

## Comprehensive study of morbidity in school going children in rural areas of western Rajasthan

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### Abstract

**Introduction:** School age children (5-15 years) have not received as much attention from health providers/planners as the under fives. In India, several studies have been carried out on the health status of school age children. We have conducted to evaluate the extent and pattern of health status of school age children in village of Western Rajasthan by a mobile health team.

**Methods:** This cross sectional epidemiological study was carried out in Osian block of Jodhpur district of Western Rajasthan over a period of one year. Medical officer and paramedical staff documented demographic and anthropometric data, including height, weight mid upper arm circumference, chest circumference, waist-circumference and blood pressure. Para medical staff was trained specifically for taking anthropometry and blood pressure in children.

**Results:** Over a period of one year total 11651 children were screened. Dental carries was the most common problem followed by vision impairment and language delay (Table 1). Both males and females were equally affected ( $p > 0.05$ ). The overall intake of calories, iron, riboflavin, niacin and vitamin A was significantly less ( $p < 0.05$ ) than the recommended dietary allowance (RDA). Majority (52%) of the children were taking calorie and protein between 50–75% of requirement

**Conclusion:** Educating the community about common diseases in children and their impact on the health of school age children, their etiology and prevention will go a long way in improving the quality of life of these children. By early detection and referral facility, there is less chances of complication of disease and better outcome of disease.

**Keywords:** School age children, Dental caries, Anthropometry.

### Introduction

School age children (5-15 years) have not received as much attention from health providers/planners as the under fives. In an international workshop at Kentucky, USA in 1994, it was agreed that there was a dearth of information on the health status of school age children from developing countries particularly at the community level.<sup>1</sup> In India, several studies have been carried out on the health status of school age children. These have largely been quantitative and the reported morbidity included malnutrition (10.0-98.0%), dental ailments (4.0-70.0%), worm infestation (2.0-30.0%), skin diseases (5.0-10.0%), eye diseases (4.0-8.0%), and anaemia (4.0-15.0%).<sup>2-14</sup> However, data on the community's perception about these morbidities are inadequate. It is now being increasingly recognized that proper understanding of the community's view point of any health problem contributes significantly towards formulating and implementing strategies that improve their health. Delineation of pattern and frequency of diseases in school children will help in formulating policies at community level. With this background, this study was conducted to evaluate the extent and pattern of health status of school age children in village of Western Rajasthan by a mobile health team.

### Methodology

This cross sectional epidemiological study was carried out in Osian block of Jodhpur district of Western Rajasthan over a period of one year. The block includes 28 villages with a total population of 80,000.

Most of the villagers are either landless agricultural labourers or weavers and were socioeconomically backward with an average per-capita income of Rs. 2,201 ± 36 (US \$50 ± 0.7) per annum. The estimated number of children age 5 to 15 years attending the various schools are approximately 88000. We randomly selected 20 out of 28 villages and enrolled all the children studying in both government and private schools of these villages.

Consent to take part in the study was taken from the teachers and students. During the survey, a mobile team including a medical officer, and a paramedical staff, screened all the enrolled children. History, physical examination and systemic examinations were done by the medical officer and paramedical staff documented demographic and anthropometric data, including height, weight mid upper arm circumference, chest circumference, waist-circumference and blood pressure. Para medical staff was trained specifically for taking anthropometry and blood pressure for this study. Examination tools included Snellen eye chart, torch, measuring tape, hammer, stethoscope, sphygmomanometer, tongue depressor, otoscope and nasal speculum.

### Results

Over a period of one year total 11651 children were screened, out of which 5727 were males and 5924 were females. Two hundred and three children were referred to higher centre for further management. Dental carries was the most common problem followed

by vision impairment and language delay (Table 1). Both males and females were equally affected ( $p > 0.05$ ).

**Table 1: Distribution of the children according to calorie and protein Intake**

S.No.	Calorie and Protein (% requirement)	Number (%)
1	Less than 50 %	4427 (38%)
2	50-75%	6058 (52%)
3	More than 75%	1166 (10%)
4	Total	11651

As regards to cause of morbidity, many of them said that they did not know what caused these morbidity. Some felt that change of water, exposure to cold, intake of food that did not agree with the body, excessive heat in the body, fear, eye problems and poor hygiene caused some of the morbidity in school age children. For instance, many believed that bathing in tap-water one day and in surface water another day would cause respiratory infection.

The overall intake of calories, iron, riboflavin, niacin and vitamin A was significantly less ( $p < 0.05$ ) than the recommended dietary allowance (RDA) while that of protein and thiamine was not so. Table 2 shows the distribution of the children according to calorie and protein Intake in screened population.

Majority (52%) of the children were taking calorie and protein between 50 – 75% of requirement. The mean calories deficit in the study group was  $601 \pm 112$  kcal of their expected weight of age ( $p < 0.05$ ).

The mean heights and weights of children were compared with the National Centre for Health Statistics, in both girls and boys these were found to be less than the reference standards. The under nutrition is more prevalence than obesity. 27.7 % of study group were in between 2SD and 3SD of less than 5 year of age group and 19 % of age group more than 5 year were BMI less than 18.5. The mean height of the study group was 82 % of expected height of that age. Majority were normotensive. Table 2 shows the distribution of screened population according to weight for height.

**Table 2: Distribution of children according to weight for height**

S.No.	Weight for Height (%)	Number (%)
1	40-50	466(4%)
2	50-55	4428(38%)
3	55-60	2563(22%)
4	60-65	3262(28%)
5	65- less than 70	932(8%)

Majority of children 38% had weight for height between 50-55% followed by 28% between 60-65%. Whose refer to higher centre 85.2% cases was in

between 50-55% of weight for height. Table 3 shows the list of morbidity in school age children whose refer to higher centre.

**Table 3: Morbities in school children**

Morbidity	Number of children	Prevalence
Dental Caries	72	23.8%
Vision Impairment	26	8.6%
Language delay	13	6.4%
Hearing impairment	9	4.4%
Behavioural disorder	4	1.9%
Neuro-motor impairment	5	2.4%
Learnings disorder	3	1.4%
Skin condition	11	5.4%
Rheumatic heart disease	3	1.4%
Motor delay	2	0.98%
Otitis media	7	3.4%
Convulsive disorder	2	0.98%
Vitamin A deficiency	7	3.4%
Anaemia	10	4.9%
SAM/Stunting	7	3.4%
s Early rickets	3	1.4%
Others	19	9.3%
Total	203	

In India school health program through NRHM really works. The prevalence of disease is decreases. diarrhoea and respiratory infection are reduced 30% to 50%, the progression of dental caries is reduced by 40% to 50%, the prevalence of parasitic infestation reduced by 80%, skin manifestation is reduced by 25%, vitamin A deficiency reduced to 30% to 40%, the number of children with below normal height and weight reduced to 20% all the diseases were reduced in comparison with previous year.so we can say, that school health program through NRHM really works.

## Discussion

The success of child survival programmes and the expansion of basic education coverage resulted in a greater number of children reaching school age with a higher proportion actually attending primary school. However, there is increasing evidence, with resulting international concern, that the high level of nutritional deprivation combined with the heavy burden of disease in this age group has negative consequences for a child's long term development. This has prompted an increased focus on the diverse needs of the school-age child. The study of anaemia and other morbidity pattern may provide a clear and in depth idea about the problems in childhood age group. An attempt to paint a picture of nutritional status and morbidity status in school aged children in Delhi has been made in this study. Majority of children 38% had weight for height between 50-55% followed by 28% between 60-65%.

Prevalence of anaemia was found to be 4.9 % these need for referral (Table 3).

The prevalence of anaemia in the similar studies Ananthakrishnan S et al (7), Chakma T et al (8), Verma A et al (9), Handa R et al (10), and Bhoite R et al (11) Rema N et al (12) varies from 26% to 81.8% the prevalence of anaemia is higher in girls compared to boys in all of the studies; this finding was almost similar to the findings in present study. It was found that as the severity of anaemia increase the proportion of morbidity also increases. All children with severe anaemia had other co morbidities. This may be due to the fact that anaemic children become susceptible to secondary infections. (Table 3) The top six morbidities like dental carries 23.85%, vision impairment 8.6% language delay 6.4% hearing impairment 4.4%, skin conditions 5.4% and others 9.3% were need for refer to higher centre. The top morbidity found in girls was anaemia (83.9%), malnutrition (66.7%), diarrhoea (33.7%), injury (33.3%), worm infestation (29.1%) and refractive errors (28.8%). The pattern of morbidities as seen in boys and girls was almost equal except anaemia which more common in girl.

Shakya S R et al (13) in a cross-sectional study among primary school children in eastern Nepal observed that the most common morbidity was parasitic infestation 65.8% followed by malnutrition (61%), anaemia (58%), and other disorders were skin diseases (20%), dental caries (19.8%) and lymphadenopathy (10.5%). Dambhare D G et al (14) in a study among the school going adolescents in peri-urban area of Wardha, found 51.7% was underweight, 28.45% anaemic, with girls suffering significantly more, dental caries was found in 35.3%, 13.8% were suffering from refractive error, 7.7% with worm infestation, 6.9% had skin problems, 2.5% had tonsillitis and 2.5% had wax in the ear which was comparable to our study. In the present study the spectrum of morbidity is wider and includes all systems. Most of the morbidities are preventable and treatable but if neglected can lead to chronic diseases which in turn may lead to irreversible disabilities.

## Conclusion

It was observed that due to implementation of mid day meal program, provision of micronutrients, weekly provision of Iron Folate tablets, administration of Vitamin A in a needy, sanitary facility in school by NRHM, markedly decrease in prevalence of disease in rural area.

1. This study has shown that what the community perceives as morbidity among school age children is different from the morbidity observed in them on clinical examination. The community is also not aware of the etiology of many of these morbidities. Therefore, educating the community about these conditions and their impact on the health of school age children, their etiology and prevention will go

a long way in improving the quality of life of these children.

2. People are not aware of the etiology of many of these disorders It is important to educate the community about the important morbidity in school age children, their etiology and prevention.
3. By early detection and referral facility, there is less chances of complication of disease and better outcome of disease.

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