

Prevalence of Vitamin A deficiency among school going children of Jasra block of Allahabad, India

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Abstract: The present study was conducted to find out the prevalence of vitamin A deficiency (VAD) among school going children of district Allahabad in year 2015 to assess the nutritional status of selected school going children (aged 6-12 years). The six months study was based on school going children in four selected village in Jasra block of Allahabad district. A structured Performa was used to collect the information. Out of the 105 children examined, 2 (1.90%) had clinical signs of night blindness. The overall prevalence of VAD was found to be 10.47%. Most of them exhibited dull and lusterless appearance of conjunctiva, non-had bitot's spot, any corneal xerosis, corneal scare and keratomalacia. The prevalence of VAD was higher in girls rather than in boys. To overcome this problem of VAD persisting in community, nutrition education regarding regular intake of plant food rich in carotene such as green leafy vegetables, yellow fruits, carrots and animal foods containing retinol like fish liver oil, fortified food like vana-spati, margarine should be strengthened.

Keywords: Night Blindness, Nutritional Status, Nutrition Education, Plant Foods, Vitamin A deficiency

INTRODUCTION

Vitamin A deficiency is a public health concern in more than half of all countries, and most of the countries affected are in Africa or south-eastern Asia. This deficiency, which is the main cause of blindness in undernourished children, contributes to morbidity and mortality from severe infections, including those common in childhood, such as diarrheal diseases and measles. International awareness of the role of vitamin A in improving and maintaining health has led to decades of supplementation being provided to preschool children WHO (2010). Vitamin-A deficiency is perhaps the leading cause of non-accidental blindness in children worldwide. It has been estimated that as many as one-half million school- aged children become blind each year due to vitamin-A deficiency. Common signs of deficiency include night blindness and xerophthalmia. Bitot's spots on the eyes of young children are used as a diagnostic indicator. Bitot's spots appear as foamy, whitish accumulation appearing in the conjunctiva of the eye Joshi (2010). Vitamin A deficiency is primarily due to inadequate intake of its precursors like carotenes. Prevalence rates of sub clinical vitamin A deficiency from national surveys in developing countries ranges from 9 percent to 50 percent and between 0.3 percent and 4.6 percent of children present clinical signs of this deficiency. Vitamin A deficiency is the

most common cause of blindness in children in the developing world population. Correction of vitamin A deficiency in a population with high sub clinical deficiency rates can reduce child mortality by about 23 percent and recent information suggests that it can also reduce natural mortality by 40 percent Fernando and Horiaco (2008). Vitamin A deficiency (VAD) early in life include all active clinical stages of xerophthalmia including corneal xerophthalmia and its potentially blinding sequelae, impaired mechanism of host resistance, increased severity of infections, poor growth and mortality. Thus, the present study is a step to assess the prevalence of Vitamin A deficiency among school going children of Jasra block of Allahabad district.

MATERIALS AND METHODS

Study area and sample selection: The study was conducted among 105 school going children in Jasra block of Allahabad district. Samples were selected randomly from 4 villages were selected purposively.

Socio-demographic profile: A structured interview schedule was used to collect socio-demographic information like name, age, gender, socio-economic status of family etc.

Anthropometric assessment: Weight of children was taken with the help of weighing scale. Height was measured against a non-stretchable tape fixed to a ver-

Table 1. Gomez's classification according to weight for age.

Nutritional Status	Weight for Age (% of Expected)
Normal	>90
First Degree Protein Energy Malnutrition	75-90
Second Degree Protein Energy Malnutrition	60-75
Third Degree Protein Energy Malnutrition	<60

Table 2. Prevalence of VAD in various age groups of children.

Age (years)	No. of children examined	VAD(%)
6 years	6	-
7 years	13	5 (38.46%)
8 years	24	-
9 years	9	-
10 years	22	2 (22.22%)
11 years	13	2 (15.38%)
12 years	18	2 (11.11%)
Total	105	11 (10.47%)

Table 3. Prevalence of VAD according to the sex of children.

Sex	No. of children examined	VAD (%)
Boys	62	4 (6.45 %)
Girls	43	6 (13.95%)
Total	105	10 (9.52%)

tical wall, with the participant standing on a level surface. The children were dressed light and without shoes during measurements.

Clinical assessment: Respondents were examined for clinical signs and symptoms of vitamin A deficiency. Respondents were classified as normal and malnourished according to Gomez's classification, (Srilakshmi, 2012) as given in Table 1.

RESULTS AND DISCUSSION

It was found from Table 2 and Table 3 that 29.5 percent of children were under normal category. 42.85 percent of children had grade I malnutrition. VAD was diagnosed by the presence of clinical signs and symptoms of VAD. Of the 105 children examined, 2 (1.90%) had clinical signs of night blindness. The overall prevalence of VAD was found to be 10.47 percent. Most of them exhibited dull and lusterless appearance of conjunctiva and one had night blindness. None had bitot's spot, any corneal xerosis, corneal scare and keratomalacia. The prevalence of VAD was highest in 7-8 years of age group of children. None of the children of the age of 6, 8 and 9 years had any clinical symptoms of VAD. The prevalence of VAD was slightly higher among girls (6.66%) as compared to boys (3.80%). Among the malnourished children, 24.76 percent children had grade II malnutrition. And rest 3.80 percent of children had grade III malnutrition. It was observed that 25.58 percent of total numbers of girls come under normal category of malnutrition. 34.88 percent of total girls had grade I malnutrition. And 34.88 percent of total girls had grade II malnutrition.

More number of girls being malnourished and Vitamin A deficit makes a remark that till date, gender disparity exists in communities. Deficiency of calories and protein in the diet of children could be the cause of malnutrition. The overall prevalence of VAD was found to be 10.47 percent in present study, which is higher than that (2.9%) as reported in urban slums of Ahmadabad by Chauhan *et al.* (2011). Higher prevalence of vitamin A deficiency i.e. 11.10 percent was reported among school going children in Aligarh by Sachdeva *et al.* (2009). To overcome this prevalent malnutrition condition government and semi-government institutions should spread nutrition education to create awareness among community. Other measures like promotion of breast feeding, supply of safe drinking water, maintaining proper sanitation, prevention of diarrhea, measles and access to basic health services should be selected.

Conclusion

The study concluded that problem related to VAD in girls was 16.26 percent of total number of girls, in which 4.65 percent of girls had problem of dimness of light, 2.32 percent of total number of girls had difficulty in reading in dim light. 2.32 percent of girls had problem of dryness and thickness of conjunctiva, same percent of girls had problem of pigmentation of conjunctiva and 4.65 percent of girls had problem of dull and lusterless appearance of conjunctiva. As compared to girls less number of boys had problem of VAD. 8.05 percent of total number of boys had symptoms of VAD. 1.61 percent of boys had problem of chronic diarrhoea and same percent of boys had problem of difficulty in reading in dim light, dryness and thickness of conjunctiva, pigmentation of conjunctiva and dullness and lusterless appearance of conjunctiva.

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