Letter to Editor

Nutritional And Health Status Of Rural School Children In Ratnagiri District Of Maharashtra.

PATIL S N*, WASNIK V R
*,**B. K. L. Walawalkar Hospital Diagnostic & Research Centre Shreekshetra Dervan, Tal: Chiplun, Dist: Ratnagiri 41560 Maharashtra,(INDIA).

Correspondence Address :
Dr.Vinod Wasnik,
Community Health Physician, Community Health Department,
B. K. L. Walawalkar Hospital Diagnostic & Research Centre,
Shreekshetra Dervan, Tal: Chiplun, Dist: Ratnagiri   41560 Maharashtra, (INDIA).
Phone : (02355) 264137, 264149. Fax : 02355-264181, E - mail : vinod_psm@yahoo.co.in

Sir,
The health problems of school children vary from one place to another. The common health problems are malnutrition, dental caries, infectious diseases, diseases of the skin, eye and ear diseases and infestation by intestinal parasites (1).

Undernutrition, the primary cause of illness and premature mortality among children in developing countries (2), is prevalent among children in almost all the states in India (3). Children residing in rural areas of India, disproportionately suffer more from undernutrition when compared to their urban counterparts (4). Although several recent studies have assessed the problem of undernutrition among rural children in different parts of India, there is scanty information regarding undernutrition among the rural school children of Ratnagiri District in Maharashtra.

Three commonly used indicators of under nutrition among children are stunting (low height for age), thinness (low body mass index for age) and that of being underweight (low weight for age). Stunting is an indicator of chronic under nutrition, the result of prolonged food deprivation and/or disease or illness; thinness is an indicator of acute under nutrition, the result of more recent food deprivation or illness; being underweight is used as a composite indicator to reflect both acute and chronic under nutrition, although it cannot distinguish between them. Over 40% of Indian children are found to be afflicted with dental caries, a common dental disease among children, a large percentage of them residing in rural areas and most of them are in need of dental care(5). Keeping this in mind, the present study was undertaken to assess the nutritional status and identify the common health problems of the rural school children of Ratnagiri District.

This descriptive study was carried out (during the period of June 2008 to October 2008) at two primary and secondary schools in Ratnagiri District. All 5-12 years old students enrolled at these schools were invited to participate in this study. Information on the ethnicity and age of all subjects was obtained from questionnaires and was verified from school records. The completion of questionnaires and measurement of subjects were done during school working hours. Permission for the study was obtained from the school authorities prior to commencement of the study. Ethical permission was also obtained from School authorities. The sample size of the study was 201 (96 boys and 105 girls). The age range of the subjects was 5-12 years. The samples were classified into eight age groups by keeping one-year intervals. Anthropometric Measurements like Height and weight measurements were taken by one observer, following the standard techniques. The body mass index (BMI) was computed by following the standard formula:

BMI (kg/m 2) = Weight (kg) / Height 2 (m 2).

Teeth showing discoloration, chalky or softened appearance of enamel or appearance of the broken surface of teeth by visual examination or on probing were designated as carious.

Evaluation Of Nutritional Status
Three commonly used undernutrition indicators, i.e., underweight, stunting and thinness were used to evaluate the nutritional status of the subjects. The age and sex specific 2 z-scores of the United States National Centre for Health Statistics (NCHS) (6),were followed to define underweight, stunting and thinness. The following scheme was utilized:
Underweight: < - 2 WAZ (Z-score for weight-for age)
Stunting : < - 2 HAZ (Z-score for height-for age)
Thinness : < - 2 BMIZ (Z-score for BMI-for-age)

Where WAZ, HAZ and BMIZ refers to Z score for Weight for age, Z score for height for age and Z score for BMI for age respectively. As per NCHS it considered to be age and sex specific z scores respectively, of NCHS (7).

The WHO (8) classification (Table/Fig 1) was followed for assessing the severity of malnutrition by the percentage prevalence ranges of these three indicators among children.

Material and Methods

Statistical Analyses
The distributions of height and weight were not significantly skewed, therefore not necessitating their normalization. Technical errors of measurements (TEM) were found to be within reference values and were thus not incorporated in the statistical analyses. Between the sexes, differences in the means of height and weight were tested by the student s t-test. P values < 0.05 were considered to be statistically significant.

Results

The total number of respondents were 201 (105 were boys and 96 were girls). The age-wise means and standard deviations of weight, height and BMI in both sexes are presented in (Table/Fig 2). There were no significant sex differences in mean height and BMI. There were significant (p < 0.05) sex differences in the mean weight at the age of 6 years (t = 5.77).

(Table/Fig 3) and (Table/Fig 4) reveal the prevalence of being underweight, stunting and thinness by age and sex. The overall age and sex combined prevalence of being underweight; stunting and thinness were found to be 19 %, 30.3 % and 16.8 %, respectively. Both sexes had similar rates of underweight (boys = 19.5%; girls = 18%), stunting (boys = 30.4%; girls = 30.1%), and thinness (boys = 16.9%; girls = 16.6%). Based on the WHO classification of severity of malnutrition among children, the overall age and sex combined rates of underweight, stunting and thinness were medium (10-19%), high (30-39) and very high (15%), respectively. Overall systemic examination revealed that 146 (72.6%) children were found to be suffering from dental caries, followed by 18(9%) with respiratory problems, 13(6.5%) from parasitic infestation, 9(4.5%) with skin infections and 12(6%) of the children had problems with their vision.

Discussion

Improved child health and survival are considered as universal humanitarian goals. In this respect, understanding the nutritional status of children has far-reaching implications for the better development of future generations (9) . However, reports have stated that child malnutrition has risen in recent years in India (10). Malnutrition continues to be a problem of considerable magnitude in most developing countries of the world (3). Several studies (11), (12) have shown that dietary and environmental constraints are the major determinants of differences in the growth performance between children of developing and developed countries.

In the present study, it was seen that the prevalence of dental caries was very high. The prevalence of dental caries in the present study was found to be much higher as compared to other studies conducted in India (13), (14), (15). These findings were dissimilar to the present study.Rao A et al found that the prevalence of caries was 76.9% (16). These findings are similar to the present study where about 72.6% of the children of the age group of 5   12 years had dental caries.

While stunting reflects a failure to reach the linear growth potential due to suboptimal health and/or nutritional conditions, underweight reveals a low body mass relative to chronological age, which is influenced by both, a child's height and weight. Underweight thus cannot distinguish between a child that is small in weight relative to his/her height and a child that is low in height relative to his/her age, but who may be normal in weight-for-height. On the other hand, thinness is an indicator of acute undernutrition and the result of more recent food deprivation (9). Dental caries is a multifactorial disease and the complex interaction of several aetiological factors result in the occurrence of caries.

In conclusion, this study provided evidence that these children were under acute and chronic nutritional stress .Hence, the screening for common health problems and the assessment of nutritional status should be an essential part of school health services. Early detection and appropriate treatment of malnourished children must be done prior to school entry, to avoid complications like stunting and wasting. Children found to have a health problem, mostly dental caries, should be appropriately dealt or referred. School nutrition programmes should also be included to improve the health and nutritional status of school children.

References

1. . Health problems of school Child, Text book of preventive and Social Medicine by K.Park 18 th edition, (pg 425).

2. . Nandy S, Irving M, Gordon D, Subramanian SV, Smith GD. Poverty, child undernutrition and morbidity: new evidence from India. Bull World Organ 2005; 83 (3): 210-16.

3. . Som S, Pal M, Bhattacharya B, Bharati S, Bharati P. Socieconomic differentials in nutritional status of children in the states of West Bengal and Assam. J Biosoc Sci 2006; 38 (5): 625-42.

4. . Rajaram S, Zottarelli LK, Sunil TS. Individual, household, programme and community effects on childhood malnutrition in rural India. Matern Child Nutr 2007; 3 (2): 129-40.

5. . West Indian med. j. vol.56 no.1 Mona Jan. 2007 DENTAL FORUM.

6. . World Health Organization. Measuring Change in Nutritional Status. Geneva: World Health Organization, 1983.

7. . National Center for Health Statistics. NCHS growth curves for children birth-l8 years: United States. Hyattsville, MD: US Department of Health, Education and Welfare, 1977. [Vital and health statistics series II, DHEW publication (PHS) 78-1650.]

8. . World Health Organization. Physical Status: the Use and Interpretation of Anthropometry: Technical Report Series no. 854. Geneva: World Health Organization, 1995.

9. . Rajaram S , Sunil TS,Zottarelli LK.An analysis of Childhood Malnutrition in Kerala and Goa.J Biosoc Sci 2003;35(3) 335-51.

10. . Chaterjee P. Child malnutrition rises in India despite economic boom. Lancet 2007; 369: 1417-18.

11. . Graitcer PL, Gentry EM. Measuring children: one reference for all. Lancet 1981; 2:297-9.

12. . Dugdale AE, Muller M, Alsop-Shields L. Patterns of weight growth in Aboriginal children on Queensland communities. J Pediatr Child Health 1994; 30:55-8.

13. . Rao SP, Bharambe MS. Dental caries in periodontal disease among urban; Rural and Tribal School Children". Indian Pediatrics 1993; 30: 759   64.

14. . Bhowate RR, Borle SR, Chinchkhede HD, Gondhalekar RV. "Dental health amongst 11   15 year-old children in Sevagram Maharashtra. Indian Journal Dental Research 1994; 5: 65   8.

15. . Rao SS BP "Oral Health status and treatment needs of a rural community JPFA 1996; 10: 7   20.

16. . Rao A, Sequeira SP, Peters S. Prevalence of dental caries among school children of Moodbidri. J Ind Soc Pedod Prev Dent 1999; 17: 45   8.

Tables and Figures

[Table / Fig - 1] [Table / Fig - 2] [Table / Fig - 3] [Table / Fig - 4]

Print this Article   Send to a Friend