ASSESSMENT OF HEALTH STATUS OF UNDER-SIX-YEAR CHILDREN AT UHTC, SHARIFGANJ AREA OF KMC, KATIHAR, BIHAR

Purnendu Kumar Singh¹, Vishal Prasad²

¹Associate Professor, Department of Community Medicine, Katihar Medical College, Katihar, Bihar, India.

²Junior Resident, Department of Community Medicine, Katihar Medical College, Katihar, Bihar, India.

ABSTRACT

BACKGROUND

Under-six-year children comprise approximately 17% of the total population of the 136 million children born each year in the world. Growing urbanisation is a recent phenomenon in the developing countries. Over the past five decades, India's urban population has increased manifold.

The aim of this study is to assess the health and nutritional status of under-six-year children at UHTC, Sharifganj area of KMC, Katihar, Bihar and with a view to study various socio-economic factors influencing their health status with a view to formulate prophylactic measures.

MATERIALS AND METHODS

An observational study of 1200 children (640 boys and 560 girls) was undertaken during August 2017 to March 2018 at urban health training centre Sharifganj area of KMC, Katihar, Bihar. The sample size was calculated on the basis of pilot survey. Children were classified on the basis of weight for age into various categories of malnutrition using IAP classification and NCHS standard.

RESULTS

Out of 1200 children in the present study, 756 (63%) were found to be normal. In the age group of 0 - < 1 year, 120 infants (84.7%) were found to be normal category. So, if we exclude the 0 - < 2 years children, 484 (40.33%) children were normal and 50.67% were malnourished (Grade I to Grade IV).

CONCLUSION

The higher prevalence of malnutrition in the urban area may be due to poor breast-feeding practices, lack of appropriate complementary feeding.

KEYWORDS

Under 6 Year Children, Breastfeeding, Immunization, Malnutrition, Supplementary Nutrition, Anthropometric Measurement.

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BACKGROUND

An independent district since 1973, Katihar is primarily an agrarian region. Paddy is the chief commercial crop. However, the district also houses jute and paper mills.

While the total urban population of Katihar is 2, 18 and 246 and total rural population is 21, 71 and 287. Also, for every 1000 males, there are 919 females in the region. One of the interesting facts about Katihar is that it has only 23% of its population below poverty line. With a steadily increasing literacy rate and declining below poverty line mark, Katihar is surely making a mark of its own as one of the 38 districts of Bihar. Children are the assets of nation. In any community, children constitute a priority group.¹

In sheer numbers (0 - 6 years), children comprise approximately 17% of the population of the 136 million children born each year in the world, 90 percent are in the 3rd world.

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Corresponding Author:

Dr. Purnendu Kumar Singh,

Associate Professor,

Department of Community Medicine,

Katihar Medical College, Katihar-854105, Bihar, India.

E-mail: purnendukumars@yahoo.com

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Although, the chances of survival of these new-borns has improved by 50 percent in the last 20 years, the first few hours, days and months of their lives are still an obstacle race. From the time of birth, 20 - 30 percent of babies are underweight. That makes them vulnerable to infection and disease. About 40 percent of the total infant mortality occurs in the first month of life.² Then comes the weaning period, when out of four surviving children receives neither the quality nor the quantity of food needed to replace the substances provided by mother's milk. Many low-cost measures are available for saving life of millions of children like immunizations, breastfeeding, birth spacing, growth monitoring, improved weaning and oral rehydration. Attention is focused on these elements of child health care in developing countries.^{3,4}

Growing urbanisation is a recent phenomenon in the developing countries over the past five decades. India's urban population has increased manifold. The proportion of the urban population in India has increased from 10.84% in 1901 to 25.72% in 1991 and was 27.8% in the year 2001.⁵

In childhood, health is measured in terms of growth of the child. The term "growth" implicates the physical maturation, i.e. increase in the size of body. It is biological phenomenon which influence on many factors like hereditary, nutritional and environmental can be readily observed and easily measured. Physical growth is an important indicator of child health and well-being. It can be affected by various factors

like genetic condition, environmental, nutritional, socio-economical and endocrinal influence etc.

According to ICMR (1987), socio-economic status plays a dominant role in growth and physical development of children from different socio-economic classes within the same community differ in their body size at all age. The influence of socio-economic factors is manifested in the nutrition and the entire environment, which the children are compelled to adopt. Children are the human resource and assets of a country.⁶ A nation is measured through the health of its children. It is therefore essential that children are allowed to grow in an environment which is suitable to meet their social, emotional and educational needs.

Adolphe Quatlet carried out extensive study on the height and weight of children in different age group and introduced the height and weight of children in different age group and introduced the "Anthropometry."⁷

Anthropometry provides single most portable universally applicable, inexpensive and non-invasive technique for assessing the size, proportion and composition of human body. It reflects both health and nutritional status and predicts performance, health and survival (WHO, Expert Committee Report).⁸

Aims and Objectives

To assess the health and nutritional status of under six year children at UHTC, Sharifganj area of KMC, Katihar, Bihar and with a view to study various socio-economic factors influencing their health status with a view to formulate prophylactic measures.

MATERIALS AND METHODS

The study was carried out by systemic random sampling method and every third house was selected for study. Thus, 760 houses where 1280 children reside were included in the study. The sample size was calculated on the basis of pilot survey results, wherein 32% under 6 year children were found to have low health profiles in the community surveyed. Rest on this with an acceptable error of 10% the sample size was obtained to be 850 using the formula.

$$n = \frac{4pq}{l^2}$$

Prior written consent was obtained from the parents to be included in this study. Altogether 80 children could not be included either due to refusal of the parent or the absence of the children even after repeated visits.

Thus, total sample size of the present study was 1200. As this study did not involve any patients or patient's records the Institutional Ethical Committee intimated that ethical clearance was not required.

This community based cross-sectional study was carried out during 2017 - 18. Mother of each child or local guardian was included in the study for personal interview in her own house followed by clinical examination and anthropometric measurement of the child, i.e. weight and height, housing condition, water supply and sanitary practices were looked for the same background characteristics like caste, religion, socio-economic status, demographic status, feeding practices, supplementary nutrition, immunization status, morbidity etc. All this information were recorded on a predesigned and

pretested proforma. The study was conducted on 1200 children in a group of 0 - 6 years. Besides other information, anthropometric measurement was done to assess their nutritional and health status.

The most reliable sources of information, viz. the immunisation card of the children and/or MCH card of the mother were checked. Data regarding the source of immunisation was also gathered. In absence of recorded evidence, verbal information from mother of children or father was gathered. Health status of children was studied after weighing the child on Salter's scale to the nearest of 100 grams and using the classification given by IAP with reference to the expected weight for age. The statistical analysis was carried out on SSPS version 17.0.

RESULTS

Total sample size of the present study was 1200.

Sex	Number	Percentage
Boys	640	53.3%
Girls	560	46.7%
Total	1200	100.00%

Table I. Showing Sex distribution of Pre-School Children

The above table shows the number of pre-school children sex-wise. Boys found to be 53.3% (640 cases) and girls were found to be 46.7% (560).

Age Group in Year	Number	Percentage
0 - <1	142	11.83
1 - <2	228	19.00
2 - <3	212	17.67
3 - <4	220	18.33
4 - <5	190	15.83
5 - <6	208	17.33
Total	1200	100.00

Table II. Showing Age distribution of Pre-School Children under 6 years of Age (0 - 6 years)

Maximum no. of children were found in 1 - < 2 years that is 19.00% (228) and minimum in 0 - < 1 years (142) that is 11.83%.

Religion	Number	Percentage
Hindu	433	36.08
Muslim	767	63.92
Total	1200	100.00

Table III. Showing distribution of Pre-School Children according to Religion

Above table shows the data in relation to religion. Muslim children were found to be 767 (63.92%) and Hindu was found to be 433 (36.08%).

Socio-Economic	Number	Percentage
I (upper)	34	4.47
II (upper middle)	92	12.11
III (lower middle)	104	13.68
IV (upper lower)	190	25.00
V (lower)	340	44.47
Total	760	100.00

Table IV. Showing Socio-Economic distribution of Family

Above table shows the distribution of family into five socio-economic groups depending upon education, occupation and income of the parent. Maximum no. of children belonged to socio-economic group V i.e. 340 (44.74%) and minimum in socio-economic group I i.e. 34 (4.47%).

Type of Immunization	Number of Children Immunised		Number of Children Not Immunised	
	Nos.	%	Nos.	%
BCG	960	80.00%	233	19.42%
Oral Polio	912	76.00%	287	23.92%
Pentavalent	888	74.00%	312	26.00%
Measles	156	13.00%	1045	87.08%

Table V. Showing Immunization Coverage of Children by at least one of the Immunizing Agent in relation to Sex

Above table is self-explanatory.

Nutritional Status	Number	Percentage
Above 80% (Normal)	756	63.0%
71-80% (Grade I)	214	17.83%
61-70% (Grade II)	181	15.08%
51-60% (Grade III)	44	3.67%
<50% (Grade IV)	5	0.42%
Total	1200	100.00%

Table VI. Showing Nutritional Status of Children (Nutritional Classification, Indian Academy of Paediatrics)

The above table shows that present study, the percentage of children in Grade I, II and III malnutrition were 17.83%, 15.08% and 3.67%. The percentage of normal children was 63.0% according to weight for age criteria.

Male					Age Group in Years	Female				
No. of Boys	Range	Mean Weight	±SD	±SE		No. of Girls	Range	Mean Weight	±SD	±SE
108	4.6-12.2	7.92	2.27	0.24	0 - <1	96	7.8-13.8	10.72	1.93	0.22
110	4.8-12.5	7.99	2.30	0.28	1 - <2	92	5.0-11.0	7.46	1.87	0.24
114	6.0-11.5	9.50	0.97	0.12	2 - <3	98	6.0-12.0	9.07	1.32	0.18
122	8.0-13.0	11.26	1.047	0.17	3 - <4	94	7.0-13.0	9.96	1.47	0.20
92	10.0-19.0	14.75	2.85	0.39	4 - <5	82	8.0-14.5	11.93	1.83	0.26
94	9.0-20.0	14.92	2.92	0.37	5 - <6	78	8.0-18.0	13.58	2.82	0.37

Table VII. Showing Mean and Standard Deviation of Weight (in kg) by Age and Sex

Above table shows that the mean weight increases with age in both sexes. The total increase in mean weight between 0 and 6 years in boys was found to be 6.93 kg and in girls was 6.12 kg. In boys the mean weight was observed to be 7.99 kg for the age group 1 - < 2 and 14.92 kg for the age group 5 - < 6 years, whereas in the case of girls' mean weight for the age group 1 - < 2 was obtained to be 7.46 kg and for the age group 5 - < 6 was 13.58 kg. The overall mean weight for the age group 1 to 6 years obtained as 11.52 and 10.35 kg for boys and girls respectively. Overall, mean weight for all children under study was found to be 10.97 kg.

Male					Age Group in Years	Female				
No. of Boys	Range	Mean MUAC (cm)	±SD	±SE		No. of Girls	Range	Mean MUAC (cm)	±SD	±SE
108	7.3-11.0	10.7	1.26	0.14	0 - <1	96	6.9-11.2	10.11	1.17	0.13
110	8.2-12.5	11.02	1.35	0.17	1 - <2	92	7.5-12.5	10.82	1.29	0.16
114	10.3-13.5	11.41	1.03	0.12	2 - <3	98	9.7-14.3	11.03	1.61	0.22
122	11.0-14.7	12.50	0.96	0.11	3 - <4	94	10.3-14.4	12.12	1.15	0.16
92	12.1-16.2	13.80	1.13	0.15	4 - <5	82	11.4-15.2	13.25	1.28	0.18
94	12.3-16.5	14.63	1.37	0.17	5 - <6	78	11.2-17.1	14.01	1.09	0.14

Table VIII. Showing Mean and Standard Deviation of Left Upper Mid Arm Circumference (in cm) by Age and Sex

The above table shows that mean upper mid arm circumference (in cm) increases steadily with the increase in age in both sexes. In boys MUA circumference were obtained to be 11.02 cm in the age group 1 - < 2 and 14.63 cm in the age group 5 - < 6. Overall, mean mid arm circumference for all age were found to be 12.60 cm in boys and 12.22 cm in girls indicating that boys are having larger MUAC than that of girls.

DISCUSSION

The present work "Assessment of Health Status of Under Six Year Children at UHTC, Sharifganj Area of KMC, Katihar, Bihar," was conducted in urban population of Katihar, which is 8 km from Katihar Medical College.

It gives a very vulnerable and important result about socio-economic status, immunization status, nutritional status and anthropometric measurement.

Nutritional and Health Status of Community can be assessed by following Methods-

1. Clinical examination.
2. Laboratory and biochemical examination.
3. Anthropometric measurement.

Anthropometry provides the single most portable universally applicable, inexpensive and non-invasive technique for assessing the size proportion, composition of human body. It reflects both health and nutritional status and predicts performance, health and survival.⁹

Nutritional anthropometry is considered to be the best method for assessment of health status. It is considered with the measurement of variation in physical dimension and gross composition of the human body at different age levels. It is easy to perform and require only single apparatus.^{10,11}

Malnutrition is much more prevalent in developing countries. We come across very few cases of severe malnutrition. For it exhibits "Iceberg phenomenon," any case of overt malnutrition. We represent only the tip of the problem. The main bulk is submerged undetected in the community. By using anthropometric measurement, one can detect the subclinical malnutrition very easily.¹²

Assessment of health status of individual consequently for health assessment purpose, anthropometry is most useful parameter for assessing the nutritional status of children, particularly in developing countries.¹³

Jelliffe DB 1966, Bhandari and Jain 1972 also observed that the malnutrition especially in developing countries like India where resources of good food are limited.¹¹

ICMR (1972) reports that the weight, height and chest circumference complements are another and give information on nutritional status which is less in protein caloric malnutrition.¹⁴

OP Ghai (1977) emphasised the importance of anthropometry and detecting the malnutrition. Similar view also expressed by Dutta Banik et al (1973), Raghwan et al (1973) and Gupta (1977).¹⁵

Out of 1200 children in the present study, 756 (63%) were found to be normal. The children were classified on the basis of nutrition to indicate weight for age, into various categories of malnutrition using IAP classification and NCHS standard. In the age group of 0 - < 1 year, 120 infants (84.7%) were found to be normal category. So, if we exclude the 0 - < 2 years children as 484 (40.33%), children were normal and 50.67% were malnourished (Grade I to Grade IV). Table VIII showed that maximum cases of malnutrition are in the age group of 5 - < 6 years. 56 (41.35%) Grade I, 40 (19.23%) Grade II (40 cases, i.e. 21.05% in the age group 4 - < 5 years), 10 cases of 4.8% for Grade III and 2 cases (0.96%) for Grade IV (2 cases i.e. 1.33% in the age group of 4 - < 5 years). In Grade I malnutrition, minimum cases were recorded in the age group 1 - < 2 years (15) and 2 - < 3 years (20). In Grade II also minimum cases (4 cases 2.82%) were seen in the age group of 0 - < 1 year, so also in Grade III where only 3 cases (2.11%) were in 0 - < 1 year and 1 - < 2 years.

Thus, these studies are comparable and present a dismal picture of the health status of children of families residing in UHTC, Sharifganj area of Katihar Medical College, Katihar, Bihar.

CONCLUSION

The higher prevalence of malnutrition in the urban area may be due to poor breast-feeding practices, lack of appropriate complementary feeding, prevalent in society, discarding of

colostrum, delayed initiation of breast feeding, lack of education and higher number of children in low socioeconomic group is the prime reason for poor health profile of children in this region.

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