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Research Article

### ASSESSMENT OF NUTRITIONAL STATUS OF SCHOOL GOING CHILDREN IN ANDHRA PRADESH

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#### ABSTRACT

**Objective:** In developing countries malnutrition poverty and low socioeconomic status major contributors for high mortality and morbidity. Assessment of nutritional status of school going children in and around teaching hospital in Andhra Pradesh. School environment and maintenance of school health records do play a vital role in monitoring nutritional status of school children.

**Methods:** 1050 children between age group of 6-12 years were taken randomly and Anthropometric measurements- includes weight, height, head circumference, chest circumference, body mass index, skin fold thickness, Socioeconomic status were recorded.

**Results:** A total of 1050 children between the age groups 6-12 were included in the study. Out of which 503(47.9%) were boys and 547(52.1%) were girls. The maximum boys were in the age group of 11, (80,15.9%) and maximum girls were in the age group of 10 years (88,16.08%). Vitamin A deficiency was seen in 188 (17.9%), anemia was found in 24.48%, 869 (82.76%) were underweight

**Conclusion:** Large number of children were from lower middle and upper lower socioeconomic class, the morbidity pattern indicates a prevalence of common vitamin A deficiency, anemia and malnutrition is found to be high in developing countries so periodic surveys, health check up camps and education are need of the hour for better health of children so that mortality and morbidity are under check

**Keywords:** Malnutrition, Vitamin A Deficiency, Body Mass Index, Anemia, Socioeconomic Status, School Children.

#### INTRODUCTION

Nutritional status is the condition of health of an individual as influenced by nutrient intake and utilization in the body. Malnutrition is major public health problem in developing countries. Freedom from hunger and malnutrition is a basic human right and their alleviation is fundamental prerequisite for human and national development<sup>1</sup>. The school age period is nutritionally significant because this is the prime time to build up body stores of nutrients in preparation for rapid growth of adolescence. Nutrition plays a vital role, as inadequate nutrition during childhood may lead to malnutrition, growth retardation, reduced work capacity and poor mental and social development<sup>2</sup>. The most important nutritional problem in the world today is protein energy malnutrition.<sup>3</sup> In developing countries like India various forms of malnutrition affect a large segment of population and both macro and micronutrient deficiencies are of major concerns. It is only in recent times that attempts to define not only the extent of clinical and sub clinical forms of malnutrition in

communities have been made but also determines the causal factors of malnutrition. Various surveys carried out in different developing countries including India, have shown that etiology of malnutrition is complex and often defines clear cut elucidation. Nevertheless, systemic investigations revealed that the main causes of malnutrition are poverty, ignorance, and the infection which are interlinked with one another to form a web of socioeconomic complex.

#### MATERIALS AND METHODS

The study was carried out in the schools surrounding rural teaching hospital in Andhra Pradesh. The Government primary and high schools were included. A total of 1050 children between age group of 6-12 years were taken randomly out of which 503 boys and 547 were girls. Systematic sampling technique was used to choose the sample size. Anthropometric measurements, clinical examination and information were collected from the child. The nature, purpose, objective of the study was explained to them before hand and

permission from higher authorities of the concerned schools were taken.

Anthropometric measurements- include weight, height, head circumference, chest circumference, body mass index, skin fold thickness.

Socioeconomic status of the family was taken according to Kuppuswamy's classification<sup>4</sup>.

## RESULTS

A total of 1050 children between the age groups 6-12 were included in the study, out of which 503(47.9%) were boys and 547(52.1%) were girls. The maximum boys were in the age group of 11, (80, 15.9%) and maximum girls were in the age group of 10 years (88, 16.08%).

**Table 1: Distribution of School Children According to Age and Sex**

Age group	Boys No.	Percentage	Girls No.	Percentage	Total No.	Percentage
6	69	46	81	54	150	14.28
7	72	48	78	52	150	14.28
8	72	48	78	52	150	14.28
9	74	49.30	76	50.7	150	14.28
10	62	41.3	88	58.7	150	14.28
11	80	53.3	70	46.7	150	14.28
12	74	49.3	76	50.7	150	14.2
total	503	47.9	547	52.1	1050	100

Majority of the children belonged to socioeconomic class III and IV i.e. 599(57.05%) and 330(31.43%) respectively. Among the 1050 children, 188(17.9%) were found to have vitamin A deficiency out of which 116 (11.05%) were boys and 72 (6.86%) were girls, and 257 were anemic out of which 73 (6.95%) were boys and 184 (17.52%) were girls.

Out of 1050, 926 children were below average weight for age showing under nourishment, out of which 451 (42.95%) were boys and 475 (45.24%) were girls.

513 (48.86%) children fall into normal range with average BMI (body mass index) of 14.23.(table 2)

**Table 2: Distribution of School Children According to IAP Grading of Malnutrition and BMI**

IAP grading of Malnutrition	No. of Children	Percentage	Average BMI
>80 NORMAL	513	48.86	14.23
71-80 GRADE I	400	38.10	13.39
61-70 GRADE II	125	11.9	12.81
51-60 GRADE III	12	1.14	12.22
<50 GRADE IV	-	-	-
Total	1050	100	

Note: IAP – Indian Academy of Pediatrics

**Table 3: Distribution of school children according to age, skin fold thickness and BMI**

Age in years	Avg. Skin fold thickness(mm)		Average BMI	
	Boys	Girls	Boys	Girls
6	6.74	6.72	13.66	13.27
7	7	6.83	13.27	12.99
8	6.9	6.92	12.9	13.15
9	7.42	7.48	13.47	13.52
10	7.27	7.64	14.39	14.27
11	8.52	8.89	14.79	15.06
12	8.82	9.26	14.44	14.24

## DISCUSSION

Health of child in developed as well as in developing countries is a serious public health problem. However due to various factors like lack of knowledge, attitude, practice and inadequate facilities for care makes this problem appear like an iceberg. To achieve such goal, it is necessary to study the magnitude of the problem, various factors contributing to the problem, implementation of some intervention strategies and study of constraints involved in their successful implementation.

The distribution of the population of school children under study consists of 1050 children, out of which 47.9% were boys and 52.1% were girls whereas the study conducted by Sharad et al<sup>6</sup> showed out of 540 children 49% were girls and 51% were boys.

Vitamin A deficiency was seen in 188 (17.9%) children whereas in the study conducted by Sharma et al<sup>7</sup> 40.7% of the children were vitamin A deficient.

In this study anemia was found in 24.48% of children whereas Sharad et al<sup>5</sup> studied 540 school children out of which 38% were anemic. Weight for age is the most sensitive index to

evaluate the nutritional status of school going children. In this study 88.19% of children were below average weight for age out of which 42.95% were boys and 45.24% were girls. Prabhakar et al 7 reported 40.75% prevalence of malnutrition while Sharad et al 5 reported 18.9%.

In this study out of 1050 children, 869 ( 82.76%) were underweight i.e BMI < 15 and 181 (17.24%) were normal. Elizabeth KE <sup>4</sup> had done a study on body mass index and found that out of 1303 children 86.9% were normal , 11.9% were underweight and 0.05% were obese in the present study no overweight and obese children were found.

### CONCLUSION

This study was conducted in slums area surrounding rural teaching hospital. A total of 1050 children were included out of which girls were more compared to boys. Majority of the children were from lower middle and upper lower socioeconomic class. The morbidity pattern indicates a prevalence of common vitamin A deficiency , anemia and malnutrition and then provides an ideal milieu for intervention strategies. Most of the children were malnourished and underweight according to body mass index.

School environment and maintenance of school health records do play a vital role in monitoring nutritional status of school children as well as evaluation of school health services.

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