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Nutritional assessment of street children: A study in the city of Bhubaneswar

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Abstract

A sizable section of children are the worst victims of circumstances. They are street children, deprived children, abandoned children, refugees and children of the weaker section of society, those who need special care and attention. "The Operation Research Group in 1983 estimated that there are 44million working children in India, of which 11 million are street children. The problems of street children are a global one and exist in both the developed as well as the developing countries with a difference in its size and magnitude. The urban growth is an infinite process which keeps on growing, is a terrible strain on the economy as the population grows in both the urban as well as the rural areas. Consequently, the problem of street children in such a situation will be of an order unprecedented in social history of India (Sahaya 1995: 14).

Keywords: street children, nutritional status, Odisha, diet, malnutrition

Introduction

One of the leading reports of UNICEF says, "the day will come when nation will be judged not by their military or economic strength nor by the splendor of their capital cities and public building, but by the wellbeing of their children: by their levels of health nutrition and education." A nation stands on its human resource. The proper growth and development of the children is the ultimate resource building for the nation. But due to our imbalance socio-economic system a large section of children are being deprived of their basic rights. The right to live with the basic minimum food, clothing and shelter is not available to all.

A sizable section of children are the worst victims of circumstances. They are street children, deprived children, abandoned children, refugees and children of the weaker section of society, those who need special care and attention.

Who are street children: Poverty and malnutrition have been closely linked and it has been argued that when education is lacking as well an intolerable stress situation is created (Pellet, P: 1981). According to a recent definition "a street children or street youth is any minor for whom the street (in the widest sense of the word, including unoccupied dwellings, waster lands etc.) has become his or her habitual abode and who is without adequate occupation" (Phillips: 2012). Children who have no family at all make up 5 percent all the street children. They include orphans, run away, refugee and abandoned children, suffer from deep emotional disturbances (Govt. of India: 2007) [2]. Street Children are usually divided into three categories, according to how they relate to their families. These categories are:

- **Children on the street:** These are working children who still have regular family contacts. This category is the largest of the three categories. Their focus in life is still the home. A very few attained school. Most return home at the end of each working day and most have a sense of belongingness to the local community in which their home is situated.
- **Children of the street:** This group is smaller but more complex. Children in this group see the street as their home and it is there that they seek shelter, food, and essence of family among companions. Their home is visited infrequently.
- **Abandoned and neglected children:** This group may appear to form part of the second group. They are entirely of their own not just for material but also for psychological survival and therefore require a different approach.

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Methodology

Few researchers conducted various studies on street children in the city of Bhubaneswar, Odisha. Various organizations conducted studies on this current social problem. There are very few studies related to Health and Nutritional profile of the street children. Children's nutritional status affects their morality and morbidity pattern, their activity level, their life expectancy and their health status.

Objectives of the study

The general objective of the study is to develop a profile of the living conditions of the street children in the age of 7 to 15 years. The study aims to analyze the physical, psychological, economic, and social condition in which the street children are living.

The specific objectives are

- To study socio economic profile of the street children.
- To assess their health and nutritional status.
- To know problems experienced by the respondents in the process of their development.

Sample size

As the city is a developing one less no of street children were found out of which a total number of 89 street children (7 to 15 years of age) of this particular city residing in 8 different areas within the municipal boundary were selected on the basis of simple random sampling procedure.

Data collection and tools of research

Keeping in view the objectives of the study an explorative research design was adopted. The main tool of data collection was the interview schedule, which included pre-recorded alternatives as well as open-end questions. Other important tool was observation method. In order to obtain greater details about the life of the street children in depth, studies were conducted through the case study.

Methods of data collection: An interview schedule was prepared, pretested by pilot survey and refined for the collection of general information. The aspects covered include information on age, sex, education, occupation, structure of the family, income, foods they consume, health condition, problems experienced by them etc.

Anthropometry Measurement: For the assessment of nutritional status of the street children height, weight were taken following the standard anthropometric procedure as describe by Jelliffe (1966). The instruments like weighing machine and anthropometer were used for data collection. Weight of the subject was taken by the weighing machine with minimum clothing without shoe. Care was taken to place the weighing machine in a plane surface and to keep the pointer at zero mark. The weight was taken by placing the child straight on the weighing machine without giving support. Height was measured by anthropometer. The subject was said to stand without shoe on plane floor with feet parallel.

Clinical observation: This is an important index for assessing nutritional status of children. The children's general appearance, skin, glands, eyes, tongue, lips, gum, teeth, face, hair, nail, oedema were observed and abnormalities were recorded.

Diet survey: Oral questionnaire method was followed to

estimate the mean intake of food. The application of this method in natural field situation was difficult because the child was not able to give correct information regarding the amount of food. A set of standardized vessels of different sizes were used to record the food consumed by the street children in the previous day. The nutrient intake of the diet taken by the child was calculated following the tables of the nutritive value of Indian food given by (Gopalan, 2016)

Ecological Study: The disease they usually suffer, whether they are immunized or not, type of treatment availed by them were taken. Besides, the information regarding food knowledge of the child, habit, causes of coming to the street, their perception towards the present society and the problems experienced by them obtained by asking direct and indirect question to the child.

It was very difficult to extract information from the street children. Most of the street children were afraid of giving interview. But after creating a good rapport with them researcher was able to motivate them.

Nutrition Profile

Nutrition has been taken as the main approach to all problems of street children. Though the Medicare has gone a long way in treatment of disease and improving overall health conditions, but the body needs food as its prime intake after air (oxygen) and water. For maintaining good health and physical efficiency, the diet should provide adequate amount of all nutrients. For designing balance diets, it is essential to know the daily requirements of different nutrients. Street children they are deprived of nutritious foods as a result they suffer from many diseases which are hazardous to their physical, physiological, behavioral, mental and emotional wellbeing. Protein-energy malnutrition is a major deficiency disease among children of low socioeconomic group.

Nutritional status

Nutritional status has been done based on diet survey. Last day food consumed by the child was taken. It is found many children they don't take non veg items, and so also milk and milk products which cost more. It is observed these children generally take locally available low cost foods. Their food consumption are analyzed. The nutrients are calculated, and average intake of all nutrients is compared with the RDA given by Indian Council of Medical Research (ICMR) except calorie. Calorie is calculated from age, height and weight basing on the formula

$$Sa = 71.84 \times Wt^{0.425} \times Ht^{0.725}$$

Where

Sa = Surface area of body in square centimeter.

Wt = Weight in kilograms.

Ht = Height of the person in centimeter.

This method was first adopted by Fleisch

BMR is calculated by multiplying the above surface area with the standard values of BMR per sqm per hour for a particular age and sex. The standard value of BMR per unit surface area per hour (BMRU) can be taken as per Fleisch Table. RDA value for energy which is given by Indian Council of Medical Research (ICMR) is fixed for a group. Here the calorie is calculated for individual person based on height and weight (Agarwal, p: 1998:143). This has been done for 7 to 9 year, 10 to 12 year and 13 to 15 year children. In 7-to-9-year

children, 13 children's last day food consumptions were taken, In 10 to 12 years 14 children and in 13 to 15 year 14 children were taken on the basis of simple random sampling as these were found to be typical and somewhat different from others, rest were found to be taken same type and same amount of food. So, these 13 children were selected on the basis of simple random sampling method.

Under Nutrition

Deficiency in nutrients leads to under nutrition among the street children. The deficiency is calculated, and standard deviation is determined.

7-9 year

Table 1: Level of Food Consumption of Children (7-9 years)

LEVEL OF FOOD CONSUMPTION BY CHILDREN														
Age Group : 7 - 9 Years.														
Sl	PARTICULARS	AGE Yrs.	PROT gm	FATS gm	CARBO. gm	ENGY. kcal	CALC mg	PHOS. mg	IRON mg	CAROT mcg	THIAM. mg	RIBOF. mg	NIACIN mg	VIT. C mg
1.	Boy 1	7.00	19.64	13.09	154.30	814.25	55.10	354.10	12.17	9178.60	.54	.29	7.18	10.45
2.	Boy 2	7.00	22.79	18.85	112.55	711.40	208.90	366.65	10.65	13174.05	.44	.25	5.29	6.05
3.	Boy 3	8.00	19.33	13.17	90.63	558.70	197.85	303.90	8.40	8882.15	.34	.20	4.27	4.55
4.	Boy 4	8.00	19.92	7.38	88.02	498.35	193.00	304.05	7.42	3530.60	.36	.17	3.99	1.80
5.	Boy 5	7.00	14.15	2.09	71.83	362.70	131.65	196.25	5.09	315.90	.26	.11	3.03	4.45
6.	Boy 6	9.00	19.35	11.56	101.04	585.65	131.95	258.00	8.15	5170.15	.37	.21	5.90	9.30
7.	Boy 7	9.00	20.95	15.85	166.76	894.30	85.00	370.40	10.59	8618.90	.55	.33	7.94	5.45
8.	Boy 8	8.00	12.58	51.80	112.10	965.46	33.83	218.71	7.42	40655.20	.34	.19	4.57	4.68
9.	Boy 9	7.00	14.36	55.92	93.56	935.40	42.55	248.25	7.28	40614.75	.37	.20	6.14	5.00
10.	Boy 10	8.00	19.16	16.20	154.28	840.15	100.20	290.10	8.20	8619.70	.44	.21	7.18	5.60
11.	Boy 11	7.00	18.85	13.46	138.93	752.45	199.80	269.75	6.36	8328.85	.37	.20	4.39	6.25
12.	Boy 12	8.00	26.04	17.10	121.39	743.80	360.05	363.70	7.36	8588.30	.38	.25	5.47	4.00
13.	Boy 13	7.00	19.64	13.09	154.30	814.25	55.10	354.10	12.17	9178.60	.54	.29	7.18	10.45
Average Status =			-51.40	-36.17	-69.80	-59.87	-66.87	-28.68	-68.39	428.38	-56.13	-80.08	-54.36	-84.99
Standard Deviation =			10.37	54.46	7.61	10.18	23.79	16.80	8.41	533.02	9.42	5.11	11.54	6.45

Negative sign indicates deficiency. Negative sign indicates deficiency.

The average status for 7 to 9 year children found to be calorie -59.87 with standard deviation 10.18, protein-51.40gram with standard deviation 10.37,fats-36.17 gram with standard deviation 54.46,carbohydrate -69.80 gram with standard deviation 7.61, calcium -66.87mg with standard deviation 23.79,phosphorus -28.68 mg with standard deviation 16.80

iron -68.39 mg with standard deviation 8.41, carotene 428.38 mcg with standard deviation 533.02, thiamine -56.13mg with standard deviation 9.42,riboflavin -80.08mg with standard deviation 5.11,niacin -56.13 mg with standard deviation 11.54 and vitamin c -84.99 mg with standard deviation 6.45.(Table 1)

Table 2: Nutritional Status of Children (7-9 years)

NUTRITIONAL STATUS OF CHILDREN															
Age Group : 7 - 9 Years.															
Sl	PARTICULARS	AGE Yrs.	INCH Rs.	PROT gm	FATS gm	CARBO. gm	ENGY. kcal	CALC mg	PHOS. mg	IRON mg	CAROT mcg	THIAM. mg	RIBOF. mg	NIACIN mg	VIT. C mg
1.	Boy 1	7.0	750.00	-47.40	-55.79	-60.30	-54.15	-86.22	-8.97	-53.17	282.44	-40.11	-73.39	-39.36	-73.88
2.	Boy 2	7.0	600.00	-38.97	-36.32	-71.04	-59.94	-47.77	-8.34	-59.02	448.92	-52.20	-77.06	-55.32	-84.86
3.	Boy 3	8.0	450.00	-48.23	-55.49	-76.68	-68.54	-50.54	-24.03	-67.69	270.09	-62.09	-82.11	-63.98	-88.63
4.	Boy 4	8.0	600.00	-46.65	-75.07	-77.35	-71.94	-51.75	-23.99	-71.46	47.11	-60.99	-84.86	-66.30	-95.50
5.	Boy 5	7.0	450.00	-62.10	-92.99	-81.52	-79.58	-67.09	-50.94	-80.44	-86.84	-71.43	-90.37	-74.41	-88.88
6.	Boy 6	9.0	750.00	-62.14	-66.55	-77.29	-71.74	-78.01	-57.00	-76.04	115.42	-64.42	-83.33	-58.39	-76.75
7.	Boy 7	9.0	750.00	-59.00	-54.10	-62.52	-56.85	-85.83	-38.27	-68.85	259.12	-46.63	-73.17	-44.05	-86.38
8.	Boy 8	8.0	360.00	-66.31	74.99	-71.16	-45.64	-91.54	-45.32	-71.47	1593.97	-62.64	-82.29	-61.36	-88.30
9.	Boy 9	7.0	300.00	-61.54	88.94	-75.93	-47.33	-89.36	-37.94	-72.00	1592.28	-59.34	-82.11	-48.10	-87.50
10.	Boy 10	8.0	450.00	-48.69	-45.25	-60.30	-52.69	-74.95	-27.47	-68.48	259.15	-52.20	-80.73	-39.40	-86.00
11.	Boy 11	7.0	300.00	-49.53	-54.53	-64.25	-57.63	-50.05	-32.56	-75.54	247.04	-59.34	-81.65	-62.96	-84.38
12.	Boy 12	8.0	450.00	-30.26	-42.23	-68.77	-58.12	-9.99	-9.07	-71.67	257.85	-58.24	-76.61	-53.76	-90.00
13.	Boy 13	7.0	600.00	-47.40	-55.79	-60.30	-54.15	-86.22	-8.97	-53.17	282.44	-40.11	-73.39	-39.36	-73.88

Note: The values indicate % of the Nutrients Required by the person. Negative sign indicates deficiency.

The minimum and maximum levels of deficiency for different nutrients of this age group are calculated.

Nutrients	Minimum	Maximum
Calorie	-45.64	-79.58
Protein (gm)	-30.26	-66.31
Fat (gm)	-36.32	-92.99
Carbohydrate (gm)	-60.30	-81.52
Calcium (mg)	-9.99	-91.54
Phosphorus (mg)	-8.34	-57.00
Iron (mg)	-53.17	-80.44
Carotene (mcg)	-86.84	159.28
Thiamin (mg)	-40.11	-71.43
Riboflavin (mg)	-73.39	-90.37
Niacin (mg)	-39.36	-74.41
Vitamin C (mg)	-73.88	-90.00

(Table2)

10-12 year

Table 3: Level of Food Consumption by Children, 10-12 years

LEVEL OF FOOD CONSUMPTION BY CHILDREN														
Age Group : 10 - 12 Years,														
Sl	PARTICULARS	AGE Yrs.	PROT gm	FATS gm	CARBO. gm	ENGY. kcal	CALC mg	PHOS. mg	IRON mg	CAROT mcg	THIAM. mg	RIBOF. mg	NIACIN mg	VIT. C mg
1.	Boy 14	10.00	22.09	14.79	179.75	941.40	112.85	414.90	12.66	9167.80	.61	.40	8.12	9.65
2.	Boy 15	10.00	12.14	11.78	99.60	553.40	41.55	221.45	8.79	9428.20	.33	.22	4.64	9.10
3.	Boy 16	11.00	24.55	18.11	194.07	1038.40	179.00	365.15	10.88	12879.25	.50	.25	7.06	4.85
4.	Boy 17	11.00	29.42	43.14	132.82	1037.65	105.05	458.45	10.46	16883.50	.63	.30	16.17	9.15
5.	Boy 18	12.00	19.06	5.35	135.19	665.70	76.35	322.10	10.44	1167.60	.49	.28	6.97	9.15
6.	Boy 19	10.00	13.49	2.33	90.89	438.85	44.55	211.80	8.73	1433.70	.33	.21	3.87	7.30
7.	Boy 20	10.00	4.79	.42	77.15	331.85	16.40	111.30	3.03	51.50	.20	.11	2.65	4.00
8.	Boy 21	12.00	13.22	1.13	110.29	505.00	147.80	245.35	5.34	18.60	.28	.12	5.09	3.15
9.	Boy 22	11.00	15.74	7.34	125.21	630.20	34.10	260.30	7.41	4055.90	.43	.16	5.19	5.80
10.	Boy 23	12.00	10.44	2.69	127.35	576.45	20.55	234.90	6.45	1630.30	.36	.17	6.10	4.20
11.	Boy 24	10.00	6.58	1.73	65.25	303.40	61.45	146.65	5.99	1397.70	.19	.22	3.19	7.60
12.	Boy 25	10.00	14.64	2.32	117.84	551.40	44.20	283.10	9.85	1159.50	.41	.24	5.62	9.30
13.	Boy 26	11.00	16.78	2.23	135.70	630.70	30.30	254.35	7.63	32.25	.42	.17	5.51	.25
14.	Boy 27	11.00	13.66	3.30	42.35	253.60	167.30	206.10	6.25	1171.50	.25	.18	1.98	6.90
Average Status			-70.01	-75.91	-73.87	-70.98	-87.13	-55.53	-76.30	79.99	-62.92	-82.61	-58.70	-83.86
Standard Deviation			13.32	33.08	9.20	12.19	9.26	16.06	7.87	228.16	13.25	6.29	24.20	7.12

Table 3 shows the average status for 10 to 12 year children were found to be calorie -70.98 with S.D 12.19, protein in gram -70 .01 with S.D 13.32, fat -75.91 gram with S.D 33.08, carbohydrate -73.87 gram with S.D 9.20, calcium -87.13 mg with S.D 9.26, phosphorus -55.53 mg with S.D

16.06, iron -76.30 mg with S.D 7.87, carotene 79.99 mcg with S.D 228.16, thiamin -62.92 mg with S.D 13.25, riboflavin -82.61 mg with S.D 6.29, niacin -58.70 mg with S.D 24.20, vitamin C -83.86 mg with S.D 7.12

Table 4: Nutritional Status of Children (10-12 years)

NUTRITIONAL STATUS OF CHILDREN															
Age Group : 10 - 12 Years,															
Sl	PARTICULARS	AGE Yrs.	INCM Rs.	PROT gm	FATS gm	CARBO. gm	ENGY. kcal	CALC mg	PHOS. mg	IRON mg	CAROT mcg	THIAM. mg	RIBOF. mg	NIACIN mg	VIT. C mg
1.	Boy 14	10.0	600.00	-56.77	-57.18	-59.40	-54.58	-81.19	-30.85	-62.76	281.99	-41.35	-67.48	-42.81	-75.88
2.	Boy 15	10.0	540.00	-76.24	-65.88	-77.61	-73.29	-93.07	-63.09	-74.13	292.84	-68.27	-82.52	-67.27	-77.25
3.	Boy 16	11.0	600.00	-51.97	-47.57	-56.38	-49.90	-70.17	-39.14	-68.00	436.64	-51.92	-80.08	-50.25	-87.88
4.	Boy 17	11.0	450.00	-42.43	24.90	-70.15	-49.93	-82.49	-23.59	-69.24	603.48	-39.90	-76.02	13.99	-77.13
5.	Boy 18	12.0	660.00	-62.70	-84.51	-69.62	-67.88	-87.28	-46.32	-69.28	-51.35	-52.88	-76.83	-50.88	-77.13
6.	Boy 19	10.0	600.00	-73.60	-93.25	-79.57	-78.82	-92.57	-64.70	-74.32	-40.26	-68.75	-82.93	-72.73	-81.75
7.	Boy 20	10.0	450.00	-90.63	-98.80	-82.66	-83.99	-97.27	-81.45	-91.10	-97.85	-81.25	-91.06	-81.29	-90.00
8.	Boy 21	12.0	750.00	-74.14	-96.74	-75.21	-75.63	-75.37	-59.11	-84.29	-99.22	-72.60	-90.24	-64.13	-92.13
9.	Boy 22	11.0	750.00	-69.20	-78.75	-71.86	-69.59	-94.32	-56.62	-78.21	69.00	-58.65	-86.99	-63.42	-85.50
10.	Boy 23	12.0	900.00	-83.54	-92.73	-72.70	-74.03	-96.57	-60.85	-84.27	-32.07	-66.97	-87.87	-57.87	-89.50
11.	Boy 24	10.0	450.00	-87.12	-95.01	-85.34	-85.36	-89.76	-75.56	-82.40	-41.76	-81.73	-82.52	-77.48	-81.00
12.	Boy 25	10.0	600.00	-71.35	-93.28	-73.51	-73.39	-92.63	-52.82	-71.03	-51.69	-60.58	-80.49	-60.39	-76.75
13.	Boy 26	11.0	450.00	-67.16	-93.54	-69.50	-69.57	-94.95	-57.61	-77.57	-98.66	-60.10	-86.18	-61.17	-99.38
14.	Boy 27	11.0	450.00	-73.27	-90.45	-90.48	-87.76	-72.12	-65.65	-81.62	-51.19	-75.96	-85.37	-86.05	-82.75

Note: The values indicate % of the Nutrients Required by the person. Negative sign indicates deficiency.

The minimum and maximum levels of deficiency for different nutrients in this age group are

Nutrients	Minimum	Maximum
Calorie	-49.90	-87.76
Protein (gm)	-42.43	-90.63
Fat (gm)	-24.90	-98.8
Carbohydrate (gm)	-56.38	-90.48
Calcium (mg)	-70.17	-97.27
Phosphorus (mg)	-23.59	-81.45
Iron (mg)	-62.76	-91.10
Carotene (mcg)	-32.07	-98.66
Thiamin (mg)	-39.90	-81.73
Riboflavin (mg)	-67.48	-91.06
Niacin (mg)	-42.81	-86.05
Vitamin C (mg)	-75.88	-99.38

(Table 4)

13-15 year

Table 5: Level of Food Consumption by Children (13-15 years)

LEVEL OF FOOD CONSUMPTION BY CHILDREN														
Age Group : 13 - 15 Years,														
Sl	PARTICULARS	AGE Yrs.	PROT gm	FATS gm	CARBO. gm	ENGY. kcal	CALC mg	PHOS. mg	IRON mg	CAROT mcg	THIAM. mg	RIBOF. mg	NIACIN mg	VIT. C mg
1.	Boy 29	13.00	23.89	53.41	200.14	1377.95	63.40	431.65	14.78	41451.40	.64	.36	9.10	10.80
2.	Boy 30	14.00	19.23	2.54	168.62	774.95	38.95	348.10	9.76	50.70	.54	.22	7.58	8.80
3.	Boy 31	13.00	15.05	2.42	109.19	519.35	48.75	255.05	9.85	1446.20	.40	.23	4.91	7.80
4.	Boy 32	13.00	22.52	35.72	102.78	823.25	154.20	356.40	5.11	12006.00	.38	.13	14.55	4.25
5.	Boy 33	13.00	9.75	1.00	39.51	205.95	114.25	47.00	1.00	.00	.08	.00	.68	.00
6.	Boy 34	14.00	21.02	53.14	159.92	1202.30	44.15	331.15	9.54	40063.60	.55	.20	6.66	8.90
7.	Boy 35	14.00	20.21	12.95	110.45	639.60	188.00	316.80	7.29	8041.10	.38	.16	5.02	2.00
8.	Boy 36	14.00	16.44	31.43	88.18	701.70	41.65	287.60	6.08	16039.30	.40	.14	9.42	4.75
9.	Boy 37	13.00	16.95	12.81	89.59	541.50	176.55	286.70	8.49	9176.30	.35	.22	4.27	11.55
10.	Boy 38	13.00	13.30	52.17	89.87	882.60	30.75	221.55	6.30	40063.70	.37	.14	3.96	1.30
11.	Boy 39	14.00	25.40	13.45	170.99	907.25	213.95	422.00	12.24	9177.50	.54	.30	7.78	12.40
12.	Boy 40	13.00	16.59	12.59	93.92	555.65	151.15	249.45	8.64	9442.85	.32	.22	4.01	8.65
13.	Boy 41	14.00	22.95	18.22	200.57	1059.05	47.60	435.80	12.15	12070.50	.66	.30	9.10	6.55
14.	Boy 42	13.00	20.72	23.22	144.94	872.10	47.30	329.75	8.40	12057.45	.52	.20	9.20	5.85

Average Status(%) = -70.26 -37.23 -72.92 -64.39 -83.80 -48.58 -79.16 528.23 -59.80 -85.22 -52.56 -83.29

Standard Deviation = 6.93 51.24 10.30 13.57 11.01 16.82 8.32 607.40 14.00 6.42 23.53 9.65

Negative sign indicates deficiency.

The average status for 13 to 15 year children were found to be calorie 64.39 with S.D 13.57, protein -70.26 gram with S.D 6.93, fat -37.23 gram with S.D 51.24, carbohydrate -72.92 gram with S.D 10.30, calcium -83.80 mg with S.D 11.01, phosphorus 48.58 mg with S.D 16.82, iron -79.16 mg with

S.D 8.32, carotene 528.23 mcg with S.D 607.40, thiamin - 59.80 mg with S.D 13.25, riboflavin -85.22 mg with S.D 6.42, niacin -52.56 mg with S.D 23.53, vitamin C -83.29 mg with S.D 9.65.(Table 5)

Table 6: Nutritional Status of Children (13-15 years)

NUTRITIONAL STATUS OF CHILDREN															
Age Group : 13 - 15 Years;															
Sl	PARTICULARS	AGE Yrs.	INCM Rs.	PROT gm	FATS gm	CARBO. gm	ENGY. kcal	CALC mg	PHOS. mg	IRON mg	CAROT mcg	THIAM. mg	RIBOF. mg	NIACIN mg	VIT. C mg
1.	Boy 29	13.0	750.00	-62.32	44.39	-57.10	-37.91	-39.43	-28.06	-63.95	1627.14	-40.83	-73.90	-37.20	-73.00
2.	Boy 30	14.0	600.00	-69.67	-93.12	-63.86	-65.08	-93.51	-41.98	-76.21	-97.89	-50.00	-83.82	-47.72	-78.00
3.	Boy 31	13.0	750.00	-76.27	-93.46	-76.59	-76.60	-91.88	-57.49	-75.98	-39.74	-63.76	-82.72	-66.11	-80.50
4.	Boy 32	13.0	900.00	-64.49	-3.42	-77.97	-62.91	-74.30	-40.60	-87.55	400.25	-64.68	-90.44	.41	-89.38
5.	Boy 33	13.0	450.00	-84.62	-97.28	-91.53	-90.72	-80.96	-92.17	-97.55	-100.00	-93.12	-100.00	-95.27	-100.00
6.	Boy 34	14.0	600.00	-66.85	43.66	-65.72	-45.83	-92.64	-44.81	-76.73	1569.32	-49.54	-84.93	-54.04	-77.75
7.	Boy 35	14.0	750.00	-68.13	-64.99	-76.32	-71.18	-68.67	-47.20	-82.22	235.05	-65.14	-88.24	-65.36	-95.00
8.	Boy 36	14.0	600.00	-74.07	-15.03	-81.10	-68.38	-93.06	-52.07	-85.18	568.30	-63.30	-89.34	-34.99	-88.13
9.	Boy 37	13.0	450.00	-73.26	-65.38	-80.80	-75.60	-70.57	-52.22	-79.29	282.35	-68.35	-84.19	-70.53	-71.13
10.	Boy 38	13.0	600.00	-79.03	41.04	-80.74	-60.23	-94.88	-63.08	-84.63	1569.32	-66.06	-90.07	-72.67	-96.75
11.	Boy 39	14.0	900.00	-59.94	-63.65	-63.35	-59.12	-64.34	-29.67	-70.13	282.40	-50.00	-77.94	-46.34	-69.00
12.	Boy 40	13.0	450.00	-73.84	-65.96	-79.87	-74.96	-74.81	-58.42	-78.94	293.45	-70.64	-83.82	-72.33	-78.38
13.	Boy 41	14.0	900.00	-63.81	-50.74	-57.01	-52.28	-92.07	-27.37	-70.37	402.94	-39.45	-78.31	-37.20	-83.63
14.	Boy 42	13.0	750.00	-67.32	-37.24	-68.93	-60.70	-92.12	-45.04	-79.52	402.39	-52.29	-85.29	-36.47	-85.38

Note: The values indicate % of the Nutrients Required by the person. Negative sign indicates deficiency.

The minimum and maximum levels of deficiency for different nutrients in this age group are

Table 7: Nutrients deficiency

Nutrients	Minimum	Maximum
Calorie	-37.91	-90.72
Protein (gm)	-59.94	-84.92
Fat (gm)	-3.42	-97.28
Carbohydrate (gm)	-57.01	-91.53
Calcium (mg)	-64.34	-94.88
Phosphorus (mg)	-28.06	-92.17
Iron (mg)	-63.95	-97.55
Carotene (mcg)	-39.74	-97.89
Thiamin (mg)	-39.45	-93.12
Riboflavin (mg)	-73.9	-100
Niacin (mg)	-36.47	-95.27
Vitamin C(mg)	-69	-100

It is found many street children they do not take non-veg items and milk products which cost more. It is observed these children generally take locally available low-cost food like parboiled rice, mung dal, potato, leafy vegetables like spinach etc. In the age group of 7-9 years, in calorie the minimum deficiency is found to be -45.64 kcal whereas maximum - 79.58 kcal. In protein the minimum deficiency is -30.26 gm. and maximum -66.31 gm. In calcium minimum deficiency is - 9.99 mg. and maximum -91.54 mg. In the age group of 10-12 years, the minimum deficiency in calorie is -49.90 kcal and maximum -87.76 kcal, in protein the minimum deficiency is - 42.43 gm. and maximum -90.63 gm. In the age group of 13-15 years, in calorie the minimum deficiency is -37.91 kcal and maximum -90.72 kcal, in protein the minimum deficiency is - 59.94 gm. and maximum -84.92 gm. Graphical profile of 7-9 years age group shows, the deficiency in calorie, protein and calcium increases with the increase of income. It indicates

child may be spending the money for other purposes neglecting food. Iron deficiency of this age group decreases with the increase in income. In the age group of 10-12 years the graphical profile shows, calorie deficiency slightly decreases with the increasing income. Protein and calcium deficiency increase with the increase in income. But iron deficiency slightly increases with the increase in income.

Conclusion

The street children are deprived of educational and mental development. Economic pressure mounted on them is so much that compels them coming to the street. National family planning measures should be implemented with utmost sincerity to minimize the migration of rural children to different developing urban centers. The poorest of the poor children must be covered under universalization of formal education. Traditional teaching methods should be replaced by modern methods seeking maximum encouragement and involvement of street children in the learning process. Extensive use of mass media that is press, television and radio would help creating public awareness about the problems of street children which can be solved by effective coordination between government and non-government organization medical services to be provided at the door step of each and every slum dwellers at least once in a week through public health checkup camps. Diet assessment and counselling should be a regular affair in government norms and directives.

References

1. Agarwal P. A text book on Nutrition and Meal planning premier publishing House, Calcutta 2008.
2. G.O.I (Govt. of India). Child labour and street children “in calling, New Delhi, Department of Education 2007.
3. Gopalan C, Rama Sastri BV, Balasubramanian SC. Nutritive value of Indian Foods, ICMR, Hyderabad 2014.

4. Pellet P. Malnutrition, Wealth and Development”, Food and Nutrition Bulletin 1981;3:1.
5. Phillips WSK. Street children of Indore”, National Labour Institute, Sector-24, NOIDA 1992.
6. Rane Asha, Neela Shoroff. street children in India Emerging need for social work intervention” in Asha Rane(ed.) street children. A challenge to the social science, Bombay 1994, 82.
7. Sahaya Ranjit S. Growing up on the streets in Saturday statesman 11th Feb 1995, 14.
8. Swaminathan M. Advanced text book of food and Nutrition, Bangalore printing and publishing co. Ltd., Bangalore 1993, 1.