

Assessment of Nutritional Deficiencies in School going Children in the Age group of 6 to 12 years

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Abstract

Objective:

Nutritional status is one of the most essential indexes in measuring the quality of life. The aim of this study is to assess the nutritional status among the school going children aged from 6 to 12.

Introduction:

Malnutrition leads to physical and psychological instability among children. Lack of nutrients during childhood leads to adverse health consequences in the adolescent growth spurt.

Materials and Methods:

A cross sectional study was conducted among the Government school students aged from 6 to 12 in Dharmapuri district. A semi structured questionnaire containing the variable such as demographic data, anthropometric measures and clinical manifestations was completed through informed and written consent.

Results:

The nutritional status of observed children was 103 are normal, 88 underweight, 8 over weight and 1 obese. Among 200 students 123 of them had eye pallor, 67 of them had hair changes, and 66 of them had worm infestation. Fatigue, Angular cheilitis, Muscle cramps were 85, 49, 79 respectively. Tooth changes such as teeth mottled enamel, dental carries, bleeding gums were 89, 134, 79 ($p < 0.02$) respectively.

Conclusion:

Healthy mind and body is the most important thing in the life. A healthy food habit is one among the reason for that. This study exhibited that nutritional deficiencies are more among the children in school going age in rural area. This in long time will affect their overall health. This is the correct time to ensure their health. Nutritional diet, proper oral hygiene has to be promoted among them.

Keywords: Nutrition, School children, Government school, Anthropometric measures.

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Introduction:

Former president of US, John F. Kennedy stated that, "Children are the world's most valuable resource and they are the best hope for the future" [1]. By UNICEF data Asia and Africa contribute about 90% of developing worlds under nourished children. India contributes world's 40% of malnourished children [2]. Socioeconomic status of the family is one of the pivotal factor in considering health and nutritional status [3]. Besides poverty, lack of awareness about nutrition and balanced diet constitutes a major factor in nutritional related consequences among developing country like India [4].

Malnutrition is one of the notable factors in several morbidities, impaired quality of life, hospital admissions and the lack of physical, cognitive function. According to US recent database of Pediatric inpatient hospitalization there is prevalence in receiving a coded diagnosis of malnutrition [5]. A country's economic

Materials and Methods:

The study entitled Assessment of nutritional deficiencies among school going children aged from 6 to 12 was planned as an observational study. This study was done in a higher elementary school located at Sungarahalli village Dharmapuri district with proper intimation and prior permission. A cross sectional study among 200 children in both gender was conducted through a pretested questionnaire. study participants.

Assent was also got from the students with the help of parents and teachers. Then a pre-tested questionnaire containing socio demographic detail, anthropometric measurements, BMI and nutritional deficiencies related questions was given to the students. Socio demographic detail was filled utilizing the help of teachers and parents.

Socio economic status was derived using

productivity depends upon the childhood malnutrition [6].

Assessing the child nutritional status is very important regarding their future health [7]. A focused attention should be given in the field of children nutritional deficiencies which are a multi-factorial public health problem [8]. Rather than providing cure, health education should be emphasized among the community to prevent nutritional related health problems [9].

Poor health among the school going children due to nutritional deficiencies had resulted in high absenteeism and early dropouts. [10] To meet the demand for proper growth and development, good and balanced nutrition is very important [11]. Hence this study is aimed to address the nutritional deficiencies among the school going children aged from 6 to 12 years in both gender.

Children with chronic diseases are excluded from the study to avoid false response. After the approval of IEC the study was started. Before conducting the study, detailed information about the study was clearly explained to the class teacher and parents. Written informed consent was given by the class teacher after their satisfaction about the study purpose and involvement of the students as

the modified Kuppusamy scale. Height was measured using a measuring tape. Measurement was taken using a proper method such as bare foot and back of their heel, gluteal, head touching the wall. Weight was measured using a weighing machine with zero as a starting point. BMI was calculated using the formula $\text{height} / \text{weight m}^2$.

Nutritional related questions such as dental carries, hair changes, skin changes, oral ulcer,

angular cheilitis, koilonychia, bleeding gum, were examined during the study. Questions such as Pica habit, worm infestation, fatigue, muscle

Results

Pre tested questionnaire containing socio demographic details, anthropometric measurements, BMI and nutritional deficiency related question was given to the students. Then it was filled with the help of parents and teachers. The observed results are explained below.

Among 200 children 95 (47.50 %) of them were boys and 105 (52.50 %) of them were girls. In that 42 students were in the age of 12 and 38 students were in both 10 and 11 age group. 21 students were in the age group of 6, 7 and 9. 19 students were in the age group of 8.

Among 200 students, 12 of them were studying in first standard. In that 7 (58.33%) were boys and 5 (41.67%) were girls. 21 students were studying in second standard ,of that 10 (47.62 %) were boys and 11 (52.38 %) were girls. 18 students were studying in third standard, in that boys and girls were in equal number. 24 students were studying in fourth standard and boys were in 10 (41.67%) ,girls were in 14 (58.33%) .

26 students were studying in fifth standard, in that 10 (38.46%) were boys and 16 (61.54%) were girls. 25 students were studying in sixth standard among that 14 (56%) were boys and 11 (44%) were girls. 38 students were studying in seventh standard and boys were in 16 (42.11%) , girls were in 22 (57.89%) . 36 students were studying in eighth standard, of that 19 (52.78%) were boys and 17 (47.22%) girls.

Among 200 students 70 of them were having the habit of pica. In that 37 (52.86 %) were boys and 33(47.14 %) were girls. 123 were having pallor of eye in that 57 were boys and 66

cramps are filled using the help of parents and children.

By using the Modified Kuppuswamy Scale, economical statuses of the students were analyzed and 181 students were in class four and 19 students were in class three. Among 95 boys, 10 (52.63 %) were in class three (lower middle) and 85 (46.96%) were in class four (upper lower). In girls 9(47.37 %) were in class three (lower middle) and 96 (53.04%) were in class four(upper lower). Students included in the study were taking mixed diet.

BMI of the students was calculated using their weight and height. In that 103 were normal and 88 were underweight. 8 are in overweight and 1 in obese state. The nutritional status of boys by their BMI is 47 were in normal, 43 were in underweight and 5 are in overweight.

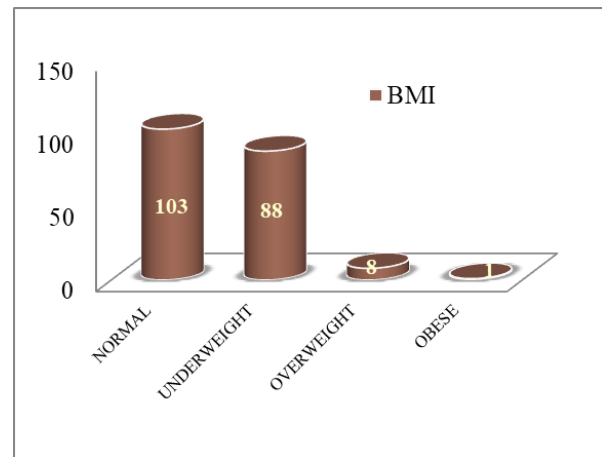


Figure 1 – Distribution for BMI of study subjects

were girls.

42 were having pallor of nail bed in that boys were 20 and girls were 22. In that 67 (33.5%) were having hair changes such as sparse

hair, brittle hair, greying of hair.

Skeletal changes showed negative findings among the subjects. Among that 35 were boys and 32 were girls. 66 of them were having worm infestation, in that 32 were boys and 34 were girls.

Yellowing of skin was examined among

the boys and girls, one of the boys had a positive finding.

27 of them were having conjunctival xerosis. In that 16 were boys and 11 were girls. 89 of them were having teeth mottled enamel. In that 39 were boys and 50 were girls.

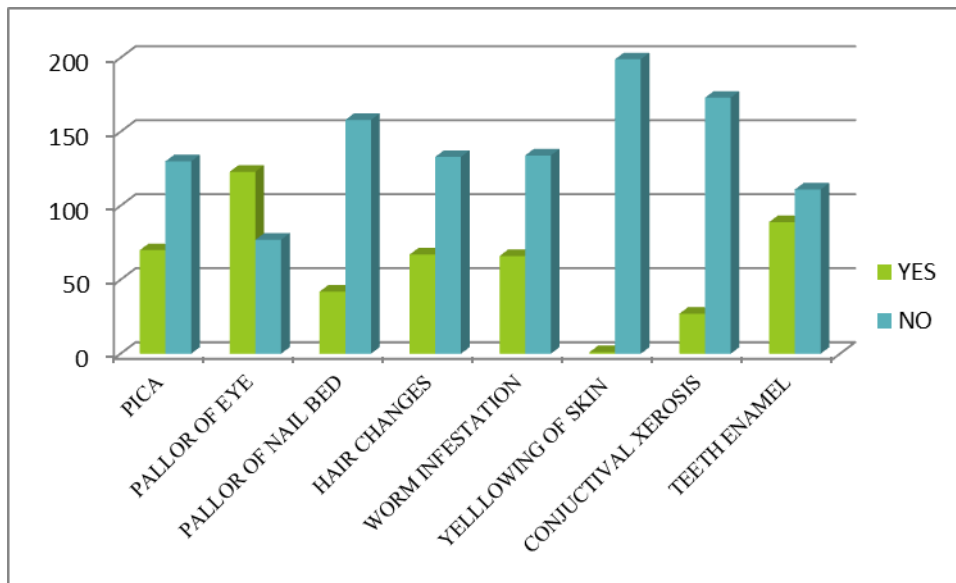


Figure 2. Distribution of symptoms of nutritional deficiencies such as pica, pallor of eye, pallor of nail bed, hair changes, worm infestation, yellowing of skin, conjunctival xerosis and teeth mottled enamel.

Dental carries was noted in 134 students. Among that 65 were boys and 69 were girls. Skin changes such as Phrynoderma, xeroderma and dermatitis were examined among the children. In that 66 were having the skin changes in that 28 were boys and 38 were girls.

79 (p>0.2) were having the bleeding gums issue. 30 of them were boys and 49 were girls. Among 200 students, 79 of them have experienced muscle cramps. In that 36 were boys and 43 were girls.

Among 200 students, 79 of them have experienced muscle cramps. In that 36 were boys and 43 were girls. Characteristics such as bitot's spot, koilonychias and scarlet tongue showed negative findings among the subjects.

75 of them were having oral ulcers. In that 32 were boys and 43 were girls. 85 of them have experienced fatigue during their day to day life. In that 32 were boys and 53 were girls. 49 were having angular cheilitis. In that 25 were boys and 24 were girls.

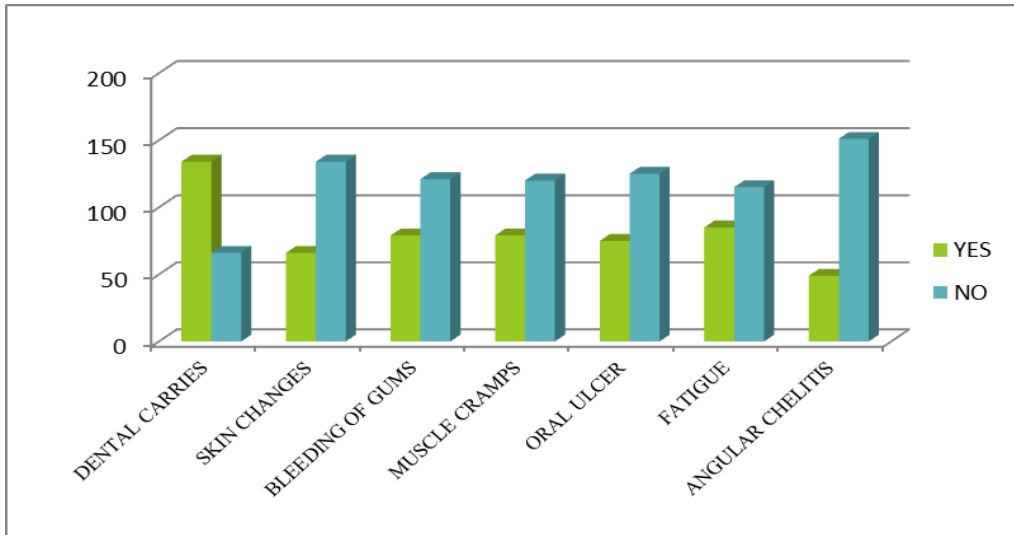


Figure 3. Distribution of symptoms of nutritional deficiencies such as dental carries, skin changes, bleeding gums, muscle cramps, oral ulcers, fatigue and angular cheilitis.

Discussion and Conclusion:

In this study, a total number of 200 students from a higher elementary school were included. Among them 47.50 percent were boys and 52.50 percent were girls. Demographic details, socioeconomic status, dietary habits, nutritional related questions were asked among the children. 6 to 12 years of children were included in the study.

Economic status of the family is one of the main factors in providing the nutritional food to their children. 181 of them were in the class 4 (upper lower class) and 19 of them were in the class 3 (lower middle class). Malnutrition is one of the key factors which affect their overall mental and general health of the children.

Nutritional status of the children was analyzed using the Body Mass Index. 103 was in normal BMI, 88 were underweight, 8 were overweight and 1 was obese.

Sandeep G. Yankanchi, et al, conducted the study entitled as Assessment of nutritional status of primary school children in urban field practice area, Vijayapura and in that study 57% of primary school children were having less

weight and / or height in correspondence to their sex and age^[12].

Anemia is one of the most important nutritional deficiencies among school going children which will cause irreparable damage to their growth and development. Pallor of eye and pallor of nail bed was noted among 123 and 42 subjects respectively. 70 percent of the students were having the habit of Pica. 66 children were having the issue of worm infestation. Fatigue was experienced by 85 children.

Vitamins are the essential micronutrient which is essential for the proper functioning of the metabolism. Hair changes such as sparse hair, grey hair, brittle hair was noted in 67 children. Oral ulcer, angular cheilitis, bleeding gums and conjunctival xerosis were asked and examined and noted in 79, 49, respectively. Skin changes such as phrynoderma, xeroderma, and dermatitis were noted in 66 children. Yellowing of skin was noted in one male child. 79 of them were having the issue of muscle cramp. Teeth mottled enamel and dental carries was noted in 89 and 134 children respectively.

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conducted the study named as nutritional status of rural school going children (6_12 years) of Mandya District, Karnataka in that study 484 children were examined. 30.3% (147) was in underweight and 27.9% (135) was stunting. Pallor, Hair changes, conjunctival xerosis, bitot's spots, dental caries, skeletal changes and flat nails was noted in 123 (25.4%), 19 (3.9%), 100 (20.7%), 10 (2.1%) 137 (28.3%) 7 (1.4%) and 57 (11.8%) respectively^[9].

Healthy mind and body is more important thing in the life. A healthy food habit is one among the reason for that. This study exhibited that nutritional deficiencies are more among the children in school going age in rural area. This in

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long time will affect their overall health. This is the correct time to ensure their health. Nutritional diet, proper oral hygiene has to be promoted among them.

The present study was conducted in a single school with smaller sample size in a rural area. In future the study should be in different population containing many schools among large sample size. Though some measures of identifying nutritional deficiencies were used in the study, direct method such as biochemical and laboratory findings are not used in this study. Hence in further studies this has to be added for increasing the intense of the results.

Assistant headmistress and teachers of the school. We also sincerely acknowledge the students and parents who are all participated in the study. We acknowledge the statistician for his timely help in analyzing the data.

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