

Height and Weight of Children from Higher Socioeconomic Strata in Western Maharashtra

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Research Article

Abstract: Growth, an important indicator of health and well being of a child is affected by a various factors like infections, infestations, malnutrition and economical constraints along with genetic and racial factors. The growth of the children free from these factors can be used as an indicator of optimum growth to be achieved by a child. Hence the present study was aimed to study the growth of the children free from these constraints. A total of 922 children in age group 3-10 years were selected randomly from various convent schools in Pune. Their higher socioeconomic strata were confirmed by taking history. The age of subject confirmed from school records. Height and weight were measured twice by standard anthropometric techniques and mean was taken. The statistical analysis was done. The height and weight of boys and girls increases with advancing age. The mean height of both boys and girls in our study is comparable with NCHS study Mean weight of both boys and girls studied is low compared to NCHS study. The mean height of boys and girls go hand in hand in all the age groups studied. The mean weight of boys and girls go hand in hand till six years of age. Thereafter the girls gain more weight than boys.

Keywords: Anthropometry, Height, Maharashtra, Socioeconomic, weight.

Introduction

Growth is an important indicator of health and wellbeing of a child. In addition to genetic and racial factors, growth is affected by various factors like nutrition, dietary habits etc. Also it gets affected by various health constraints like infection infestation chronic or systhemic diseases. Anthropometric measures particular height and weight are best means for assessment of nutritional status and health of a child⁸. Reference to evaluate the progress of growth of a normal child and to evaluate the interventional program, it is must to setup the appropriate growth standards. As the different population groups are exposed to different environmental factors, children belonging to these groups differ in their growth

Result

Table 1: Mean height (cm) and weight (kg)of Boys

Age Group (yrs)	Sample Size (n)	Height(cm)			Weight(kg)		
		Range	Mean	S.D.	Range	Mean	S.D.
3-	50	90-106	94.48	4.67	11-17	12.63	1.31
4-	53	88-119	102.2	4.44	10.5-17	14.4	2.41

performance. Hence the population specific data needs to be established. A project was carried out in Western Maharashtra region in which seven different growth parameters were studied. Out of these data regarding two traits viz. Height and weight is presented here.

Objectives

1. To study the growth pattern in relation to height and weight of children in the age group 3 to 10 yrs from higher socioeconomic strata , of Western Maharashtra.
2. To compare the results with available studies from India and WHO (NCHS)standard.
3. To compare the growth performance of boys with that of girls.

Material and Method

The present study was conducted in four convent schools in Pune. A total 922 children in age group 3 to 10 yrs were selected. Both schools and subjects were selected by random sampling method. All these children belonged to urban elite society. There higher socioeconomic status was confirmed by history taken from them. The children with history of chronic systemic diseases, physical deformities and who had been advised bed rest for more than two weeks for any medical reason were excluded from the study. The age of subjects was taken from school records and it is confirmed by birth certificates. After obtaining written consent from schools and parents, the height and weight was measured of each subject, using standard technique³. Measurements were taken twice and average was taken for statistical analysis.

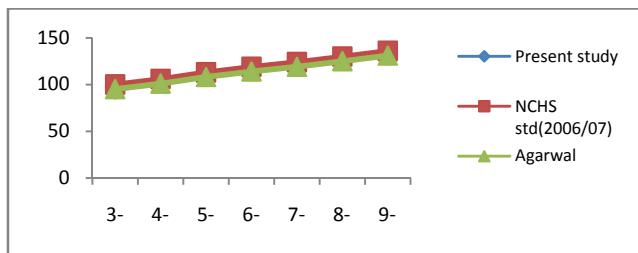
5-	72	99-116	110.8	4.32	13-25	17.51	2.47
6-	60	107-127	118.7	6.07	15-39	21.23	5.1
7-	59	110-141	121.8	6.47	16-44	23.15	5.8
8-	64	113-143	127.9	6.72	16-55	25.3	6.51
9-	52	124-154	134.8	7.97	18-44	26.53	6.08

Table 2: Mean height (cm) and weight (kg) of Girls

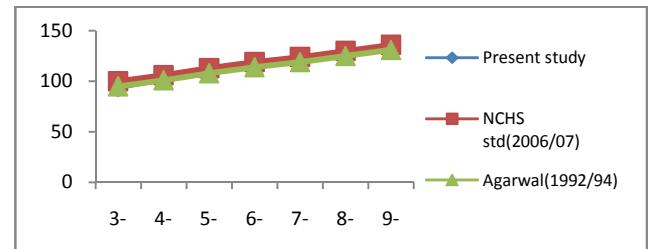
Age Group (yrs)	Sample Size (n)	Height(cm)			Weight(kg)		
		Range	Mean	S.D.	Range	Mean	S.D.
3-	50	87-101	93.48	4.67	11-14	11.83	1.31
4-	53	95-111	102.2	4.44	11-23.5	14.4	2.42
5-	72	119-102	110.8	4.32	13-25	17.51	2.47
6-	60	107-132	120.1	6.07	14-36	21.8	5.1
7-	59	110-136	121.8	6.47	15-39	23.75	5.8
8-	64	111-140	127.9	6.72	18-57	25.8	6.51
9-	52	121-149	134.8	7.97	19-44	27.5	6.08

Discussion

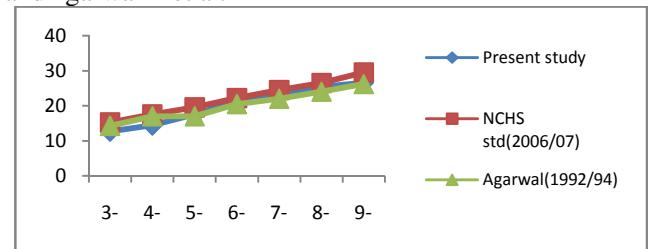
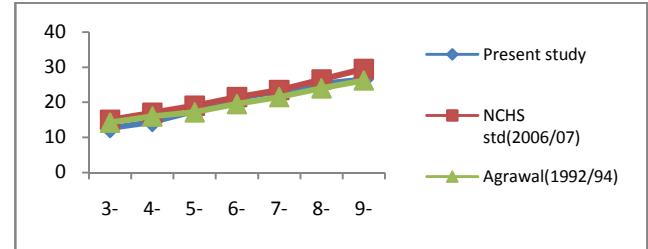
According to Food and Agriculture Organization of United Nation (FAO) report 7 in India nearly 217 million children were undernourished. India being the top most in the rank, it over crosses the Pakistan and Bangladesh. Thus the nutrition and hence the growth of children is one of the health concern in India. International union nutritional sciences⁵ had made recommendations for establishment of growth standard .It had also recommended that the studies be carried out in as large variety of countries as possible. It further mentions that each country's own standard must be derived from carefully selected samples representing children growing in an optimum environment for that country. This implies that data with regards to growth and developmental standards should be obtained from a large no. of healthy, normal children in the community in whom constraints imposed by malnutrition, infection, infestation, etc. do not exists. Keeping this in mind, we conducted this study on affluent class children. We compared our findings with Agarwal et al^{1,2} and WHO(NCHS)^{4,9} standards

**Graph 1:** Comparison of mean height (cm) of Boys with other studies.

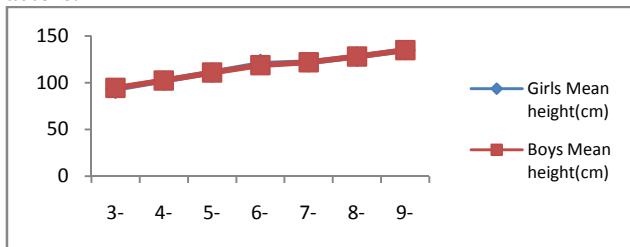
From graph I, It is seen that the mean height of the boys in the present study is comparable with that of NCHS study. However it is higher by 3.3 to 4.8 cm as compared to Agarwal^{1,2} et al.

**Graph 2:** Comparison of mean height (cm) of Boys with other studies

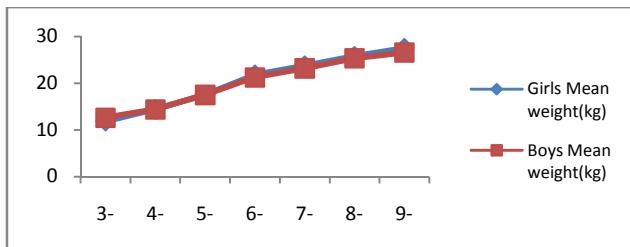
Similarly, the graph II, mean height in girls in present study is comparable with that of NCHS^{4,9} and it is higher by 0.38 to 6.2cm when compared with Agarwal et al.^{1,2}. This difference may be due to different food habits, genetic and environmental factors. It may reflect the secular trend in height as noted by krogman⁶ and Agarwal^{1,2} et al.

**Graph 3:** Comparison of mean weight (kg) of Boys with other studies**Graph 4:** Comparison of mean weight (kg) of Girls with other studies

From graph III, it is seen that the mean weight (kg) in boys in our study is lower than that of NCHS^{4,9}. However weight is higher than that of Agarwal et al.^{1,2} Similarly in graph IV the mean weight (kg) in girls in our study is lower than NCHS^{4,9}, and higher than that of Agarwal et al.^{4,9} This difference may be due to food habits in different regions, genetic, racial and environmental factors.



Graph 5: Comparison of mean height (cm) of BOYS with mean height (cm) of GIRLS of present study.



Graph 6: Comparison of mean weight (kg) of BOYS with mean weight (kg) of GIRLS of present study.

From graph IV, it is seen that the mean height (cm) of boys and girls goes hand in hand from age 3 to 10 yrs. Similarly, from Graph V, the mean weight (kg) of boys and girls go hand in hand till 6 yrs of age, there after weight gain in girls is higher than the boys by 0.78-1.4kg.

Conclusion

In the present study, an attempt has been made to establish the data of growth parameters of children of

affluent class of Western Maharashtra. The data collected in the present study is from few convent schools in Pune City. To have more realistic picture about these parameters population based multi centric studies on sufficiently large sample size should be conducted.

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