

NUTRITIONAL STATUS OF PRIMARY SCHOOL CHILDREN IN RURAL AREA OF DEHRA DUN

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Objectives :-

1. To assess the Nutritional status of primary school children.
2. To compare these values with ICMR and NCHS standards.
3. To assess any significant difference between nutritional status of boys and girls.

Study design : Cross- sectional. school based study.

Setting : Five Govt primary schools.

Study variables : Age, Sex, Weight, Height and BMI.

Statistical Analysis : percentile, mean, standard deviation, 't' test, 'z' tests.

Result : In all age groups the nutritional status of boys and girls was found lower than the NCHS standards. Mean height and weight in both sexes were comparable to ICMR 50th percentile weight was higher in boys than ICMR values with increasing age except in 5 year and 11 year age group. BMI in girls in age group 10, 11 and 12 years is found to be better than boys. Mean weight of girls is better than boys in age group 11 and 12 years but statistically insignificant.

Introduction :

There are many nutritional programmes dedicated to provide essential health services to the children <6 years, but the children in the age group of 5-14 years still remains neglected. According to 1991 Census, this age group i.e. 5-14 years, which is also the school going age group, constitute 25% of total population of India¹. In an international workshop held at Kentucky, USA in 1994, it was agreed that there was a dearth of information regarding the health status of school age children in developing countries, particularly at the community level. The institution of School Health in India had evolved as early as 1909 when for the first time the medical

examination of children was carried out in Baroda City¹. Since then various Government sponsored school health programme have been launched from time to time but the progress has been at the pace of snail and much discouraging. These programmes were mainly limited to a few privileged schools in the metros. In addition the efforts have been very disconcerted, irregular and half hearted especially in Govt. schools where attending school has become an obligation without serving the real purpose. Moreover there is no follow-up of cases and no accountability towards the implementation of programme. This age group is the most vulnerable and also represents

the future of the nation as they are on the threshold of adulthood. Thus in our study, we have targeted the health status of children within age group of 5-16 years from Govt school around our Rural Health; Centre. The height and weight data were observed and it has confirmed the immediate need and specific intervention to improve the health status of this age group.

Meaterial and Methods :

The present study was carried out in all the government primary schools listed in our field practice area (Rural Health Training Centre, Majari). Out of 415 total children registered in these schools, only 392 children were available for the study, 211 (53.8%) were boys and 181

(46.1%) were girls. Nutritional status was assessed by Anthropometric measurements (height and weight). The weight of the children was recorded by weighing machine and height was measured through measuring scale. The age was assessed as per child's school record. The measurements were done by a team of Interns in the presence of faculty members. The data of each variable (height and weight) for each age group were arranged in an ascending order and the 3rd, 50th, and 97th percentile values were calculated by using the percentile formula and compared with the ICMR & NCHS standards². Mean height, weight and BMI were also compared with ICMR values in both sex to assess any signigicant difference between boys and girls.

Obsevation and discussion :

TABLE - 1
Distribution of children by age and sex

AGE	NO	MALE		FEMALE	
		NO	%	NO.	%
5	30	17	8.05	13	7.18
6	48	26	12.32	22	12.15
7	60	32	15.16	28	15.46
8	62	32	15.16	30	16.57
9	50	27	12.79	23	12.70
10	58	33	15.63	25	13.81
11	40	20	9.47	20	11.04
12	44	24	11.37	20	11.04
TOTAL	392	211	53.8	181	46.1

A total number of 392 children, 211 (53.8%) boys and 181 (46.1%) girls, in the age group of 5 to 12 years were examined and their height and weight were recorded.

TABLE - 2
Weight (Kg.) for age

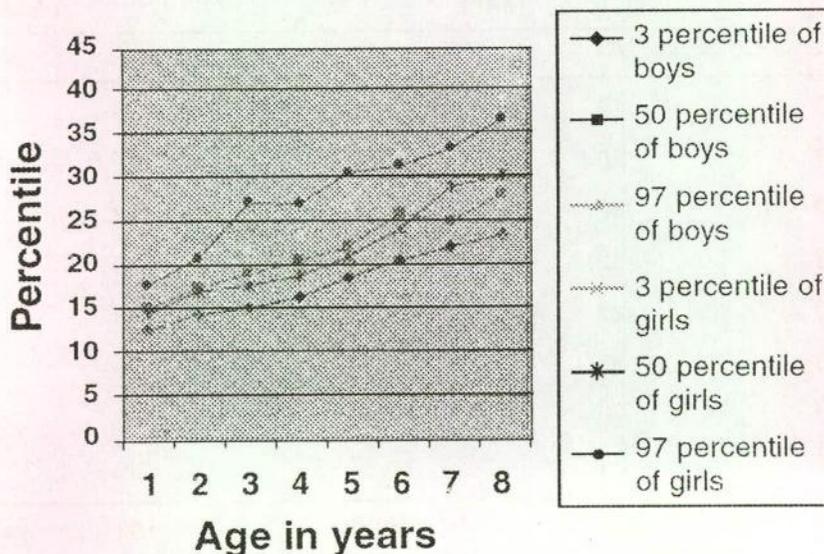
AGE	MALE		FEMALE		
	MEAN	SD	MEAN	SD	
5years	14.64	10.7	13.8	1.5	Z = 2.16*
6years	17.2	1.94	16.4	1.93	Z = 0.4
7years	18.1	1.87	17.7	3.43	Z = 0.5
8years	19.6	1.83	18.6	3.36	Z = 1.45
9years	21.08	2.29	21.02	1.68	Z = 1.09
10years	25.3	3.46	23.4	3.67	Z = 2.02*
11years	25.8	3.31	27.3	342	Z = 1.41
12years	28.9	4.26	29.6	3.9	Z = 0.58

Significant* (Z > 1.96, p < 0.05)

The mean weight for age is higher in boys as compared to girls in all ages except 11

and 12 years and is statistically insignificant. The mean body weight has progressively

Weight for age percentile chart



increased with increasing age in both boys and girls. In boys mean body weight increased from 14.64 ± 10.7 kg in 5th year to 28.9 ± 4.26 kg in 12th year. In girls weight has increased from 13.8 ± 1.5 kg in 5th year upto 29.6 ± 3.9 kg in 12th year. In present study the mean body weight was higher than ICMR standards in all age groups. The mean body weight of boys in age group 5 year, 8year, 9year and 11year was found to be lower as compared of ICMR standards. The mean body weight of girls in age group 5 year, 8year, 9year, 10year and 12 year was found to be lower than ICMR standards.

On an average in all age groups the

50th percentile of weight for age was higher in boys as compared to girls except in girls of age group 11 years and 12 years. 97th percentiles of weight for age were higher in girls as compared to boys except in age group of 6 year, 10 year and 12 year in which weight for age of boys exceeded that of girls. The 3rd percentiles of weight for age were lower for girls in all age groups as compared to boys. In present study 50th percentile of weight for age was found to be higher than ICMR standards except in 5 and 11 years of boys and 5th, 8th and 9th year of girls where it was found to be lower than ICMR standards.

TABLE - 3

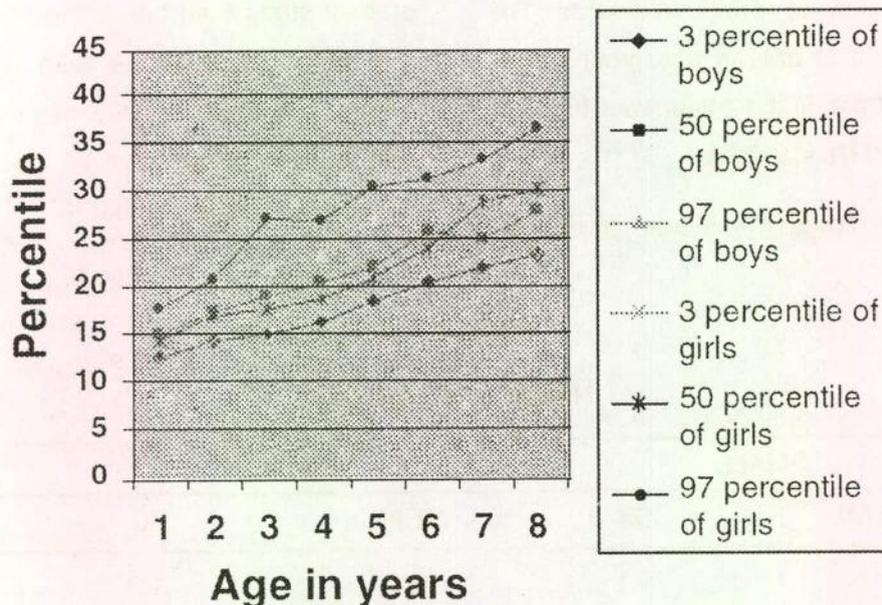
Height (cm.) for Age

AGE	MALE		FEMALE		
	MEAN	SD	MEAN	SD	
5years	100	4.1	99.07	4.3	Z = 0.216
6years	108	5.93	107.4	4.6	Z = 1.43
7years	114.7	3.83	112.9	6.8	Z = 1.28
8years	118	4.88	117.7	4.4	Z = 0.25
9years	122.5	5.07	123.9	6.4	Z = 0.87
10years	130	6.63	124.9	7.0	Z = 2.80*
11years	130.4	5.36	133.9	10.6	Z = 1.35
12years	140.3	8.5	133.8	6.7	Z = 2.83*

The above table shows that mean height has increased in both sexes with advancing age. The mean height of boys has increased from 100 ± 4.1 cm in 5th year to 140.3 ± 8.5 cm in 12th year. The mean height of girls has increased from $99.07 \pm$ cm in 5th year to 133.8 ± 6.7 cm in 12th year. The mean height was found to be

higher in boys as compared to girls in all age groups except 9 and 11 year, but this difference was statistically insignificant. In present study the mean height in both sexes were found to be lower than ICMR except in boys of 7, 10 and 12 year age group and girls of 7, 9 and 11 year age group where it was found to be slightly higher than ICMR values.

Weight for age percentile chart



In present study the 50th percentile of height for age was found to be lower than ICMR standards except in boys of age group 5, 9, 11 and 12 years and girls of age group 5, 7, 10 and 12 years. The 3rd percentile of height for age in boys was found to be higher than girls. In girls of age group 9 years and 11 years, the 50th percentile of height for age was found to be

higher than boys. In girls of age group 7 years, 9 years and 11 years, the 97th percentile of height for age was found to be higher as compared to boys.

This may be because the peak height velocity (growth acceleration) in girls is attained earlier than boys.

TABLE - 4
Body mass Index

AGE	MALE				FEMALE		
	NO.	MEAN	SD	NO	MEAN	SD	
5years	17	15.0	1.4	13	14.2	1.3	
6years	26	14.7	1.0	22	14.3	1.4	
7years	32	13.7	1.5	28	13.8	2.2	
8years	32	14.0	1.2	30	13.6	2.0	
9years	27	14.5	1.7	23	13.9	2.1	
10years	33	14.9	1.4	25	15.0	1.7	
11years	20	15.1	1.3	20	15.3	1.2	
12years	24	14.7	2.5	20	16.1	2.1	

In terms of body mass index the nutritional status of boys was found to be better than girls in all age groups except 7, 10, 11 and 12 years. In 12 year age group there was a major difference in BMI of boys and girls.

Conclusion :

The present study reveals that in all age groups the 3rd, 50th and 97th percentile for weight and height were less as compared to ICMR and NCHS standards. In age group 12 years, the mean height values in boys were found to be higher as compared to ICMR data. In age group 10, 11 and years, the mean body weight in boys was found to be higher than ICMR standards. In girls of 12 years age group, the mean body weight was found to be higher as

compared to ICMR data. In age groups 10,11 and 12 years the nutritional status (BMI and weight for age) of girls was found to be better than boys. In boys of 5years age group mean BMI was found to be higher than ICMR values. In present study, the mean body weight, height, and BMI is reported much lower than NCHS data in both sexes in all age groups.

References :

1. Park JE and Park K. Text book of preventive and Social Medicine, 10th edition (1985), Publ. Banarridas Bhanot, Jabalpur pp 446-7.
2. ICMR (1972) : Growth and Physical development of Indian infants and children, Technical report series no.10.
