



**ORIGINAL RESEARCH PAPER**

**Ophthalmology**

**CRITICAL ANALYSIS OF VITAMIN A DEFICIENCY (VAD) INFORMATION IN SCIENCE TEXTBOOKS OF NCERT AND STATE BOARD EDUCATION OF SOUTHERN INDIA**

**KEY WORDS:** VAD, NCERT textbooks

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**INTRODUCTION**

Vitamin A deficiency (VAD) is one of the most important causes of childhood blindness in developing countries. It also adds on to the morbidity from common childhood infections. VAD borne out of two main reasons: persistent inadequate intake of vitamin A that is frequently exacerbated by others dietary circumstances, and a high frequency of infections.<sup>[1]</sup>

Worldwide, around 2.8 million preschool-age children are at risk of blindness from VAD, and many more have serious risk to vision. Roughly 250, 000 to 500, 000 children become blind owing to vitamin A-deficiency every year. In India prevalence of VAD is 0.7%. It is considered under clinical category for public health importance by World Health Organization (WHO).<sup>[2]</sup>

VAD is found to be the single most common cause of severe visual impairment and blindness in children in India. Although regional variations are found.<sup>[3]</sup>

Because of the high number of childhood blindness, it is one of the priority areas of the World Health Organization s (WHO) "Vision 2020: the right to sight" program. This is a global initiative, which was launched by WHO in 1999 to eliminate avoidable blindness worldwide by the year 2020. Under which multiple awareness and Vitamin A supplementation programmes are taken up.<sup>[4]</sup>

Inspite of a storm of awareness campaigns, vitamin A deficiency is still a major cause of preventable childhood blindness in India. Where are we lacking?

VAD is an issue everyone should be aware about. The primary objective of the present study is to determine whether

children of our country are fed with enough knowledge about vitamin A deficiency and its consequences during their major formative years by means of their text books.

**METHODOLOGY**

This study was carried out by collecting Science National Council of Educational Research and Training (NCERT) textbooks from sixth standard to tenth. Also, the science textbooks of state board of education of South- Indian states, namely, Karnataka, Kerala, Andhra Pradesh, Telangana and Tamil Nadu were collected from sixth standard to tenth standard.

These books were minutely studied for information about importance of Vitamin A for vision and health. They were critically analyzed on the basis if they have mentioned all the sources of Vitamin A in food and whether the sources of Vitamin A were depicted by means of colorful pictures to put strong impact on minds of children. They were evaluated on how well Vitamin A deficiency is described in science books. The standard in which they were described was also studied. How much emphasis is given on Vitamin A deficiency as a potential cause of preventable blindness in our country was analyzed. NCERT textbooks were compared with the state board books with respect to all the above mentioned information.

**RESULTS**

Around thirty science textbooks were studied for information given on VAD. All the books have mentioned about Vitamin A and its deficiency. The standard in which it is mentioned varies which is described in table 1. They also differ on the basis of content which is described in table 2.

**Table 1**

Textbooks	NCERT	State Board				
		Karnataka	Kerala	Telangana	Andhra Pradesh	Tamil Nadu
Standard of school in which Vitamin A deficiency is described	6 <sup>th</sup> standard	8 <sup>th</sup> standard	6 <sup>th</sup> and 10 <sup>th</sup> standard	10 <sup>th</sup> standard	9 <sup>th</sup> standard	9 <sup>th</sup> standard

**Table 2**

Information regarding Vitamin A	Extent of description in following textbooks					
	NCERT	State Board				
		Karnataka	Kerala	Telangana	Andhra Pradesh	Tamil Nadu
Source	Completely	Completely	Completely	Completely	Completely	Completely
Action of Vitamin A	Partially	Completely	Completely	Partially	Completely	Partially
Vitamin A deficiency						
Night blindness	Completely	Completely	Completely	Completely	Completely	Completely
Dryness of eye	Nil	Completely	Completely	Completely	Partially	Completely
Complete blindness	Completely	Nil	Completely	Nil	Nil	Nil
Preventable blindness	Nil	Nil	Nil	Nil	Nil	Nil

**DISCUSSION**

All the science text books from NCERT as well as South Indian state board have mentioned about VAD. They have introduced the same at different levels of secondary education. They differ in content wise as well.

described it in sixth standard. Source of Vitamin A is well described by means of attractive pictorial representation. Adequate importance is given to Vitamin A deficiency symptoms namely, night blindness and also that it can even lead to complete blindness if neglected. But they fail to mention about the dryness of eye which is an important aspect of spectrum VAD.

NCERT books, one of the most widely followed textbooks has

The source of Vitamin A is well described by all textbooks from state board of South Indian states. But only NCERT describes them with pictorial representation. It is easier to remember if colorful pictures are provided with the text.

Vitamin A action in the body is described well by books from Karnataka, Kerala and Andhra Pradesh.

Night blindness as a symptom of VAD is described by all the books. But dryness of eye as a symptom is not mentioned by NCERT and Andhra Pradesh book. Dryness of eye is the main pathology which ultimately leads to blindness of eye. Hence it is worth mentioning.

Only NCERT and Kerala text book mentioned about the severity of blindness as much as it can cause complete blindness. Science textbook from Kerala has mentioned Vitamin deficiency twice, in sixth and in tenth standard. It helps in reinforcing the information. Also the description is well described with pictures of eye.

None of the books mention it as a cause for preventable blindness which is an important aspect to be informed to children so that they can understand the severity of the disease.

There is a need to educate the school going children about the importance of prevention of Vitamin A deficiency and how it can be easily prevented by merely eating the right food. Also, the information needs to be introduced at multiple levels so that there is adequate reinforcement.

### CONCLUSION

VAD is still a leading cause of corneal preventable blindness in India. <sup>[3]</sup> There is a need to understand the causes contributing to it in spite of many awareness and supplementation programmes targeted for the same. This study identifies inadequate information given to school children by means of NCERT and state board science textbooks of South India about the severity of VAD although they have mentioned about symptoms. There is a need to study books from all over the country and compare them with the data of state wise distribution to blindness due to VAD. Further surveillance of the causes of blindness in children entering schools for the blind may be a useful and simple indicator with which to monitor the impact of public health measures to combat VAD.

### REFERENCES

1. Barclay AJ, Foster A, Sommer A. Vitamin A supplements and mortality related to measles: A randomised clinical trial. *Br Med J (Clin Res Ed)* 1987;294 :294-6.
2. Unit N, World Health Organization, UNICEF. Global prevalence of vitamin A deficiency. Geneva: World Health Organization; 1995.
3. Rahi JS, Sripathi S, Gilbert CE, Foster A. Childhood blindness due to vitamin A deficiency in India: regional variations. *Archives of disease in childhood*. 1995 Apr 1;72(4):330-3.
4. World Health Organization. Global initiative for the elimination of avoidable blindness. Geneva: WHO; 1997