

A Descriptive Cross-Sectional Study to Assess Prevalence of Mal-Nutrition in School Going Children

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Conflict of interest: Nil

Abstract

Background: To determine the prevalence of malnutrition in 6-14 yrs old children.

Methods: A cross sectional descriptive study was carried out involving 1000 children in the age group 6 to 14 years from urban and rural areas.

Results: In present study (based on Weight-for-Age criteria), majority of the study population (80.00%) were well nourished, 19.00% children were found underweight and 1.00% were overweight.

Conclusion: This study shows that malnutrition are also widely prevalent in schoolchildren in rural and urban, and it underlines the need for nutrition interventions to target them.

Keywords: Malnutrition, Rural, Urban.

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Introduction

Malnutrition is basically cellular imbalance between the supply of nutrients and energy and the body's demand to ensure growth, maintenance and specific body functions [1-2]. Thus, Malnutrition is a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients. It comprises four forms- undernutrition, overnutrition, imbalance and the specific deficiency. [3]

Malnutrition is "not so silent" emergency in India also. The global community has designated having the prevalence of underweight children by 2015 as a key indicator of progress towards the Millennium Development Goal (MDG) [4] Economic growth alone, though impressive will not reduce malnutrition sufficiently to meet nutrition target. 'End hunger, achieve food security

and improved nutrition and promote sustainable agriculture' is one of the goals of Sustainable Development Goal (SDG) [5]

Malnutrition is more common in India than in Sub-Saharan Africa. in every 3 malnourished children in the world lives in India. [6] Approximately 60 million children are underweight in India. India ranks second only after Bangladesh with regards to the prevalence of underweight children in the world. India has 49 % of underweight children which contributes to 39 % of the world's underweight children. [7] Child malnutrition is responsible for 22 percent of India's burden of disease. Given its health impact, education and productivity, persistent undernutrition is major obstacle to human development and economic growth in the country, especially among poor and the vulnerable,

rural areas where the prevalence of malnutrition is highest. The children living in rural areas of India disproportionately suffer from undernutrition compared with their urban counterparts. [8]

Methods

We conducted a cross-sectional study. The city and its rural areas were covered in this study. In the present study, I took 500 study subjects (6-14 years children) from each area i.e. from rural and urban area making total study population of 1000. We use Stratified Random Sampling technique.

Anthropometric Measurements:

In present study, Nutritional status of children was assessed through standardized indices (height for age, BMI

for age, weight for age). The anthropometric measurements were taken following the standard techniques recommended by Jelliffe³.

Statistical Analysis:

Data entry and statistical analysis was performed with the help of Microsoft Excel and SPSS version 17. Continuous variables were presented as mean and standard deviations while categorical variables were presented as number and percentage. Chi-square test was used to compare differences in categorical variables and independent t-test and z test for continuous variables. P value <0.05 (at 95% confidence interval) was considered to indicate statistical significance.

Results

Table 1: Distribution of study population according to Weight-for-Age

Weight for age	Frequency	Percentage (%)
Underweight (<-2SD)	190	19.00
Normal weight (-2SD to +2SD)	800	80.00
Overweight (>+2SD)	10	1.00
Total	1000	100.00

In present study (based on Weight-for-Age criteria), majority of the study population (80.00%) were well nourished, 19.00% children were found underweight and 1.00% were overweight.

Table 2: Distribution of study population according to Height-for-Age

Height for age	Frequency	Percentage (%)
Stunted (<-2SD)	90	9.00
Normal Height	910	91.00
Total	1000	100.00

In present study, most of the study population (91.00%) was having normal height for age and 9.00% children were found stunted.

Table 3: Distribution of study population according to BMI-for-Age

BMI-for-age	Frequency	Percentage (%)
Thinness (<-2SD)	220	22.00
Normal BMI (-2SD to +2SD)	760	76.00
Obese (>+2SD)	20	2.00
Total	1000	100.00

BMI-for-age, thinness was present in 22.00% children and 2.00% children were

obese. The overall prevalence of malnutrition (including thinness and obese) was found to be 22.00%.

Discussion

In present study, 19.00% school children were found underweight, 0.70% were overweight and rest 80.00% children were normal.

Almost similar prevalence of underweight were obtained in studies conducted by Mukherjee R et al (2008) [9] and Puthia R (2009) [10]

Much higher prevalence of underweight was found in studies conducted by Saluja N et al (2009) [11] (49.5%), World Bank (2009) [12]. The reason of such vast difference in prevalence of underweight may be that these studies were conducted in different geographical areas which are different in their age and sex composition of the population, literacy status of parents, socio-economic status, food habits and dietary practices etc. Another reason for low prevalence of underweight in present study may be that in other studies, where prevalence of underweight was quite higher, different classification systems were used, e.g. Gomez's classification, IAP classification, NCHS standards etc. and mild underweight children were also included in the overall prevalence. While, in this study, WHO-Z score (2007) was used to define underweight. Only moderate and severe undernourished children were included in underweight.

In present study among 1000 school children, 9.00% children were found stunted and rest 91.00% children were found normal (based on height for age). Almost similar prevalence of stunting was found in studies conducted by Osei A et al (2010) [13] (56.1%), where prevalence of stunting was much higher than present study. Stunting reflects long-term malnutrition, and is influenced by parental attitudes and child care practices accumulating over a long period of time. The reason of vast difference observed in prevalence of stunting may be that these studies were conducted in different

geographical areas which are different in their age and sex composition of the population, literacy status of parents, socio-economic status, food habits and dietary practices etc. [14]

Conclusion

This study shows that malnutrition are also widely prevalent in schoolchildren in rural and urban, and it underlines the need for nutrition interventions to target them.

References

1. Cravioto J. and Delicardie ER. Malnutrition in early childhood. *Food and Nut*, 1976; 2: 2-11.
2. Onis M de, Monteiro C, Clugston G (1993). The worldwide magnitude of protein-energy malnutrition: an overview from the WHO Global Database on Child Growth. *Bulletin of the World Health Organization*. 1993;71(6)
3. Jelliffe D.B. The Assessment of the Nutritional Status of the Community. WHO Monograph Sr. No. 1996; 53: 132:209.
4. Millenium Development Goals Report 2009. [Internet] Available from: http://www.un.org/millenniumgoals/pdf/MDG_Report_2009_ENGpdf
5. Sustainable Development Goals Report 2015. Transforming our world: the 2030 Agenda for Sustainable Development. [Internet] Available from: http://www.un.org/millenniumgoals/pdf/SDG_Report_2015_ENGpdf
6. Nikolaos Katsilambros. *Clinical Nutrition in Practice*. John Wiley & Sons. 2011; 37.
7. UNICEF, State of World Children. 2006. [Online] Available from: www.unicef.pt/sowc06/index.html.
8. Rajaram S, Zottarelli LK, Sunil TS.

- Individual, household, programme and community effects on childhood malnutrition in rural India. *Matern Child Nutr.* 2007; 3 (2): 129-140.
- 9 Mukherjee R, Chaturvedi S, Bhalwar R. Determinants of Nutritional Status of School Children. *Medical Journal of Armed Forces Institute.* 2008; 64: 227-31.
- 10 Dutta A, Pant K, and Puthia R. Prevalence of undernutrition among children in the Garhwal Himalayas. *Food Nutr Bull.* 2009 Mar;30(1):77-81.
- 11 Saluja N, Bhatnagar M, Garg SK, Chopra H, Bajpai SK (2009). Nutritional Status of urban primary school children in Meerut. *The Internet Journal of Epidemiology.* 2009;8:1.
- Available from: <http://ispub.com/IJE/8/1/6867>.
- 12 World Bank (2009). undernourished. chapter 1 [Internet]. Available from: www.worldbank.org. Retrieved. 2009-12-2.
- 13 Osei A, Houser R, Bulusu S, Joshi T, Hamer D. Nutritional status of primary school children in Garhwali Himalayan villages of India. *Food Nutr Bull.* 2010 Jun;31(2):221-33.
- 14 Abdulhadi Z. T., & Muhsin Z. Y. Footprints to achieve digital smile design and esthetic: Narrative review. *Journal of Medical Research and Health Sciences.* 2023; 6(2): 2430–2440.