



***Research Paper***

**DIET AND NUTRITIONAL ASSESSMENT OF SELECTED INFANTS AND  
YOUNG CHILDREN IN RURAL AREAS**

**S. Parameshwari<sup>1</sup> and R. Sujatha<sup>2</sup>**

<sup>1</sup>Department of Home science, Mother Teresa Women's University Research and  
Extension Centre, Madurai – 16.

<sup>2</sup>Department of Nutrition and Dietetics, NKR Govt. Arts College for Women, Namakkal,  
Tamil Nadu, India.

**Abstract**

Nutrition plays an important role in the physical mental and emotional development of the child, when an infant does not grow properly, its failure to thrive may stem from physical problems or inappropriate feeding practices. Infant feeding comprises breast feeding, artificial feeding, and supplementary feeding. Breast milk is a excellent food and therefore this feeding should be encouraged. Keeping in this view, present study has been conducted in rural areas of Erode in order to find out the prevailing infant feeding and weaning practices in rural area, so that the information can be utilized in planning effective diet and nutritional assessment of infants and young children. The objectives of the studies are record the details of infants and young children family and socio economic status and elicit information regarding feeding practices among infants and young children and evaluate the weaning practices of selected infants and young children.

Key words: Diet, Nutrients, Breast milk, Infant, Children.

**INTRODUCTION**

Nutrition plays an important role in the physical mental and emotional development of the child, when an infant does not grow properly, its failure to thrive may stem from physical problems or inappropriate feeding practices (Warlaw *et al.*, 1994). In India, infants are affected by high degree of mortality and morbidity. This is due to malnutrition and infants. Malnutrition alone has been blamed to be responsible for more than 5, 00,000 deaths in under 5 children. It is reported that incidence of protein energy malnutrition is maximum between 6 and 36 months of age. These findings have mainly been attributed to weaning failure and faults feeding practices (Ray *et al.*, 1992). Protein Energy malnutrition (PEM) is an important public health among infants and young children. Though poverty is recognized as the most important factor responsible for the widespread prevalence of this malady. Faulty feeding habits arising out of ignorance often lead to inadequate intake of essential nutrients by this segment of the population (Parvathi Rau, *et al.*, 1980). The improper timing, quality and quantity of weaning food is the cause of a high rate of malnutrition in the society (Das *et al.*, 1992). Adequate nutrition is the most important requisite for growth throughout children,

because childhood is a period of rapid growth when nutritional needs are very high (ShakuntalaPunia. *et al*, 1997). Breast feeding is an unequaled way of providing growth and development of infants, and has a unique biological and emotional influence on the health of both mother and child (Chhabra, 1992).

Recent show breast fed babies are more intelligent than those fed infant formula. In addition, their mothers are less likely to contract breast cancer and uterine cancer (Henrylito, 1996). Mother with mild to moderate chronic malnutrition can successfully breast fed their infants and that too for long periods. The national status of a mother has very little influence on the energy content and main constituents of breast milk (Panna Choudhury *et al.*, 1994).

Infant feeding comprises breast feeding, artificial feeding, and supplementary feeding. Breast milk is a excellent food and therefore this feeding should be encouraged. However after 4-5 months breast milk alone is not enough to make an infant grow well other food called supplementary food or weaning foods are also needed. After age of 4-6 months babies need more than just mother's milk and weaning towards normal family food must begin. Additional foods given in too little an amount, too late or inadequately with too few a nutrients may lead to poor growth and malnutrition (Talukdar *et al.*, 1992)

The process of supplementation with liquid supplements was started from the fourth month of infants. The consistency and quantity of the weaning food was adjusted according to the age and breast milk consumption. The regular diet given to the mothers were given to the children after 12 months of age (Usha Chandrasekhar, *et al.*, 1984). The addition semisolid diet should be between 4 and 6 month s of age and it is to be given 4 to 5 times a day in progressively increasing amounts (Gosh, 1995). The feeding frequency is an important factor that affects a child's nutritional status. Given their small stomach sizes, young children need to be fed frequently during the day to ensure adequate food consumption panna (Choudhury *et al.* (1994).

The weaning process may be gradual, lasting for months until the infant is finally introduced to the family diet (Onoflok *et al.*, 1998). Keeping in this view, present study has been conducted in rural areas of Erode in order to find out the prevailing infant feeding and weaning practices in rural area, so that the information can be utilized in planning effective diet and nutritional assessment of infants and young children. The objectives of the studies are record the details of infants and young children family and socio economic status and elicit information regarding feeding practices among infants and young children and evaluate the weaning practices of selected infants and young children.

## **METHODOLOGY**

### **ANALYSIS AND INTERPRETATION OF THE DATE**

#### **Selection of area**

The investigator selected the rural areas of Erode for conduction the study. The selected rural areas were Pudukalani, Karaparai, Villarasampatti, Sangu Nagar and Tindal.

#### **Selection of subjects**

In developing countries of the world. Malnutrition makes it impact principally on young children. Because childhood is a period of growth when nutritional needs are very high. Feeding especially in the early years of life has a lifelong effect since varying degree of growth retardation has been observed in infants and children because of under nutrition and malnutrition (ShankuntalaPunia, 1997).

The samples selected were 100 mothers of infants and young children in the age of 4-36 months belonging to low socio economic groups at random for this study. Information regarding their infants and young children were collected from their mothers who were highly co-operative.

### **Formulation of the questionnaire**

The questionnaire was formulated for this study which includes the following broad areas namely, General information- Name, age, sex, birth order, and religion of the infant. Socio economic status- Family members, education, occupation, total monthly income, and other sources Feeding Practices - breast feeding, bottle feeding, liquid supplements, solid supplements. Nutritional status of infants and children – dietary intake, anthropometric, clinical and biochemical

### **Collection of Data**

The above questionnaire was executed to gather information regarding the various aspects. By using the questionnaire formulated. To collect all the required details, interview cum questionnaire method was used to collect the information from the selected subjects. Since there was face to face communication and process of interstimulation between the interviewer and interviewee, this helped in securing data not obtainable by methods that did not involve an interpersonal relationship (Rangaswamy 1989).

### **General information**

A schedule was formulated to gather information regarding age, sex, birth order etc of the selected infants and young children.

### **Socio economic status**

A specially designed interview schedule was used to elicit information on socio economic status such as total family income, composition of the family income, composition of the family, occupation, educational level, were collected from selected families.

### **Feeding practices**

Feeding practices followed directly influences the nutritional status of the infants. The infant is completely dependent on the mother for his or her nutrition and feeding adopted by her reflects the nutritional status of the child (Kapoor, 1992).

In order to find out the feeding practices that followed by the mother, data were collected regarding the first feed of baby, number of feeding, knowledge about colostrums, time of initiating bottle feeding, sources of milk and disturbance in bottle feeding.

### **Weaning food**

Weaning is an important period in the life of a baby. Indeed it is one of the most dangerous periods in the life of the Indian child. Weaning is a gradual process. It being from the moment of the supplementary food is started to till the child is taken completely off the breast feed.

### **Assessment of Nutritional Status**

Nutritional status is assessed to see whether the people are well nourished or show signs of dietary deficiencies. Good nutritional status is reflected in good growth and bone development, healthy bodies, alertness, vigour and stamina. Poor nutrition is reflected in high infant mortality, low expectation life, and often in deficiency diseases (Sharma *et al.*, 1994). In order to find out the type and amount of food consumed by the subjects the dietary survey was carried out by 24-hour recall method. Dietary intake was included in the feeding practices and diet survey constitutes on essential part of any complete study on nutritional status of individuals and groups providing essential

information on nutrient intake levels (Swaminathan, 1997). In a selected rural infants and young children, information regarding the dietary intake was collected by 24 hour recall method. The 24-hour recall method was conducted in 40 subjects by measuring the amount of cooked preparation in terms of standard cups and spoons. From this the amount of nutrients consumed was calculated which would help to assess the nutrition status of the subjects.

## RESULTS AND DISCUSSION

### Age Distribution of the Selected Subjects

Table I indicates that age distribution of the selected subjects. Age distribution indicates that nine of the selected subjects were in the age group of below six months, 39 of the selected subjects falls between the age group of 6 to 12 months and 52 of the subjects were in the age group of 13 to 36 months.

TABLE I AGE DISTRIBUTION OF THE SELECTED SUBJECTS

Sr. No	Age group (months)	male	female	total
1	Below 6	7	2	9
2	6 to 12	14	25	39
3	13 to 24	18	13	31
4	25 to 36	14	7	21

TABLE II TYPE OF THE FAMILY

Sr. No	Type of the family	Number
1	Nuclear	74
2	Joint	26

Table II indicates the type of the family of the selected infants and young children. 74 of the selected families were nuclear and 26 of the selected families were joint families.

### Number of family members

TABLE III NUMBER OF THE FAMILY MEMBERS

Sr. No	Type of the family members	Number
1	1 to 3	42
2	4 to 6	56
3	7 to 9	2
4	Above 9	--

Table III shows about 42 of the selected families are having 1-3 number of family members, 56 of the selected families are having 4-6 members and two of the selected families having 7-9 members in the family.

### Income level of the family

TABLE IV INCOME LEVEL OF FAMILY

Sr. No	Income level	Number
1	501-1000	38
2	1001-1500	56
3	1501-2000	5
4	2001-2500	1

Table IV indicates 38 of the selected families earn Rs.501-1000 per month, 56 of their income falls between the range of Rs.1001-1500 and six of them selected families earn Rs.1501-2500. Date indicates 63 of the selected subject's father were coolie, eight of the subject's fathers were in occupation of beedi rolling and weaving and 19 of the subjects' father were tailor and auto driver and remaining of them were working in dying units and salesman.

### Food Resources of the family

Table V indicates the food resources of the selected families.

TABLE V FOOD RESOURCES OF THE FAMILY

Sr. No	Food resources	Number
1	Milk yielding animals at home	20
2	Green leafy vegetables produced own land	10

Data indicates, 20 samples were have milk yielding animals at home while 10 samples were having own farm in which green leafy vegetable are produced. Among them only few are adequate of their foods. No other sources of income were found in the selected families. 100 of the selected families purchase of the food grains from the bazaar.

### FEEDING PRACTICES

#### Time for first feed

TABLE VI TIME FOR FIRST FEED

Sr. No	First feed	Number
1	From birth	84
2	2 <sup>nd</sup> day	15
3	3 <sup>rd</sup> day	1
4	4 <sup>th</sup> day	--
5	Above 5 days	--

Table VI indicates that 84 of the selected infants were first fed from birth and 15 of the selected infants fed during second and one of the selected infants fed during third day.

#### Number of feed per day

TABLE VII NUMBER OF FEED PER DAY

Sr. No	Number of feed per day	Number
1	2to 4	16
2	4 to 6	58
3	6 to 8	10
4	More than 8	16

Table VII reveals that 16 subjects were fed 2 – 4 times per day of the selected infants feed 2 -4 times per day, 58 samples were fed 4-6 times while 10 subjects were fed 6-8 times and 16 subjects more than eight times per day. Several studies in India have shown that many well nourished mothers, however, can produced enough breast milk to sustained a baby's growth for about six months on breast milk alone, which is given by Kesaree *et al.*, (1993).

### Reason for feeding or not feeding colostrums

TABLE VIII REASON FOR FEEDING OR NOT FEEDING COLOSTRUM

Sr. No	Reason	Number
1	<b>For giving colostrums</b>	
	Antibiotic	11
	Nutritious	49
	By practice	8
	Grandparent influence	26
	Others (Specify)	--
2	<b>For avoiding colostrums</b>	
	Allergy	--
	Causes stomach upsets	--
	Grant parent influence	6
	Other (Specify)	--

Data indicates nearly 90 samples were found to be having insufficient breast milk is after three months. 10 samples were not giving bottle feeding. A review of a number of studies carried out in the developing world revealed that bottled fed babies were twenty five times more likely to die in the first six months of their live than those who had been exclusively breast fed which is given by Shanti (1997). Data indicates 12 of the selected samples were fed bottle feed from birth. 11 of the selected samples were fed before three months, 43 of the selected samples were fed three to six months, and 24 of the selected samples were fed after six months. Artificial feeding given to children includes cow's or buffalo's milk. 58 samples were used in cow's milk and 32 samples were used in buffalo's milk.

### Total quantity of milk per day

TABLE IX TOTAL QUANTITY OF MILK PER DAY

Sr. No	Quantity of milk	Number
1	100 – 300	26
2	300 – 500	51
3	Above 500	13

Twenty six of the selected infants consumed 100-300 ml of milk per day, 51 samples were consuming 300-500 ml per day while 13 samples were consuming above 500 ml. This data's coincide with the study conducted by (Sarojdahiya, 1992) which indicates artificial feeding was started between the age of 6 to 12 months and 72 percent of infants below six months were entirely breast fed.

### Weaning foods

#### i. Preference of liquid supplements

The information regarding the preference of liquid supplements of the selected infants and young children is shown in the table X.

TABLE X PREFERENCE OF LIQUID SUPPLEMENTS

Sr. No	Name of liquid supplements	Number
1	Fruits & vegetables based supplements	
	Fruit Juice	3
	Vegetables Juice	4
	Green leafy vegetables Juice	--
2	Cereal and pulses supplements	
	Rice water	21
	Ragi water	17
	Dhal soup	36

Table X shows from the selected subjects, three samples were consuming fruit juice and four samples were consumed vegetable based liquid supplements like vegetable juice, 21 of the selected up as subjects preferred Rice water, 17 samples was consumed ragi water, and 36 samples were prefers dhal soup as cereal and pulses supplement. 19 of the selected subject were not given any liquid supplements.

## ii. Reasons for preference of liquid supplements

TABLE XI REASONS FOR PREFERENCE OF LIQUID SUPPLEMENTS

Sr. No	Reason	Number
1	Nutritious	45
2	Easy to prepare	12
3	Easy to digest	5
4	Low cost	4
5	Breast milk is not sufficient	10
6	Availability	5

Table XI indicated reasons for preference of liquid supplements. Among the all selected subjects 45 samples were prefer because it was nutritious, 12 of the selected infants were consuming liquid supplements, as it was easy to prepare, five samples were consuming due to availability and 10 samples were consuming liquid supplements because insufficiency of breast milk, five samples among the total children prefer due to its easy digestion and four samples were prefer due to low cost.

## Solid Supplements

### Period of starting Solid Supplements

TABLE XII PERIOD OF STARTING SOLID SUPPLEMENTS

Sr. No	Name of the solid supplements	Period of initiation (months)	Number
1.	Cereal and pulses based supplement	4-7	43
		8-11	36
		12-15	12
		16-19	3
		20-23	2
2.	Fruits and vegetable based supplements	4-7	35
		8-11	28
		12-15	5
		16-19	--
3.	Fleshy food based supplements	4-7	8
		8-11	19
		12-15	32
		16-19	25
		20-23	6
		24-27	7

Table XII indicates the solid supplement consumed by the total infants and young children. Considering the cereals and pulses 43 samples were consuming four to seven months, 36 subjects were consuming it in the age of 8-11 months while 12 subjects were consuming it in the age of 12-15 months, three subjects were consuming it in the age of 16-19 months and two samples were consuming it in the age of 20-23 months. Four subjects were not consuming any cereal and pulses based supplements. Considering the fruits and vegetables based supplements. 35 subjects were consuming in the age of 4-7 months of age and 28 of the subjects consuming during 8-11 months while five subjects were consuming in the age of 12-15 months. 32 samples were not consuming any fruits and vegetable based supplements.

Usually weaning is started when the baby is four months old and completely weaned when he is about nine or ten months old (Raj Pathania *et al.*, 1992). Account on the consumed of fleshy foods, eight samples were consuming it in the age group between 4-

7 months, 19 samples were consuming in the age group between 8-11 months and 32 samples were consuming in the age group between 12-15 months and, 25 samples consuming it in 16-19 months and six samples were consuming it in the age group of 20-23 months and seven of the selected subjects were consuming it in the age 24-27 months. Three samples were not consuming any solid supplements based on fleshy foods.

## ii. Reason for preference of solid supplements

TABLE XIII REASON FOR PREFERENCE OF SOILD SUPPLEMENTS

Sr. No	Name of the solid supplements	Reason	Number
1.	Cereal and pulses based supplement	Nutritious Free cost Good health	55 25 16
2.	Fruits and vegetable based supplements	Nutritious Good health Necessary Easy to prepare	28 20 15 5
3.	Fleshy food based supplements	Nutritious Necessary Good health	50 32 15

Table XIII indicates the reasons for the preference of solid supplements by the selected subjects. Fifty five of the selected subjects were given the cereal and pulses based supplements because it was nutritious, 25 of the selected subjects due to free cost while 16 of the subjects were considered it as good health. Twenty eight of the selected were given the fruits and vegetable based supplements as it was nutritious and 20 of the subjects due to good health and 15 of them consider it was necessary and five of the subjects refer due to easy preparations. Fifty of the selected subjects were given fleshy foods as it was nutritious and 32 of the subjects were think it was necessary for giving fleshy foods and 15 samples were given as it was good for health.

### Influence for preference of solid Supplements

TABLE XIV INFLUENCE FOR PREFERENCE OF SOLID SUPPLEMENTS

Sr. No	Name of the solid supplements	Reason	Number
1.	Cereal and pulses based supplement	Nutritious Radio Noon Meal Teacher Doctor Grand Parents	35 10 25 5 21
2.	Fruits and vegetable based supplements	Neighbor Radio Doctor Grand Parents	25 15 8 20
3.	Fleshy food based supplements	Neighbor Doctor Grand parents	55 10 32

From the above table 35 of the selected subjects prefer the cereal and pulses based supplements at their neighbor's instance, 10 of the selected subjects prefer at a influence by Radio, 25 of the selected subjects prefer at a influence by noon meal teacher, five samples were prefer at influence by Doctor, 21 samples were prefer at influence by their grandparents. Twenty five of the selected were prefer the fruits and vegetable based supplements at their neighbor's 15 of the selected subjects prefer at influence by Radio, eight of the subjects prefer at influence by Doctor, 20 of the subjects prefer at influence by their grandparents. Fifty five of selected subjects prefer the fleshy foods based supplements at their neighbor's instance, 10 samples were prefer at influence by Doctor. 32 samples were prefer at instance by their grandparents.

### Foods avoided and reasons for avoidness

TABLE XV FOODS AVOIDED AND REASONS FOR AVOIDNESS

Sr. No	Foods avoided	Number
1	Orange Juice	25
2	Curd	15
3	Egg	10
4	Dried fish	25
5	Brinjal	5

Table XV indicates 25 of the selected young children were not giving orange juice, 15 samples were avoiding curd, 10 of the subjects were avoiding egg, and 25 of the subjects were avoiding dried fish, five of the selected mother avoiding binjal for their children. Out of the selected subjects only 20 were not avoiding any particular foods.

TABLE XVI REASON FOR AVOIDNESS

Sr. No	Foods avoided	Number
1	Cold	40
2	Allergy	10
3	Diarrhea	25
4	Other conditions	5

Table XVI indicates 40 of the selected subjects were not giving particular foods due to cold, 10 of the subjects due to allergy, 25 due to diarrhea and five of the subjects due to other condition like itching etc. The study conducted by Usha chanrasekar (1990)

states that foods avoided are only due to disease condition like fever, diarrhea, cold etc. Foods mainly avoided are curd, butter milk, oil, etc., Our data coincide with this study.

E. Assessment of Nutritional Status of the subjects

### 1. Dietary pattern

The intake of various nutrients by selected infants and young children were calculated and compare with that of recommended dietary allowance (RDA) given by NIN (1996).

Table XVII Mean energy and protein intake by selected subjects

Sr. No	Age group (months)	Sex	Energy (Kcal)	RDA (Energy)	Protein (g)	RDA (Protein)
1	0 to 6	Male	624.00	703.00	11.19	13.35
		Female	558.00	810.00	11.88	15.38
2	6 to 12	Male	710.00	765.00	11.09	12.89
		Female	708.44	753.62	10.79	12.69
3	13 to 24	Male	938.00	1240.00	16.42	22.00
		Female	958.00	1240.00	19.33	22.00
4	25 to 36	Male	1217.15	1240.00	18.11	22.00
		Female	1215.09	1240.00	26.33	22.00

The table XVII indicates the mean energy and protein intake by selected subjects.

In the case of zero to six months old infants and young children belonging to the age group of zero to six months for both male and female was 624 kcal and 558 kcal which was slightly lower than the recommended dietary allowances (703.08 kcal and 810 kcal). The mean energy intake of male and female infants belonging to 6 to 12 months was 710.60 kcal and 8.44 kcal which was less than the RDA (765.38 kcal and 753.62 kcal). 13 to 24 months old male children having mean energy intake was 938.55 kcal while female having 958.26 kcal which was slightly lower than the RDA (1240 kcal). Male children belonging to 25 to 36 months having mean energy intake of 1215.09 kcal and female children having 1215.09 kcal which was slightly less than RDA (1240 kcal). The mean energy intake of selected male and female subjects was shown in figure I and II.

Desai *et al.*, (1989) states that the diets consumed by the and large majority of weaned infants and young children in India and other developing countries are based on cereals, roots and tubers and are lacking in protective and protective rich foods such as milk, egg, meat and fish. Therefore, protein malnutrition anaemias and vitamin deficiency diseases are widely prevalent among infants and young children. The mean protein intake of the selected infant and young children belonging to the age group of below zero to six months for both male and female was 11.19 g and 11.88 g which was less than the recommended dietary allowance (13.35 g and 15.38g). The mean protein intake of male and female infants belonging to 6 to 12 months was 11.09 g and 10.79 g which were slightly lower than recommended dietary allowances (12.89 g and 12.69 g).

13 to 24 months old male children having mean protein intake 6.42 mean while female having 19.33 g which was slightly greater than the RDA (22 g). Male children belonging to 25 to 36 months having protein intake of 18.11g and female children

having 26.93g which was less than the RDA (22 g). The mean protein intake of the selected male and female subjects was shown in figure III and IV.

TABLE – XVIII MEAN IRON CALCIUM AND VITAMIN C INTAKE BY SELECTED SUBJECTS

Sr.No	Age Group (months)	Sex	Iron (mg)	RDA for iron (mg)	Calcium (mg)	RDA for calcium (mg)	Vitamin C (mg)	RDA for Vitamin (mg)
1	0-6	Male	0.59	--	212.20	500	13.4	25
		Female	0.63	--	285.55	500	10.8	25
2	6 to 12	Male	2.07	--	388.67	500	16.74	25
		Female	8.18	--	562.33	500	16.5	25
3	13 to 24	Male	11.68	12	344.36	400	29.76	40
		Female	7.43	12	311.23	400	41.83	40
4	25 to 36	Male	4.84	12	209.60	400	6.59	40
		Female	2.66	12	358.04	400	28.68	40

Table XVIII indicates the mean intake of Iron, Calcium and Vitamin C. The iron intake was equal in both sexes for age group 13 to 24 months was 11.68 mg for male and 7.43 mg for female which was lower than RDA (12 mg). The children belonging to age group of 25 to 36 months having 4.84 mg for male and 2.66mg for female of mean iron intake which was less when compare to the RDA (12mg). Intake of calcium was lower in male infants (212.20mg) than that of the female (285.55 mg) the age group zero to six. When compare to RDA value (500mg female and male) female having less intake of calcium than that of females. While considering the age group six to 12 months, male infant having 388.67mg and female infants having 562.33 mg of calcium. When compare of RDA (500mg) the male infants having less intake of calcium.

Male infants belonging to the age group of 13 to 24 months have 344.36 mg and female infants having 311.23 mg of calcium. The intake was less when compare to the RDA (400mg). 25 to 36 months male children having the mean calcium intake 209.6 mg female children having 358.04 mg. when compare to RDA (400mg) male children having less intake of calcium.

The mean Vitamin C intake of male infants 0 to 6 months was 13.4 mg and the female infants was 10.8 mg and females having less intake of vitamin C when compare to the RDA (25 mg).

The mean Vitamin C intake of male and female infant belonging to the age group six to 12 months was 16.74 mg and 16.5 mg respectively. The intake was lower than the RDA (25mg). The mean Vitamin C intake of male and female children belonging to the age group of 13 to 24 months was 29.76 mg and 41.83 mg respectively. When compare to the RDA (40mg) females having higher vitamin C intake. The male children were belonging to the age groups of 25 to 36 months having 6.59 mg of vitamin C and female having 28.68 mg of mean Vitamin C intake. The intake was lower in male children when compared with RDA (40mg). The study conducted by Saroj (1992) coincides with our present data of mean nutrient intake. The datas obtained by the study regarding protein intake was during 12 to 24 months was 20.8 gm for male and during 25 to 36 months male infant was 22.5 gms. The present study shows that similar result.

## CONCLUSION

The present study entitled "Diet and Nutritional Assessment of Selected infants and young Children in Rural Areas" was carried out by selecting 100 infants and young children. A schedule was used to collect information about socio economic status, feeding practices, weaning foods and nutritional status of the infants and young children. The data were consolidated and analyzed and the conclusions drawn from the results are summarized below.

1. The infants and young children in rural areas were 4 to 36 months of age. More than 49 of the infants and young children were the first child of the family. 74 of the infants and young children were living with 4 to 6 members in the family. 56 of the selected families earn Rs.1001-1500 per month, and 38 of the selected families earn Rs.501-1000 per months.
2. Eight four of the selected samples were fed from birth, 58 samples were fed 4 to 6 times per day. 49 of the selected samples were fed colostrums as it was consider as nutritious. Most of the mothers knew that breast milk alone could not be sufficient after three months of age.
3. Most of the families were started bottle feeding from 3-6 months of age. 43 samples were fed bottle feeding 3-6 months. Most of the rural mothers was used cow's milk. Majority of the infants (51) were consumed 300-500 ml per day.
4. Thirty six of the selected samples prefer dhal soup as cereal and pulses supplements and 21 of the selected samples prefer rice water as liquid supplements. 40 of the selected samples prefer liquid supplements as it was nutritious. 10 of the selected samples consume it due to insufficiency of breast milk.
5. Solid supplements (cereal and pulses based supplements) were selected by 43 samples from the age of 4-7 months, 36 samples consumed it in the age of 8-11 months. Fruits and vegetables based supplements were started in the age of 4-7 months by 35 samples, 28 of them during 8-11 months. Consumption of fleshy foods was started mainly in the age of 12-15 months by 32 samples and 16-19 months by 25 samples. The main reason for the preference of solid supplements (55 of the samples) because as it was nutritious and free cost (25 of the samples).
6. Influence of solid supplements was mainly due to their own instance, and at influence by noon meal teacher. The main foods avoided for samples were orange juice, dried fish, and curd. The main reason for the avoidance for these foods were mainly due to cold and diarrhea.
7. The mean calorie and protein intake of male and female samples belonging to 0 to 6 months were lower than that of RDA, the samples with the age group of 6 to 12 months for both male and female were having lower intake, while during 13-24 months, the intake by both male and female samples was more or less equal to RDA, while protein intake by both sexes were lower than RDA. While considering the intake of iron, calcium and Vitamin C, the intake was lower than the RDA for both male and female samples belonging to 4-36 months of age.

## REFERENCES

1. Chhabra and V.Chintapalli, "Breast feeding" Kisan world, A text book of Nutrition, First edition, 1992,41.
2. Das D.L., "Infant feeding practices in Rural Bangladesh" 1992.

3. Desai B.L.M., V.A. Daniel, S. Vankat Rao, M. Swaminathan and H.A.B. Parpia, "Studies on Low cost Balanced foods suitable for feeding weaned infants in developing countries", The Indian Journal of Nutrition and Dietetics, 1989, **6**,24.
4. Ghosh S., "Prevention Malnutriton", Indian Pediatrics, 1995, **32**, 1057-1059.
5. Henrylito D., "Breast feeding", Harald of health, 1996, **4**.
6. . Kapoor A.C, infants and young children in rural areas of Haryana", The Indian journal of Nutrition and Dietetics, 1992, **29**(7), 233-239.
7. N.Kasaree "Traditional belief", Journal of Human Lactation, 1993, **9**, 43.
8. NIN, "Nutritive value of Indian food by Gopalatn C, Sastri R.B.V., National ICMR, Hyderabad, 1996,94.
9. N.O. Onofiok and D.O. Nnanvelugo, "Weaning foods in west Africa Nutritional, 1998.
10. Pannachoudhury and H.B.S. Sachdev "Nutrition in children" FirstEdition, Maulana Azad publishing,1994, 105.
11. Parvathi Rau, Malathidamodaran and A. Nadamuni Naidu, "An investigation into the reasons for mother not Utilizing homemade weaning foods, The Indian journal of Nutrition and Dietetics, 1980,**7**, 437.
12. Rajpathania and Nimala Chaudhary, "Weaning practices among mothers of chandigarh city", The Indian Journal of Nutrition and Dietetics, 1992, **30**, **97**.
13. Rangasamy, Statistical methods, 23<sup>rd</sup> edition Sulthan chand and son New Delhi, 1989, **49**, 105.
14. G.Ray, S.P. Singh and D.C. Raddy, "Prevailing practices and beliefs related tobreast feeding and top feeding in a urban slumcommunity" The Indian Journal of preventiveand social medicine Banaras Hindu University Varanasi, 1997, **28**, 2.
15. Shakuntalapuniam, Sudhachnikara and Santhosh sangwan, "Infant feeding and weaning practices in nd ofselected cultural zones of Haryana", The Indian Journal of Nutrition dietetics, 1997,**34**, 102.
16. GS. Shanti, Nutrition and Child care A practical guide, Jaypee Brothers Medical Publishers Pvt.Ltd.,New Delhi, 1997,86-135.
17. S.R. Sharma, Food, Nutrition and cookey, AnmalVijay.K. Pvt.Ltd., New Delhi,1994, **25**-135.
18. M.Swaminathan, "Handbook of food and nutrition", Fifth editionBappco publication, Bangalore, 1997, 211-212.
19. K.Talukdar and G.E.Sella, Indian Pediatrics, 1992, **59**,576.
20. Usha Chandrasekhar, Available foods",The Indian Journal of Nutrition and dietetics,1990, **21**, 82.
21. M. Wardlaw, M.Insel and F.Seyler, "Nutrition from infancy through adolescence" contemporary nutrition mosby year book publication, 1992,476.