Asian Journal of Clinical Pediatrics and Neonatology Original Article

# Prevalence of Vitamin A Deficiency in School Going Children

**E. Arjun[1], Cheeti Srinivas Kalyan Rao[2], T. Ananth[3]**

[1]Assistant Professor, Department of Paediatrics, Bhaskar Medical College, Yenkapally, Ranag Reddy, Telangana, India.
[2]Associate Professor, Department of Paediatrics, Bhaskar Medical College, Yenkapally, Ranag Reddy, Telangana, India.
[3]Professor, Department of Paediatrics, Bhaskar Medical College, Yenkapally, Ranag Reddy, Telangana, India.

## Abstract

**Background:** Vitamin A Deficiency is prevalent in India and has been stated to be the most preventable cause of blindness. **Aims and Objectives:** The aim of this study was to determine the prevalence of Vitamin A Deficiency in the school going children of our geographic sector. **Methods:** The present cross-sectional study involved 250 school going children aged 5-15 years. Necessary demographic data was collected and a through ocular examination was performed. The data was collected in MS Excel and presented as numbers and percentages in the form of tables and figures. **Results:** Boys accounted for 54.8% of the participants and the rest 45.2% were girls. 40.8% subjects belonged to the age group 5-10 Years whereas 58.2 % belonged to the age group of 11-15 Years. The prevalence of Vitamin A deficiency in our study population was 5.2% which accounted to 13 children out of total 250. The prevalence of Vitamin A deficiency in our study population was 5.2% which accounted to 13 children out of total 250. **Conclusion:** There was low to moderate prevalence of Vitamin A Deficiency in our study population. Screening, Prophylactic therapy, Management of ocular diseases, Nutritional assessment and Health education are required.

**Keywords:** Vitamin A Deficiency, Children, School Going Children, Prevalence.

## INTRODUCTION

Vitamin A deficiency is one of the leading causes of morbidity among children globally.[1] and is also the most preventable cause of blindness worldwide.[2] India has been studied to have moderate to high prevalence of Vitamin A Deficiency.[3]

Vitamin A is a fat soluble vitamin occurring naturally in many foods. It is required for normal vision, growth, immunity and reproduction. Vitamin A Deficiency has been linked with diarrhea and measles and can lead severe ocular morbidity.[4] Xerophthalmia is the clinical spectrum of ocular manifestations of Vitamin A Deficiency-VAD. Xerophthalmia classification ranges from Night Blindness to Xerophthalmic Fundus.[5] Vitamin A Deficiency is stated to be the most preventable cause of blindness worldwide.

We have undertaken this study to determine the prevalence of Vitamin A Deficiency in school going children in our geographical area.

## MATERIAL AND METHODS

**Study Design:** The present study was a cross-sectional study.

**Sample Size:** This study included 250 school going children aged between 5 to 15 years.

**Inclusion Criteria**:
School going children aged 5-15 years whose guardians consented were included in the study irrespective of gender and Vitamin A Immunization status.

**Address for correspondence***
**Dr. Cheeti Srinivas Kalyan Rao**
Assistant Professor, Department Of Padiatrics, Bhaskar Medical College, Yenkapally, Ranag Reddy, Telangana, India.

**Exclusion Criteria:**
Children whose guardians did not consent, those with ocular deformities and those with any other chronic systemic conditions were excluded from the study.

**Study Methodology:** Trained surveyors collected the necessary demographic data and investigated for ocular features of Vitamin A Deficiency under the supervision of an Ophthalmologist and a Pediatrician.

**Statistical Analysis:** The data was collected in MS Excel and presented as numbers and percentages in the form of tables and figures.

**Ethical Clearance:** Ethical clearance was obtained from the Institutional Ethics committee prior to the commencement of the study.

## RESULTS

**Table 1: Gender**

| Gender | No. of Subjects |
|---|---|
| Boy | 137(54.8%) |
| Girl | 113(45.2%) |
| Total | 250(100%) |

As depicted in the above table, Boys accounted for 54.8% of the participants and the rest 45.2% were girls.

**Table 2: Age**

| Age Group | No. of Subjects |
|---|---|
| 5-10 Years | 102(40.8%) |
| 11-15 Years | 148(59.2%) |
| Total | 250(100%) |

[Table No. 2] depicts the age distribution of the subjects. 40.8% subjects belonged to the age group 5-10 Years whereas 58.2 % belonged to the age group of 11-15 Years.

**Table 3: Prevalence of Vitamin A Deficiency**

| Vitamin A Status | No. of Subjects |
|---|---|
| Vitamin A Deficiency(VAD) | 13(5.2%) |
| No VAD | 237(94.8%) |
| Total | 250(100%) |

The prevalence of Vitamin A deficiency in our study population was 5.2% which accounted to 13 children out of total 250.

**Table 4: Ocular Findings**

| Ocular Finding | No. of Subjects |
|---|---|
| Night Blindness(XN) | 2(15.3%) |
| Conjunctival Xerosis(X1A) | 10(76.9%) |
| Bitot Spots(X1A) | 1(7.8%) |
| Corneal Xerosis(X2) | Nil |
| Corneal Ulcer(X3A) | Nil |
| Keratomalacia(X3B) | Nil |
| Corneal Scar(XS) | Nil |

Among the VAD group, 2 subjects had night blindness, 10 subjects had conjunctival xerosis and 1 subject had Bitot spots.

## DISCUSSION`

The present study was a cross-sectional study which aimed at studying the prevalence of Vitamin A Deficiency in school going children. The gender distribution revealed 54.8% to be boys and 45.2% girls. This was similar to gender distribution in the study by Kadu et al.[6] Age distribution of the study subjects revealed that most of the participants belonged to the age group of 11-15 Years. Similar results were obtained by Kadu et al and Roy et al.[7] The prevalence of Vitamin A Deficiency in our study was 5.2% which was similar to that of Kadu et al. The prevalence of VAD in our study was lower than that of Sachdeva et al.[8] Out of the VAD group, 2 subjects had night blindness, 10 subjects had conjunctival xerosis and 1 subject had Bitot spots. Similar results were obtained by Ranjeeta et al.[9] Further research is required in our demographic region to study the determining factors and risk factors of Vitamin A Deficiency.

## CONCLUSION

There was low to moderate prevalence of Vitamin A Deficiency in our study population. Screening, Prophylactic therapy, Management of ocular diseases, Nutritional assessment and Health education are required.

## REFERENCES


1. WHOandUNICEF.1996. Global prevalence of vitamin A deficiency. World Health Organization MicronutrientDeficiencyInformationSystemMDIS.WorkingPaperNo2.WHO/NUT/95.3, Geneva.
2. WestKPJr.2002.ExtentofvitaminAdeficiencyamongpreschoolchildrenandwomenofreproductiveage.JNutr.132: 2857S-2866S.
3. NNMBNationalNutritionMonitoringBureau.2002.TechnicalreportNo:21.NationalInstituteofNutrition, Hyderabad.
4. Khurana AK, Sikka KL, Parmar IPS, Aggarwal SK. Ocular morbidity among school children in Rohtak city. Indian J Public Health. 1984;28:217-20.
5. Chauhan NT, Trivedi AV, Khan IM, Talsania NJ. Prevalence of clinical vitamin A deficiency among primary school children in urban slums of Ahmedabad: a cross sectional study. Journal of Clinical and Diagnostic research. 2011;5(8):1627- 30.
6. Kadu KP, Kadu SK, Ingle SY et.al. Prevalence of vitamin A deficiency in school going children in rural area. International Journal of Research and Review. 2021; 8(2): 1-4.
7. Roy R, GuptaA, ChaudhryM. Prevalence of vitamin A deficiency in school children aged 6-16 years in Taoru Tehsil of South Haryana.IntJ Sci Rep2016;2(10):253-7.
8. Sachdeva S, Alam S, Beig FK, Khan Z, Khalique N. Determinants of Vitamin A Deficiency amongst Children in Aligarh District, Uttar Pradesh. Indian Pediatrics. 2011;48:861-6.
9. Ranjeeta Chatterjee. Prevalence of vitamin A deficiency in primary school children of Taluka Maval, district Pune of India. The International Journal of Current Research and Academic Review. Volume 2 Number 1 (January, 2014) pp. 25-29.