

Nutritional Status of urban primary school children in Meerut

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Citation

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Abstract

Objectives: To study the nutritional status of primary school children (5-11 years) in urban Meerut. **Study Design:** Cross-sectional. **Setting:** Govt. Primary Schools of Urban Meerut. **Participants:** 800 school children (5-11 years). **Methodology:** Out of a list of all govt. primary schools, 5 were randomly chosen. Students aged 5-11 years were included in the study. Weight and height of the children were recorded on a pretested Performa and were analysed. **Statistical Analysis:** percentages and Chi-square test. **Result:** Out of 800, 396 children (49.5 %) were found be malnourished. Grade I malnutrition was most common (35.5%) followed by grade II (11.4%) and grade III (2.6%) malnutrition.. Wasting was found in 44.6% children (46.3% girls and 43.2% boys) out of which 1.2% children showed severe degree of wasting. Stunting was found in 43.8% children (46.0% girls and 41.8% boys). **Conclusion:** Malnutrition can make learning difficult and can seriously hamper the educational process and the child's intellectual growth. Promoting appropriate dietary habits through effective nutrition education is an effective preventive method. Main focus should be on qualitative and quantitative improvements on the diets (increased intake of energy, protein, micronutrients) with increased awareness on importance of preventing under nutrition.

INTRODUCTION

Primary school age is a dynamic period of physical growth and mental development of the child. Research indicates that nutritional deficiencies and poor health in primary school age children are among the causes of low school enrolment, high absenteeism, early dropout and poor classroom performance.¹The present position with regard to the health and nutritional status of the children in our country is very unsatisfactory. Apart from mid day meal programme which is run by the Government of India in government run schools, there are no other efforts for children in age group 5-14 years. The NFHS data shows that 53% of children in rural areas are underweight in India and this varies across states.²The extent of stunted growth of children is also of concern and has consequences for schooling.

Objectives: To study the nutritional status of primary school children (5-11 years) in urban Meerut.

MATERIAL AND METHODS

The present cross-sectional study was carried out from March 2007 to October 2007 in urban area of Meerut. The study subjects were school going children (5-11 years). For the purpose of study, the urban area of Meerut district was

divided into four zones. A list of all government primary schools was taken and arranged according to the zones. Equal numbers of students were examined from the randomly selected school/ schools from each zone. The sample size of 384 was calculated assuming the prevalence of malnutrition as 50%, with relative precision of 10% at 95% confidence. This sample size was doubled in order to cover both boys and girls, & thus a total of 800 students (426 boys and 374 girls) were interviewed and examined. They were interviewed through oral questionnaire method and desired information was collected on pre-designed and pre-tested proforma. After collection, the whole data was compiled, analyzed and appropriate statistical tests were applied. The nutritional status was assessed by the quantitative classification given by Indian Academy of Paediatrics (1972)³ and wasting and stunting were assessed according to Waterlow classification.⁴

RESULTS:

Out of total 800 students (426 boys & 374 girls), Malnutrition was noted in 49.5% children. Grade I malnutrition was most comm. (35.5%) followed by grade II (11.4%) and grade III (2.6%) malnutrition. (Table I)

Figure 1

Table I: Weight for age as per IAP classification

Grades	Boys		Girls		Both Sex	
	No.	Percent	No.	Percent	No.	Percent
Normal	218	51.2	186	49.7	404	50.5
I	161	37.8	123	32.9	284	35.5
II	42	9.8	49	13.1	91	11.4
III	5	1.2	16	4.3	21	2.6
IV	-	-	-	-	-	-
Total	426	100.0	374	100.0	800	100.0

$\chi^2=10.58$; $df=3$; $P<0.05$

Table II shows that 55.4% children were found to be normal as per their weight for height, 44.6% children were wasted and 1.2% children showed severe degree of wasting. The children in the age group of 5-7 years were found to be at the highest (53.8%) risk of wasting.

Girls (46.3%) were affected more than the boys (43.2%) (Table III).

Figure 2

Table II: Nutritional status of children (wasting) as per age

Age in yrs	Nutritional status									
	Total children	Normal	%	Wasting						Total
				Mild	%	Mod.	%	Severe	%	
5-7	225	104	46.2	82	36.4	37	16.4	2	0.9	121
8-10	465	285	61.3	133	28.6	41	8.8	6	1.3	180
10+	110	54	49.1	42	38.2	12	10.9	2	1.8	56
Total	800	443	55.4	257	32.1	90	11.3	10	1.2	357

For calculation purpose moderate and severe degree of wasting was grouped together.

$\chi^2=15.97$; $df=2$; $P<0.001$

Figure 3

Table III: Nutritional status (wasting) as per sex

Sex	Nutritional status									
	No.	Normal	%	Wasted						Total
				Mild	%	Mod.	%	Severe	%	
Boys	426	242	56.8	143	33.6	38	8.9	3	0.7	184
Girls	374	201	53.7	114	30.5	52	13.9	7	1.9	173
Total	800	443	55.4	257	32.1	90	11.3	10	1.2	357

For calculation purpose moderate and severe degree of wasting was grouped together

$\chi^2=0.76$; $df=1$; $P>0.05$

Table IV shows 56.3% children were found to be normal as per their height for age, 43.8% children were stunted with 42.4% children showing mild degree and 1.4 % children moderate degree of stunting. The children above 10 years were the most affected. Girls (46.0%) were affected more than the boys (41.8%). (Table V)

Figure 4

Table IV: Nutritional status of children (stunting) by age

Age in yrs	Nutritional status									
	No.	Normal	%	Stunted						Total
				Mild	%	Mod.	%	Severe	%	
5-7	225	161	71.6	64	28.4	-	-	-	-	64
8-10	465	237	50.9	220	47.3	8	1.7	-	-	228
10+	110	52	47.3	55	50.0	3	2.7	-	-	58
Total	800	450	56.3	339	42.4	11	1.4	-	-	350

$\chi^2=30.29$; $df=2$; $P<0.001$

Figure 5

Table V: Nutritional status of children (stunting) as per sex

Sex	Nutritional status									
	No.	Normal	%	Stunted						Total
				Mild	%	Mod.	%	Severe	%	
Boys	426	248	58.2	171	40.1	7	1.6	-	-	178
Girls	374	202	54.0	168	44.9	4	1.1	-	-	172
Total	800	450	56.3	339	42.3	11	1.4	-	-	350

$\chi^2=1.43$; $df=1$; $P>0.05$

DISCUSSION

In the present study, 50.5% children had normal weight for age which is a little higher than that reported by Panda et al⁵ (2000) and Semwal et al⁶ (2005). In the present study Grade I was the most common (35.5%) followed by grade II (11.4%) and grade III (2.6%) malnutrition. None of the children had grade IV malnutrition. Sharma et al⁷ (1982) reported malnutrition in 52.98% children with grade I malnutrition being the most common (59.96%) while Prakash et al⁸ (2002, Jhansi) observed 51.9% children having normal nutritional status followed by grade I (21.9%), grade II (18.57%) and grade III (6.60%) malnutrition. In the present study, 55.4% children were found to be normal as per their weight for height, 44.6% children were malnourished and 1.2% children showed severe degree of wasting. The children in the age group of 5-7 years were found to be at the highest (53.8%) risk of wasting. These findings are lower than those reported by Panda et al (52.2%) and Semwal et al (52.6%). Present study reported 46.3% girls and 43.2% boys as wasted with 1.9% girls and 0.7% boys showing severe degree of wasting ($p>0.05$) which is higher than that reported by Khalil et al⁹ (2004, Aligarh) who reported the prevalence of wasting in boys and girls 32.76% and 28.12% respectively. Present study showed 56.3% children to be normal as per their height for age, 43.8% children were malnourished with 42.4% children showing mild degree and 1.4 % children moderate degree of stunting. The children above 10 years were the most affected. Panda et al⁵ and Semwal et al⁶ reported mild stunting in only 20.7% children and moderate/severe degree

of stunting in 5.5% and 5.6% children respectively. Present study reported stunting in 46.0% girls and 41.8% boys ($p>0.05$) which is lower than that reported by Khalil et al who observed stunting in 79.73% boys and 81.80% girls.

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