

MALNUTRITION AMONG PRIMARY SCHOOL CHILDREN IN HYDERABAD, ANDHRA PRADESH, INDIA

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Abstract— 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.¹ Malnutrition remains the world's most serious health problem and the single biggest contributor to child mortality, nearly one third of the children in the developing world are either underweight or stunted and more than 30% of the developing world's population suffer from micronutrient deficiencies. However the data available from urban slums of Hyderabad in this age group is very sparse and hence an attempt has been made to study the same.

Key words— Malnutrition, Underweight, Stunted Height.

I. INTRODUCTION

The health of children is of fundamental importance in every country. The school children population approximate one –fifth of the total population and forms the future hope of the Nation. ‘‘Health of the children is the wealth of the nation’.

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.¹ Malnutrition remains the world's most serious health problem and the single biggest contributor to child mortality, nearly one third of the children in the developing world are either underweight or stunted and more than 30% of the developing world's population suffer from micronutrient deficiencies. More broadly, malnutrition in India is in a state of ‘‘Silent Emergency’’and there by demand greater priority than ever before, the nutritional state of population therefore critical to the development and well being of the nation.²

The prevalence of underweight children in India is highest in the world. Child malnutrition in school going children is responsible for 22% of the county's burden of disease.³

Nearly 12 million children, who die each year in developing countries mainly from preventable causes, the

deaths of over six million or 55%, are either directly or indirectly attributed to malnutrition. The economic cost of malnutrition is very high. Atleast one third of poor countries disease burden is due to malnutrition.⁴ However the data available from urban slums of Hyderabad in this age group is very sparse and hence an attempt has been made to study the same.

II. AIMS AND OBJECTIVES:

1. To determine the underweight and stunted height among school children in urban areas of Hyderabad
2. To study the factors associated with it.

A. MATERIAL AND METHODS

Study population: Primary school children (6 to 11 years).Study area:- Primary schools in urban slums of Hyderabad.

Study design: - A cross sectional study.

Study variables: - Socio-demographic variables (Age, Sex, Caste, Religion,), Nutritional status (Height, Weight)

Sample size : 384 children .($4PQ/L^2$ where P= Prevalence of malnutrition taken as 50% (Maximum allowable prevalence) Q=1-P , L=Precision (5%)

Sampling methods:

The list of the schools (8) was obtained from the Office of the District Educational Officer, Ranga Reddy District. By simple random sampling technique, 6 Private schools were selected for the study.

All Children of both sexes in the age group of 6-11 years were covered in these schools.

Inclusion criteria: - Children of age group of 6-11 years.

- All those who were present on the day of examination.

Exclusion criteria: Children those who were absent on the day of examination.

Data collection: By using pre designed and pre tested and pre coded schedule (interview technique, observation, clinical examination).

Permission of the District Educational officer, Ranga Reddy district was obtained before the initiating the study and permission from head of institution was taken.

Ethical clearance: Taken from Ethical committee of Osmania medical college, Koti, Hyderabad.

Help of class teacher was taken to record exact date of birth of the student, religion, parent's education and occupation.

STANDARDS FOR ASSESSMENT OF NUTRITIONAL STATUS OF SCHOOL CHILDREN:

Anthropometry: The following parameters have used for the assessment of nutritional status.

- a) Height.
- b) Weight.
- c) Body Mass Index

These were measured as follows:

Height: Height was measured by using stadiometer. Standing height was measured (to 0.5cms) with height measuring rod, without shoes, the child standing erect and looking straight so that the inferior orbital margin and the tragus of the ear fall in a horizontal plane parallel to the ground. This process was repeated thrice and the consistent findings were recorded.

Weight: An electronic weighing scale was used to measure the weight in kilograms. The scale was calibrated. Zero error was checked, children were without shoes, in shirt and trousers or skirt. The weighing machine was placed on a firm and flat ground. Weight was recorded to the nearest 100 grams. The same balance was used throughout the study.

Body Mass Index: The BMI was calculated using anthropometric measurements (height and weight).

The index of nutritional status i.e Body Mass Index and Height for age was expressed in standard deviation units (Z scores) from reference median as recommended by WHO 5

Data compilation and analysis: All the data collected was entered and analyzed with MS excel software 2007 and Epi info 3.5.3

Z score by WHO standards were derived by Anthro+ package of WHO for nutrition status classification. All tests were considered significant at $p < 0.05$ level.

RESULTS: As the age increases enrollment of students is also increased. Almost equal gender wise distribution was found among male 209(50.7%) and females 203(49.3%) In the study population 59.7% Hindus, 13.3% were muslims and 26.9% were christians. It was found that 12.1% of Fathers of the school children are illiterate, 87.6% were literate. Most of the mothers of children were literate (80.3%), 19.7% were illiterate. Occupation of the fathers of children was unskilled work (46.6%), followed by skilled work (28.4%), semiskilled work(25.0%). Mothers of majority of the children were semiskilled (47.3%) followed by Unskilled worker (44.2%) and unemployed (8.5%). [Tab. no 1]

TABLE. 1: SOCIO DEMOGRAPHIC PROFILE OF THE STUDY POPULATION

Age in years	No. (%)
6-7	57(13.8)
7-8	74(18.0)
8-9	84(20.4)
9-10	92(22.3)
10-11	105(25.5)
Sex	
Male	209 (50.7)
Female	203 (49.3)
Religion	
Hindu	246(59.7)
Muslim	55(13.3)
Christian	111(26.9)
Father's Education	
Illiterate	51(12.4)
Literate	361(87.6)
Mother's education	
Illiterate	81(19.7)
Literate	331(80.3)
Father's occupation	
Unskilled workers	192(46.6)
Semiskilled workers	103(25.0)
Skilled worker	117(28.4)
Mother's occupation	
Unemployed	35(8.5)
Unskilled worker	182(44.2)
Semiskilled	195(47.3)

TABLE. 2: NUTRITIONAL STATUS OF THE STUDY POPULATION

Body mass index	No (%)
Normal weight (> -2Zscore)	237(57.5)
Underweight (< -2Zscore)	119(28.9)
Overweight (> +1Z score)	38(9.2)
Obese (> +2Z score)	18(4.4)
Height for Age	
Normal height (> -2 Z score)	322 (78.2)
Stunted height (< -2Zscore)	90 (21.8)

The prevalence of underweight was 28.9%, overweight was 9.2% and obesity was 4.4%. Prevalence of stunted height was found among 21.8% of children [Tab. 2]

TABLE. 3: FACTORS AFFECTING THE NUTRITIONAL STATUS:

The prevalence of underweight (39.5%), stunted height(58.8%), were higher in children of illiterate fathers than children of literate fathers. This was found statistically significant.

The prevalence of underweight (29.6%) stunted height (33.3%), were statistically significantly higher in children of illiterate mothers than children of literate mothers ($p < 0.05$)

The prevalence of underweight (35.9%), stunted height(26.0%), were significantly higher in children of unskilled worker fathers than children of skilled worker fathers .

The prevalence of underweight (68.7%), stunted height (31.4%), was significantly higher in children of unemployed mothers than children of skilled worker mothers .[Tab. 3]

III. DISCUSSION.

In the present study, prevalence of underweight was 28.9%, **Rachana Bhoite et al** ⁶ in their study found the prevalence of underweight was 70%.

Overweight was present in 9.2% and obesity in 4.4% where as study conducted by **Charles Dabone et al** ⁷ showed Overweight/obesity was low (2.3%) .

Prevalence of stunted height was found among 21.8% of children. Study conducted by **Izharul Hasan et al** ⁸ found the prevalence of stunting was 40.4%.

The prevalence of underweight (39.5%), stunted height(58.8%), were significantly higher in children of illiterate fathers than children of literate fathers.

Chandra et al ⁹ in a survey of nutritional assessment of school children found a significant association was found between underweight/lean BMI of child with literacy status of father. **Neelu Saluja et al** ¹⁰ in their study shows the difference in morbidity with literacy status of parents was found to be statistically significant ($p < .001$) being maximum in children of illiterate parents.

The prevalence of underweight (29.6%) stunted height(33.3%), were statistically significantly higher in children of illiterate mothers than children of literate mothers ($p < 0.05$)

Nabeela Fazal Babar et al ¹¹ in their study found Prevalence of malnutrition was 42.3% among children of illiterate mothers as compare to 20% in those of literate mothers.

Joshi HS et al ¹² in their study found highly significant association ($p < 0.005$) of maternal occupation with child nutrition. **Anurag Srivastava et al** ¹³ in their study found risk of malnutrition was significantly higher in children of illiterate mothers.

IV. CONCLUSIONS:

A total of 412 children from primary participated in the study.

The prevalence of underweight was 28.9%, overweight was 9.2% and obesity was 4.4% . Prevalence of stunted height was found among 21.8% .

The prevalence of underweight, stunted height, was found to be significantly higher in children of illiterate parents' and similiarly in unskilled worker fathers' and unemployed mothers.

V. RECOMMENDATIONS:

1. A regular health check up should be organized by school authority in coordination of teachers and parents.
2. Health education should be given to the children and parents about nutritional deficiencies and infections.
3. Teachers should be trained to identify the common symptoms of nutritional deficiencies and other common morbidities in school children and take necessary measures for the same.

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