

# A study on Nutritional Assessment of School – going Children

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## Abstract:

Children stunted at school-age are likely to have been exposed to poor nutrition since early childhood and the degree of stunting tends to increase throughout the school-age years. However, children can exhibit catch up growth if their environment improves. Generally malnutrition and stunted growth appears among school going children, for this purpose the topic were selected. The objective of the present study is to assess the nutritional status of school going children. The group comprised of 100(boys) school going children were taken and the sample were selected from Govt. school, kakani, Guntur District, Andhra Pradesh, India. Anthropometric data on height and weight of boys were measured and Body mass index (BMI; kg/m<sup>2</sup>) was used to evaluate the nutritional status of the subjects. Nutrient intakes were calculated under dietary assessment. The study indicates that there were lower consumption in several macro and micro nutrients intake compared to Recommended Dietary Allowances (RDA) of India, which may be reflected on their nutritional status.

**Key words:** School going children, BMI and Nutrient intakes

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## Introduction:

The UNICEF reported that 150 million children are malnourished worldwide. One in every three malnourished children lives in India (Meera, 2009). According to the World Health Organization, an estimated 250 million children in more than 100 countries are vitamin A deficient (Laxminarayan et al., 2008).

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. Usually referred to as silent emergency, it has devastating effects on children, society and future humankind. The term malnutrition refers to both under nutrition as well as over-nutrition. Better nutrition means stronger immune system, less illness, better health and productive community.

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. 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 (Awasthi et al., 2001).

In children, protein/calorie deficient diet results in underweight, wasting and lowered resistance to infection, stunted growth and impaired cognitive development and learning. The situation of child malnutrition is also grave in Haryana state as according to National Family Health Survey (2005-2006), the prevalence of wasted, stunted and underweight children in this state was found to be 19, 38 and 46 percent, respectively.



### Materials and Methods:

**Data:** The objective of the present study is to assess the nutritional status of school going children. The group comprised of 100 (boys) school going children were taken and the sample were selected from Government School, kakani, Guntur District, Andhra Pradesh, India. The age of the children was 12 years.

### Anthropometric measurements

Anthropometric measurements like height, weight of the children was measured using the method described by Jelliffe (1966).

### Body Mass Index (BMI)

BMI is also known as Quetlet index. BMI was calculated using the formula:  $BMI = \text{Weight (Kg)} / \text{height (m}^2\text{)}$ . The size and weight were used to determine the body mass index (BMI) according to the formula, weight (Kg) divided by the square of height (m<sup>2</sup>) (Kg/m<sup>2</sup>). BMI categories were selected in accordance with WHO recommendations.

Diet survey was carried out by weighing method (Rao *et al.*, 1986). Quantitative dietary assessment was done through actual weighing of raw food item. The average dietary intake of food per item was calculated and was compared with the RDA (Recommended Dietary Allowances) of India using the values as per 'Nutritive Value of Indian Food' (Gopalan *et al.*, 2006).

### Results and Discussion:

S.no	Anthropometric Measurements	Mean± SD	Standards
1.	Height (cm)	137.5±12.9	151.5
2.	Weight (k.g)	32.41±20.8	41.5
3.	BMI	17.7± 9.7	20.25

**Table 1: Anthropometric measurements of School going**

Table 1 Shows the mean Height of the subjects were 137.5±12.9 cm. The mean heights were compared to ICMR (Indian Counsel of Medical Research) standards. The Heights of the boys were slightly lower than the standards due to genetic factor and physical activity. The mean values of weight of the boys were 32.41±20.8 cm. Body mass index of the boys were 17.7± 9.7 kg. Body mass index of the boys were below when compared to the standard values. (Hasan *et al.*, 2011) conducted nutritional assessment study among 500 children in three Government Urdu higher primary schools of Azad Nagar and its surrounding area. The overall prevalence of malnutrition in the school children was founded and stunted growth observed among children.

S.No	Nutrients	Mean± SD	Standards
1	Energy(k.cal)	1127.8±80.2	2190
2	Protein (g)	53.4 ±9.5	54
3	Iron (mg)	18.7 ±4.4	34
4	Calcium(mg)	531.9 ±59.1	600
5	β- Carotene (ug)	891.4 ±93.7	2400
6	Vitamin C( mg)	37.2 ± 8.2	40
7	Folic acid (ug)	82.9 ±5.6	70

**Table 2: Nutrient intakes of School going Children (boys)**



Table 2 shows the mean Nutrient intake of boys, the mean nutrient (macro and micro) intake per consumption unit per day among boys. The mean calories intakes among boys were ( $1127.8 \pm 80.2$  kcal). The mean protein intakes among boys were ( $53.4 \pm 9.5$ gms). The mean intake of calories and protein were lower when compared to Recommended Dietary Allowances (RDA) of India. Calcium and iron were lower than the standards.  $\beta$ - Carotene and vitamin C were also below the standards. Folic acid is slightly higher than the standards. Kumari and Singh (2001) and Sankhala *et al.*, (2004) in their study on nutritional status of the children reported similar pattern of low intakes of almost all the essential nutrients and reported that long time inadequate of nutrient intake will lead of nutritional deficiency diseases. a recent assessment of the vitamin A status of school children in Tanzania, Ghana, Indonesia and Vietnam found that that VAD was a severe public health problem in Tanzania (30% deficient in vitamin A), a moderate problem in Ghana and a mild problem in Indonesia and Vietnam according to WHO criteria ( PCD, 2000).The present study results are in accordance with the studies. In Cameroon, a study of the relationship of the effect of the parasite, *Onchocerca volvulus* on plasma vitamin A levels in 261 school children reported sub-clinical vitamin A deficiency in over 80% of the children. Children showed significantly lower vitamin A concentrations in their plasma compared to children without infections69 Zambou *et al.*, 1999).

### Conclusion:

The present study showed that, the rural school going children of kakani, Guntur district are suffering from different grades of malnutrition. Mothers of these children should be educated about the importance of balanced diet. Consumption of foods like cereals, pulses, green leafy vegetables, roots and tubers, sugar and jaggery, fats and oil, milk and milk products, Meat and poultry, Fish and other sea foods, fruits etc., should be promoted. Government should introduce awareness programs and Implementation is very important.

### References:

1. Awasthi CP, Kumar S, Tiwari PP, Singh AB (2000) Nutritional status of preschool and school children in rural area of Sultanpur district. *J Dairying Foods& Home Sci.* 19: 16-21.
2. Gopalan, C., Ramsastri, B.V. and Balasubramaniam S.C.: *Nutritive value of Indian Food*. Indian Institute of Nutrition, Hyderabad,(2006).
3. Hasan I, Zulkifle M, Haseeb A. An assessment of nutritional status of the children of government urdu higher primary schools of Azad Nagar and its surrounding areas of Bangalore. *Archives of Applied Science Research.* 2011;3 (3):167-176.
4. Jelliffe, D.B.: The Assessment of the Nutritional Status of the Community. *WHO Monograph Series* No. 56, WHO, Geneva (1966).
5. Kumari, S., and Singh, S., (2001). Nutritional Status of Children (6- 12 years) belonged to Scheduled Caste: A study in Samastipur district of Bihar. *Ind.J.Nutr.Diet.*, 38; 428.
6. Laxminarayan, Chow, Klein and Whitacre, (2008). Recipe to Fight Vitamin A Deficiency in India: Add mustard and stir? Fall/winter, 2008 Issue of Resources.
7. Meera Raman, (2009). Childhood Nutrition. *Health Action.*, 22(5).
8. National Family Health Survey-3 (2007) NFHS (2005-2006) report: Fact sheet Haryana key indicator for Haryana.



9. National Nutrition Monitoring Bureau Annual Reports (1988)-Natfona/ *Institute of Nutrition*, Indian Council of Medical Research, Hyderabad.
10. Partnership for Child Development (2000) The Vitamin A status of school children in Ghana, Tanzania, Indonesia and Vietnam (Draft).
11. Rao, N.F., Camnath, T. and Sastry, J.G. Diet and nutrition in urban areas. *Proc. Nutr. Soc.*, (1986).32:91-99.
12. Sankhala,A., Sankhla, A. K., Bhatnagar, B., and Singh, B., (2004). Dietary Status of Children of Udaipur District, *Anthropologist.*, 6 (4): 257- 259.
13. World Health Organization (WHO). Physical Status: the Use and Interpretation of Anthropometry. Technical Report Series no. 854. Geneva: World Health Organization, 1995.
14. Zambou NF, *et al* (1999) Effect of *Onchocerca volvulus* infestation on plasma vitamin A concentration in school children in a rural region of Cameroon. *Sante* 9(3): 151-5.

