereas in our study, we found this as 17%. Our figure is very similar to the national figure for Malaysia (17.3%) against her average birth weight of 3057gm, which might be considered as significant.⁵

Table-1: Some selected profiles of the sample distributed by different criteria

Gender Distribution	Male	Female		Total
	28	25		53
	(52.80%)	(47.20%)		(100%)
Socioeconomic Class	Upper	Middle	Low	Total
	41	12	0	53
	(77.36%)	(22.64%)	(0%)	(100%)
Maturation by Term	Full	Pre	Post	Total
	49	2	2	53
	(92.45%)	(3.77%)	(3.77%)	(100%)
Birth Weight	Highest	Lowest	Average	
	4550 gm	2150 gm	3080 gm	

The total number of low birth weight (LBW) babies in this study was 9 (17%). It is about half of the national figure for Bangladesh, which is 30%.⁶ This difference can be explained by the fact that these mothers were from wealthy families (99.6%), sufficiently educated and under regular antenatal care (93.3%) by qualified Obstetricians.

Only 5 (9.43%) babies had a birth weight 4 kg or more. The highest birth weight recorded was 4550 gm. It is said that largest live born baby ever weighed 9299 gm with a length of 58 cm.⁷

About one-third babies (N=17; 32.1%) had a birth weight range of 3 to 3.5 kg. This is the standard birth weight best for survival.⁸ The study found

average linear growth in first 3-month was 4.17 cm/month (Table-2) followed by 2.12 cm/month in 3-6 months. The male-female ratio was 1.12: 1.00. The reason behind this difference is not clear. As the difference in the proportion was not very big so that it might be considered insignificant.⁹

The average weight gain of the 53 babies in first 3-month was 33.54 gm/day and the average weight gain for the whole 6-month was 28 gm/day. It is almost corresponding to the average weight gain in the western healthy babies.¹⁰

Highest weight gain of 46.67 gm/day was recorded at the age of 93 days.

Table-2: Linear Growth in First 3-month (In between 10~90 days). The average linear growth is 4.17 cm/month.

Sample #	1 st Visit	Last Visit	1 st height	Last height	Height-Diff	Day-Diff	Growth/D	Growth/M	Total
4	13	42	47.5	52.0	.160	29.00	4.50	.1552	4.66
5	18	59	54.0	60.0	.329	41.00	6.00	.1463	4.39
6	13	21	50.0	50.5	.125	8.00	.50	.0625	1.88
7	14	32	50.0	53.5	.194	18.00	3.50	.1944	5.83
8	14	50	55.0	61.0	.167	36.00	6.00	.1667	5.00
9	19	79	52.5	62.0	.158	60.00	9.50	.1583	4.75
12	49	58	54.5	56.0	.167	9.00	1.50	.1667	5.00
14	19	85	50.0	58.0	.121	66.00	8.00	.1212	3.64
17	30	59	53.0	54.0	.034	29.00	1.00	.0345	1.03
18	15	66	35.5	42.0	.127	51.00	6.50	.1275	3.82
20	16	89	49.5	59.5	.137	73.00	10.00	.1370	4.11
22	20	87	54.5	64.0	.142	67.00	9.50	.1418	4.25
23	18	67	52.0	59.0	.143	49.00	7.00	.1429	4.29
25	25	72	59.0	65.0	.128	47.00	6.00	.1277	3.83
26	18	73	54.0	62.5	.160	55.00	8.50	.1545	4.64
27	16	74	55.5	65.0	.164	58.00	9.50	.1638	4.91
28	17	73	46.0	54.5	.152	56.00	8.50	.1518	4.55
29	14	73	52.5	61.0	.144	59.00	8.50	.1441	4.32
30	16	76	51.0	61.0	.167	60.00	10.00	.1667	5.00
31	25	87	53.0	60.0	.113	62.00	7.00	.1129	3.39
33	26	69	52.5	57.5	.116	43.00	5.00	.1163	3.49
34	46	77	54.5	59.0	.145	31.00	4.50	.1452	4.35
35	11	63	48.0	57.0	.173	52.00	9.00	.1731	5.19
36	25	90	45.0	57.0	.185	65.00	12.00	.1846	5.54
37	36	90	54.5	64.0	.176	54.00	9.50	.1759	5.28
38	41	85	52.5	58.0	.125	44.00	5.50	.1250	3.75
39	20	90	48.0	60.0	.171	70.00	12.00	.1714	5.14
41	15	88	53.0	61.0	.110	73.00	8.00	.1096	3.29
43	37	81	50.0	56.0	.137	44.00	6.00	.1364	4.09
47	15	73	51.0	56.5	.100	58.00	5.50	.0948	2.84
48	40	73	56.0	60.0	.121	33.00	4.00	.1212	3.64
49	18	72	52.0	59.0	.130	54.00	7.00	.1296	3.89
50	21	87	54.0	61.5	.114	66.00	7.50	.1136	3.41
51	12	90	50.0	57.0	.090	78.00	7.00	.0897	2.69
52	44	78	56.0	61.0	.147	34.00	5.00	.1471	4.41
53	44	67	56.5	61.0	.137	23.00	4.50	.1957	5.87

Average = 4.17cm/Month

Following table (Table-3) shows 27 babies growth pattern by height. These 27 babies aged 3-6 months, grown 2.35 cm/month, on average.

Table-3: Linear Growth in 3-6 months (In between 91~180 days)

Sl. Sample #	Growth (increased)	Sl. Sample #	Growth (increased)
1 4	0.133	14 33	0.027
2 5	0.059	15 34	0.074
3 6	0.093	16 35	0.075
4 13	0.167	17 36	0.048
5 18	0.125	18 37	0.086
6 20	0.089	19 38	0.063
7 22	0.016	20 39	0.047
8 25	0.071	21 41	0.068
9 26	0.056	22 43	0.161
10 27	0.09	23 47	0.096
11 28	0.06	24 49	0.063
12 30	0.123	25 50	0.039
13 31	0.081	26 51	0.054
		27 53	0.051

Linear Growth=2.35 cm/Month

Conclusion

Birth weight and growth for our babies born to the mothers with good health and education in Dhaka were similar to that of the babies of the industrialized countries. Though the number of babies in this study was not very large, but the number of their visits to the pediatrician was sufficient (N=239; average 4.51 visit/baby). The visits mostly were for follow up and immunization rather than illness.

The babies were exclusively breastfed and stayed healthy. The study showed that exclusive breast-

feeding can ensure optimum growth in infants and can protect the children from infections in early infancy (sickness rate was 4.37%). This study also proves that healthy and educated mothers with economic affordability can give birth to babies with standard anthropometry. It confers that improving the socioeconomic and educational standard of mothers; health status of the infants can be ensured.

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