

Infant Feeding Practices and Nutritional Status among Selected Garo and Non garo Plain land Population

**S.M. Belalur Rahman^{1*}, M. Burhan Uddin², A.A.M. Kurshed³,
Sabina Khan⁴, A.M.M.Mokarram Hossain⁵ and
Md. Aminul Haque Bhuyan⁵.**

**World Vision Bangladesh, Joypurhat¹
Dept. of Food Technology and Rural Industries, Bangladesh Agriculture
University, Mymensing²
Dept. of Food Technology and Nutritional Science, MBSTU, Tangail³
Bangladesh Home Economics College, Dhanmondi, Dhaka⁴
Institute of Nutrition and Food Science, University of Dhaka, Dhaka⁵**

ABSTRACT

The study investigated the pattern of infant feeding as well as the principal factors associated with such feeding practices. The mothers and their children (0-12 months) of 270 households (90 HHs from Garo, and 180 HHs from Non Garo plainland) were taken in the study. It was found that 55.6% of Garo and 44.4% of Non Garo were within the monthly family income range of TK. 2000-2999 and monthly family expenditure of 53.3% of Garo and 44.4% of Non Garo families were within 1500-2499 taka. The study also shows that 96.7% of Garo families and 90.6% of Non Garo families had own house and the 95.6% of Garo families as well as 94.4% of Non Garo families were nuclear family. It was found that the highest percentage (40%) for Garo and (43.3%) for Non Garo mother's education were Primary education. It appears from the study that 95.6% of Garo mothers and 97.2% of Non Garo mothers breast fed their babies and 80% of Garo mothers and 89.4% of Non Garo mothers gave colostrum to their babies. The study showed that 87% of Garo and 84% Non Garo mothers started complementary feeding within 6 months of age and 34.8% of Garo and 25% of Non Garo children received cow's milk as complementary food. Most of the families gave only one food as complementary food (56.5% of Garo and 53% of Non Garo). Again, 32.6% of Garo and 36% of Non Garo family used two foods as complementary food. It was found that 30.4% of Garo and 38% of Non Garo mothers served two times of one time prepared complementary food. While 26.1% of Garo and 37% of Non Garo mothers served three times and 43.5% of Garo and 25% of Non Garo mothers served four times of one time prepared complementary food to their children. In case of stunting there is significant difference ($P=0.048$) between Garo and Non Garo children where 10% of Garo and 21.1% of Non Garo children were severely stunted.

Bangladesh Journal of Nutrition. Vol. 22-23 December, 2010. Institute of Nutrition and Food Science, University of Dhaka. Dhaka-1000, Bangladesh.

* Author for Correspondence

INTRODUCTION

Infant feeding practice is strongly associated with the culture of any society. The type of feeding practices that the mothers follow depends on many variables namely customs, superstitions, beliefs, religion, culture, socio-economic status of the family, literacy of the mother and place of residence. Usually in a culture where infant feeding practice is dominated by breast-feeding, delayed supplementation is the rule and infant malnutrition's is very common.

According to a nutrition survey, 90% of the children in Bangladesh suffer from malnutrition. The children also have high rate of diarrhea, infection, nutritional blindness, morbidity, have long been recognized as one potentially important determinant of infant malnutrition.¹

It is well known that breast-feeding improves child survival by providing protection against malnutrition and infectious disease. Under conditions in which a mother is motivated, healthy and relaxed, breast milk is alone adequate fully to support infant growth for 6 months. Additional or complementary food is needed nutritionally and physiologically when the supply of breast milk is no longer sufficient to meet the energy and nutrient needs for the growing infant in many areas where prolonged breast-feeding is common, nutritional problems generally arise after the 1st year of life. Delayed supplementation and inadequate weaning or complementary foods are major factors responsible for this. In some population, a child is weaned so early that he is deprived of breast milk and given substitutes, which may be inadequate in nutrition. The timing of complementary feeding is critical for infant's health and nutrition. After birth to six month exclusive breast-feeding is very necessary important for the baby which will provide all the nutrients for their growth. It is very important for the baby that beginning of the six month, giving complementary food to the baby to meet the nutritional demand and their growth.^{2,3}

Successful infant feeding and weaning practices depend on large to the extent of knowledge and attitude of mothers. It can have a major effect on the nutritional status, health and growth of a child. Therefore, it appears that a first step towards understanding malnutrition and infant health is a particular through knowledge of the societies and practices associated with the infant feeding in that community. In Bangladesh several studies regarding infant and child feeding practices have been carried out most in rural and urban areas among Bengali community. In rural areas among tribal (Garo) and non tribal (Plain land) area such type of study have been found scanty.

On the basis of the information so far accumulated, the present study has been undertaken with the objective to investigate the pattern of infant feeding as well as the principal factors associated with such feeding practices in population of tribal (Garo) and non-tribal (Plain land) population in Kalmakanda Upazila of Netrakona district and to assess the nutritional status of the selected infants.

MATERIALS AND METHODS

Study site

Kalmakanda upazila in Netrokona is predominantly agricultural based Upazila. The total population is 241319, out of which 122659 (50.82%) and 118660 (49.17%) are respectively male and female. The total households of this Upazila 43850, most of them are male headed. The female headed households represent only one percent. Total land area under this Upazila is 37608 ha among which more than 57 percent of land belongs to large and medium farmers (20% of total households). Marginal and landless farmers constituted 36% of total farmers and occupied only 9% of total land. These indiscriminate distributions of land have made people more poor and vulnerable in terms of food security and livelihoods.⁴

Survey population

Survey population of present study of Kalmakanda Upazila, Netrakona district was dispersed to over 45 villages and as many as 270 households. The Kalmakanda Upazila with four union and locations of the study villages were found spread over these four unions- Borkhapon, Kalmakanda, Pogla and Rongsati. The Muslims, Hindus, Garo and Christians are the inhabitants of the Upazila.

Sample size

To conduct this research the mothers and their children (0-12 months) of 270 households (90 HHs from Garo, and 180 HHs from Non Garo as they constitute larger in numbers) were included in the study.

Data collection

Necessary data and information were collected through face-to-face interview using the pre-tested questionnaire.

Materials used

To complete the research, the following instruments were used:

- 1) Weight machine
- 2) Measuring tape.

Data processing:

Data processing and analysis included code construction, coding, data verification and quality control, data processing, and finally analysis to facilitate the required output generation.

Data analysis

After data entry and cleaning, tabulation of classified data was done by using statistical measurements and parameters to depict attributes of the respondents in the study. All the necessary tabulation and analysis were done using SPSS/PC+ 12 computer software.

Results

Table-1: Socio-demographic information of the households

Characteristics	Garo		Non Garo	
	Frequency	Percent	Frequency	Percent
Type of family:				
Nuclear family	86	95.6	170	94.4
Joint family	4	4.4	10	5.6
Income level(TK.)				
1000 to 1999	11	12.2	30	16.7
2000 to 2999	50	55.6	80	44.4
3000 to 3999	23	25.6	49	27.2
4000 to 4999	2	2.2	11	6.1
5000 to 5999	4	4.4	8	4.4
above 6000	0	0.0	2	1.1
Expenditure level (TK.)				
500 to 1499	1	1.1	7	3.9
1500 to 2499	48	53.3	80	44.4
2500 to 3499	36	40.0	70	38.9
3500 to 4499	4	4.4	16	8.9
4500 to 5499	1	1.1	4	2.2
5500 and above	0	0.0	3	1.7
Housing Pattern				
Own	87	96.7	163	90.6
Staying in relative's house	3	3.3	17	9.4

Table-1 shows that 95.6% of Garo families and 94.4% of Non Garo families were nuclear family. It appears from Table that the monthly income of 55.6% of Garo and 44.4% of Non Garo were within TK. 2000-2999; 25.6% of Garo and 27.2% of Non Garo were within TK. 3000-3999; and monthly family expenditure of 53.3% of Garo and 44.4% of Non Garo families were within 1500-2499 Tk, While 40% of Garo and 38.9% of Non Garo were within TK. 2500-3499. The Table also shows that 96.7% of Garo families and 90.6% of Non Garo families had own house.

Table-2: Information of the respondents (mothers)

Characteristics	Garo (n=90)		Non Garo(n=180)	
	Frequency	Percent	Frequency	Percent
Educational Level				
Illiterate	17	18.9	65	36.1
Primary Education	36	40.00	78	43.3
Class 6 to 10	32	35.6	32	17.8
SSC	4	4.4	3	1.7
HSC	1	1.1	2	1.1
Occupation				
House wife	4	4.4	2	1.1
Service	83	92.2	176	97.8
Others	3	3.3	2	1.1

The Table shows mother's education level and occupation of Garo and Non Garo. It was found that the highest percentage (40%) for Garo and (43.3) for Non Garo mother's education were of Primary education level. Illiteracy rate of mothers (18.9%) for Garo and (36.1) for Non Garo. It appears from the table that 92.2% of Garo and 97.8% of Non Garo mothers were House wife, 4.4 % of Garo and 1.1% of Non Garo mothers were service holder and only 3.3% of Garo and 1.1% Non Garo were doing others job.

Table-3: Distribution of children by nutritional status

Indicator ^a		Garo (%)	Non Garo (%)	Chi-square tests (P value)
Under weight (WAZ _{WHO})	Severe	5.5 (5)	12.2 (22)	0.157
	Moderate	11.1 (10)	6.1 (11)	0.225
	Total	16.6 (15)	18.3 (33)	0.866
Stunting (HAZ _{WHO})	Severe	10.0 (9)	21.1 (38)	0.048
	Moderate	16.7 (15)	16.7 (30)	1.000
	Total	26.7 (24)	37.8 (68)	0.172
Wasting (WHZ _{WHO})	Severe	5.5 (5)	2.8 (5)	0.317
	Moderate	13.3 (12)	15.6 (28)	0.577
	Total	18.8 (17)	18.4 (32)	0.869

^a Severe <-3; Moderate -3 to -2.01; Total <-2.0 (Figures in parenthesis are frequency)

The table showed that 17% of Garo and 18% of Non Garo children were underweight among them only 5.5% of Garo and 12.2% of Non Garo children were severely underweight. In case of stunting there is significant difference between Garo and Non Garo children where 10% of Garo and 21.1% of Non Garo children were severely stunted. About 5.5% of Garo children were suffering from severe wasting while in case of Non Garo children it was 2.8%.

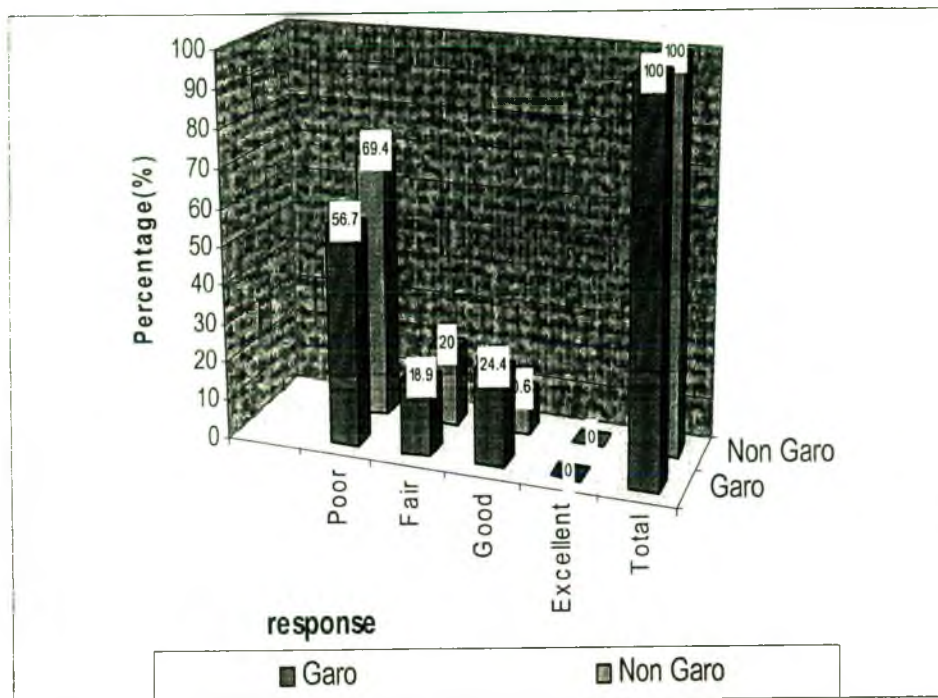


Figure 1: Distribution of the households by sanitation system of their kitchen. It was found from the above Figure that about 56.7% of Garo and 69.4% of Non Garo households had poor sanitation system, while 18.9% of Garo and 20% of Non Garo households had fair type of sanitation system. Only 24.4% of Garo and 10.6% of Non Garo households had good sanitation system.

Table-4: Health and medical care information of the infants

Characteristics	Garo (n=90)		Non Garo(n=180)	
	Frequency	Percent	Frequency	Percent
Diseases suffered				
Yes	22	24.4	31	17.2
No	68	75.6	149	82.8
Type of disease				
Fever	13	27.1	59	41.8
Vomiting	0	0	6	4.3
Diarrhea	3	6.3	6	4.3
Cough	24	50.0	61	43.3
Fever& cough	5	10.4	7	5.0
Vomiting& cough	2	4.2	1	.7
Fever& diarrhea	1	2.1	1	.7
Taking advice of doctor				
Yes	80	88.9	167	92.8
No	10	11.1	13	7.2

It was found from this Table only 24.4% of Garo children and 17.2% of Non Garo children suffered from any disease within last two weeks. The table also shows that most of the children (50% for Garo and 43.3% for Non Garo) suffered from cough since last one month. Furthermore 27.1% of Garo and 41.8% of Non Garo children suffered from fever, 10.4% of Garo and 5% of Non Garo children suffered from fever & cough. Only 6.3% of Garo and 4.3% of Non Garo children suffered from diarrhea.

Table-5: Distribution of the infants by their breast feeding practice

Characteristics	Garo (n=90)		Non Garo(n=180)	
	Frequency	Percent	Frequency	Percent
Breast feeding practice				
Yes	86	95.6	175	97.2
No	4	4.4	5	2.8
colostrum feeding Practice				
Yes	72	80	162	90
No	18	20	18	10
Getting sufficient breast milk.				
Yes	42	46.7	81	45.0
No	48	53.3	99	55.0
Receiving other foods				
Yes	62	68.9	131	72.8
No	28	31.1	49	27.2

It appears from the Table that 95.6% of Garo mothers and 97.2% of Non Garo mothers breast fed their babies. Only 4.4% of Garo and 2.8% of Non Garo mothers never breast fed their babies. It appears from the above table that 80% of Garo mothers and 89.4% of Non Garo mothers gave colostrum to their babies. Only 20% of Garo and 10% of Non Garo mothers never fed colostrum to their babies. It has been found from the table that 46.7% of Garo and 45% of Non Garo children got sufficient amount of breast milk. Major portion of the children got others foods besides breast milk. About 68.9% of Garo and 72.8% of Non Garo children got other foods besides mother's milk.

Table-6: Distribution of households by their weaning food practices to their children

Characteristics	Garo (n=90)		Non Garo(n=180)	
	Frequency	Percent	Frequency	Percent
Time of introduction				
4 months	8	17.4	20	20.0
5 months	12	26.1	35	35.0
6 months	20	43.5	29	29.0
7 months	5	10.9	16	16.0
8 months	0	0.0	0	0.0.
Others	1	2.2	0	0.0
Types of complementary food				
Baby formula	1	2.2	2	2.0
Cow milk	16	34.8	25	25.0
Goat milk	1	2.2	0	0.0
Banana	3	6.5	3	3.0
Green vegetables	1	2.2	5	5.0
Rice	11	23.9	10	10.0
Suzi	12	26.1	43	43.0
Khichuri	1	2.2	9	9.0
Fruit juice	0	0.0	3	3.0
No. of complementary food				
CF-1	26	56.5	53	53.0
CF-2	15	32.6	36	36.0
CF-3	5	10.9	11	11.0

The table shows that 87% of Garo and 84% Non Garo mothers started complementary feeding within 6 months of age and only 13% of Garo and 16% of Non Garo mothers started complementary feeding after completion of 6 months of age. It was found that 34.8% of Garo and 25% of Non Garo children received cow's milk as complementary food. Other foods such as suzi (26.1% for Garo and 43% for Non Garo), rice (23.9% for Garo and 10% for Non Garo) were used as complementary foods. Only few families used baby formula, goat milk, banana, green vegetables, khichuri and fruit juice. Most of the families gave only one food as complementary food (56.5% of Garo and 53% of Non Garo). Again 32.6% of Garo and 36% of Non Garo family used two foods as complementary food. Only 10.9% of Garo and 11% of Non Garo families gave three foods as complementary food to their children. (Table 6)

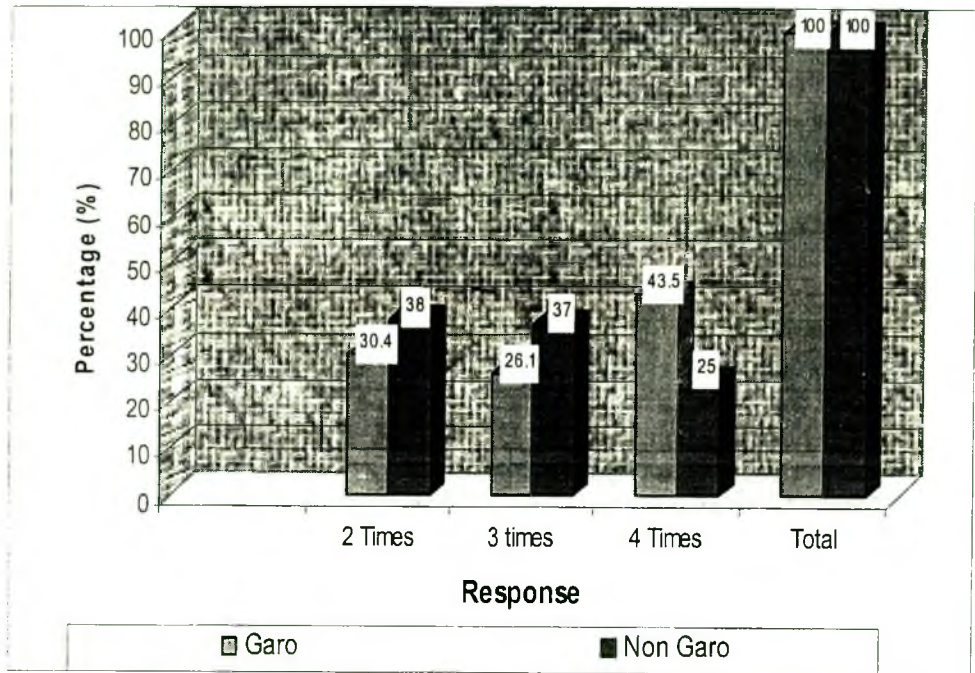


Figure2: Distribution of respondents by number of times serving of one time prepared complementary food.

Figure 2 shows the weaning food giving pattern of mothers of both societies. It was found that 30.4% of Garo and 38% of Non Garo mothers served two times of one time prepared complementary food. While 26.1% of Garo and 37% of Non Garo mothers served three times and 43.5% of Garo and 25% of Non Garo mothers served four times of one time prepared complementary food to their children.

Discussion

The population of present study in Kalmakanda Upazila , Netrakona district belonged to over 45 villages and as many as 270 households. To conduct this research, the mothers and their children (0-12 months) of 270 households (90 HHs from Garo, and 180 HHs from Non Garo Plain land) were included in the study. From the study, it was found that 95.6% of Garo families and 94.4% of Non Garo families were nuclear family. The monthly income of 55.6% of Garo and 44.4% of Non Garo were within TK. 2000-2999; and monthly family expenditure of 53.3% of Garo and 44.4% of Non Garo families were within 1500-2499 taka. The highest percentage (40%) for Garo and (43.3) for Non Garo mother's education were Primary education and 92.2% for Garo and 97.8% for Non Garo mothers were House wife.

About 56.7% of Garo and 69.4% of Non Garo households had poor sanitation system and only 24.4% of Garo and 10.6% of Non Garo households had good

sanitation system. Only 24.4% of Garo children and 17.2% of Non Garo children suffered from any diseases within last two weeks. Amongst the children, 50% of Garo and 43.3% of Non Garo suffered from cough since last one month. Furthermore, 27.1% of Garo and 41.8% of Non Garo children suffered from fever. Therefore it was seen that though the sanitation system was not quite satisfactory, a little number of infants were suffering from diseases and among the diseased infants majority of them suffering from cough & fever but no infectious disease. It may be due to their exclusive breast-feeding and colostrum feeding practices.

The study showed that 17% of Garo and 18% of Non Garo children were underweight among them only 5.5% of Garo and 12.2% of Non Garo children were severely underweight. In case of stunting there is significant difference between Garo and Non Garo children where 10% of Garo and 21.1% of Non Garo children were severely stunted. About 5.5% of Garo children were suffering from severe wasting while in case of Non Garo children it was 2.8%.

About 95.6% of Garo mothers and 97.2% of Non Garo mothers' breast fed their babies and 80% of Garo mothers and 89.4% of Non Garo mothers gave colostrum to their babies. Again, 46.7% of Garo and 45% of Non Garo children got sufficient amount of breast milk. About 68.9% of Garo and 72.8% of Non Garo children got other foods besides mother's milk.

About 87% of Garo and 84% Non Garo mothers started complementary feeding within 6 months of age and only 13% of Garo and 16% of Non Garo mothers started complementary feeding after completion of 6 months of age. It was found that 34.8% of Garo and 25% of Non Garo children received cow's milk as complementary food. Other foods such as suzi (26.1% for Garo and 43% for Non Garo), rice (23.9% for Garo and 10% for Non Garo) were used as complementary foods. Only few families used baby formula, goat milk, banana, green vegetables, khichuri and fruit juice. Most of the families gave only one food as complementary food (56.5% of Garo and 53% of Non Garo). Again 32.6% of Garo and 36% of Non Garo family used two foods as complementary food. Only 10.9% of Garo and 11% of Non Garo families gave three foods as complementary food to their children. It was found that 30.4% of Garo and 38% of Non Garo mothers served two times of one time prepared complementary food. While 26.1% of Garo and 37% of Non Garo mothers served three times and 43.5% of Garo and 25% of Non Garo mothers served four times of their one time prepared complementary food to their children. A survey was carried out by Daniel WS in 2001 to investigate infant feeding pattern reported for non industrial population with current recommendation in Atlanta, United States. The study covered for a total of 113 nonindustrial populations from 97 cultures. Observational studies show that exclusive breastfeeding in the early months, continued partial breastfeeding and timely transition to high quality nonbreast milk foods deliver physiological and economic benefits to mothers and maximize nutrient intakes, growth, development and survival for normal healthy children (1 -5) . Recent randomized trials lend strong support to the hypothesis that delaying the introduction of complementary foods

until 6 mo often benefits infants and mothers through reduced disease exposure, increased breast milk intake and lengthened birth intervals (4, 6–9). Such data focus attention on the scheduling and frequency of suckling and on the nutritional quality and timing of introduction of nonbreast milk substances (10–13). The data suggest that a specific subset of the potentially infinite variety of possible breastfeeding and complementary feeding practices is optimal across a range of settings⁵.

REFERENCES

1. Statistical Year Book of Bangladesh. Bangladesh Bureau of Statistics. Report on Child Nutritional Status Survey, 1991; 189-190.
2. Children Nutrition Status Survey. 1989-90. Bangladesh Bureau of Statistics, Dhaka, Bangladesh.
3. Akhter HH, Breastfeeding in Bangladesh. Bangladesh J of Child Health 1992; 16:31-35.
4. Base line survey report 2007, Kalmalakda ADP, World Vision bangladesh, Kalmakanda, Netrokona, Page: 1.
5. Sellen DW; Comparison of Infant Feeding Patterns, Reported for Nonindustrial Populations with Current Recommendations. Departments of Anthropology and International Health, Emory University, Atlanta, Journal of Nutrition. 2001;131.